Semiconductor Product Catalog

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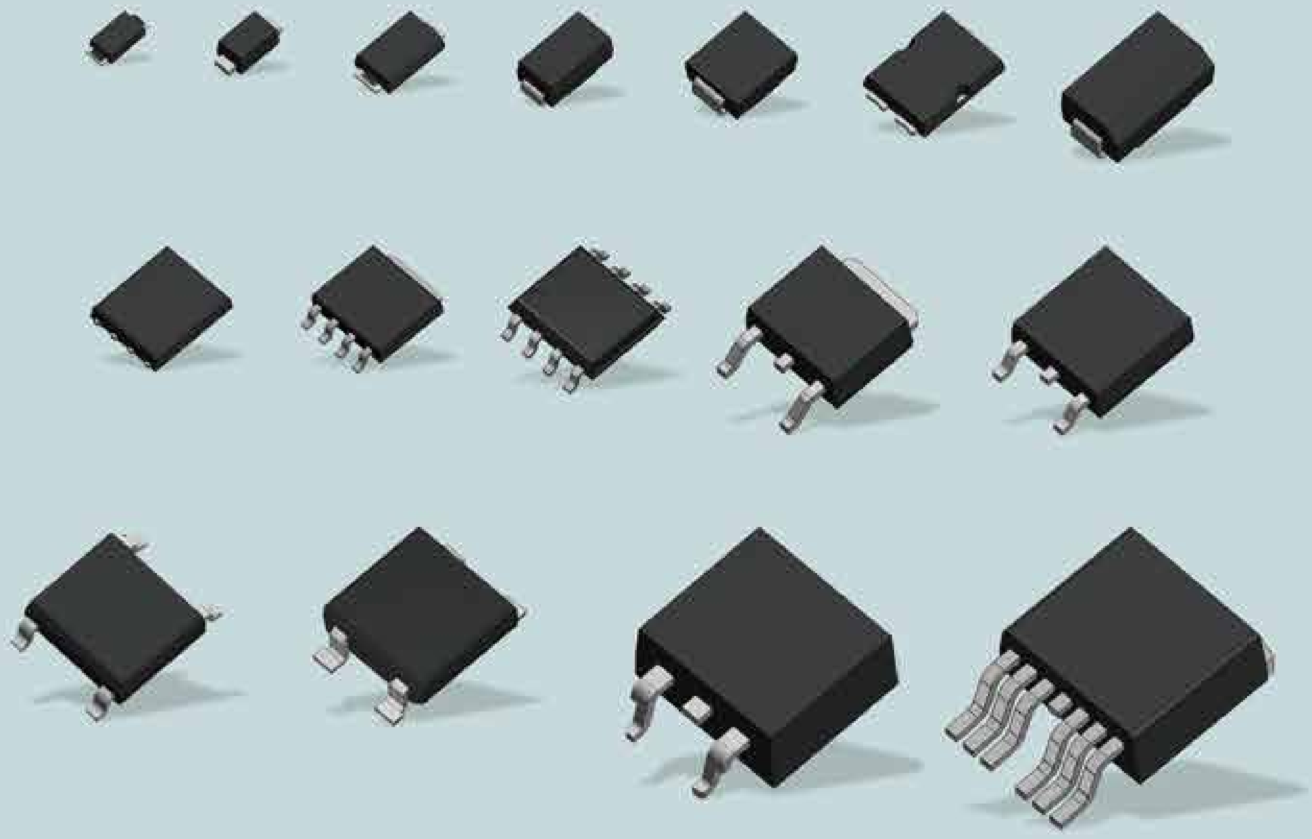

ShinDengen

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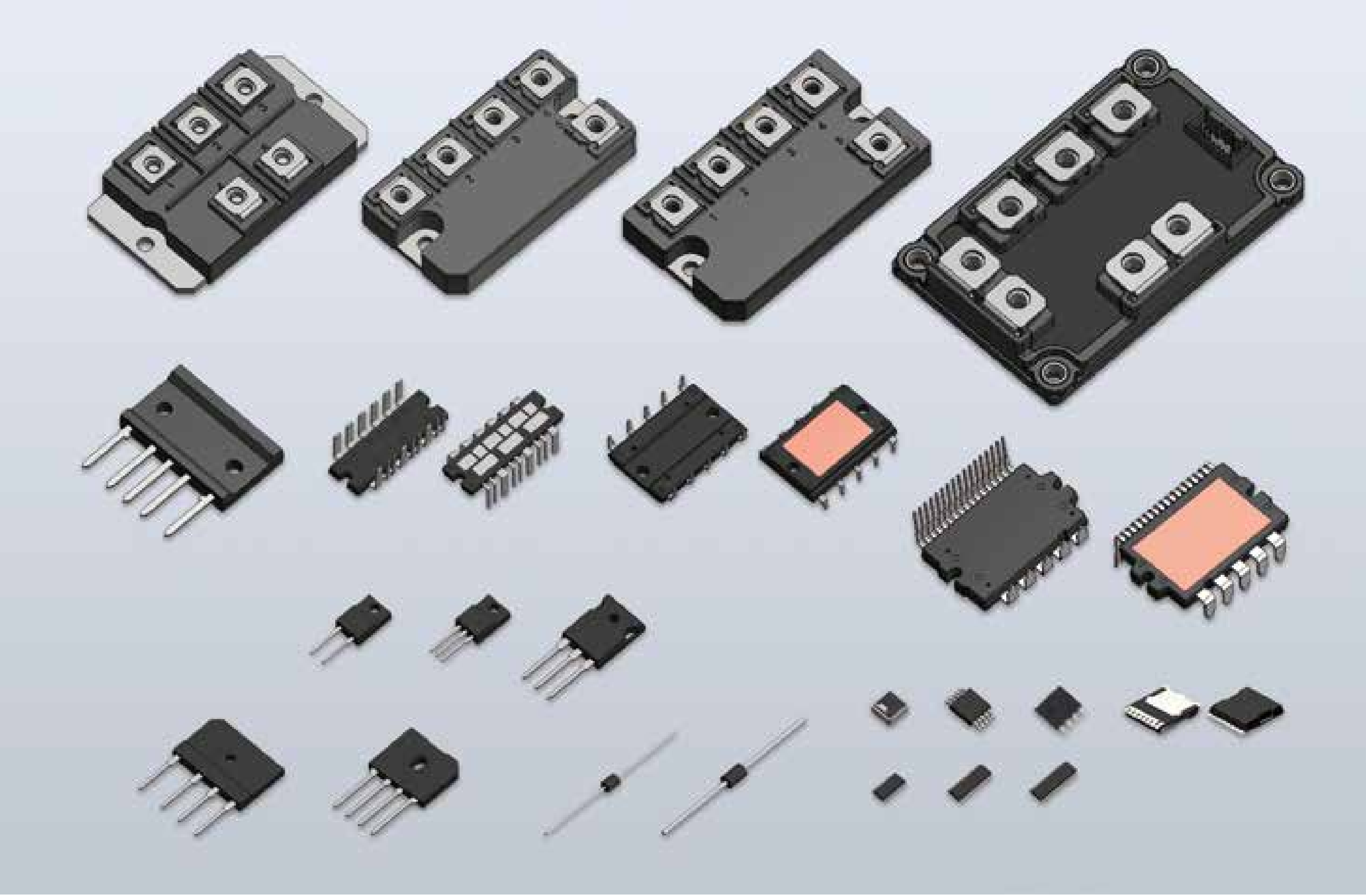

Notes

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- Special applications
  Transportation equipment (vehicles, ships, etc.), trunk-line communication equipment, traffic signal control systems, anti-disaster/crime systems, safety equipment, medical equipment, etc.
- Specific applications
  Nuclear reactor control systems, aircraft, aerospace equipment, submarine repeaters, life support equipment and systems, etc.

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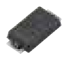
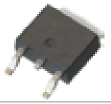
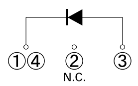
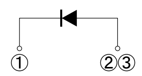
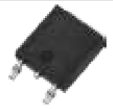
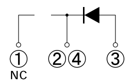
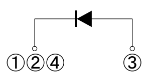
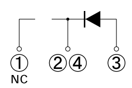
GENERAL RECTIFYING DIODES

General Rectifying Diodes are defined as high-voltage and PN junction type devices.
These devices utilize our original glass passivation which is physically stable with a superior structure for resistance against heat and humidity.
Variations are available for breakdown voltage up to 2200V and output current from 1 to 700A.

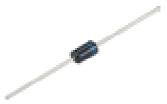
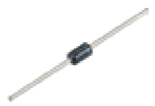
Single

Surface Mount

Package	JEDEC Code JEITA Code House Name	Fig.	$I_{F(AV)}$ [A]	V_{RRM} [V] 400	600	800	1600	Circuit
 3.9 × 1.8 × 1.4(mm)	DO-219AA similar – M1F	B2	1		M1F60 M1FE60	M1F80		①—|◀—②
			2	M1FE40				
 5.0 × 2.5 × 2.0(mm)	DO-214AC – 1F	B3-1	1		D1F60 D1FE60			
			1.1		LN1F60			
			1.2		D1F60A			
 4.7 × 2.4 × 0.98(mm)	– SC-110B CE	B5-1	3		D3CE60V			
			3.5		D3CE60VE			
 5.1 × 3.75 × 2.0(mm)	DO-214AA similar – M2F	B6	1.2		M2F60			
			3	M3FE40	M3F60 M3FE60			
 7.6 × 4.0 × 2.8(mm)	– – 2F	B9-1	1.4		D2F60			
			3		D3F60 D3FE60			
			4		D4F60			
			5		D5FE60			
 7.6 × 4.0 × 2.8(mm)	– – CG	B12	1				N D1CG160V	
			2				N D2CG160V	
			3				N D3CG160V	
 9.5 × 6.6 × 2.65(mm)	– SC-63 E-pack	G1-5	5	DE5VE40				
 6.5 × 4.5 × 1.1(mm)	TO-277A similar – FY	G4-1	10		D10FY60VE			
 9.6 × 6.6 × 2.3(mm)	TO-252AA similar – FR	G5	10		D10FR60V			
			15		D15FR60V			
 13.2 × 10.2 × 4.7(mm)	– SC-83 similar STO-220	H1-2	25		DF25V60			
 13.2 × 10.2 × 4.6(mm)	– SC-83 similar FD	H2-1	25		D25FD60V			

N : New product

Axial

Package	JEDEC Code JEITA Code House Name	Fig.	$I_{F(AV)}$ [A]	V_{RRM} [V] 400	600	800	Circuit
3.0 × φ 2.6(mm)	– – AX057	A1	1		D1N60	D1N80	①—|◀—②
 7.0 × φ 4.4(mm)	– – AX10	A5-1	1.7		S2V60	S2V80	
 7.0 × φ 4.4(mm)	– – AX14	A7	3			S3V100D	
			3.5		S3V60	S3V80	

Single

Surface Mount

Package: JEDEC Code / JEITA Code / House Name	Fig.	Type No.	Absolute Maximum Ratings: V_{RRM} [V]	I_F (AV) [A]	Conditions Ta [℃]	I_{FSM} [A]	T_j [℃]	Electrical Characteristics: V_F (max) [V]	Conditions I_F [A]	I_R (max) $V_R=V_{RM}$ [μA]	V_{ESD} (typ) [kV]	Halogen free	Based on AEC-Q101	Automotive
DO-219AA similar – M1F	B2	M1F60	600	1	25	25	150	1.10	1	10	–	–	–	○
		M1FE60	600	1	129 *1	30	150	1.10	1	10	25	–	○	○
		M1F80	800	1	25	25	150	1.10	1	10	–	–	–	○
		M1FE40	400	2	103 *2	25	150	1.10	1	10	–	–	○	○
DO-214AC – 1F	B3-1	D1F60	600	1	25	25	150	1.10	1	10	–	–	–	○
		D1FE60	600	1	126 *1	30	150	1.10	1	10	25	–	○	○
		LN1F60 *3	600	1.1	25	25	150	1.05	0.8	10	–	–	–	–
		D1F60A	600	1.2	25	45	150	0.97	1.2	10	–	–	–	○
– SC-110B CE	B5-1	D3CE60V	600	3	101 *1	50	150	1.10	3	10	–	–	–	○
		D3CE60VE	600	3.5	93 *1	60	-55 to 150	1.10	3.5	10	25	–	○	■
DO-214AA similar – M2F	B6	M2F60	600	1.2	51	50	150	0.97	1.2	10	–	–	–	○
		M3FE40	400	3	76 *1	75	150	1.10	3	10	30	–	○	○
		M3F60	600	3	100 *1	90	150	1.05	3	10	–	–	–	○
		M3FE60	600	3	76 *1	90	150	1.05	3	10	25	–	○	○
– – 2F	B9-1	D2F60	600	1.4	25	60	150	1.05	1.4	10	–	–	–	○
		D3F60	600	3	80 *1	150	150	1.05	3	10	–	–	–	○
		D3FE60	600	3	105 *1	150	150	1.05	3	10	25	–	○	○
		D4F60	600	4	68 *1	200	150	0.95	4	10	–	–	–	○
		D5FE60	600	5	82 *1	300	150	0.95	5	10	25	–	○	○
– – CG	B12	N D1CG160V	1600	1	129 *1	25	-55 to 150	1.05	1	10	–	○	–	–
		N D2CG160V	1600	2	112 *1	80	-55 to 150	1.05	2	10	–	○	–	–
		N D3CG160V	1600	3	103 *1	150	-55 to 150	1.05	3	10	–	○	–	–
– SC-63 E-pack	G1-5	DE5VE40	400	5	130 *2	80	150	1.00	5	10	30	–	–	■
TO-277A similar – FY	G4-1	D10FY60VE	600	10	120 *1	220	-55 to 150	1.10	10	10	25	○	○	○
TO-252AA similar – FR	G5	D10FR60V	600	10	130 *2	200	-55 to 150	1.05	10	10	–	–	–	■
		D15FR60V	600	15	125 *2	300	-55 to 150	1.05	15	10	–	–	–	■
– SC-83 similar STO-220	H1-2	DF25V60	600	25	136 *2	400	150	1.10	25	10	–	–	–	–
– SC-83 similar FD	H2-1	D25FD60V	600	25	113 *2	450	150	1.10	25	10	–	–	○	○

N : New product　*1 : Tl　*2 : Tc　*3 : trr(max)=3.5μs　■ : Please contact us.

Axial

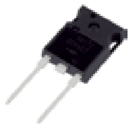
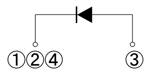
Package: JEDEC Code / JEITA Code / House Name	Fig.	Type No.	Absolute Maximum Ratings: V_{RRM} [V]	I_F (AV) [A]	Conditions Ta [℃]	I_{FSM} [A]	T_j [℃]	Electrical Characteristics: V_F (max) [V]	Conditions I_F [A]	I_R (max) $V_R=V_{RM}$ [μA]	V_{ESD} (typ) [kV]	Halogen free	Based on AEC-Q101	Automotive
– – AX057	A1	D1N60	600	1	25	30	150	1.05	1	10	–	–	–	–
		D1N80	800	1	25	30	150	1.05	1	10	–	–	–	–
– – AX10	A5-1	S2V60	600	1.7	40	60	150	1.05	1.7	10	–	–	–	–
		S2V80	800	1.7	40	60	150	1.05	1.7	10	–	–	–	–
– – AX14	A7	S3V100D	800	3	130 *1	150	150	1.05	3	10 *2	–	–	–	–
		S3V60	600	3.5	40	120	150	1.05	2.6	10	–	–	–	–
		S3V80	800	3.5	40	120	150	1.05	2.6	10	–	–	–	–

*1 : Tl　*2 : VR=1000V

GENERAL RECTIFYING DIODES

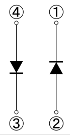
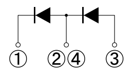
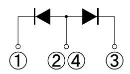
Single

Two Terminal Type

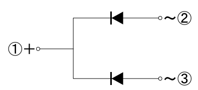
Package	JEDEC Code JEITA Code House Name	Fig.	$I_{F(AV)}$ [A]	V_{RRM} [V] 400	600	800	Circuit
 41.0 × 16.0 × 5.0(mm)	TO-247AD – MTO-3PT	K2	30		S30V60T		

Array

Surface Mount

Package	JEDEC Code JEITA Code House Name	Fig.	$I_{F(AV)}$ [A]	V_{RRM} [V] 400	600	800	Circuit
 10.0 × 6.8 × 2.6(mm)	– – 1NA	C6-2	3			S1NAD80	
 13.2 × 10.2 × 4.7(mm)	– SC-83 similar STO-220	H1-5	5		DF5VD60		
			15		DF15VD60		
		H1-7	16		DF16VC60R		

Diode Module

Package	JEDEC Code JEITA Code House Name	Fig.	$I_{F(AV)}$ [A]	V_{RRM} [V] 400	600	800	Circuit
 22.3 × 22.3 × 25.0(mm)	– – D30VC	E2	30		D30VC60		

Single

Two Terminal Type

Package: JEDEC Code JEITA Code House Name	Fig.	Type No.	Absolute Maximum Ratings: V_{RRM} [V]	$I_{F(AV)}$ [A]	Conditions T_c [℃]	I_{FSM} [A]	T_j [℃]	Electrical Characteristics: V_F (max) [V]	Conditions I_F [A]	I_R (max) $V_R=V_{RM}$ [μA]	V_{ESD} (typ) [kV]	Halogen free	Based on AEC-Q101	Automotive
TO-247AD – MTO-3PT	K2	S30V60T	600	30	119	360	150	1.1	30	10	–	–	–	–

Array

Surface Mount

Package: JEDEC Code JEITA Code House Name	Fig.	Type No.	Absolute Maximum Ratings: V_{RRM} [V]	$I_{F(AV)}$ [A]	Conditions T_c [℃]	I_{FSM} [A]	T_j [℃]	Electrical Characteristics: V_F (max) [V]	Conditions I_F [A]	I_R (max) $V_R=V_{RM}$ [μA]	V_{ESD} (typ) [kV]	Halogen free	Based on AEC-Q101	Automotive
– – 1NA	C6-2	S1NAD80	800	3	102 *	110	150	1.05	0.75	10	–	–	–	–
– SC-83 similar STO-220	H1-5	DF5VD60	600	5	140	140	150	1.05	2.50	10	–	–	–	–
		DF15VD60	600	15	127	190	150	1.05	7.50	10	–	–	–	–
	H1-7	DF16VC60R	600	16	124	190	150	1.05	8.00	10	–	–	–	–

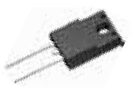
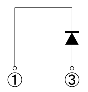
* : Tl

Diode Module

Package: JEDEC Code JEITA Code House Name	Fig.	Type No.	Absolute Maximum Ratings: V_{RRM} [V]	$I_{F(AV)}$ [A]	Conditions T_c [℃]	I_{FSM} [A]	T_j [℃]	Electrical Characteristics: V_F (max) [V]	Conditions I_F [A]	I_R (max) $V_R=V_{RM}$ [μA]	V_{ESD} (typ) [kV]	Halogen free	Based on AEC-Q101	Automotive
– – D30VC	E2	D30VC60	600	30	124	300	150	1.05	15	10	–	–	–	–

GENERAL RECTIFYING DIODES

Single

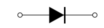
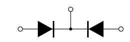
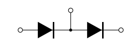
Package: Outline No.	Package: Fig.	Type No.	Absolute Maximum Ratings: V_{RRM} [V]	$I_{F(AV)}$ [A]	Conditions Ta [℃]	I_{FSM} [A]	Tj [℃]	Electrical Characteristics: V_F [V]	Conditions I_F [A]	I_R [mA]	Based on AEC-Q101	Series	Circuit
 nSMC_FL 8.0 × 4.0 × 1.5(mm)	M54	MC03DA40	400	3.0	101 *1	80.0	-55 to 150	1.00	3.0	0.010	–	MC	① ②
		MC05DA20	200	5.0	73 *1	130.0	-55 to 150	0.99	5.0	0.010	–		
 SOD-128 4.8 × 2.7 × 1.0(mm)	M56	ME01DA40	400	1.0	115 *1	25.0	-55 to 150	1.05	1.0	0.010	–	ME	
 SOD-123FL 3.5 × 1.6 × 0.9(mm)	M55	MPP5DA40	400	0.5	126 *1	10.0	-55 to 150	1.10	0.5	0.010	–	MP	
 3Max × ϕ 2.7 (DO-41S) 3.0 × ϕ 2.7(mm)	M1	10EDB40	400	1.0	39	45.0	-40 to 150	1.00	1.0	0.010	–	Axial	
		10EDB60	600	1.0	39	45.0	-40 to 150	1.00	1.0	0.010	–		
 DO-204AC(DO-15) 7.6 × ϕ 3.6(mm)	M16	20CDA40	400	2.0	114 *1	75.0	-40 to 150	1.00	2.0	0.010	–		
		20CDA60	600	2.0	114 *1	75.0	-40 to 150	1.00	2.0	0.010	–		
 DO-201AD 9.2 × ϕ 5.8(mm)	M15	30GDA40	400	3.0	108 *1	100.0	-40 to 150	1.00	3.0	0.010	–		
		30GDA60	600	3.0	108 *1	100.0	-40 to 150	1.00	3.0	0.010	–		
 TO-220 Full-Mold 2pin 28.5 × 10.1 × 4.5(mm)	M61	FSD20A90	900	20.0	102 *2	200.0	-40 to 150	1.25	20.0	0.050	–	TF	 ① ③

For Automotive AEC-Q101 Qualified Products

Package: Outline No.	Package: Fig.	Type No.	V_{RRM} [V]	$I_{F(AV)}$ [A]	Conditions Ta [℃]	I_{FSM} [A]	Tj [℃]	V_F [V]	Conditions I_F [A]	I_R [mA]	Based on AEC-Q101	Series	Circuit
 nSMC_FL 8.0 × 4.0 × 1.5(mm)	M54	AMC03DA40	400	3.0	101 *1	80.0	-55 to 150	1.00	3.0	0.010	○	MC	① ②
		AMC05DA20	200	5.0	73 *1	130.0	-55 to 150	0.99	5.0	0.010	○		
 SOD-128 4.8 × 2.7 × 1.0(mm)	M56	AME01DA40	400	1.0	115 *1	25.0	-55 to 150	1.05	1.0	0.010	○	ME	
 SOD-123FL 3.5 × 1.6 × 0.9(mm)	M55	AMPP5DA40	400	0.5	126 *1	10.0	-55 to 150	1.10	0.5	0.010	○	MP	

※ Please Contact us. *1 : Tl *2 : Tc

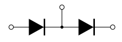
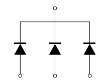
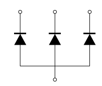
General Rectifyng Diode Modules

Package: Outline No.	Package: Fig.	Type No.	Absolute Maximum Ratings: V_{RRM} [V]	$I_{F(AV)}$ [A]	Conditions Tc [℃]	UL	Series	Circuit
 E-35 100 × 60 × 46.5(mm)	M24	K35DH400P080AAA	800	400	125	○	PH	
		K35DH400P160AAA	1600	400	124	○		
 E-2 93 × 26.5 × 30(mm)	M18	K02DC030P080AAA	800	30	121	○	PC	
		K02DC060P080AAA	800	60	116	○		
		K02DC100P080AAA	800	100	110	○		
 E-3 93 × 26.7 × 30(mm)	M19	K03DC030P160AAA	1600	30	121	○		
		K03DC060P160AAA	1600	60	121	○		
		K03DC100P160AAA	1600	100	116	○		
 E-4 150 × 40 × 33(mm)	M20	K04DC150P080AAA	800	150	119	○		
		K04DC200P080AAA	800	200	118	○		
		K04DC250P080AAA	800	250	125	○		
		K04DC150P160AAA	1600	150	124	○		
		K04DC200P160AAA	1600	200	116	○		
		K04DC250P160AAA	1600	250	116	○		
 E-34 180 × 60 × 50(mm)	M23	K34DC400P080AAA	800	400	125	○		
		K34DC400P160AAA	1600	400	124	○		
 E-60 150 × 60 × 52(mm)	M32	PD30KN8	800	30	125	○	PD	
		PD60KN8	800	60	111	○		
		PD100KN8	800	100	107	○		
		PD30KN16	1600	30	125	○		
		PD60KN16	1600	60	118	○		
		PD100KN16	1600	100	108	○		
 E-61 89 × 36 × 17(mm)	M33	PD150KN8	800	150	99	○		
		PD200KN8	800	200	90	○		
		PD250KN8A	800	250	97	○		
		PD150KN16	1600	150	96	○		
		PD200KN16	1600	200	106	○		
		PD250KN16A	1600	250	117	○		
 E-58 94 × 35 × 30(mm)	M31	PD150S8	800	150	105	○		
		PD200S8	800	200	97	○		
		PD230S8	800	230	116	○		
		PD150S16	1600	150	108	○		
		PD200S16	1600	200	106	○		
		PD230S16	1600	230	102	○		
		PD150S22	2200	150	※	○		
 E-79 93 × 20 × 30(mm)	M48	PD100MYN16	1600	100	116	○		
		PD100MYN18	1800	100	116	○		
 E-80 94 × 34 × 30(mm)	M49	PD200MYN16	1600	200	102	○		
		PD200MYN18	1800	200	102	○		
		K80DD300P160BAA	1600	300	109	○		
		K80DD300P180BAA	1800	300	109	○		
 E-81 115 × 50 × 52(mm)	M50	PD260MYN16	1600	260	114	○		
		PD260MYN18	1800	260	114	○		
		PD380MYN16	1600	380	110	○		
		PD380MYN18	1800	380	110	○		

※ Please Contact us.

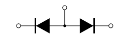
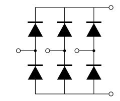
GENERAL RECTIFYING DIODES

General Rectifyng Diode Modules

Package: Outline No.	Package: Fig.	Type No.	Absolute Maximum Ratings: VRRM [V]	IF (AV) [A]	Conditions Tc [℃]	UL	Series	Circuit
 E-82 150 × 60 × 52(mm)	M51	PD700MYN16	1600	700	120	○	PD	
		PD700MYN18	1800	700	120	○		
 E-2 93 × 26.5 × 30(mm)	M18	K02DD030P080AAA	800	30	121	○		
		K02DD060P080AAA	800	60	116	○		
		K02DD100P080AAA	800	100	110	○		
 E-3 93 × 26.7 × 30(mm)	M19	K03DD030P160AAA	1600	30	121	○		
		K03DD060P160AAA	1600	60	121	○		
		K03DD100P080AAA	800	100	110	○		
		K03DD100P160AAA	1600	100	116	○		
 E-5 150 × 40 × 33(mm)	M21	K05DD150P080AAA	800	150	119	○		
		K05DD200P080AAA	800	200	118	○		
		K05DD250P080AAA	800	250	125	○		
		K05DD150P160AAA	1600	150	124	○		
		K05DD200P160AAA	1600	200	116	○		
		K05DD250P160AAA	1600	250	116	○		
 E-34 180 × 60 × 50(mm)	M23	K34DD400P080AAA	800	400	125	○		
		K34DD400P160AAA	1600	400	124	○		
 E-44 108 × 34 × 30(mm)	M28	K44DD150P080AAA	800	150	119	○		
		K44DD200P080AAA	800	200	118	○		
		K44DD150P160AAA	1600	150	124	○		
		K44DD200P160AAA	1600	200	113	○		
 E-64 82 × 42 × 22(mm)	M36	PE30SN8	800	30	125	–	PE	
		PE30SN16	1600	30	125	–		
		PE100SN8	800	100	※	○		
 E-2 93 × 26.5 × 30(mm)	M18	K02DE030N080AAA	800	30	125	–		
		K02DE060N080AAA	800	60	125	–		
		K02DE100N080AAA	800	100	125	–		
 E-64 82 × 42 × 22(mm)	M36	PF30SN8	800	30	125	–	PF	
		PF30SN16	1600	30	125	–		
		PF100SN8	800	100	※	○		

※ Please Contact us.

General Rectifyng Diode Modules

Package: Outline No.	Package: Fig.	Type No.	Absolute Maximum Ratings: VRRM [V]	IF (AV) [A]	Conditions Tc [℃]	UL	Series	Circuit
 E-2 93 × 26.5 × 30(mm)	M18	K02DR060P080AAA	800	60	116	○	PR	
 E-73 89 × 36 × 17(mm)	M43	PR250KN8N	800	250	120	–		
 E-62 80.5 × 44 × 17(mm)	M34	PT50KN8	800	50	125	○	PT	
		PT75KN8	800	75	122	○		
		PT100KN8	800	100	118	○		
		PT50KN16	1600	50	125	○		
		PT75KN16	1600	75	125	○		
 E-63 91 × 52 × 17(mm)	M35	PT100KN16	1600	100	125	○		
		PT150KN8	800	150	105	○		
		PT200KN8	800	200	101	○		
		PT150KN16	1600	150	113	○		
		PT200KN16	1600	200	110	○		
 E-64 82 × 42 × 22(mm)	M36	PT50SN8	800	50	125	○		
		PT76SN8	800	75	125	○		
		PT100SN8	800	100	118	○		
		PT50SN16	1600	50	125	○		
		PT76SN16	1600	75	125	○		
		PT100SN16	1600	100	119	○		
		K64DT150P080AAA	800	150	114	○		
 E-18 110 × 50 × 29(mm)	M22	PT150N8	800	150	104	○		
		PT200N8	800	200	100	○		
		PT150N16	1600	150	112	○		
		PT200N16	1600	200	108	○		
 E-77 72 × 42 × 30(mm)	M46	PT80MYN16	1600	80	111	○		
		PT80MYN18	1800	80	111	○		
 E-78 94 × 54 × 30(mm)	M47	PT150MYN16	1600	150	114	○		
		PT150MYN18	1800	150	114	○		
		PT200MYN16	1600	200	117	○		
		PT200MYN18	1800	200	117	○		
 E-7 80.3 × 40.4 × 27(mm)	M40	K07DT050P080AAA	800	50	125	○		
		K07DT100P080AAF	800	100	125	○		
 E-51 108 × 62 × 30(mm)	M29	PT300S16	1600	300	103	○		
		PT300S8	800	300	97	○		

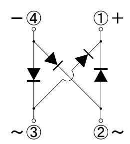
※ Please Contact us.

BRIDGE DIODES

Bridge Diodes are suitable for the rectification of commercial frequency.
Variations are available for various packaging as well as high voltage (Max 1600V), high IFSM, low VF, and low noise.

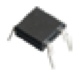
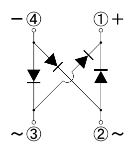
Small Bridge Diodes

Surface Mount

Package		JEDEC Code JEITA Code House Name	Fig.	IF(AV) [A]	VRRM [V]			Circuit
					600	800	1000	
	6.2 × 5.15 × 1.45(mm)	– – SOPA-4	C1	1		D1UBA80		
				3		★D3UBA80		
	10.0 × 6.8 × 2.6(mm)	– – 1N	C4	1	S1NB60	S1NB80		
	10.0 × 6.8 × 2.6(mm)	– – 1NA	C6-1	1		S1NBB80		
				1.5	S1NBC60	S1NBC80		
				2			S2NBC100	

★ : Under development

THD (Through Hole Device)

Package		JEDEC Code JEITA Code House Name	Fig.	IF(AV) [A]	VRRM [V]			Circuit
					600	800	1000	
	6.5 × 6.8 × 2.5(mm)	– – 1N	C5	1	S1NB60	S1NB80		
	6.5 × 6.8 × 2.5(mm)	– – 1NA	C7	1		S1NBB80		
				1.5	S1NBC60	S1NBC80		
				2			S2NBC100	

Small Bridge Diodes

Surface Mount

Package: JEDEC Code / JEITA Code / House Name	Fig.	Type No.	Spec. Code	Absolute Maximum Ratings: VRRM [V]	IF(AV) [A]	Conditions Ta [℃]	IFSM [A]	Tj [℃]	Electrical Characteristics: VF (max) [V]	Conditions IF [A]	IR (max) VR=VRM [μA]	Halogen free	UL	Automotive
– – SOPA-4	C1	D1UBA80	-7062	800	1	25	30	150	0.95	0.4	10	–	–	–
		★D3UBA80	-7062	800	3	93 *2	60	-55 to 150	1.00	1.5	10	–	–	–
– – 1N	C4	S1NB60	-7062	600	1	25	30	150	1.05	0.5	10	–	–	–
		S1NB80	-7062	800	1	25	30	150	1.05	0.5	10	–	–	–
– – 1NA	C6-1	S1NBB80	-7062	800	1	26	50	150	1.05	0.5	10	–	–	–
		S1NBC60	-7062	600	1.5	105 *1	60	150	1.05	0.75	10	–	–	–
		S1NBC80	-7062	800	1.5	105 *1	60	150	1.05	0.75	10	–	–	–
		S2NBC100	-7062	1000	2	93 *1	65 *3	150	1.05	1	10	–	–	–

★ : Under development *1 : Tl *2 : Tc *3 : 60Hz

THD (Through Hole Device)

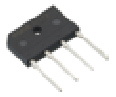
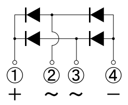
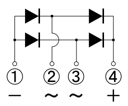
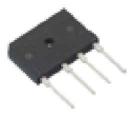
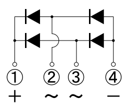
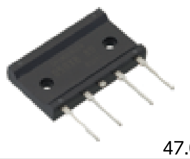
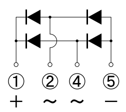
Package: JEDEC Code / JEITA Code / House Name	Fig.	Type No.	Spec. Code	Absolute Maximum Ratings: VRRM [V]	IF(AV) [A]	Conditions Ta [℃]	IFSM [A]	Tj [℃]	Electrical Characteristics: VF (max) [V]	Conditions IF [A]	IR (max) VR=VRM [μA]	Halogen free	UL	Automotive
– – 1N	C5	S1NB60	-7101	600	1	25	30	150	1.05	0.5	10	–	–	–
		S1NB80	-7101	800	1	25	30	150	1.05	0.5	10	–	–	–
– – 1NA	C7	S1NBB80	-7101	800	1	26	50	150	1.05	0.5	10	–	–	–
		S1NBC60	-7101	600	1.5	105 *1	60	150	1.05	0.75	10	–	–	–
		S1NBC80	-7101	800	1.5	105 *1	60	150	1.05	0.75	10	–	–	–
		S2NBC100	-7101	1000	2	93 *1	65 *2	150	1.05	1	10	–	–	–

*1 : Tl *2 : 60Hz

BRIDGE DIODES

SIP (Single In-line Package) Bridge Diodes

THD (Through Hole Device)

Package	JEDEC Code JEITA Code House Name	Fig.	IF (AV) [A]	VRRM [V] 600	VRRM [V] 800	VRRM [V] 1000	Circuit
 32.5 × 25.0 × 4.6(mm)	– – 3S	D3	4	D3SBA60 D3SB60 D4SB60L	D3SB80 D4SB80		
			10	D10XB60 D10XB60H	D10XB80		
 37.1 × 22.1 × 3.45(mm)	– – D6K	D11	8		US8KB80R N US8KBA80R		
			10		US10KB80R		
			15		N US15KB80HR US15KB80R		
			20		N US20KB80HR US20KB80R		
			25		N US25KB80HR N US25KB80R		
			30		US30KB80R US30KBV80FR		
 37.5 × 30.0 × 4.6(mm)	– – 5S	D4	6	D5SBA60 D5SB60 D6SB60L	D5SB80 D6SB80		
			15	D15XB60 D15XB60H	D15XB80 N D15XB80H	D15XB100	
			20	D20XB60	D20XB80		
			25	D25XB60	D25XB80 N D25XBA80	D25XB100	
			30		N D30XB80		
			35		D35XB80 N D35XBA80		
			40		N D40XB80 N D40XBA80	N D40XB100	
			45		N D45XB80		
			50			N D50XBA100	
 47.0 × 45.7 × 7.5(mm)	– – TSB(4pin)	D7	50		D50XB80		

N : New product

SIP (Single In-line Package) Bridge Diodes

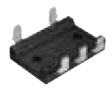
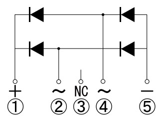
THD (Through Hole Device)

Package: JEDEC Code JEITA Code House Name	Package: Fig.	Type No.	Absolute Maximum Ratings: VRRM [V]	IF (AV) [A]	Conditions Tc [℃]	IFSM [A]	Tj [℃]	Electrical Characteristics: VF (max) [V]	Conditions IF [A]	IR (max) VR=VRM [μA]	Halogen free	UL	Automotive
– – 3S	D3	D3SBA60	600	4	108	80	150	1.05	2	10	–	UL	–
		D3SB60	600	4	108	120	150	1.05	2	10	–	UL	–
		D4SB60L	600	4	111	150	150	0.95	2	10	–	UL	–
		D3SB80	800	4	108	120	150	1.05	2	10	–	UL	–
		D4SB80	800	4	108	150	150	0.95	2	10	–	UL	–
		D10XB60	600	10	100	120	150	1.10	5	10	–	UL	–
		D10XB60H	600	10	112	170	150	1.05	5	10	–	UL	–
		D10XB80	800	10	100	120	150	1.10	5	10	–	UL	–
– – D6K	D11	US8KB80R	800	8 *	108	200 *	150	1.00	4	10	–	UL	–
		N US8KBA80R	800	8 *	110	150 *	-55 to 150	1.05	4	10	–	UL	–
		US10KB80R	800	10 *	100	150 *	150	1.10	5	10	–	UL	–
		N US15KB80HR	800	15 *	113	240 *	-55 to 150	1.05	7.5	10	–	UL	–
		US15KB80R	800	15 *	101	200 *	-55 to 150	1.10	7.5	10	–	UL	–
		N US20KB80HR	800	20 *	109	300 *	-55 to 150	1.05	10	10	–	UL	–
		US20KB80R	800	20 *	97	240 *	150	1.10	10	10	–	UL	–
		N US25KB80HR	800	25 *	109	350 *	-55 to 150	1.05	12.5	10	–	UL	–
		N US25KB80R	800	25 *	98	300 *	-55 to 150	1.05	12.5	10	–	UL	–
		US30KB80R	800	30 *	97	350 *	-55 to 150	1.10	15	10	–	UL	–
		US30KBV80FR	800	30 *	126	350 *	-55 to 175	1.05	15	5	○	UL	–
– – 5S	D4	D5SBA60	600	6	111	120	150	1.05	3	10	–	UL	–
		D5SB60	600	6	110	170	150	1.05	3	10	–	UL	–
		D6SB60L	600	6	112	170	150	1.05	3	10	–	UL	–
		D5SB80	800	6	110	170	150	1.05	3	10	–	UL	–
		D6SB80	800	6	110	170	150	1.05	3	10	–	UL	–
		D15XB60	600	15	100	200	150	1.10	7.5	10	–	UL	–
		D15XB60H	600	15	107	240	150	1.05	7.5	10	–	UL	–
		D15XB80	800	15	100	200	150	1.10	7.5	10	–	UL	–
		N D15XB80H	800	15	107	240	-40 to 150	1.05	7.5	10	–	UL	–
		D15XB100	1000	15	110	200	150	1.10	7.5	10	–	UL	–
		D20XB60	600	20	87	240	150	1.10	10	10	–	UL	–
		D20XB80	800	20	87	240	150	1.10	10	10	–	UL	–
		D25XB60	600	25	98	350	150	1.05	12.5	10	–	UL	■
		D25XB80	800	25	98	350	150	1.05	12.5	10	–	UL	■
		N D25XBA80	800	25 *	87	300 *	-55 to 150	1.05	12.5	10	–	UL	–
		D25XB100	1000	25	106	350	150	1.05	12.5	10	–	UL	–
		N D30XB80	800	30 *	87	400 *	-55 to 150	1.05	15	10	–	UL	–
		D35XB80	800	35	93	603 *	-55 to 150	1.05	17.5	10	–	UL	–
		N D35XBA80	800	35 *	74	400 *	-55 to 150	1.05	17.5	10	–	UL	–
		N D40XB80	800	40 *	85	603 *	-55 to 150	1.00	20	10	–	UL	–
		N D40XBA80	800	40 *	62	400 *	-55 to 150	1.05	20	10	–	UL	–
		N D40XB100	1000	40	85	603 *	-55 to 150	1.05	20	10	–	UL	–
		N D45XB80	800	45 *	74	603 *	-55 to 150	1.05	22.5	10	–	UL	–
		N D50XBA100	1000	50	67	603 *	-55 to 150	1.02	25	10	–	UL	–
– – TSB(4pin)	D7	D50XB80	800	50	95	600	150	1.05	25	10	–	UL	–

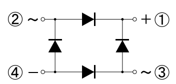
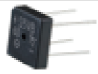
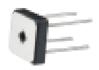
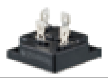
N : New product * : 60Hz ■ : Please contact us. UL : UL recognized (UL File No. E142422)

BRIDGE DIODES

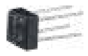
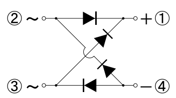
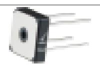
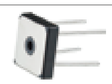
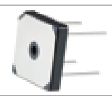
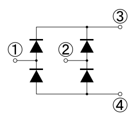
DIP (Dual In-line Package) Bridge Diode

Package	JEDEC Code JEITA Code House Name	Fig.	$I_{F(AV)}$ [A]	V_{RRM} [V] 600	800	1000	Circuit
 45.7 × 30.0 × 8.6(mm)	– – JH	D10-1	70		D70JHB80V		

SQIP (Square In-line Package) Bridge Diodes

Package	JEDEC Code JEITA Code House Name	Fig.	$I_{F(AV)}$ [A]	V_{RRM} [V] 600	800	1000	Circuit
 13.0 × 13.0 × 27.5(mm)	– – S2VB	E3	2	S2VB60			
 17.0 × 17.0 × 32.5(mm)	– – S4VB	E4	4	S4VB60			
 25.0 × 25.0 × 32.5(mm)	– – S5VB	E5	6	S5VB60			
 22.0 × 22.0 × 32.5(mm)	– – S10VB	E6	10	S10VB60			
 26.5 × 26.5 × 25.0(mm)	– – S15VB	E7	15	S15VB60			
 32.0 × 32.0 × 25.0(mm)	– – S25VB	E8	25	S25VB60	S25VB80		
 36.0 × 36.0 × 24.0(mm)	– – S50VB	E9	50	S50VB60	S50VB80		

Input/Output In-line Terminal Type

Package	JEDEC Code JEITA Code House Name	Fig.	$I_{F(AV)}$ [A]	V_{RRM} [V] 600	800	1000	Circuit
 17.0 × 17.0 × 31.0(mm)	– – S3WB	E10	2.3	S3WB60			
 22.5 × 22.5 × 32.5(mm)	– – S10WB	E11	10	S10WB60			
 26.5 × 26.5 × 32.5(mm)	– – S15WB	E12	15	S15WB60			
 32.5 × 32.5 × 32.5(mm)	– – S20WB	E13	20	S20WB60	S20WB80		
 57.5 × 47.5 × 17.0(mm)	– – MG073	F12	100		★MG073A100080A		

★ : Under development

DIP (Dual In-line Package) Bridge Diode

Package: JEDEC Code / JEITA Code / House Name	Fig.	Type No.	V_{RRM} [V]	$I_{F(AV)}$ [A]	Conditions T_c [℃]	I_{FSM} [A]	T_j [℃]	V_F (max) [V]	Conditions I_F [A]	I_R (max) $V_R=V_{RRM}$ [μA]	Halogen free	UL	Automotive
– – JH	D10-1	D70JHB80V	800	70	99	500	-55 to 150	1.1	35	10	–	–	–

SQIP (Square In-line Package) Bridge Diodes

Package: JEDEC Code / JEITA Code / House Name	Fig.	Type No.	V_{RRM} [V]	$I_{F(AV)}$ [A]	Conditions T_c [℃]	I_{FSM} [A]	T_j [℃]	V_F (max) [V]	Conditions I_F [A]	I_R (max) $V_R=V_{RRM}$ [μA]	Halogen free	UL	Automotive
– – S2VB	E3	S2VB60	600	2 *1	40	40	150	1.05	1	10	–	–	–
– – S4VB	E4	S4VB60	600	4	40	80	150	1.05	2	10	–	–	–
– – S5VB	E5	S5VB60	600	6	40	200	150	1.05	3	10	–	–	–
– – S10VB	E6	S10VB60	600	10	40	200	150	1.05	5	10	–	–	–
– – S15VB	E7	S15VB60	600	15	83 *2	200	150	1.05	7.5	10	–	–	–
– – S25VB	E8	S25VB60	600	25	85 *2	400	150	1.05	12.5	10	–	–	–
		S25VB80	800	25	85 *2	400	150	1.05	12.5	10	–	–	–
– – S50VB	E9	S50VB60	600	50	95 *2	500	150	1.05	25	10	–	–	–
		S50VB80	800	50	95 *2	500	150	1.05	25	10	–	UL	–

*1 : Without heatsink *2 : Tc UL : UL recognized (UL File No. E142422)

Input/Output In-line Terminal Type

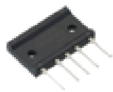
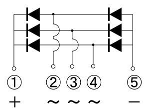
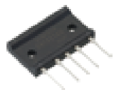
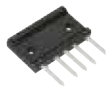
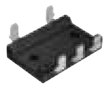
Package: JEDEC Code / JEITA Code / House Name	Fig.	Type No.	V_{RRM} [V]	$I_{F(AV)}$ [A]	Conditions T_c [℃]	I_{FSM} [A]	T_j [℃]	V_F (max) [V]	Conditions I_F [A]	I_R (max) $V_R=V_{RRM}$ [μA]	Halogen free	UL	Automotive
– – S3WB	E10	S3WB60	600	2.3	40 *	120	150	1.05	2	10	–	–	–
– – S10WB	E11	S10WB60	600	10	74	170	150	1.05	5	10	–	–	–
– – S15WB	E12	S15WB60	600	15	77	200	150	1.05	7.5	10	–	–	–
– – S20WB	E13	S20WB60	600	20	76	500	150	1.05	10	10	–	–	–
		S20WB80	800	20	76	500	150	1.05	10	10	–	UL	–
– – MG073	F12	★MG073A100080A	800	100	TBD	1200	150	1.17	50	10	–	–	–

★ : Under development * : Ta UL : UL recognized (UL File No. E142422)

BRIDGE DIODES

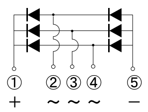
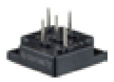
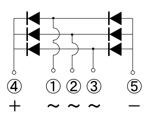
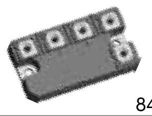
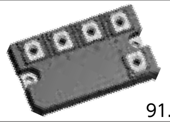
3 Phase Bridge Diodes

THD (Through Hole Device)

Package	JEDEC Code JEITA Code House Name	Fig.	$I_{F(AV)}$ [A]	V_{RRM} [V]			Circuit
				800	1200	1600	
 47.0 × 45.7 × 7.5(mm)	– – TSB(5pin)	D8	30	D30XT80			
			45	D45XT80		D45XT160	
 47.0 × 45.7 × 7.5(mm)	– – JC(5pin)		30		D30JCT120V		
			45		D45JCT120V	D45JCT160V	
 47.0 × 45.7 × 7.5(mm)	– – JF	D9	75	D75JFT80V			
 45.7 × 30.0 × 15.8(mm)	– – JH	D10-2	100	D100JHT80V	D100JHT120V	D100JHT160V	
 40.0 × 30.0 × 16.0(mm)	– – JK	D12	30	★D30JKT80V		★D30JKT160V	
			45	★D45JKT80V		★D45JKT160V	
			75	★D75JKT80V		★D75JKT160V	

★ : Under development

3 Phase Bridge Diodes

Package	JEDEC Code JEITA Code House Name	Fig.	$I_{F(AV)}$ [A]	V_{RRM} [V]			Circuit
				600	800	1600	
 36.0 × 36.0 × 24.0(mm)	– – SVT	E15	10	S10VT60	S10VT80		
			15	S15VT60	S15VT80		
			20	S20VT60	S20VT80		
			30	S30VT60	S30VT80	S30VT160	
 36.0 × 36.0 × 23.0(mm)	– – SVTA	E14	10	S10VTA60	S10VTA80		
			15	S15VTA60	S15VTA80		
			20	S20VTA60	S20VTA80		
			30	S30VTA60	S30VTA80	S30VTA160	
 89.0 × 50.0 × 16.6(mm)	– – MG038	F7	150		MG038B150080A	MG038D150160A	
			200		MG038A200080A	MG038C200160A	
 84.5 × 46.0 × 17.0(mm)	– – MG060	F9	75		★MG060B075080A	★MG060E075160A	
			100		★MG060C100080A		
 91.0 × 52.0 × 17.0(mm)	– – MG061	F10	100			★MG061D100160A	
			150		★MG061B150080A	★MG061E150160A	
			200		★MG061C200080A	★MG061F200160A	

★ : Under development

3 Phase Bridge Diodes

THD (Through Hole Device)

Package: JEDEC Code JEITA Code House Name	Fig.	Type No.	Absolute Maximum Ratings: V_{RRM} [V]	I_F (AV) [A]	Conditions T_C [℃]	I_{FSM} [A]	T_j [℃]	Electrical Characteristics: V_F (max) [V]	Conditions I_F [A]	I_R (max) $V_R=V_{RM}$ [μA]	Halogen free	UL	Automotive
– – TSB(5pin)	D8	D30XT80	800	30	117	300	150	1.05	10	10	–	UR®	–
		D45XT80	800	45	101	400	150	1.05	15	10	–	UR®	–
		D45XT160	1600	45	97	360 *	150	1.05	15	100	–	UR®	–
– – JC(5pin)		D30JCT120V	1200	30	116	300	150	1.05	10	10	–	UR®	–
		D45JCT120V	1200	45	99	450	150	1.05	15	10	–	UR®	–
		D45JCT160V	1600	45	97	450	150	1.05	15	10	–	UR®	–
– – JF	D9	D75JFT80V	800	75	109	400	150	1.05	25	10	–	–	–
– – JH	D10-2	D100JHT80V	800	100	99	500	-55 to 150	1.10	35	10	–	UR®	–
		D100JHT120V	1200	100	92	450	-55 to 150	1.17	35	10	–	UR®	–
		D100JHT160V	1600	100	92	540	-55 to 150	1.15	35	10	–	UR®	–
– – JK	D12	★ D30JKT80V	800	30	TBD	400 *	-55 to 175	1.10	10	10	○	to be certified	–
		★ D45JKT80V	800	45	TBD	540 *	-55 to 175	1.10	15	10	○	to be certified	–
		★ D75JKT80V	800	75	TBD	632 *	-55 to 175	1.10	25	10	○	to be certified	–
		★ D30JKT160V	1600	30	TBD	400 *	-55 to 175	1.10	10	10	○	to be certified	–
		★ D45JKT160V	1600	45	TBD	540 *	-55 to 175	1.10	15	10	○	to be certified	–
		★ D75JKT160V	1600	75	TBD	632 *	-55 to 175	1.10	25	10	○	to be certified	–

★ : Under development * : 60Hz UR® : UL recognized (UL File No. E142422)

3 Phase Bridge Diodes

Package: JEDEC Code JEITA Code House Name	Fig.	Type No.	Absolute Maximum Ratings: V_{RRM} [V]	I_F (AV) [A]	Conditions T_C [℃]	I_{FSM} [A]	T_j [℃]	Electrical Characteristics: V_F (max) [V]	Conditions I_F [A]	I_R (max) $V_R=V_{RM}$ [μA]	Halogen free	UL	Automotive
– – SVT	E15	S10VT60	600	10	137	170	150	1.05	3.5	10	–	–	–
		S10VT80	800	10	137	150	150	1.05	3.5	10	–	–	–
		S15VT60	600	15	132	200	150	1.05	5	10	–	–	–
		S15VT80	800	15	132	200	150	1.05	5	10	–	–	–
		S20VT60	600	20	128	300	150	1.05	7	10	–	–	–
		S20VT80	800	20	128	300	150	1.05	7	10	–	–	–
		S30VT60	600	30	121	400	150	1.05	10	10	–	–	–
		S30VT80	800	30	121	400	150	1.05	10	10	–	UR®	–
		S30VT160	1600	30	116	350	150	1.05	10	100	–	–	–
– – SVTA	E14	S10VTA60	600	10	137	170	150	1.05	3.5	10	–	–	–
		S10VTA80	800	10	137	150	150	1.05	3.5	10	–	–	–
		S15VTA60	600	15	132	200	150	1.05	5	10	–	–	–
		S15VTA80	800	15	132	200	150	1.05	5	10	–	–	–
		S20VTA60	600	20	128	300	150	1.05	7	10	–	–	–
		S20VTA80	800	20	128	300	150	1.05	7	10	–	–	–
		S30VTA60	600	30	121	400	150	1.05	10	10	–	–	–
		S30VTA80	800	30	121	400	150	1.05	10	10	–	–	–
		S30VTA160	1600	30	116	350	150	1.05	10	100	–	–	–
– – MG038	F7	MG038B150080A	800	150	125	1650	150	1.05	50	10	○	UR®	–
		MG038D150160A	1600	150	125	1600	150	1.05	50	10	○	UR®	–
		MG038A200080A	800	200	125	1950	150	1.05	67	10	○	UR®	–
		MG038C200160A	1600	200	125	2000	150	1.05	67	10	○	UR®	–
– – MG060	F9	★ MG060B075080A	800	75	125	TBD	150	1.10	25	10	○	to be certified	–
		★ MG060E075160A	1600	75	125	TBD	150	1.13	25	10	○	to be certified	–
		★ MG060C100080A	800	100	125	TBD	150	1.13	34	10	○	to be certified	–
– – MG061	F10	★ MG061D100160A	1600	100	125	TBD	150	1.17	34	10	○	to be certified	–
		★ MG061B150080A	800	150	125	TBD	150	1.16	50	10	○	to be certified	–
		★ MG061E150160A	1600	150	125	TBD	150	1.20	50	10	○	to be certified	–
		★ MG061C200080A	800	200	123	TBD	150	1.18	67	10	○	to be certified	–
		★ MG061F200160A	1600	200	122	TBD	150	1.22	67	10	○	to be certified	–

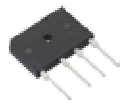
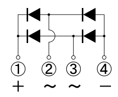
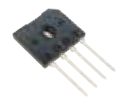
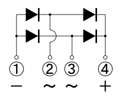
★ : Under development UR® : UL recognized (UL File No. E142422)

BRIDGE DIODES

Series	Feature
S	Evenly balanced VF and IR
N	Low VF, High Voltage
K	Low VF

Low VF Bridge Diodes

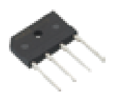
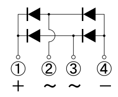
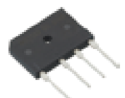
THD (Through Hole Device)

Package	JEDEC Code JEITA Code House Name	Fig.	IF (AV) [A]	VRRM [V] 600	VRRM [V] 800	VRRM [V] 1000	Circuit
 37.5 × 30.0 × 4.6(mm)	– – 5S	D4	15	LL15XB60			
			25	LL25XB60 LK25XB60	★LL25XB80FA ★LL25XBA80F		
			35		★LL35XB80F		
 37.1 × 22.1 × 3.45(mm)	– – D6K	D11	25	N LM25KBV60FR			
			30	N LM30KBV60FR			

N : New product ★ : Under development

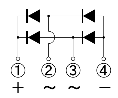
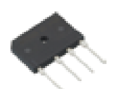
Low Noise Bridge Diodes

Surface Mount·THD (Through Hole Device)

Package	JEDEC Code JEITA Code House Name	Fig.	IF (AV) [A]	VRRM [V] 600	VRRM [V] 800	VRRM [V] 1000	Circuit
 32.5 × 25.0 × 4.6(mm)	– – 3S	D3	4	LN4SB60			
 37.5 × 30.0 × 4.6(mm)	– – 5S	D4	6	LN6SB60			
			15	LN15XB60 LN15XB60H			
			25	LN25XB60			

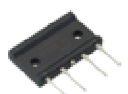
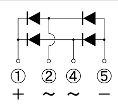
High Speed Bridge Diodes (SBD)

THD (Through Hole Device)

Package	JEDEC Code JEITA Code House Name	Fig.	IF (AV) [A]	VRRM [V] 40	VRRM [V] 60	VRRM [V] 200	Circuit
 32.5 × 25.0 × 4.6(mm)	– – 3S	D3	4	D4SBS4	D4SBS6	D4SBN20	
			10	D10SBS4			
			15		D15XBS6		
 37.5 × 30.0 × 4.6(mm)	– – 5S	D4	6			D6SBN20	
			15			D15XBN20	
			20		D20XBS6		
			30			D30XBN20	

High Speed Bridge Diodes (FRD)

THD (Through Hole Device)

Package	JEDEC Code JEITA Code House Name	Fig.	IF (AV) [A]	VRRM [V] 200	VRRM [V] 400	VRRM [V] 1000	Circuit
 47.0 × 45.7 × 7.5(mm)	– – JC(4pin)	D7	30			D30JCB100K	

Low VF Bridge Diodes

THD (Through Hole Device)

Package: JEDEC Code / JEITA Code / House Name	Fig.	Type No.	VRRM [V]	IF (AV) [A]	Conditions Tc [℃]	IFSM [A]	Tj [℃]	VF (max) [V]	Conditions IF [A]	IR (max) VR=VRM [μA]	trr (max) [μs]	Halogen free	UL	Automotive
– – 5S	D4	LL15XB60	600	15	124	200	150	0.90	7.5	10	3	–	UR	–
		LL25XB60	600	25	113	300	150	0.92	12.5	10	3	–	UR	■
		LK25XB60	600	25	114	603 *	-55 to 150	0.95	12.5	10	5	–	UR	–
		★LL25XB80FA	800	25	TBD	500 *	-55 to 150	0.90	12.5	10	4	○	to be certified	–
		★LL25XBA80F	800	25	TBD	300 *	-55 to 150	0.95	12.5	10	3	○	to be certified	–
		★LL35XB80F	800	35	TBD	500 *	-55 to 150	0.95	17.5	10	4	○	to be certified	–
– – D6K	D11	N LM25KBV60FR	600	25	115	350 *	-55 to 150	0.91	12.5	10	3	○	UR	–
		N LM30KBV60FR	600	30	106	350 *	-55 to 150	0.92	15	10	3	○	UR	–

N : New product ★ : Under development * : 60Hz ■ : Please contact us. UR : UL recognized (UL File No. E142422)

Low Noise Bridge Diodes

Surface Mount·THD (Through Hole Device)

Package: JEDEC Code / JEITA Code / House Name	Fig.	Type No.	VRRM [V]	IF (AV) [A]	Conditions Tc [℃]	IFSM [A]	Tj [℃]	VF (max) [V]	Conditions IF [A]	IR (max) VR=VRM [μA]	trr (max) [μs]	UL	Halogen free	Automotive	Circuit
– – 3S	D3	LN4SB60	600	4	111	150	150	0.95	2	10	5	UR	–	–	
– – 5S	D4	LN6SB60	600	6	111	170	150	1.05	3	10	5	UR	–	–	
		LN15XB60	600	15	100	200	150	1.10	7.5	10	5	–	–	–	
		LN15XB60H	600	15	106	290	150	1.05	7.5	10	5	–	–	–	
		LN25XB60	600	25	85	350	150	1.05	12.5	10	5	–	–	–	

UR : UL recognized (UL File No. E142422)

High Speed Bridge Diodes (SBD)

THD (Through Hole Device)

Package: JEDEC Code / JEITA Code / House Name	Fig.	Type No.	VRRM [V]	IF (AV) [A]	Conditions Tc [℃]	IFSM [A]	Tj [℃]	VF (max) [V]	Conditions IF [A]	IR (max) VR=VRM [μA]	Halogen free	UL	Automotive	Circuit
– – 3S	D3	D4SBS4	40	4	116	60	150	0.55	2	2mA	–	–	–	S series
		D4SBS6	60	4	114	60	150	0.62	2	2mA	–	–	–	S series
		D4SBN20	200	4	103	60	150	0.90	2	1.5	–	–	–	N series
		D10SBS4	40	10	67	100	150	0.55	5	3.5mA	–	–	–	S series
		D15XBS6	60	15	59	150	150	0.63	7.5	6.0mA	–	–	–	S series
– – 5S	D4	D6SBN20	200	6	110	120	150	0.90	3	2	–	–	–	N series
		D15XBN20	200	15	106	200	150	0.90	7.5	5	–	–	–	N series
		D20XBS6	60	20	100	200	150	0.63	10	8.0mA	–	–	–	S series
		D30XBN20	200	30	91	350	150	0.90	15	10	–	–	–	N series

High Speed Bridge Diodes (FRD)

THD (Through Hole Device)

Package: JEDEC Code / JEITA Code / House Name	Fig.	Type No.	VRRM [V]	IF (AV) [A]	Conditions Tc [℃]	IFSM [A]	Tj [℃]	VF (max) [V]	Conditions IF [A]	IR (max) VR=VRM [μA]	Halogen free	UL	Automotive	Circuit
– – JC(4pin)	D7	D30JCB100K	1000	30	90	450	150	1.90	15	10	–	UR	○	K series

UR : UL recognized (UL File No. E142422)

SCHOTTKY BARRIER DIODES

Schottky Barrier Diodes are diodes using a barrier at the junction of a metal and the semiconductor.
These are very suitable rectification devices featuring high speed and a low VF diode.

Series	Feature
S	Evenly balanced VF and IR
M	Evenly balanced Low VF and IR
N	High Voltage
H	Ultra Low VF
J	Low IR
SL	Ultra Low IR, Tj=175℃ guaranteed
Y	Evenly balanced VF and Low IR
W	SiCSBD,Ultra High Recovery Speed,Low Noise

Single

Surface Mount

Package	JEDEC Code JEITA Code House Name	Fig.	IF(AV) [A]	VRRM[V] 30	40	45	60	80	100	120	150	Circuit
 3.5 × 1.6 × 0.8(mm)	DO-219AB similar SC-109 G1F	B1-1	1	DG1M3 DG1H3	DG1S4		DG1S6		DG1J10A			①—▶|—②
			1.4								DG1N15A	
			1.5	DG1M3A DG1H3A			DG1S6A					
 3.9 × 1.8 × 1.4(mm)	DO-219AA similar – M1F	B2	1.2				M1FS6					
			1.33		M1FS4							
			1.5		M1FJ4							
			1.7	M1FH3								
			3	M1FM3								
 5.0 × 2.5 × 2.0(mm)	DO-214AC – 1F	B3-1	1						D1FJ10			
			1.1		D1FS4		D1FS6					
			1.5		D1FS4A							
			2		D1FT4 D1FJ4		D1FT6	D1FJ8	D1FT10			
			2.5				D1FS6A					
			3	D1FH3	D1FT4A		D1FT6A	D1FJ8A	D1FT10A		D1FT15A	
			5	D1FM3								
 4.7 × 2.4 × 0.98(mm)	– SC-110B CE	B5-1	3		D3CE4S	N D3CE4R5ST	D3CE6S N D3CE6ST		N D3CE10ST	N D3CE12ST	D3CE15ST	
			5		D5CE4S	N D5CE4R5ST	N D5CE6ST		N D5CE10ST	N D5CE12ST	N D5CE15ST	
 5.1 × 3.75 × 2.0(mm)	DO-214AA similar – M2F	B6	2						★ M2FS10ST		★ M2FS15ST	
			3						★ M3FS10ST		★ M3FS15ST	
			5						★ M5FS10ST		★ M5FS15ST	
			6	M2FH3 M2FM3								
 7.6 × 4.0 × 2.8(mm)	– – 2F	B9-1	1.5				D2FS6					
			1.6		D2FS4							
			2.6		D3FS4A							
			3				D3FS6		D3FJ10			

N : New product ★ : Under development

Single

Surface Mount

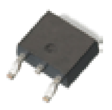
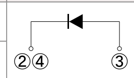
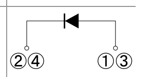
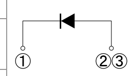
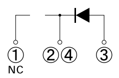
Package: JEDEC Code / JEITA Code / House Name	Fig.	Type No.	Absolute Maximum Ratings: VRRM [V]	IF (AV) [A]	Conditions Tc [℃]	IFSM [A]	Tj [℃]	Electrical Characteristics: VF (max) [V]	Conditions IF [A]	IR (max) VR=VRM [mA]	Ct (typ) [pF]	Halogen free	Based on AEC-Q101	Automotive	Series
DO-219AB similar SC-109 G1F	B1-1	DG1M3	30	1	27 *1	20	150	0.46	0.7	0.05	36	–	○	○	M series
		DG1H3	30	1	113 *2	20	125	0.36	0.7	1	37	–	–	○	H series
		DG1S4	40	1	36 *1	30	150	0.55	0.7	0.8	37	–	○	○	S series
		DG1S6	60	1	128 *2	30	150	0.58	0.7	1	32	–	○	○	S series
		DG1J10A	100	1	125 *2	30	150	0.82	1	0.1	43	–	–	○	J series
		DG1N15A	150	1.4	65 *1	30	150	0.88	1.4	0.05	32	–	○	○	N series
		DG1M3A	30	1.5	37 *1	30	150	0.46	1.5	0.05	70	–	○	○	M series
		DG1H3A	30	1.5	107 *2	30	125	0.36	1.5	1	70	–	–	○	H series
		DG1S6A	60	1.5	122 *2	40	150	0.53	1	0.05	43	–	○	○	S series
DO-219AA similar – M1F	B2	M1FS6	60	1.2	25 *1	40	150	0.58	1.1	1	53	–	○	○	S series
		M1FS4	40	1.33	25 *1	30	150	0.55	1.1	0.8	50	–	○	○	S series
		M1FJ4	40	1.5	31 *1	30	150	0.63	1.5	0.05	65	–	○	○	J series
		M1FH3	30	1.7	25 *1	30	-55 to 125	0.36	1.5	1	80	–	–	–	H series
		M1FM3	30	3	100	30	150	0.46	1.5	0.05	80	–	○	○	M series
DO-214AC – 1F	B3-1	D1FJ10	100	1	52 *1	50	150	0.72	1	0.2	63	–	○	○	J series
		D1FS4	40	1.1	51 *1	30	150	0.55	1.1	1	65	–	○	○	S series
		D1FS6	60	1.1	38 *1	40	150	0.58	1.1	1	50	–	○	○	S series
		D1FS4A	40	1.5	28 *1	60	150	0.48	1.5	2	95	–	○	○	S series
		D1FT4	40	2	143 *2	60	175	0.74	2	5μA	63	–	○	○	SL series
		D1FJ4	40	2	117 *2	50	150	0.61	2	0.2	96	–	○	○	J series
		D1FT6	60	2	141 *2	60	175	0.78	2	5μA	53	–	○	○	SL series
		D1FJ8	80	2	110	30	150	0.74	1.5	0.2	40	–	–	○	Y series
		D1FT10	100	2	136 *2	50	175	0.86	2	5μA	40	–	○	○	SL series
		D1FS6A	60	2.5	103 *2	60	150	0.57	2.5	0.2	80	–	○	○	S series
		D1FH3	30	3	95	60	125	0.36	3	2	130	–	–	■	H series
		D1FT4A	40	3	127 *2	90	175	0.74	3	8μA	93	–	○	○	SL series
		D1FT6A	60	3	125 *2	90	175	0.78	3	8μA	78	–	○	○	SL series
		D1FJ8A	80	3	100	30	150	0.74	3	0.4	70	–	–	○	Y series
		D1FT10A	100	3	116 *2	60	175	0.86	3	8μA	60	–	○	○	SL series
		D1FT15A	150	3	116 *2	60	175	0.88	3	8μA	52	–	○	○	SL series
		D1FM3	30	5	83	90	150	0.46	3	0.1	130	–	○	○	M series
– SC-110B CE	B5-1	D3CE4S	40	3	106 *2	80	150	0.52	3	0.3	97	–	○	○	S series
		N D3CE4R5ST	45	3	133 *2	90	-55 to 175	0.74	3	8μA	98	–	TBD	○	SL series
		D3CE6S	60	3	112 *2	100	150	0.58	3	0.3	110	–	○	○	S series
		N D3CE6ST	60	3	131 *2	90	-55 to 175	0.78	3	8μA	82	–	TBD	○	SL series
		N D3CE10ST	100	3	124 *2	80	-55 to 175	0.86	3	8μA	60	–	TBD	○	SL series
		N D3CE12ST	120	3	124 *2	80	-55 to 175	0.87	3	8μA	56	–	TBD	○	SL series
		D3CE15ST	150	3	136 *2	80	175	0.88	3	8μA	52	–	○	○	SL series
		D5CE4S	40	5	94 *2	120	-55 to 150	0.52	5	0.5	157	–	–	○	S series
		N D5CE4R5ST	45	5	126 *2	100	-55 to 175	0.74	5	15μA	189	–	TBD	○	SL series
		N D5CE6ST	60	5	120 *2	100	-55 to 175	0.78	5	15μA	149	–	TBD	○	SL series
		N D5CE10ST	100	5	112 *2	90	-55 to 175	0.86	5	15μA	106	–	TBD	○	SL series
		N D5CE12ST	120	5	111 *2	90	-55 to 175	0.87	5	15μA	102	–	TBD	○	SL series
		N D5CE15ST	150	5	111 *2	90	-55 to 175	0.88	5	15μA	92	–	TBD	○	SL series
DO-214AA similar – M2F	B6	M2FH3	30	6	70	110	125	0.36	6	4	240	–	–	–	H series
		M2FM3	30	6	99	120	150	0.46	6	0.2	240	–	○	○	M series
		★ M2FS10ST	100	2	TBD	TBD	-55 to 175	0.86	2	5μA	TBD	–	TBD	○	SL series
		★ M2FS15ST	150	2	TBD	TBD	-55 to 175	0.88	2	5μA	TBD	–	TBD	○	SL series
		★ M3FS10ST	100	3	TBD	TBD	-55 to 175	0.86	3	8μA	TBD	–	TBD	○	SL series
		★ M3FS15ST	150	3	TBD	TBD	-55 to 175	0.88	3	8μA	TBD	–	TBD	○	SL series
		★ M5FS10ST	100	5	TBD	TBD	-55 to 175	0.86	5	15μA	TBD	–	TBD	○	SL series
		★ M5FS15ST	150	5	TBD	TBD	-55 to 175	0.88	5	15μA	TBD	–	TBD	○	SL series
– – 2F	B9-1	D2FS6	60	1.5	31 *1	60	150	0.58	2	2	120	–	–	○	S series
		D2FS4	40	1.6	34 *1	60	150	0.55	1.6	2.5	150	–	–	○	S series
		D3FS4A	40	2.6	34 *1	150	150	0.45	2.6	5	340	–	○	○	S series
		D3FS6	60	3	87 *2	80	150	0.58	3	2.5	130	–	–	○	S series
		D3FJ10	100	3	92 *2	100	150	0.74	3	0.4	143	–	–	○	J series

N : New product ★ : Under development *1 : Ta *2 : Tl ■ : Please contact us.

SCHOTTKY BARRIER DIODES

Single

Surface Mount

Package	JEDEC Code JEITA Code House Name	Fig.	$I_{F(AV)}$ [A]	V_{RRM}[V] 30	40	45	60	100	150	200	650	Circuit
 9.5 × 6.6 × 2.65(mm)	– SC-63 E-pack	G1-2	3		DE3S4M		DE3S6M					
			5		DE5S4M		DE5S6M					
		G1-4	10	DE10S3L								
 6.5 × 4.5 × 1.1(mm)	TO-277A similar – FY	G4-1	5			D5FY4R5ST D5FY4R5SY	D5FY6ST D5FY6SY	D5FY10ST D5FY10SY	D5FY15ST	D5FY20SN		
			10			D10FY4R5ST D10FY4R5SY	D10FY6ST D10FY6SY	D10FY10ST D10FY10SY	D10FY15ST			
			15			D15FY4R5ST D15FY4R5SY	D15FY6ST D15FY6SY	D15FY10ST D15FY10SY	D15FY15ST			
 9.6 × 6.6 × 2.3(mm)	TO-252AA similar – FR	G5	15		D15FR4ST							
			20		D20FR4ST	D20FR4R5S						
 10.0 × 6.6 × 2.3(mm)	TO-252AA – FB	G2-5	10								★WS10FB65AK	
			20								★WS20FB65AK	

★ : Under development

Axial

Package	JEDEC Code JEITA Code House Name	Fig.	$I_{F(AV)}$ [A]	V_{RRM}[V] 40	60	Circuit
 3.0 × ϕ 2.6(mm)	– – AX057	A1	1	D1NS4	D1NS6	
 5.0 × ϕ 4.0(mm)	– – AX078	A4-1	2	D2S4M	D2S6M	
 7.0 × ϕ 4.4(mm)	– – AX14	A7	3	D3S4M	D3S6M	

Single

Surface Mount

Package: JEDEC Code / JEITA Code / House Name	Fig.	Type No.	Absolute Maximum Ratings: V_{RRM} [V]	$I_{F(AV)}$ [A]	Conditions T_c [℃]	I_{FSM} [A]	T_j [℃]	Electrical Characteristics: V_F (max) [V]	Conditions I_F [A]	I_R (max) $V_R=V_{RM}$ [mA]	Ct (typ) [pF]	Halogen free	Based on AEC-Q101	Automotive	Series
– SC-63 E-pack	G1-2	DE3S4M	40	3	121	70	150	0.55	3	2.5	150	–	–	–	S series
		DE3S6M	60	3	117	80	150	0.58	3	2.5	130	–	–	–	S series
		DE5S4M	40	5	101	80	150	0.55	5	3.5	180	–	–	–	S series
		DE5S6M	60	5	96	90	150	0.58	5	4.5	200	–	–	–	S series
	G1-4	DE10S3L	30	10	124	250	150	0.45	8	10	640	–	–	–	S series
TO-277A similar – FY	G4-1	D5FY4R5ST	45	5	165 *2	240	-55 to 175	0.74	5	15μA	187	○	○	○	SL series
		D5FY4R5SY	45	5	138 *2	220	-55 to 150	0.59	5	0.2	155	○	○	○	Y series
		D5FY6ST	60	5	164 *2	210	-55 to 175	0.78	5	15μA	148	○	○	○	SL series
		D5FY6SY	60	5	138 *2	210	-55 to 150	0.67	5	0.2	170	○	○	○	Y series
		D5FY10ST	100	5	162 *2	210	-55 to 175	0.86	5	15μA	104	○	○	○	SL series
		D5FY10SY	100	5	132 *2	130	-55 to 150	0.8	5	0.2	141	○	○	○	Y series
		D5FY15ST	150	5	162 *2	210	-55 to 175	0.88	5	15μA	92	○	○	○	SL series
		D5FY20SN	200	5	163 *2	210	-55 to 175	0.87	5	5μA	111	○	○	○	SL series
		D10FY4R5ST	45	10	155 *2	250	-55 to 175	0.74	10	30μA	330	○	○	○	SL series
		D10FY4R5SY	45	10	126 *2	290	-55 to 150	0.59	10	0.4	302	○	○	○	Y series
		D10FY6ST	60	10	154 *2	230	-55 to 175	0.78	10	30μA	263	○	○	○	SL series
		D10FY6SY	60	10	127 *2	250	-55 to 150	0.67	10	0.4	262	○	○	○	Y series
		D10FY10ST	100	10	152 *2	230	-55 to 175	0.86	10	30μA	185	○	○	○	SL series
		D10FY10SY	100	10	118 *2	260	-55 to 150	0.8	10	0.4	253	○	○	○	Y series
		D10FY15ST	150	10	149 *2	230	-55 to 175	0.88	10	30μA	159	○	○	○	SL series
		D15FY4R5ST	45	15	145 *2	270	-55 to 175	0.74	15	40μA	398	○	○	○	SL series
		D15FY4R5SY	45	15	116 *2	310	-55 to 150	0.59	15	0.5	410	○	○	○	Y series
		D15FY6ST	60	15	143 *2	250	-55 to 175	0.78	15	40μA	345	○	○	○	SL series
		D15FY6SY	60	15	117 *2	280	-55 to 150	0.67	15	0.5	345	○	○	○	Y series
		D15FY10ST	100	15	141 *2	250	-55 to 175	0.86	15	40μA	242	○	○	○	SL series
		D15FY10SY	100	15	114 *2	280	-55 to 150	0.83	15	0.5	297	○	○	○	Y series
		D15FY15ST	150	15	138 *2	230	-55 to 175	0.88	15	40μA	209	○	○	○	SL series
TO-252AA similar – FR	G5	D15FR4ST	40	15	152	250	-55 to 175	0.74	15	40μA	398	–	○	■	SL series
		D20FR4ST	40	20	149	400	-55 to 175	0.74	20	60μA	600	–	○	■	SL series
		D20FR4R5S	45	20	118	300	-55 to 150	0.55	20	2.8	625	–	○	○	S series
TO-252AA – FB	G2-5	★ WS10FB65AK	650	10	TBD	TBD	-55 to 175	1.49 *1	10	50μA	5 *3	○	TBD	○	W series
		★ WS20FB65AK	650	20	TBD	TBD	-55 to 175	1.47 *1	20	0.4	10 *3	○	TBD	○	W series

★ : Under development *1 : V_F(typ) *2 : Tl *3 : Qrr(typ)[nC] ■ : Please contact us.

Axial

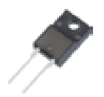
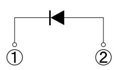
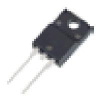
Package: JEDEC Code / JEITA Code / House Name	Fig.	Type No.	Absolute Maximum Ratings: V_{RRM} [V]	$I_{F(AV)}$ [A]	Conditions Ta [℃]	I_{FSM} [A]	T_j [℃]	Electrical Characteristics: V_F (max) [V]	Conditions I_F [A]	I_R (max) $V_R=V_{RM}$ [mA]	Ct (typ) [pF]	Halogen free	Based on AEC-Q101	Automotive	Series
– – AX057	A1	D1NS4	40	1	59	30	150	0.55	1	0.8	50	–	–	–	S series
		D1NS6	60	1	46	30	150	0.58	1	1	53	–	–	–	S series
– – AX078	A4-1	D2S4M	40	2	122 *	60	150	0.55	2	2	95	–	–	–	S series
		D2S6M	60	2	119 *	60	150	0.58	2	2	90	–	–	–	S series
– – AX14	A7	D3S4M	40	3	63	80	150	0.55	3	3.5	150	–	–	–	S series
		D3S6M	60	3	133 *	80	150	0.58	3	2.5	130	–	–	–	S series

* : Tl

SCHOTTKY BARRIER DIODES

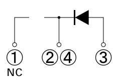
Single

Two Terminal Type

Package	JEDEC Code JEITA Code House Name	Fig.	$I_{F(AV)}$ [A]	V_{RRM}[V] 40	60	90	150	650	1200	Circuit
 28.5 × 10.0 × 4.5(mm)	– SC-91 FTO-220AG	J3	10					★ WS10SF65A	★ WS10SF120A	
			20					★ WS20SF65A		
 28.5 × 10.0 × 4.5(mm)	– SC-91 FTO-220G	J4	5	SG5S4M	SG5S6M	SG5S9M				

★ : Under development

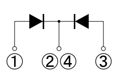
Three Terminal Type

Package	JEDEC Code JEITA Code House Name	Fig.	$I_{F(AV)}$ [A]	V_{RRM}[V] 40	60	90	150	650	Circuit
 41.02 × 15.94 × 5.02(mm)	TO-247AD – GC	K8-3	20					★ WS20GC65A	

★ : Under development

Center Tap,Common Cathode

Surface Mount

Package	JEDEC Code JEITA Code House Name	Fig.	$I_{F(AV)}$ [A]	V_{RRM}[V] 30	40	45	60	90	100	120	150	650	Circuit
 9.5 × 6.6 × 2.65(mm)	– SC-63 E-pack	G1-1	5	DE5SC3ML	DE5SC4M		DE5SC6M						
			10	DE10SC3L	DE10SC4								
 9.5 × 6.6 × 2.65(mm)	TO-252AB similar SC-63 FE	G3-1	5	N D5FEC3SH									
			6		D6FEC4ST				D6FEC10ST	D6FEC12ST	D6FEC15ST		
 13.2 × 10.2 × 4.7(mm)	– SC-83 similar STO-220	H1-1	10		DF10SC4M		DF10SC6	DF10SC9			DF10NC15		
			15		DF15SC4M				DF15JC10		DF15NC15		
			20		DF20SC4M			DF20SC9M	DF20JC10		DF20NC15		
			25				DF25SC6M						
			30	DF30SC3ML	DF30JC4 DF30SC4M		DF30JC6		DF30JC10		DF30NC15		
			40	DF40SC3L	DF40SC4								
 13.2 × 10.2 × 4.6(mm)	– SC-83 similar FD	H2-2	10						D10FDC10ST				
			20						D20FDC10ST		D20FDC15ST		
			30		D30FDC4S				D30FDC10ST		D30FDC15ST		
			40						D40FDC10ST		D40FDC15ST		
 10.0 × 6.6 × 2.3(mm)	TO-252AA – FB	G2-4	6			N D6FBC4R5ST	N D6FBC6ST		N D6FBC10ST	N D6FBC12ST	N D6FBC15ST		
			20									★ WS20FBC65AK	

N : New product ★ : Under development

Single

Two Terminal Type

Package: JEDEC Code / JEITA Code / House Name	Fig.	Type No.	Absolute Maximum Ratings: V_{RRM} [V]	$I_{F(AV)}$ [A]	Conditions T_C [℃]	I_{FSM} [A]	T_j [℃]	Electrical Characteristics: V_F (max) [V]	Conditions I_F [A]	I_R (max) $V_R=V_{RM}$ [mA]	Ct (typ) [pF]	Halogen free	Based on AEC-Q101	Automotive	Series
– SC-91 FTO-220AG	J3	★ WS10SF65A	650	10	TBD	TBD	-55 to 175	1.49 *1	10	50μA	5 *2	–	–	–	W series
		★ WS10SF120A	1200	10	TBD	TBD	-55 to 175	1.48 *1	10	0.2	10 *2	–	–	–	W series
		★ WS20SF65A	650	20	TBD	TBD	-55 to 175	1.47 *1	20	0.1	10 *2	–	–	–	W series
– SC-91 FTO-220G	J4	SG5S4M	40	5	131	150	150	0.52	5	0.5	157	–	–	–	S series
		SG5S6M	60	5	130	120	150	0.56	5	0.5	165	–	–	–	S series
		SG5S9M	90	5	124	90	150	0.75	5	0.5	140	–	–	–	S series

★ : Under development *1 : V_F(typ) *2 : Qrr(typ)[nC]

Three Terminal Type

Package: JEDEC Code / JEITA Code / House Name	Fig.	Type No.	Absolute Maximum Ratings: V_{RRM} [V]	$I_{F(AV)}$ [A]	Conditions T_C [℃]	I_{FSM} [A]	T_j [℃]	Electrical Characteristics: V_F (max) [V]	Conditions I_F [A]	I_R (max) $V_R=V_{RM}$ [mA]	Ct (typ) [pF]	Halogen free	Based on AEC-Q101	Automotive	Series
TO-247AD – GC	K8-3	★ WS20GC65A	650	20	TBD	TBD	-55 to 175	1.47 *1	20	0.4	10 *2	○	–	–	W series

★ : Under development *1 : V_F(typ) *2 : Qrr(typ)[nC]

Center Tap,Common Cathode

Surface Mount

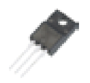
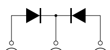
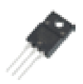
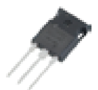
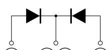
Package: JEDEC Code / JEITA Code / House Name	Fig.	Type No.	Absolute Maximum Ratings: V_{RRM} [V]	$I_{F(AV)}$ [A]	Conditions T_C [℃]	I_{FSM} [A]	T_j [℃]	Electrical Characteristics: V_F (max) [V]	Conditions I_F [A]	I_R (max) $V_R=V_{RM}$ [mA]	Ct (typ) [pF]	Halogen free	Based on AEC-Q101	Automotive	Series
– SC-63 E-pack	G1-1	DE5SC3ML	30	5	110	90	150	0.45	2.5	3.5	190	–	–	■	S series
		DE5SC4M	40	5	101	80	150	0.55	2.5	3.5	150	–	–	■	S series
		DE5SC6M	60	5	92	80	150	0.58	2.5	2.5	130	–	–	■	S series
		DE10SC3L	30	10	124	100	150	0.45	4	5	290	–	–	■	S series
		DE10SC4	40	10	132	100	150	0.55	5	3.5	210	–	–	■	S series
TO-252AB similar SC-63 FE	G3-1	N D5FEC3SH	30	5	110	100	-55 to 125	0.4	2.5	1.3	91	–	–	–	H series
		D6FEC4ST	40	6	158	90	175	0.74	3	8μA	93	–	○	○	SL series
		D6FEC10ST	100	6	154	100	175	0.86	3	8μA	60	–	○	○	SL series
		D6FEC12ST	120	6	154	100	175	0.87	3	8μA	60	–	○	○	SL series
		D6FEC15ST	150	6	154	100	175	0.88	3	8μA	52	–	○	○	SL series
– SC-83 similar STO-220	H1-1	DF10SC4M	40	10	125	100	150	0.55	5	3.5	180	–	–	–	S series
		DF10SC6	60	10	132	150	150	0.58	5	4.5	260	–	–	–	S series
		DF10SC9	90	10	131	150	150	0.75	5	3	185	–	–	–	S series
		DF10NC15	150	10	123	100	150	0.88	5	0.2	110	–	–	–	N series
		DF15SC4M	40	15	129	150	150	0.55	7.5	5	340	–	–	–	S series
		DF15JC10	100	15	126	150	150	0.86	7.5	0.6	200	–	–	–	J series
		DF15NC15	150	15	126	150	150	0.88	7.5	0.3	155	–	–	–	N series
		DF20SC4M	40	20	122	230	150	0.55	10	7.5	390	–	–	–	S series
		DF20SC9M	90	20	111	200	150	0.75	10	10	370	–	–	–	S series
		DF20JC10	100	20	121	200	150	0.86	10	0.7	260	–	–	–	J series
		DF20NC15	150	20	121	200	150	0.88	10	0.4	200	–	–	–	N series
		DF25SC6M	60	25	115	300	150	0.58	12.5	10	490	–	–	–	S series
		DF30SC3ML	30	30	119	350	150	0.48	15	10	820	–	–	–	S series
		DF30JC4	40	30	115	250	150	0.61	15	0.7	560	–	–	–	J series
		DF30SC4M	40	30	112	360	150	0.55	15	10	590	–	–	–	S series
		DF30JC6	60	30	108	250	150	0.69	15	0.7	490	–	–	–	J series
		DF30JC10	100	30	116	300	150	0.86	15	1	390	–	–	–	J series
		DF30NC15	150	30	115	300	150	0.88	15	0.5	300	–	–	–	N series
		DF40SC3L	30	40	112	400	150	0.45	15	17	1200	–	–	–	S series
		DF40SC4	40	40	106	350	150	0.55	20	14	860	–	–	–	S series
– SC-83 similar FD	H2-2	D10FDC10ST	100	10	158	150	175	0.86	5	15μA	104	–	○	○	SL series
		D20FDC10ST	100	20	119	250	150	0.86	10	30μA	185	–	○	○	N series
		D20FDC15ST	150	20	118	250	150	0.88	10	30μA	159	–	–	○	N series
		D30FDC4S	40	30	114	300	150	0.55	15	1.5	415	–	○	○	S series
		D30FDC10ST	100	30	108	300	150	0.86	15	40μA	242	–	–	○	N series
		D30FDC15ST	150	30	107	300	150	0.88	15	40μA	209	–	–	○	N series
		D40FDC10ST	100	40	105	400	150	0.86	20	60μA	360	–	–	■	N series
		D40FDC15ST	150	40	103	400	150	0.88	20	60μA	315	–	–	■	N series
TO-252AA – FB	G2-4	N D6FBC4R5ST	45	6	158	90	-55 to 175	0.74	3	8μA	93	○	○	○	SL series
		N D6FBC6ST	60	6	157	90	-55 to 175	0.78	3	8μA	82	○	○	○	SL series
		N D6FBC10ST	100	6	154	100	-55 to 175	0.86	3	8μA	60	○	○	○	SL series
		N D6FBC12ST	120	6	154	100	-55 to 175	0.87	3	8μA	60	○	○	○	SL series
		N D6FBC15ST	150	6	154	100	-55 to 175	0.88	3	8μA	52	○	○	○	SL series
		★ WS20FBC65AK	650	20	TBD	TBD	-55 to 175	1.49 *1	10	50μA	5 *2	○	TBD	○	W series

N : New product ★ : Under development *1 : V_F(typ) *2 : Qrr(typ)[nC] ■ : Please contact us.

SCHOTTKY BARRIER DIODES

Center Tap,Common Cathode

Three Terminal Type

Package	JEDEC Code / JEITA Code / House Name	Fig.	IF (AV) [A]	VRRM[V] 15	30	40	60	90	100	120	150	650	1200	Circuit
 28.5 × 10.0 × 4.5(mm)	– SC-91 FTO-220AG	J8-1	20									★WS20SFC65A		 ① ② ③
 28.5 × 10.0 × 4.5(mm)	– SC-91 FTO-220G	J9	8			SG8SC4M								
			10		SG10SC3LM	SG10SC4M	SG10SC6M	SG10SC9M			SG10TC15M			
			15			SG15SC4M	SG15SC6M							
			20		SG20SC3LM	SG20SC4M	SG20JC6M SG20SC6M	SG20SC9M	SG20TC10M	SG20TC12M	SG20TC15M			
			30		SG30SC3LM	SG30SC4M	SG30JC6M SG30SC6M		SG30TC10M	SG30TC12M	SG30TC15M			
			40						SG40TC10M	SG40TC12M				
 41.0 × 16.0 × 5.0(mm)	TO-247AD – MTO-3PT	K5-2	20					S20SC9MT						 ① ②④ ③
			30			S30SC4MT	S30SC6MT				S30TC15T			
			40	S40HC1R5T										
			60	S60HC1R5T	S60HC3T S60SC3LT	S60SC4MT	S60SC6MT							
 41.02 × 15.94 × 5.02(mm)	TO-247AD – GC	K8-2	20									★WS20GCC65A	★WS20GCC120A	
			40									★WS40GCC65A		

★ : Under development

Center Tap,Common Cathode

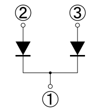
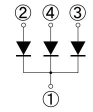
Three Terminal Type

Package JEDEC Code / JEITA Code / House Name	Fig.	Type No.	Absolute Maximum Ratings VRRM [V]	IF (AV) [A]	Conditions Tc [°C]	IFSM [A]	Tj [°C]	Electrical Characteristics VF (max) [V]	Conditions IF [A]	IR (max) VR=VRM [mA]	Ct (typ) [pF]	Halogen free	Based on AEC-Q101	Automotive	Series
– SC-91 FTO-220AG	J8-1	★ WS20SFC65A	650	20	TBD	TBD	-55 to 175	1.49 *1	10	50μA	5 *2	–	–	–	W series
– SC-91 FTO-220G	J9	SG8SC4M	40	8	155	80	175	0.56	4	0.3	100	–	–	–	S series
		SG10SC3LM	30	10	136	150	150	0.45	4	5	310	–	–	–	S series
		SG10SC4M	40	10	150	150	175	0.52	5	0.5	157	–	–	–	S series
		SG10SC6M	60	10	145	140	175	0.56	5	0.5	165	–	–	–	S series
		SG10SC9M	90	10	139	150	175	0.75	5	0.5	140	–	–	–	S series
		SG10TC15M	150	10	153	120	175	0.88	5	15μA	92	–	–	–	SL series
		SG15SC4M	40	15	117	150	150	0.52	7.5	0.8	230	–	–	–	S series
		SG15SC6M	60	15	113	180	150	0.61	7.5	0.6	185	–	–	–	S series
		SG20SC3LM	30	20	124	250	150	0.45	8	9	570	–	–	–	S series
		SG20SC4M	40	20	115	200	150	0.52	10	1.1	315	–	–	–	S series
		SG20JC6M	60	20	106	200	150	0.69	10	0.1	250	–	–	–	J series
		SG20SC6M	60	20	107	200	150	0.61	10	0.8	250	–	–	–	S series
		SG20SC9M	90	20	112	200	150	0.75	10	1	245	–	–	–	S series
		SG20TC10M	100	20	140	200	175	0.86	10	30μA	185	–	–	–	SL series
		SG20TC12M	120	20	137	200	175	0.87	10	30μA	175	–	–	–	SL series
		SG20TC15M	150	20	136	200	175	0.88	10	30μA	159	–	–	–	SL series
		SG30SC3LM	30	30	117	350	150	0.45	12.5	15	960	–	–	–	M series
		SG30SC4M	40	30	101	300	150	0.55	15	1.5	415	–	–	–	S series
		SG30JC6M	60	30	90	250	150	0.69	15	0.15	325	–	–	–	J series
		SG30SC6M	60	30	100	300	150	0.61	15	1.2	385	–	–	–	S series
		SG30TC10M	100	30	126	300	175	0.86	15	40μA	242	–	–	–	SL series
		SG30TC12M	120	30	122	300	175	0.87	15	40μA	228	–	–	–	SL series
		SG30TC15M	150	30	122	300	175	0.88	15	40μA	209	–	–	–	SL series
		SG40TC10M	100	40	116	350	175	0.86	20	60μA	362	–	–	–	SL series
		SG40TC12M	120	40	112	350	175	0.87	20	60μA	336	–	–	–	SL series
TO-247AD – MTO-3PT	K5-2	S20SC9MT	90	20	136	200	150	0.75	10	1	245	–	–	–	S series
		S30SC4MT	40	30	132	300	150	0.55	15	1.5	410	–	–	–	S series
		S30SC6MT	60	30	129	300	150	0.61	15	1.2	385	–	–	–	S series
		S30TC15T	150	30	128	300	175	0.88	15	40μA	209	–	–	–	N series
		S40HC1R5T	15	40	111	450	125	0.41	20	10	960	–	–	–	H series
		S60HC1R5T	15	60	110	600	125	0.41	30	15	1400	–	–	–	H series
		S60HC3T	30	60	112	650	125	0.40	30	20	1100	–	–	–	H series
		S60SC3LT	30	60	138	650	150	0.48	30	25	1600	–	–	–	S series
		S60SC4MT	40	60	127	500	150	0.55	30	3	790	–	–	–	S series
		S60SC6MT	60	60	121	470	150	0.67	30	2	640	–	–	–	S series
TO-247AD – GC	K8-2	★ WS20GCC65A	650	20	TBD	TBD	-55 to 175	1.49 *1	10	50μA	5 *2	–	–	–	W series
		★ WS20GCC120A	1200	20	TBD	TBD	-55 to 175	1.48 *1	10	0.2	10 *2	–	–	–	W series
		★ WS40GCC65A	650	40	TBD	TBD	-55 to 175	1.47 *1	20	0.4	10 *2	–	–	–	W series

★ : Under development *1 : VF(typ) *2 : Qrr(typ)[nC]

SCHOTTKY BARRIER DIODES

Diode Module

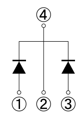
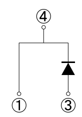
Package	JEDEC Code JEITA Code House Name	Fig.	$I_{F(AV)}$ [A]	V_{RRM} [V] 40	V_{RRM} [V] 60	Circuit
 43.0 × 27.0 × 21.0(mm)	– – Module	F1	120	D120SC4M	D120SC6M	 ② ③ ①
			240	D240SC4M	D240SC6M	
 43.0 × 27.0 × 21.0(mm)		F3-1	180	D180SC4M	D180SC6M	 ② ④ ③ ①
			360	D360SC4M	D360SC6M	

Diode Module

Package: JEDEC Code / JEITA Code / House Name	Package: Fig.	Type No.	Absolute Maximum Ratings: V_{RRM} [V]	$I_{F(AV)}$ [A]	Conditions T_c [°C]	I_{FSM} [A]	T_j [°C]	Electrical Characteristics: V_F (max) [V]	Conditions I_F [A]	I_R (max) $V_R=V_{RM}$ [mA]	Ct (typ) [pF]	Halogen free	Based on AEC-Q101	Automotive	Series
– – Module	F1	D120SC4M	40	120	90	800	125	0.58	60	40	2.1	–	–	–	S series
		D120SC6M	60	120	85	800	125	0.67	60	40	2.2	–	–	–	S series
		D240SC4M	40	240	77	1600	125	0.6	120	80	4.2	–	–	–	S series
		D240SC6M	60	240	71	1600	125	0.67	120	80	4.4	–	–	–	S series
	F3-1	D180SC4M	40	180	83	800	125	0.58	60	40	2.1	–	–	–	S series
		D180SC6M	60	180	78	800	125	0.67	60	40	2.2	–	–	–	S series
		D360SC4M	40	360	64	1600	125	0.6	120	80	4.2	–	–	–	S series
		D360SC6M	60	360	58	1600	125	0.67	120	80	4.4	–	–	–	S series

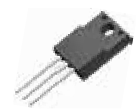
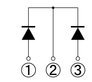
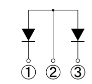
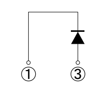
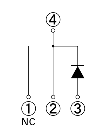
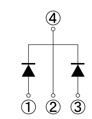
SCHOTTKY BARRIER DIODES

Single

Package: Outline No.	Package: Fig.	Type No.	Absolute Maximum Ratings: V_{RRM} [V]	I_F [A]	Conditions T_C [℃]	I_{FSM} [A]	T_j [℃]	Electrical Characteristics: V_F [V]	Conditions I_F [A]	I_R [mA]	Based on AEC-Q101	Series	Circuit
 DO-221BC 4.8 × 2.7 × 1.0(mm)	M17	MA10EB045	45	10.0	112 *2	200.0	-55 to 150	0.54	10.0	0.600	–	MA	
		MA10EA06	60	10.0	112 *2	200.0	-55 to 150	0.56	10.0	0.600	–		
		MA10XA10	100	10.0	102 *2	130.0	-55 to 150	0.73	10.0	0.300	–		
 nSMC_FL 8.0 × 4.0 × 1.5(mm)	M54	MC03HD10	100	3.0	114 *2	60.0	-55 to 150	0.85	3.0	0.100	–	MC	
		MC03HA15	150	3.0	113 *2	60.0	-55 to 150	0.90	3.0	0.100	–		
		MC03EA03	30	3.0	128 *2	60.0	-55 to 150	0.45	3.0	0.300	–		
		MC05EA03	30	5.0	114 *2	100.0	-55 to 150	0.48	5.0	0.300	–		
		MC03EA045	45	3.0	121 *2	60.0	-55 to 150	0.55	3.0	0.200	–		
		MC03EA06	60	3.0	119 *2	60.0	-55 to 150	0.57	3.0	0.200	–		
		MC05EA06	60	5.0	96 *2	100.0	-55 to 150	0.60	5.0	0.300	–		
 SOD-128 4.8 × 2.7 × 1.0(mm)	M56	ME01EA03	30	1.0	136 *2	20.0	-55 to 150	0.45	1.0	0.100	–	ME	
		ME03EA03	30	3.0	118 *2	60.0	-55 to 150	0.45	3.0	0.300	–		
		ME01EA045	45	1.0	131 *2	18.0	-55 to 150	0.55	1.0	0.100	–		
		ME03EA045	45	3.0	109 *2	60.0	-55 to 150	0.55	3.0	0.200	–		
		ME01EA06	60	1.0	129 *2	18.0	-55 to 150	0.58	1.0	0.100	–		
		ME03EA06	60	3.0	106 *2	60.0	-55 to 150	0.57	3.0	0.200	–		
		ME01HD10	100	1.0	126 *2	20.0	-55 to 150	0.85	1.0	0.050	–		
		ME03HD10	100	3.0	98 *2	60.0	-55 to 150	0.85	3.0	0.100	–		
		ME03HD15	150	3.0	※	60.0	-55 to 150	0.86	3.0	0.100	–		
 SOD-123FL 3.5 × 1.6 × 0.9(mm)	M55	MP01EA03	30	1.0	133 *2	20.0	-55 to 150	0.45	1.0	0.100	–	MP	
		MP01EA045	45	1.0	127 *2	18.0	-55 to 150	0.55	1.0	0.100	–		
		MP01EA06	60	1.0	124 *2	18.0	-55 to 150	0.60	1.0	0.100	–		
		MP01HD10	100	1.0	122 *2	20.0	-55 to 150	0.85	1.0	0.050	–		
 SOD-323FL 2.5 × 1.25 × 0.5(mm)	M57	SA10QA03	30	1.0	124 *2	20.0	-40 to 150	0.45	0.7	0.100	–	SA	
		SA10QA04	40	1.0	120 *2	20.0	-40 to 150	0.52	0.7	0.100	–		
		SA10QA06	60	1.0	117 *2	20.0	-40 to 150	0.58	0.7	0.100	–		
 3Max × ϕ2.7(DO-41S) 3.0 × ϕ2.7(mm)	M1	11EQS03L	30	1.0	55 *1	40.0	-40 to 150	0.45	1.0	1.000	–	Axial	
		11EQS04	40	1.0	48 *1	40.0	-40 to 150	0.55	1.0	1.000	–		
		11EQS06	60	1.0	29 *1	25.0	-40 to 150	0.58	1.0	1.000	–		
		11EQS10	100	1.0	53 *1	40.0	-40 to 150	0.85	1.0	0.500	–		
		10EHA20	200	1.0	40 *1	20.0	-40 to 150	0.90	1.0	0.200	–		
 DO-201AD 7.6 × ϕ3.6(mm)	M15	30GQA03L	30	3.0	126 *2	120.0	-40 to 150	0.45	3.0	0.500	–		
		30GQA04	40	3.0	121 *2	120.0	-40 to 150	0.55	3.0	0.300	–		
		50GQSA045	45	5.0	104 *2	150.0	-40 to 150	0.55	5.0	0.350	–		
		30GQA06	60	3.0	118 *2	75.0	-40 to 150	0.58	3.0	0.300	–		
		50GQSA065	65	5.0	93 *2	150.0	-40 to 150	0.61	5.0	0.400	–		
		50GHSA08	80	5.0	97 *2	120.0	-40 to 150	0.70	5.0	0.100	–		
		30GHA10	100	3.0	118 *2	100.0	-40 to 150	0.85	3.0	0.200	–		
		50GHSA12	120	5.0	93 *2	120.0	-40 to 150	0.86	5.0	0.100	–		
		30GHA20	200	3.0	116 *2	60.0	-40 to 150	0.90	3.0	0.200	–		
 DO-204AC(DO-15) 9.2 × ϕ5.8(mm)	M16	20CQA03L	30	2.0	127 *2	50.0	-40 to 150	0.46	2.0	0.500	–		
		20CQA04	40	2.0	125 *2	80.0	-40 to 150	0.55	2.0	0.300	–		
		20CQA06	60	2.0	117 *2	45.0	-40 to 150	0.60	2.0	3.000	–		
		20CHA10	100	2.0	122 *2	70.0	-40 to 150	0.85	2.0	0.200	–		
		20CHA20	200	2.0	120 *2	40.0	-40 to 150	0.90	2.0	0.200	–		
 TO-220 28.4 × 10.1 × 4.6(mm)	M58	GCQ30A03L	30	30.0	105	250.0	-40 to 150	0.49	15.0	15.000	–	TG	
		GCQ10A04	40	10.0	116	120.0	-40 to 150	0.55	5.0	5.000	–		
		GCQ20A04	40	20.0	119	180.0	-40 to 150	0.55	10.0	10.000	–		
		GCQ30A04	40	30.0	104	250.0	-40 to 150	0.55	15.0	15.000	–		
		GCQ10A06	60	10.0	108	110.0	-40 to 150	0.58	5.0	5.000	–		
		GCQ20A06	60	20.0	111	150.0	-40 to 150	0.65	10.0	10.000	–		
		GCQ30A06	60	30.0	94	200.0	-40 to 150	0.65	15.0	15.000	–		
		GCHS30A08	80	30.0	109	200.0	-40 to 150	0.75	15.0	0.200	–		
		GCH10A10	100	10.0	122	120.0	-40 to 150	0.85	5.0	1.000	–		
		GCH20A10	100	20.0	120	180.0	-40 to 150	0.88	10.0	1.000	–		
		GCH30A10	100	30.0	106	250.0	-40 to 150	0.88	15.0	2.000	–		
 TO-220 2pin 28.4 × 10.1 × 4.6(mm)	M59	GSQ05A04	40	5.0	122	120.0	-40 to 150	0.55	5.0	5.000	–		
		GSQ05A06	60	5.0	115	110.0	-40 to 150	0.58	5.0	5.000	–		
		GSQ10A04	40	10.0	119	180.0	-40 to 150	0.59	10.0	10.000	–		
		GSQ10A06	60	10.0	111	150.0	-40 to 150	0.67	10.0	10.000	–		
		GSH05A10	100	5.0	126	120.0	-40 to 150	0.85	5.0	1.000	–		
		GSH10A10	100	10.0	120	180.0	-40 to 150	0.88	10.0	1.000	–		

※ Please Contact us. *1 : Ta *2 : Tl

Single

Package: Outline No.	Package: Fig.	Type No.	Absolute Maximum Ratings: V_{RRM} [V]	I_F [A]	Conditions T_C [℃]	I_{FSM} [A]	T_j [℃]	Electrical Characteristics: V_F [V]	Conditions I_F [A]	I_R [mA]	Based on AEC-Q101	Series	Circuit
 TO-220 Full-Mold 28.5 × 10.1 × 4.5(mm)	M60	FCQ10A03L	30	10.0	※	120.0	-40 to 150	0.47	5.0	5.000	–	TF	
		FCQ20A03L	30	20.0	119	180.0	-40 to 150	0.49	10.0	10.000	–		
		FCQ30A03L	30	30.0	105	250.0	-40 to 150	0.49	15.0	15.000	–		
		FCQS10A035	35	10.0	131	120.0	-40 to 150	0.46	5.0	3.000	–		
		FCHS10A045	45	10.0	130	120.0	-40 to 150	0.59	5.0	0.100	–		
		FCQS10A045	45	10.0	128	120.0	-40 to 150	0.57	5.0	0.350	–		
		FCQS10AU045	45	10.0	126	120.0	-40 to 150	0.59	5.0	0.200	–		
		FCHS20A045	45	20.0	120	180.0	-40 to 150	0.58	10.0	0.100	–		
		FCQS20A045	45	20.0	121	180.0	-40 to 150	0.57	10.0	0.600	–		
		FCHS30A045	45	30.0	115	250.0	-40 to 150	0.60	15.0	0.200	–		
		FCQS30A045	45	30.0	116	200.0	-40 to 150	0.55	15.0	1.000	–		
		FCQS30AU045	45	30.0	100	180.0	-40 to 150	0.60	15.0	0.600	–		
		FCHS10A065	65	10.0	127	120.0	-40 to 150	0.66	5.0	0.100	–		
		FCQS10A065	65	10.0	124	120.0	-40 to 150	0.61	5.0	0.400	–		
		FCHS20A065	65	20.0	117	180.0	-40 to 150	0.68	10.0	0.150	–		
		FCQS20A065	65	20.0	115	180.0	-40 to 150	0.63	10.0	1.000	–		
		FCQS20BU065	65	20.0	※	120.0	-40 to 150	0.74	10.0	0.400	–		
		FCHS30A065	65	30.0	116	200.0	-40 to 150	0.64	15.0	0.200	–		
		FCQS30A065	65	30.0	110	200.0	-40 to 150	0.64	15.0	1.500	–		
		FCQS30AU065	65	30.0	95	180.0	-40 to 150	0.69	15.0	1.000	–		
		FCHS10A08	80	10.0	125	120.0	-40 to 150	0.72	5.0	0.100	–		
		FCHS20A08	80	20.0	116	180.0	-40 to 150	0.75	10.0	0.150	–		
		FCHS30A08	80	30.0	112	200.0	-40 to 150	※	15.0	0.200	–		
		FCHS30AU08	80	30.0	96	180.0	-40 to 150	0.81	15.0	0.150	–		
		FCH08A10	100	8.0	127	100.0	-40 to 150	0.88	4.0	1.000	–		
		FCH10A10	100	10.0	122	120.0	-40 to 150	0.86	5.0	1.000	–		
		FCH10E10	100	10.0	126	120.0	-40 to 150	0.77	5.0	0.100	–		
		FCH20A10	100	20.0	120	180.0	-40 to 150	0.88	10.0	1.000	–		
		FCH20BU10	100	20.0	92	120.0	-40 to 150	1.00	10.0	0.100	–		
		FCH20E10	100	20.0	125	180.0	-40 to 150	0.80	10.0	0.100	–		
		FCH30A10	100	30.0	106	250.0	-40 to 150	0.88	15.0	2.000	–		
		FCH30AU10	100	30.0	※	200.0	-40 to 150	0.94	15.0	0.200	–		
		FCH30E10	100	30.0	111	250.0	-40 to 150	0.80	15.0	0.100	–		
		FCHS08A12	120	8.0	※	100.0	-40 to 150	0.89	4.0	0.100	–		
		FCHS10A12	120	10.0	124	120.0	-40 to 150	0.86	5.0	0.100	–		
		FCHS20A12	120	20.0	112	180.0	-40 to 150	0.89	10.0	0.100	–		
		FCHS30A12	120	30.0	107	200.0	-40 to 150	0.90	15.0	0.100	–		
		FCH08A15	150	8.0	127	125.0	-40 to 150	0.90	4.0	1.000	–		
		FCH10A15	150	10.0	121	130.0	-40 to 150	0.88	5.0	1.000	–		
		FCH20A15	150	20.0	120	180.0	-40 to 150	0.90	10.0	1.000	–		
		FCH20BU15	150	20.0	※	130.0	-40 to 150	1.00	10.0	0.100	–		
		FCH30A15	150	30.0	103	250.0	-40 to 150	0.91	15.0	2.000	–		
		FCH10A20	200	10.0	118	100.0	-40 to 150	0.90	5.0	0.200	–		
		FCH20A20	200	20.0	118	120.0	-40 to 150	0.90	10.0	0.200	–		
		FCH20AU20	200	20.0	※	100.0	-40 to 150	1.05	10.0	0.200	–		
		FRQS20A045	45	20.0	121	180.0	-40 to 150	0.57	10.0	0.600	–		
		FRQS20A065	65	20.0	115	180.0	-40 to 150	0.63	10.0	1.000	–		
		FRH20A10	100	20.0	120	180.0	-40 to 150	0.88	10.0	1.000	–		
		FRH08A15	150	8.0	127	125.0	-40 to 150	0.90	4.0	1.000	–		
		FRH10A15	150	10.0	121	130.0	-40 to 150	0.88	5.0	1.000	–		
		FRH10A20	200	10.0	118	100.0	-40 to 150	0.90	5.0	0.200	–		
		FRH20A20	200	20.0	118	120.0	-40 to 150	0.90	10.0	0.200	–		
 TO-220 Full-Mold 2pin 28.5 × 10.1 × 4.5(mm)	M61	FSQ05A03L	30	5.0	※	120.0	-40 to 150	0.47	5.0	5.000	–		
		FSQS05A045	45	5.0	133	120.0	-40 to 150	0.54	5.0	0.350	–		
		FSQS10A045	45	10.0	128	180.0	-40 to 150	0.54	10.0	0.600	–		
		FSQS15A045	45	15.0	118	200.0	-40 to 150	0.54	15.0	1.000	–		
		FSQS30A045	45	30.0	114	400.0	-40 to 150	0.56	30.0	1.000	–		
		FSHS05A065	65	5.0	131	120.0	-40 to 150	0.63	5.0	0.100	–		
		FSQS05A065	65	5.0	131	120.0	-40 to 150	0.58	5.0	0.400	–		
		FSQS05AU065	65	5.0	127	100.0	-40 to 150	0.69	5.0	0.300	–		
		FSQS10A065	65	10.0	125	180.0	-40 to 150	0.60	10.0	1.000	–		
		FSHS05A08	80	5.0	129	120.0	-40 to 150	0.72	5.0	0.100	–		
		FSH05A10	100	5.0	126	120.0	-40 to 150	0.85	5.0	1.000	–		
		FSH10A10	100	10.0	120	180.0	-40 to 150	0.88	10.0	1.000	–		
		FSH05A15	150	5.0	125	130.0	-40 to 150	0.88	5.0	1.000	–		
		FSH10A15	150	10.0	120	180.0	-40 to 150	0.90	10.0	1.000	–		
		FSH05A20	200	5.0	123	100.0	-40 to 150	0.90	5.0	0.200	–		
 TO-251 11.3 × 6.3 × 2.4(mm)	M66	EA30QS04	40	3.0	131	45.0	-40 to 150	0.55	3.0	3.000	–	TE	
		EA60QC04	40	6.0	118	45.0	-40 to 150	0.55	3.0	3.000	–		
		EA60QC06	60	6.0	104	45.0	-40 to 150	0.58	3.0	3.000	–		
		EA60QC10	100	6.0	122	45.0	-40 to 150	0.85	3.0	1.000	–		

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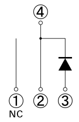
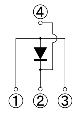
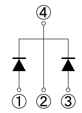
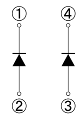
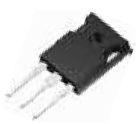
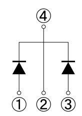
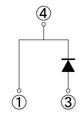
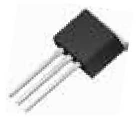
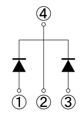
SCHOTTKY BARRIER DIODES

Single

Package Outline No.	Fig.	Type No.	VRRM [V]	IF [A]	Conditions Tc [℃]	IFSM [A]	Tj [℃]	VF [V]	Conditions IF [A]	IR [mA]	Based on AEC-Q101	Series	Circuit
 TO-252(Dpak) 9.9 × 6.3 × 2.4(mm)	M67	EA30QS03L-F	30	3.0	126	45.0	-40 to 150	0.45	3.0	3.000	–	TE	
		EA30QS04-F	40	3.0	131	45.0	-40 to 150	0.55	3.0	3.000	–		
		EA30QS06-F	60	3.0	123	45.0	-40 to 150	0.58	3.0	3.000	–		
		EA30QS10-F	100	3.0	133	45.0	-40 to 150	0.85	3.0	1.000	–		
		ESH05A15-F	150	5.0	125	130.0	-40 to 150	0.88	5.0	1.000	–		
		EA60QC03L-F	30	6.0	111	45.0	-40 to 150	0.45	3.0	3.000	–		
		ECQS10A035-F	35	10.0	125	100.0	-40 to 150	0.47	5.0	3.000	–		
		EA60QC04-F	40	6.0	118	45.0	-40 to 150	0.55	3.0	3.000	–		
		ECQS10A045-F	45	10.0	121	120.0	-40 to 150	0.57	5.0	0.350	–		
		EA60QC06-F	60	6.0	104	45.0	-40 to 150	0.58	3.0	3.000	–		
		ECHS10A08-F	80	10.0	117	100.0	-40 to 150	0.70	5.0	0.100	–		
		EA60QC10-F	100	6.0	122	45.0	-40 to 150	0.85	3.0	1.000	–		
		ECH06A20-F	200	6.0	116	60.0	-40 to 150	0.90	3.0	0.200	–		
 NA(DO-221BC) 4.7 × 2.4 × 0.92(mm)	M52	NA03QSA035	35	3.0	124 *	60.0	-40 to 150	0.47	3.0	2.000	–	NA	
		NA05QSA035	35	5.0	108 *	100.0	-40 to 150	0.47	5.0	3.000	–		
		NA03QSA045	45	3.0	122 *	60.0	-40 to 150	0.55	3.0	0.200	–		
		NA05QSA045	45	5.0	101 *	100.0	-40 to 150	0.57	5.0	0.350	–		
		NA03HSA065	65	3.0	120 *	80.0	-40 to 150	0.66	3.0	0.070	–		
		NA03QSA065	65	3.0	117 *	60.0	-40 to 150	0.61	3.0	0.300	–		
		NA05HSA065	65	5.0	99 *	120.0	-40 to 150	0.66	5.0	0.100	–		
		NA05QSA065	65	5.0	92 *	100.0	-40 to 150	0.61	5.0	0.400	–		
		NA03HSA08	80	3.0	118 *	80.0	-40 to 150	0.70	3.0	0.100	–		
		NA05HSA08	80	5.0	95 *	120.0	-40 to 150	0.70	5.0	0.100	–		
		NA03HSA12	120	3.0	115 *	60.0	-40 to 150	0.86	3.0	0.070	–		
		NA05HSA12	120	5.0	91 *	100.0	-40 to 150	0.86	5.0	0.100	–		
		NA03HA15	150	3.0	113 *	60.0	-40 to 150	0.90	3.0	1.000	–		
		NA03HA20	200	3.0	114 *	110.0	-40 to 150	0.90	3.0	1.000	–		
 NB 4.7 × 5.6 × 0.92(mm)	M53	NB06QSA035	35	6.0	122 *	60.0	-40 to 150	0.47	3.0	2.000	–	NB	
		NB10QSA035	35	10.0	105 *	100.0	-40 to 150	0.47	5.0	3.000	–		
		NB06QSA045	45	6.0	120 *	60.0	-40 to 150	0.55	3.0	0.200	–		
		NB10QSA045	45	10.0	98 *	100.0	-40 to 150	0.57	5.0	0.350	–		
		NB06HSA065	65	6.0	74 *	80.0	-40 to 150	0.66	3.0	0.070	–		
		NB06QSA065	65	6.0	115 *	60.0	-40 to 150	0.61	3.0	0.300	–		
		NB10HSA065	65	10.0	95 *	120.0	-40 to 150	0.66	5.0	0.100	–		
		NB10QSA065	65	10.0	88 *	100.0	-40 to 150	0.61	5.0	0.400	–		
		NB06HSA08	80	6.0	64 *	80.0	-40 to 150	0.70	3.0	0.100	–		
		NB10HSA08	80	10.0	91 *	120.0	-40 to 150	0.70	5.0	0.100	–		
		NB06HSA12	120	6.0	113 *	60.0	-40 to 150	0.86	3.0	0.070	–		
		NB10HSA12	120	10.0	87 *	100.0	-40 to 150	0.86	5.0	0.100	–		
 TO-247 34.5 × 15.6 × 5.0(mm)	M62	KCQ30A03L	30	30.0	111	250.0	-40 to 125	0.49	15.0	15.000	–	TK	
		KCQ60A03L	30	60.0	86	400.0	-40 to 150	0.50	30.0	25.000	–		
		KCQ20A04	40	20.0	119	180.0	-40 to 150	0.55	10.0	10.000	–		
		KCQ30A04	40	30.0	110	300.0	-40 to 150	0.55	15.0	15.000	–		
		KCQ60A04	40	60.0	83	400.0	-40 to 150	0.58	30.0	25.000	–		
		KCQ20A06	60	20.0	111	150.0	-40 to 150	0.65	10.0	10.000	–		
		KCH30A06	60	30.0	108	200.0	-40 to 150	0.69	15.0	1.000	–		
		KCQ30A06	60	30.0	102	200.0	-40 to 150	0.65	15.0	15.000	–		
		KCQ60A06	60	60.0	69	400.0	-40 to 150	0.67	30.0	25.000	–		
		KCH20A10	100	20.0	120	180.0	-40 to 150	0.88	10.0	1.000	–		
		KCH30A10	100	30.0	111	250.0	-40 to 150	0.88	15.0	2.000	–		
		KCH30A15	150	30.0	109	250.0	-40 to 150	0.91	15.0	2.000	–		
		KCH20A20	200	20.0	118	120.0	-40 to 150	0.90	10.0	0.200	–		
		KCH30A20	200	30.0	106	150.0	-40 to 150	0.92	15.0	0.300	–		
 TO-247 2pin 34.5 × 15.6 × 5.0(mm)	M63	KSQ15A04	40	15.0	※	250.0	-40 to 150	0.55	15.0	15.000	–		
		KSQ30A04	40	30.0	107	400.0	-40 to 150	0.58	30.0	25.000	–		
		KSQ15A06	60	15.0	114	200.0	-40 to 150	0.65	15.0	15.000	–		
		KSQ30A06	60	30.0	98	400.0	-40 to 150	0.67	30.0	25.000	–		
		KSH15A10	100	15.0	120	250.0	-40 to 150	0.88	15.0	2.000	–		
		KSH30A20	200	30.0	104	300.0	-40 to 150	0.95	30.0	0.500	–		
 TO-262 22.9 × 10.1 × 4.6(mm)	M68	TCQ20A03L-11A	30	20.0	※	180.0	-40 to 150	0.45	10.0	10.000	–	TT	
		TCQ10A04-11A	40	10.0	116	120.0	-40 to 150	0.55	5.0	5.000	–		
		TCQ20A04-11A	40	20.0	119	180.0	-40 to 150	0.55	10.0	10.000	–		
		TCQ30A04-11A	40	30.0	※	250.0	-40 to 150	0.55	10.0	15.000	–		
		TCQ30A06-11A	60	30.0	※	200.0	-40 to 150	0.65	10.0	15.000	–		
		TCH10A15-11A	150	10.0	121	130.0	-40 to 150	0.88	5.0	1.000	–		
		TCH20A15-11A	150	20.0	120	180.0	-40 to 150	0.90	10.0	1.000	–		
		TCH30A15-11A	150	30.0	103	250.0	-40 to 150	0.91	15.0	2.000	–		
		TCH20A20-11A	200	20.0	※	120.0	-40 to 150	0.90	10.0	0.200	–		

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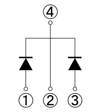
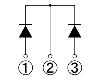
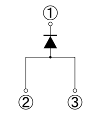
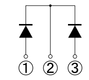
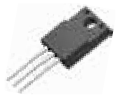
Single

Package Outline No.	Fig.	Type No.	VRRM [V]	IF [A]	Conditions Tc [℃]	IFSM [A]	Tj [℃]	VF [V]	Conditions IF [A]	IR [mA]	Based on AEC-Q101	Series	Circuit
 TO-263(D2pak) 12.8 × 10.1 × 4.6(mm)	M70	TCQ20A03L	30	20.0	※	180.0	-40 to 150	0.45	10.0	10.000	–	TT	
		TCQ10A04	40	10.0	116	120.0	-40 to 150	0.55	5.0	5.000	–		
		TCQ20A04	40	20.0	119	180.0	-40 to 150	0.55	10.0	10.000	–		
		TCQ30A04	40	30.0	※	250.0	-40 to 150	0.55	10.0	15.000	–		
		TCQ30A06	60	30.0	※	200.0	-40 to 150	0.65	10.0	15.000	–		
		TCH10A15	150	10.0	121	130.0	-40 to 150	0.88	5.0	1.000	–		
		TCH20A15	150	20.0	120	180.0	-40 to 150	0.90	10.0	1.000	–		
		TCH30A15	150	30.0	103	250.0	-40 to 150	0.91	15.0	2.000	–		
		TCH20A20	200	20.0	118	120.0	-40 to 150	0.90	10.0	0.200	–		
 TO-263LP 12.9 × 10.1 × 1.7(mm)	M71	UCQ30A03	30	30.0	116	230.0	-40 to 150	0.50	15.0	1.500	–	TU	
		UCQS30A045	45	30.0	122	250.0	-40 to 150	0.55	15.0	1.000	–		
		UCHS10A065	65	10.0	113	120.0	-40 to 150	0.63	5.0	0.100	–		
		UCQS10A065	65	10.0	135	120.0	-40 to 150	0.61	5.0	0.400	–		
		UCHS10A08	80	10.0	132	120.0	-40 to 150	0.69	5.0	0.100	–		
		UCHS30A08	80	30.0	112	250.0	-40 to 150	0.79	15.0	0.100	–		
		UCHS10A12	120	10.0	133	120.0	-40 to 150	0.84	5.0	0.100	–		
		UCHS20A12	120	20.0	113	220.0	-40 to 150	0.87	10.0	0.100	–		
		UCHS30A12	120	30.0	106	250.0	-40 to 150	0.90	15.0	0.100	–		
		UCHD30A09	90	30.0	111	250.0	-40 to 150	0.79	15.0	0.100	–		
 TO-277 6.5 × 4.0 × 1.1(mm)	M72	VSHS03A12	120	3.0	126 *	70.0	-40 to 150	0.86	3.0	0.07	–	MV	
		VSHS10A12	120	10.0	63 *	190.0	-40 to 150	0.89	10.0	0.10	–		
		VSHS15A08	80	15.0	60 *	150.0	-40 to 150	0.76	15.0	0.10	–		
		VSHS15A12	120	15.0	59 *	150.0	-40 to 150	0.92	15.0	0.10	–		
		VSQS10A045	45	10.0	84 *	280.0	-40 to 150	0.56	10.0	0.06	–		
		VSQS10A065	65	10.0	65 *	140.0	-40 to 150	0.65	10.0	0.20	–		
		VSQS15A045	45	15.0	83 *	230	-40 to 150	0.54	15.0	1.00	–		

For Automotive　AEC-Q101 Qualified Products

Package Outline No.	Fig.	Type No.	VRRM [V]	IF [A]	Conditions Tc [℃]	IFSM [A]	Tj [℃]	VF [V]	Conditions IF [A]	IR [mA]	Based on AEC-Q101	Series	Circuit
 DO-221BC 4.8 × 2.7 × 1.0(mm)	M17	AMA10EB045	45	10.0	112 *	200.0	-55 to 150	0.54	10.0	0.600	○	MA	
		AMA10EA06	60	10.0	112 *	200.0	-55 to 150	0.56	10.0	0.600	○		
		AMA10XA10	100	10.0	102 *	130.0	-55 to 150	0.73	10.0	0.300	○		
 nSMC_FL 8.0 × 4.0 × 1.5(mm)	M54	AMC03HD10	100	3.0	114 *	60.0	-55 to 150	0.85	3.0	0.100	○	MC	
		AMC03HA15	150	3.0	113 *	60.0	-55 to 150	0.90	3.0	0.100	○		
		AMC03EA03	30	3.0	128 *	60.0	-55 to 150	0.45	3.0	0.300	○		
		AMC05EA03	30	5.0	114 *	100.0	-55 to 150	0.48	5.0	0.300	○		
		AMC03EA045	45	3.0	121 *	60.0	-55 to 150	0.55	3.0	0.200	○		
		AMC03EA06	60	3.0	119 *	60.0	-55 to 150	0.57	3.0	0.200	○		
		AMC05EA06	60	5.0	96 *	100.0	-55 to 150	0.60	5.0	0.300	○		
 SOD-128 4.8 × 2.7 × 1.0(mm)	M56	AME01EA03	30	1.0	136 *	20.0	-55 to 150	0.45	1.0	0.100	○	ME	
		AME03EA03	30	3.0	118 *	60.0	-55 to 150	0.45	3.0	0.300	○		
		AME01EA045	45	1.0	131 *	18.0	-55 to 150	0.55	1.0	0.100	○		
		AME03EA045	45	3.0	109 *	60.0	-55 to 150	0.55	3.0	0.200	○		
		ME01EA06	60	1.0	129 *	18.0	-55 to 150	0.58	1.0	0.100	○		
		ME03EA06	60	3.0	106 *	60.0	-55 to 150	0.57	3.0	0.200	○		
		ME03HD10	100	3.0	98 *	60.0	-55 to 150	0.85	3.0	0.100	○		
		AME01HD10	100	1.0	126 *	20.0	-55 to 150	0.85	1.0	0.050	○		
		AME03HA15	150	3.0	99 *	60.0	-55 to 150	0.86	3.0	0.100	○		
 SOD-123FL 3.5 × 1.6 × 0.9(mm)	M55	AMP01EA03	30	1.0	133 *	20.0	-55 to 150	0.45	1.0	0.100	○	MP	
		AMP01EA045	45	1.0	127 *	18.0	-55 to 150	0.55	1.0	0.100	○		
		AMP01EA06	60	1.0	124 *	18.0	-55 to 150	0.60	1.0	0.100	○		
		AMP01HD10	100	1.0	122 *	20.0	-55 to 150	0.85	1.0	0.050	○		
 TO-263LP 12.9 × 10.1 × 1.7(mm)	M71	UCQS20A045	45	20.0	122	220.0	-40 to 150	0.54	10.0	0.600	○	TU	
		UCHS20A08	80	20.0	117	220.0	-40 to 150	0.71	10.0	0.150	○		
 TO-220 Full-Mold 28.5 × 10.1 × 4.5(mm)	M60	FCQS20A045	45	20.0	121	180.0	-40 to 150	0.57	10.0	0.600	○	TF	

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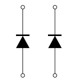
SBD Modules

Package Outline No.	Fig.	Type No.	VRRM [V]	Io [A]	UL	Series	Circuit
 E-38 38 × 30 × 17(mm)	M26	P2H30QH10	100	30	–	P2H	
		P2H60QH10	100	60	–		
		P2H80QH10	100	80	–		
		P2H30QH20	200	30	–		
		P2H60QH20	200	60	–		
		P2H80QH20	200	80	–		

FAST RECOVERY DIODES

Fast Recovery Diodes are high speed type PN junction rectifying devices.
These diodes for the switching of power supply are suitable for use in household appliances, OA apparatuses, and FA apparatuses.

Series	Feature
K	Low V_F
ML	Low V_F, Low trr, Soft Recovery
US	Ultra Fast, Soft Recovery
A	Ultra Fast, Low V_F
Z	Ultra Fast, Soft Recovery, Low Noise

Single

Surface Mount

Package	JEDEC Code JEITA Code House Name	Fig.	$I_{F(AV)}$ [A]	V_{RRM}[V] 200	400	600	650	700	800	1000	1200	Circuit
3.9 × 1.8 × 1.4(mm)	DO-219AA similar – M1F	B2	1			M1FK60						①—②
			1.1	M1FL20U								
			1.5		M1FL40U							
5.0 × 2.5 × 2.0(mm)	DO-214AC – 1F	B3-1	0.8			D1FK60		D1FK70				
			1							D1FK100	D1FK120P D1FK120	
			1.1	D1FL20U								
			1.5		D1FL40U							
	DO-214AC – CF		2			D2CF60K						
4.7 × 2.4 × 0.98(mm)	– SC-110B CE	B5-1	2						N D2CE80K			
			3	D3CE20LUS		D3CE60K						
5.1 × 3.75 × 2.0(mm)	DO-214AA similar – M2F	B6	1.5	M2FL20U								
			3	M3FL20U		N M3FK60						
7.6 × 4.0 × 2.8(mm)	– – 2F	B9-1	1.5	D2FL20U		D2FK60						
			2		D2FL40U							
			2.1			D3FK60						
			2.2								D3FK120	
	– – CG	B12	1.0								N D1CG120K	
			3.0								N D3CG120K	
9.5 × 6.6 × 2.65(mm)	– SC-63 E-pack	G1-5	3	DE3L20UA								①④ ② N.C. ③
			5			DE5L60U DE5L60A						
10.0 × 6.6 × 2.3(mm)	TO-252AA – FB	G2-5	5				★D5FB65LZV ★D5FB65LZS					① NC ②④ ③
6.5 × 4.5 × 1.1(mm)	TO-277A similar – FY	G4-1	5			D5FY60K						① ②③
13.2 × 10.2 × 4.7(mm)	– SC-83 similar STO-220	H1-2	8			DF8L60US						①②④ ③
			10			DF10L60						
			20			DF20L60 DF20L60U						
9.6 × 6.6 × 2.3(mm)	TO-252AA similar – FR	G5	10			N D10FR60K D10FR60LA						① NC ②④ ③
			15			D15FR60LA						
13.2 × 10.2 × 4.6(mm)	– SC-83 similar FD	H2-1	8			D8FD60LUS						
			20			D20FD60LU						
			30			D30FD60K						

N : New product ★ : Under development

Single

Surface Mount

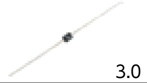
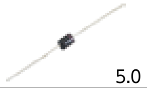
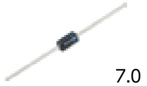
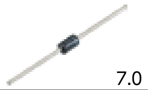
Package: JEDEC Code / JEITA Code / House Name	Fig.	Type No.	V_{RRM} [V]	$I_{F(AV)}$ [A]	Conditions T_C [℃]	I_{FSM} [A]	T_j [℃]	V_F (max) [V]	Conditions I_F [A]	I_R (max) $V_R=V_{RM}$ [μA]	trr (max) [ns]	Halogen free	Based on AEC-Q101	Automotive	Series
DO-219AA similar – M1F	B2	M1FK60	600	1	116 *1	15	150	1.5	1	10	75	–	○	○	K series
		M1FL20U	200	1.1	25 *2	30	150	0.98	1.1	10	35	–	○	○	–
		M1FL40U	400	1.5	139	30	175	1.2	1	10	25	–	■	○	–
DO-214AC – 1F	B3-1	D1FK60	600	0.8	29 *2	20	150	1.3	0.8	10	75	–	○	○	K series
		D1FK70	700	0.8	32 *2	25	150	1.3	0.8	10	400	–	○	○	–
		D1FK100	1000	1	97 *1	20	150	2.1	1	10	75	–	○	○	K series
		D1FK120P	1200	1	79 *1	18	-55 to 150	3.0	1	10	85	–	○	■	K series
		D1FK120	1200	1	75 *1	20	150	3.0	1	10	120	–	–	■	K series
		D1FL20U	200	1.1	25 *2	20	150	0.98	1.1	10	35	–	○	○	–
		D1FL40U	400	1.5	103 *1	30	150	1.2	1	10	25	–	○	○	–
DO-214AC – CF		D2CF60K	600	2	90 *1	35	-55 to 150	1.57	2	10	75	–	○	○	K series
– SC-110B CE	B5-1	N D2CE80K	800	2	89 *1	50	-55 to 150	2	2	10	150	–	○	○	K series
		D3CE20LUS	200	3	105 *1	60	-55 to 150	0.98	3	10	25	–	○	○	–
		D3CE60K	600	3	78 *1	50	150	1.45	3	10	80	–	○	○	K series
DO-214AA similar – M2F	B6	M2FL20U	200	1.5	31 *2	50	150	0.92	1.5	10	35	–	–	○	–
		M3FL20U	200	3	75 *1	75	150	0.95	3	10	35	–	○	○	–
		N M3FK60	600	3	35 *1	80	-55 to 150	1.45	3	10	80	–	○	○	K series
– – 2F	B9-1	D2FL20U	200	1.5	25 *2	50	150	0.98	1.5	10	35	–	○	○	–
		D2FK60	600	1.5	101 *1	40	150	1.3	1.5	10	75	–	–	○	K series
		D2FL40U	400	2	100 *1	95	-55 to 150	1.25	2	10	35	–	–	–	–
		D3FK60	600	2.1	93 *1	120	150	1.2	2.1	10	75	–	–	○	K series
		D3FK120	1200	2.2	91 *1	160	-55 to 150	2.1	3	10	80	–	–	–	K series
– – CG	B12	N D1CG120K	1200	1.0	81 *1	18	-55 to 150	3.0	1	10	85	○	○	○	K series
		N D3CG120K	1200	2.2	91 *1	160	-55 to 150	2.1	3	10	85	○	○	○	K series
– SC-63 E-pack	G1-5	DE3L20UA	200	3	137	60	150	0.98	3	10	35	–	–	■	–
		DE5L60U	600	5	91	60	150	3.0	5	25	25	–	–	■	–
		DE5L60A	600	5	119	60	150	2.0	5	10	50	–	–	■	–
TO-252AA – FB	G2-5	★ D5FB65LZV	650	5	–	60	-55 to 175	1.7	5	50	28	○	–	–	Z series
		★ D5FB65LZS	650	5	–	60	-55 to 175	2.8	5	50	20	○	–	–	Z series
TO-277A similar – FY	G4-1	D5FY60K	600	5	130 *1	200	-55 to 150	1.25	5	10	95	○	–	■	K series
– SC-83 similar STO-220	H1-2	DF8L60US	600	8	66	60	150	3.6	8	50	25	–	–	–	US series
		DF10L60	600	10	105	100	150	1.9	10	10	50	–	–	–	–
		DF20L60	600	20	84	170	150	1.9	20	25	70	–	–	–	–
		DF20L60U	600	20	93	160	150	3.0	20	25	35	–	–	–	–
TO-252AA similar – FR	G5	D10FR60LA	600	10	110	140	-55 to 150	2.1	10	10	28	–	○	■	A series
		N D10FR60K	600	10	114	130	-55 to 150	1.5	10	10	95	–	–	–	K series
		D15FR60LA	600	15	95	220	-55 to 150	2.1	15	10	30	–	○	■	A series
– SC-83 similar FD	H2-1	D8FD60LUS	600	8	120	60	175	3.6	8	50	25	–	–	○	US series
		D20FD60LU	600	20	93	160	150	3.0	20	25	35	–	○	○	–
		D30FD60K	600	30	102	300	150	1.7	30	10	95	–	–	■	K series

N : New product ★ : Under development *1 : Tl *2 : Ta ■ : Please contact us.

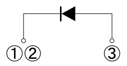
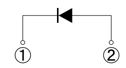
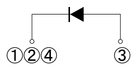
FAST RECOVERY DIODES

Single

Axial

Package	JEDEC Code JEITA Code House Name	Fig.	IF (AV) [A]	VRRM [V] 200	400	600	1000	Circuit
 3.0 × ϕ 2.6(mm)	– – AX057	A1	0.8			D1NF60 D1NK60		
			1	D1NL20U	D1NL40U		D1NK100	
 5.0 × ϕ 4.0(mm)	– – AX078	A4-1	1.5	D2L20U				
			2		D2L40U			
 7.0 × ϕ 4.4(mm)	– – AX10	A5-1	1.5	S2L20U		S2L60		
			2		S2L40U		S2K100	
 7.0 × ϕ 4.4(mm)	– – AX14	A7	2.2			S3L60		
			3	S3L20U	S3L40U	S3K60		

Two Terminal Type

Package	JEDEC Code JEITA Code House Name	Fig.	IF (AV) [A]	VRRM [V] 200	400	600	650	Circuit
 28.5 × 10.0 × 4.5(mm)	– SC-91A FTO-220	J1	3			SF3L60U		
			5			SF5L60U		
			10			SF10L60U		
			20			SF20L60U		
 28.5 × 10.0 × 4.5(mm)	– SC-91 FTO-220AG	J3	3			SF3K60M		
			5		SF5L40UM	SF5K60M		
			8			SF8K60USM SF8K60M		
			10			SF10K60M SF10L60MVM SF10L60MSM SF10L60AM	N SF10L65ZVM N SF10L65ZSM	
			20			SF20K60M SF20L60MVM SF20L60MSM SF20L60AM	N SF20L65ZVM N SF20L65ZSM	
 28.5 × 10.0 × 4.5(mm)	– SC-91 FTO-220G	J4	5	SG5L20USM				
			10	SG10L20USM				
 41.0 × 16.0 × 5.0(mm)	TO-247AD – MTO-3PT	K2	20			S20K60T		
			30			S30K60T		

N : New product

Single

Axial

Package: JEDEC Code JEITA Code House Name	Fig.	Type No.	Absolute Maximum Ratings: VRRM [V]	IF (AV) [A]	Conditions Ta [℃]	IFSM [A]	Tj [℃]	Electrical Characteristics: VF (max) [V]	Conditions IF [A]	IR (max) VR=VRM [μA]	trr (max) [ns]	Halogen free	Based on AEC-Q101	Automotive	Series
– – AX057	A1	D1NF60	600	0.8	25	50	150	1.3	0.8	10	400	–	–	–	–
		D1NK60	600	0.8	26	35	150	1.3	0.8	10	75	–	–	–	K series
		D1NL20U	200	1	25	25	150	0.98	1	10	35	–	–	–	–
		D1NL40U	400	1	137 *	50	150	1.25	1	10	25	–	–	–	–
		D1NK100	1000	1	127 *	30	150	2.1	1	10	75	–	–	–	K series
– – AX078	A4-1	D2L20U	200	1.5	125 *	40	150	0.98	1.5	10	35	–	–	–	–
		D2L40U	400	2	108 *	80	150	1.25	2	10	35	–	–	–	–
– – AX10	A5-1	S2L20U	200	1.5	25	50	150	0.98	1.5	10	35	–	–	–	–
		S2L60	600	1.5	125 *	50	150	1.5	1.5	10	50	–	–	–	–
		S2L40U	400	2	120 *	100	150	1.25	2	10	35	–	–	–	–
		S2K100	1000	2	91 *	65	150	2.1	2	10	75	–	–	–	K series
– – AX14	A7	S3L60	600	2.2	132 *	60	150	1.5	2.2	10	50	–	–	–	–
		S3L20U	200	3	128 *	60	150	0.98	2.1	10	35	–	–	–	–
		S3L40U	400	3	126 *	150	150	1.25	3	10	35	–	–	–	–
		S3K60	600	3	123 *	120	150	1.3	3	10	100	–	–	–	K series

* : Tl

Two Terminal Type

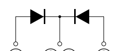
Package: JEDEC Code JEITA Code House Name	Fig.	Type No.	Absolute Maximum Ratings: VRRM [V]	IF (AV) [A]	Conditions Tc [℃]	IFSM [A]	Tj [℃]	Electrical Characteristics: VF (max) [V]	Conditions IF [A]	IR (max) VR=VRM [μA]	trr (max) [ns]	Halogen free	Based on AEC-Q101	Automotive	Series
– SC-91A FTO-220	J1	SF3L60U	600	3	115	40	150	3.00	3	25	20	–	–	–	–
		SF5L60U	600	5	96	60	150	3.00	5	25	25	–	–	–	–
		SF10L60U	600	10	85	120	150	3.00	10	25	25	–	–	■	–
		SF20L60U	600	20	68	180	150	3.00	20	25	35	–	–	■	–
– SC-91 FTO-220AG	J3	SF3K60M	600	3	132	90	150	1.45	3	10	80	–	–	–	K series
		SF5L40UM	400	5	121	100	150	1.25	5	10	30	–	–	■	–
		SF5K60M	600	5	119	120	150	1.50	5	10	85	–	–	■	K series
		SF8K60USM	600	8	70	60	150	3.60	8	50	25	–	–	–	US series
		SF8K60M	600	8	108	150	150	1.50	8	10	90	–	–	■	K series
		SF10K60M	600	10	106	180	150	1.50	10	10	95	–	–	–	K series
		SF10L60MVM	600	10	119	200	150	1.10	10	10	115	–	–	■	ML series
		SF10L60MSM	600	10	110	160	150	1.37	10	10	60	–	–	■	ML series
		SF10L60AM	600	10	106	180	-55 to 150	2.10	10	10	28	–	–	–	A series
		N SF10L65ZVM	650	10	130	150	-55 to 175	1.7	10	50	35	–	–	–	Z series
		N SF10L65ZSM	650	10	121	100	-55 to 175	2.8	10	50	25	–	–	–	Z series
		SF20K60M	600	20	96	240	150	1.50	20	10	95	–	–	–	K series
		SF20L60MVM	600	20	106	250	150	1.10	20	10	130	–	–	■	ML series
		SF20L60MSM	600	20	96	220	150	1.37	20	10	70	–	–	■	ML series
		SF20L60AM	600	20	77	260	-55 to 150	2.10	20	10	35	–	–	–	A series
		N SF20L65ZVM	650	20	115	190	-55 to 175	1.7	20	50	40	–	–	–	Z series
		N SF20L65ZSM	650	20	102	160	-55 to 175	2.8	20	50	30	–	–	–	Z series
– SC-91 FTO-220G	J4	SG5L20USM	200	5	125	90	150	0.96	5	10	25	–	–	–	–
		SG10L20USM	200	10	101	200	150	0.96	10	10	25	–	–	–	–
TO-247AD – MTO-3PT	K2	S20K60T	600	20	121	300	150	1.50	20	10	95	–	–	–	K series
		S30K60T	600	30	123	450	150	1.50	30	10	100	–	–	–	K series

N : New product ■ : Please contact us.

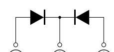
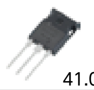
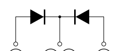
FAST RECOVERY DIODES

Center Tap,Common Cathode

Surface Mount

Package	JEDEC Code JEITA Code House Name	Fig.	$I_{F(AV)}$ [A]	V_{RRM}[V] 200	 300	 400	 600	Circuit
 9.5 × 6.6 × 2.65(mm)	– SC-63 E-pack	G1-1	5	DE5LC20U				
 13.2 × 10.2 × 4.7(mm)	– SC-83 similar STO-220	H1-1	10	DF10LC20U	DF10LC30			
			20	DF20LC20US	DF20LC30			
 13.2 × 10.2 × 4.6(mm)	– SC-83 similar FD	H2-2	20	D20FDC20L D20FDC20LUS				

Three Terminal Type

Package	JEDEC Code JEITA Code House Name	Fig.	$I_{F(AV)}$ [A]	V_{RRM}[V] 200	 300	 400	 600	Circuit
 28.5 × 10.0 × 4.5(mm)	– SC-91 FTO-220AG	J8-1	5			SF5LC40UM		
			10			SF10LC40UM	SF10KC60M	
			20		SF20LC30M		SF20KC60M	
 28.5 × 10.0 × 4.5(mm)	– SC-91 FTO-220G	J9	5	SG5LC20USM				
			10	SG10LC20USM				
			20	SG20LC20USM				
 41.0 × 16.0 × 5.0(mm)	TO-247AD – MTO-3PT	K5-2	20	S20LC20UST	S20LC30T	S20LC40UT	S20LC60UST	

Center Tap,Common Cathode

Surface Mount

Package: JEDEC Code JEITA Code House Name	Fig.	Type No.	Absolute Maximum Ratings V_{RRM} [V]	 I_F (AV) [A]	 Conditions Tc [℃]	 I_{FSM} [A]	 T_j [℃]	Electrical Characteristics V_F (max) [V]	 Conditions I_F [A]	 I_R (max) V_R=V_{RM} [μA]	 trr (max) [ns]	Halogen free	Based on AEC-Q101	Automotive	Series
– SC-63 E-pack	G1-1	DE5LC20U	200	5	81	50	150	0.98	2.5	10	35	–	–	■	–
– SC-83 similar STO-220	H1-1	DF10LC20U	200	10	127	80	150	0.98	5	10	35	–	–	–	–
		DF10LC30	300	10	124	80	150	1.30	5	25	30	–	–	–	–
		DF20LC20US	200	20	125	180	150	0.96	10	10	25	–	–	–	–
		DF20LC30	300	20	124	180	150	1.30	10	25	30	–	–	–	–
– SC-83 similar FD	H2-2	D20FDC20L	200	20	113	100	175	1.20	10	10	30	–	○	○	–
		D20FDC20LUS	200	20	125	180	150	0.96	10	10	25	–	–	○	–

■ : Please contact us.

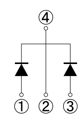
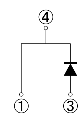
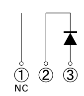
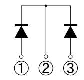
Three Terminal Type

Package: JEDEC Code JEITA Code House Name	Fig.	Type No.	Absolute Maximum Ratings V_{RRM} [V]	 I_F (AV) [A]	 Conditions Tc [℃]	 I_{FSM} [A]	 T_j [℃]	Electrical Characteristics V_F (max) [V]	 Conditions I_F [A]	 I_R (max) V_R=V_{RM} [μA]	 trr (max) [ns]	Halogen free	Based on AEC-Q101	Automotive	Series
– SC-91 FTO-220AG	J8-1	SF5LC40UM	400	5	132	80	150	1.25	2.5	10	30	–	–	–	–
		SF10LC40UM	400	10	120	100	150	1.25	5	10	30	–	–	–	–
		SF10KC60M	600	10	109	120	150	1.50	5	10	85	–	–	■	K series
		SF20LC30M	300	20	107	250	150	1.30	10	25	30	–	–	–	–
		SF20KC60M	600	20	97	180	150	1.50	10	10	95	–	–	■	K series
– SC-91 FTO-220G	J9	SG5LC20USM	200	5	133	70	150	0.96	2.5	10	25	–	–	–	–
		SG10LC20USM	200	10	122	90	150	0.96	5	10	25	–	–	–	–
		SG20LC20USM	200	20	95	150	150	0.96	10	10	25	–	–	–	–
TO-247AD – MTO-3PT	K5-2	S20LC20UST	200	20	126	120	150	0.96	10	10	25	–	–	–	–
		S20LC30T	300	20	124	220	150	1.30	10	25	30	–	–	–	–
		S20LC40UT	400	20	123	130	150	1.25	10	10	30	–	–	–	–
		S20LC60UST	600	20	63	60	150	3.60	10	50	25	–	–	–	–

■ : Please contact us.

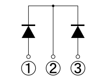
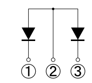
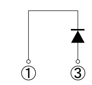
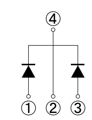
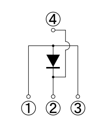
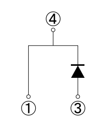
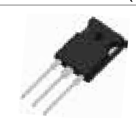
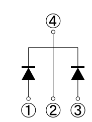
FAST RECOVERY DIODES

Single

Package		Type No.	Absolute Maximum Ratings					Electrical Characteristics			Based on AEC-Q101	Series	Circuit
Outline No.	Fig.		V_{RRM} [V]	I_F [A]	Conditions T_C [℃]	I_{FSM} [A]	T_j [℃]	V_F [V]	Conditions I_F [A]	I_R [mA]			
 nSMC_FL 8.0 × 4.0 × 1.5(mm)	M54	MC03FA20	200	3.0	100 *1	45	-55 to 150	0.98	3.0	0.010	–	MC	
		MC03FA40	400	3.0	92 *1	45	-55 to 150	1.25	3	0.01	–		
		MC03FF60	600	3.0	74 *1	45	-55 to 150	1.7	3	0.01	–		
		MC03FH60	600	3.0	88 *1	60	-55 to 150	1.28	3	0.01	–		
		MC03UD60	600	3.0	62 *1	35	-55 to 150	2.3	3	0.01	–		
 SOD-128 4.8 × 2.7 × 1.0(mm)	M56	ME01FA20	200	1	117 *1	20	-55 to 150	0.98	1	0.01	–	ME	
		ME01FA40	400	1	114 *1	20	-55 to 150	1.25	1	0.01	–		
		ME01FA60	600	1	105 *1	20	-55 to 150	1.39	1	0.01	–		
		ME03FA20	200	3.0	81 *1	45	-55 to 150	0.98	3	0.01	–		
		ME03FA40	400	3.0	69 *1	45	-55 to 150	1.25	3	0.01	–		
		ME03FH60	600	3.0	64 *1	60	-55 to 150	1.28	3	0.01	–		
 SOD-123FL 3.5 × 1.6 × 0.9(mm)	M55	MPP5FA20	200	0.5	133 *1	20	-55 to 150	0.95	0.5	0.01	–	MP	
		MPP4RA60	600	0.4	129 *1	20	-55 to 150	1.32	0.4	0.01	–		
 3Max × ϕ 2.7(DO-41S) 3.0 × ϕ 2.7(mm)	M1	11EFS2	200	1	32 *2	30	-40 to 150	0.98	1	0.01	–	Axial	
		11EFS4	400	1	24 *2	30	-40 to 150	1.25	1	0.02	–		
 DO-204AC(DO-15) 7.6 × ϕ 3.6(mm)	M16	20CFA40	400	2	107 *1	50	-40 to 150	1.28	2	0.01	–		
		20CFF60	600	2	96 *1	40	-40 to 150	1.58	2	0.01	–		
 DO-201AD 9.2 × ϕ 5.8(mm)	M15	30GFA20	200	3	107 *1	60	-40 to 150	0.98	3	0.01	–		
		30GFA40	400	3	100 *1	60	-40 to 150	1.25	3	0.02	–		
		30GFF60	600	3	85 *1	45	-40 to 150	1.7	3	0.01	–		
 TO-220 28.4 × 10.1 × 4.6(mm)	M58	GCF06A20	200	6	123	60	-40 to 150	0.98	3	0.01	–	TG	
		GCF06A40	400	6	118	60	-40 to 150	1.25	3	0.02	–		
		GCF06F60	600	6	134	45	-55 to 175	1.7	3	0.02	–		
		GCF10A20	200	10	117	80	-40 to 150	0.98	5	0.02	–		
		GCF10A40	400	10	112	80	-40 to 150	1.25	5	0.03	–		
 TO-220 2pin 28.4 × 10.1 × 4.6(mm)	M59	GSF05A20	200	5	122	80	-40 to 150	0.98	5	0.02	–		
		GSF05A40	400	5	118	80	-40 to 150	1.25	5	0.03	–		
		GSF05F60	600	5	134	80	-40 to 175	1.7	5	0.02	–		
		GSF10A20	200	10	100	120	-40 to 150	1.03	10	0.025	–		
		GSF10A40	400	10	95	120	-40 to 150	1.3	10	0.03	–		
 TO-220 Full-Mold 28.5 × 10.1 × 4.5(mm)	M60	FSF05A20B	200	5.0	122	80	-40 to 150	0.98	5	0.02	–	TF	
		FSF10A20B	200	10.0	100	120	-40 to 150	1.03	10	0.025	–		
		FSF05A40B	400	5.0	118	80	-40 to 150	1.25	5	0.03	–		
		FSF10A40B	400	10.0	95	120	-40 to 150	1.30	10	0.03	–		
		FSF05F60B	600	5.0	134	80	-40 to 175	1.70	5	0.02	–		
		FSF10F60B	600	10.0	101	120	-55 to 175	1.80	10	0.03	–		
		FCU10D40	400	10	※	80	-40 to 150	1.53	5	0.03	–		
		FCU20D40	400	20	※	120	-40 to 150	1.53	10	0.03	–		
		FCU20D60	600	20	88	100	-55 to 175	2.30	10	0.03	–		
		FCF06A20	200	6	123	60	-40 to 150	0.98	3	0.01	–		
		FCF06A40	400	6	118	60	-40 to 150	1.25	3	0.02	–		
		FCF06F60	600	6	134	45	-55 to 175	1.7	3	0.02	–		
		FCF10A20	200	10	117	80	-40 to 150	0.98	5	0.02	–		
		FCF10A40	400	10	112	80	-40 to 150	1.25	5	0.03	–		
		FCF10F60	600	10	126	80	-55 to 175	1.7	5	0.02	–		

※ Please Contact us. *1 : Tl *2 : Ta

Single

Package		Type No.	Absolute Maximum Ratings					Electrical Characteristics			Based on AEC-Q101	Series	Circuit
Outline No.	Fig.		V_{RRM} [V]	I_F [A]	Conditions T_C [℃]	I_{FSM} [A]	T_j [℃]	V_F [V]	Conditions I_F [A]	I_R [mA]			
 TO-220 Full-Mold 28.5 × 10.1 × 4.5(mm)	M60	FCF10H60	600	10	128	80	-40 to 175	1.35	5	0.02	–	TF	
		FCF16A20	200	16	113	120	-40 to 150	0.98	8	0.025	–		
		FCF16A40	400	16	109	120	-40 to 150	1.25	8	0.03	–		
		FCF20F60	600	20	101	120	-55 to 175	1.8	10	0.03	–		
		FCF20G60	600	20	84	120	-40 to 150	1.5	10	0.03	–		
		FCF20H60	600	20	116	120	-55 to 175	1.35	10	0.03	–		
		FCU10A20	200	10	116	100	-40 to 150	1.1	5	0.02	–		
		FCU10D60	600	10	106	60	-55 to 175	2.3	5	0.01	–		
		FCU20A20	200	20	101	120	-40 to 150	1.13	10	0.025	–		
		FRF10A20	200	10	117	80	-40 to 150	0.98	5	0.02	–		
		FRF10A40	400	10	112	80	-40 to 150	1.25	5	0.03	–		
 TO-220 Full-Mold 2pin 28.5 × 10.1 × 4.5(mm)	M61	FSF05A20	200	5.0	122	80.0	-40 to 150	0.98	5.0	0.020	–		
		FSF10A20	200	10.0	100	120.0	-40 to 150	1.03	10.0	0.025	–		
		FSU05A20	200	5.0	122	100.0	-40 to 150	1.10	5.0	0.020	–		
		FSU10A20	200	10.0	101	120.0	-40 to 150	1.13	10.0	0.025	–		
		FSF05A40	400	5.0	118	80.0	-40 to 150	1.25	5.0	0.030	–		
		FSF10A40	400	10.0	95	120.0	-40 to 150	1.30	10.0	0.030	–		
		FSU05D40	400	5.0	※	80.0	-40 to 150	1.53	5.0	0.030	–		
		FSU10D40	400	10.0	※	120.0	-40 to 150	1.53	10.0	0.030	–		
		FSF03F60	600	3.0	134	45.0	-55 to 175	1.70	3.0	0.020	–		
		FSF05F60	600	5.0	134	80.0	-40 to 175	1.70	5.0	0.020	–		
		FSF05H60	600	5.0	135	80.0	-55 to 175	1.35	5.0	0.020	–		
		FSF05HU60	600	5.0	111	45.0	-40 to 175	1.65	5.0	0.020	–		
		FSF08F60	600	8.0	123	100.0	-55 to 175	1.70	8.0	0.020	–		
		FSF08H60	600	8.0	127	100.0	-55 to 175	1.35	8.0	0.020	–		
		FSF10F60	600	10.0	101	120.0	-55 to 175	1.80	10.0	0.030	–		
		FSF10H60	600	10.0	111	120.0	-40 to 175	1.35	10.0	0.030	–		
		FSF10HU60	600	10.0	68	80.0	-40 to 175	1.65	10.0	0.020	–		
		FSF15F60	600	15.0	96	140.0	-55 to 175	1.57	15.0	0.030	–		
		FSF15H60	600	15.0	107	140.0	-55 to 175	1.35	15.0	0.030	–		
		FSU05D60	600	5.0	117	60.0	-55 to 175	2.30	5.0	0.010	–		
		FSU08D60	600	8.0	106	90.0	-55 to 175	2.30	8.0	0.020	–		
		FSU10D60	600	10.0	88	100.0	-55 to 175	2.30	10.0	0.030	–		
		FSU15D60	600	15.0	78	140.0	-55 to 175	2.30	15.0	0.030	–		
 TO-247 34.5 × 15.6 × 5.0(mm)	M62	KCF16A20	200	16.0	113	120.0	-40 to 150	0.98	8.0	0.025	–	TK	
		KCU20A20	200	20.0	101	120.0	-40 to 150	1.13	10.0	0.025	–		
		KCF25A20	200	25.0	93	150.0	-40 to 150	0.98	12.5	0.025	–		
		KCU30A20	200	30.0	73	150.0	-40 to 150	1.13	15.0	0.025	–		
		KCF16A40	400	16.0	109	120.0	-40 to 150	1.25	8.0	0.030	–		
		KCU20D40	400	20.0	※	120.0	-40 to 150	1.53	10.0	0.030	–		
		KCF25A40	400	25.0	85	200.0	-40 to 150	1.25	12.5	0.050	–		
		KCU30D40	400	30.0	※	150.0	-40 to 150	1.57	15.0	0.030	–		
		KCF20F60	600	20.0	101	120.0	-55 to 175	1.80	10.0	0.030	–		
		KSF30A20B	200	30.0	101	400.0	-40 to 150	0.98	30.0	0.025	–		
		KSF30A40B	400	30.0	90	400.0	-40 to 150	1.25	30.0	0.050	–		
		KSF30F60B	600	30.0	92	240.0	-55 to 175	1.70	30.0	0.050	–		
		KSF60F60B	600	60.0	81	600.0	-55 to 175	1.70	60.0	0.050	–		
 TO-247 2pin 34.5 × 15.6 × 5.0(mm)	M63	KSF30F60	600	30.0	※	240.0	-55 to 175	1.70	30.0	0.050	–		
		KSF30H60	600	30.0	104	250.0	-40 to 175	1.35	30.0	0.050	–		
		KSU30D60	600	30.0	84	250.0	-55 to 175	2.30	30.0	0.030	–		
 TO-247 2pin(long lead) 40.0 × 15.6 × 5.0(mm)	M64	KSF30F60N	600	30.0	92	240.0	-55 to 175	1.70	30.0	0.050	–		
		KSF30H60N	600	30.0	104	250.0	-40 to 175	1.35	30.0	0.050	–		
		KSU30D60N	600	30.0	84	250.0	-55 to 175	2.30	30.0	0.030	–		
		KSF60F60N	600	60.0	81	600.0	-55 to 175	1.70	60.0	0.050	–		
		KSF60H60N	600	60.0	※	400.0	-55 to 175	1.35	60.0	0.050	–		
		KSU60D60N	600	60.0	78	400.0	-55 to 175	2.30	60.0	0.050	–		
 TO-247(long lead) 40.0 × 15.6 × 5.0(mm)	M65	KCU60D60N	600	60.0	77	250.0	-55 to 175	2.30	30.0	0.030	–		

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FAST RECOVERY DIODES

Single

Package: Outline No.	Fig.	Type No.	VRRM [V]	IF [A]	Conditions Tc [℃]	IFSM [A]	Tj [℃]	VF [V]	Conditions IF [A]	IR [mA]	Based on AEC-Q101	Series
TO-251 11.3 × 6.6 × 2.4(mm)	M66	EA31FS4	400	3.0	125	45.0	-40 to 150	1.25	3.0	0.020	–	TE
		EA61FC2	200	6.0	117	45.0	-40 to 150	0.98	3.0	0.010	–	
		EA61FC4	400	6.0	109	45.0	-40 to 150	1.25	3.0	0.020	–	
TO-252(Dpak) 9.9 × 6.6 × 2.4(mm)	M67	EA31FS2-F	200	3.0	129	45.0	-40 to 150	0.98	3.0	0.010	–	
		EA31FS4-F	400	3.0	125	45.0	-40 to 150	1.25	3.0	0.020	–	
		ESF03F60-F	600	3.0	145	45.0	-55 to 175	1.70	3.0	0.020	–	
		ESF05H60-F	600	5.0	126	80.0	-55 to 175	1.35	5.0	0.020	–	
		ESF08HU60B-F	600	8.0	83	80.0	-55 to 175	1.52	8.0	0.020	–	
TO-262 2pin 22.9 × 10.1 × 4.6(mm)	M69	TSF05A20-11A	200	5.0	※	80.0	-40 to 150	0.98	5.0	0.030	–	TT
		TSU05D60-11A	600	5.0	※	60.0	-55 to 175	2.30	5.0	0.010	–	
		TSU10D60-11A	600	10.0	※	100.0	-55 to 175	2.30	10.0	0.030	–	
TO-262 22.9 × 10.1 × 4.6(mm)	M68	TCF10A20-11A	200	10.0	117	80.0	-40 to 150	0.98	5.0	0.020	–	
		TCU10A20-11A	200	10.0	※	100.0	-40 to 150	1.10	5.0	0.020	–	
		TCF16A20-11A	200	16.0	※	120.0	-40 to 150	0.98	8.0	0.025	–	
		TCU20A20-11A	200	20.0	101	120.0	-40 to 150	1.13	10.0	0.025	–	
		TCU20A30-11A	300	20.0	90	120.0	-40 to 150	1.40	10.0	0.025	–	
		TCF10A40-11A	400	10.0	112	80.0	-40 to 150	1.25	5.0	0.030	–	
		TCF10F60-11A	600	10.0	126	80.0	-55 to 175	1.70	5.0	0.020	–	
TO-263(D2pak) 12.8 × 10.1 × 4.6(mm)	M70	TSF05A20	200	5.0	122	80.0	-40 to 150	0.98	5.0	0.030	–	
		TSU05D60	600	5.0	※	60.0	-55 to 175	2.30	5.0	0.010	–	
		TSU10D60	600	10.0	※	100.0	-55 to 175	2.30	10.0	0.030	–	
		TCF10A20	200	10.0	※	80.0	-40 to 150	0.98	5.0	0.020	–	
		TCU10A20	200	10.0	116	100.0	-40 to 150	1.10	5.0	0.020	–	
		TCF16A20	200	16.0	※	120.0	-40 to 150	0.98	8.0	0.025	–	
		TCU20A20	200	20.0	101	120.0	-40 to 150	1.13	10.0	0.025	–	
		TCF20F60	600	20.0	73	120.0	-55 to 150	1.80	10.0	0.030	–	
		TCF10A40	400	10.0	※	80.0	-40 to 150	1.25	5.0	0.030	–	
		TCF10F60	600	10.0	126	80.0	-55 to 175	1.70	5.0	0.020	–	
TO-263LP 12.9 × 10.1 × 1.7(mm)	M71	UCU20D30	300	20.0	119	120.0	-40 to 175	1.30	10.0	0.025	–	TU

For Automotive AEC-Q101 Qualified Products

Package: Outline No.	Fig.	Type No.	VRRM [V]	IF [A]	Conditions Tc [℃]	IFSM [A]	Tj [℃]	VF [V]	Conditions IF [A]	IR [mA]	Based on AEC-Q101	Series
nSMC_FL 8.0 × 4.0 × 1.5(mm)	M54	AMC03FA20	200	3.0	100 *	45	-55 to 150	0.98	3.0	0.010	○	MC
		AMC03FA40	400	3.0	92 *	45	-55 to 150	1.25	3.0	0.010	○	
SOD-128 4.8 × 2.7 × 1.0(mm)	M56	AME01FA20	200	1.0	117 *	20	-55 to 150	0.98	1.0	0.010	○	ME
		AME01FA40	400	1.0	114 *	20	-55 to 150	1.25	1.0	0.010	○	
		AME01FA60	600	1.0	※	20	-55 to 150	1.39	1.0	0.010	○	
		AME03FA20	200	3.0	81 *	45	-55 to 150	0.98	3.0	0.010	○	
		AME03FA40	400	3.0	69 *	45	-55 to 150	1.25	3.0	0.010	○	
SOD-123FL 3.5 × 1.6 × 0.9(mm)	M55	AMPP5FA20	200	0.5	133 *	20	-55 to 150	0.95	0.5	0.010	○	MP
		AMPP4RA60	600	0.4	129 *	20	-55 to 150	1.32	0.4	0.010	○	

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For Automotive AEC-Q101 Qualified Products

Package: Outline No.	Fig.	Type No.	VRRM [V]	IF [A]	Conditions Ta [℃]	IFSM [A]	Tj [℃]	VF [V]	Conditions IF [A]	IR [mA]	Based on AEC-Q101	Series
TO-252(Dpak) 9.9 × 6.6 × 2.4(mm)	M67	EA61FC2-F	200	6.0	117	45.0	-40 to 150	0.98	3.0	0.010	○	TE
		EA61FC4-F	400	6.0	109	45.0	-40 to 150	1.25	3.0	0.020	○	
		ECF06F60-F	600	6.0	134	45.0	-55 to 175	1.70	3.0	0.020	○	
TO-263LP 12.9 × 10.1 × 1.7(mm)	M71	UCF10B40	400	10.0	111	80.0	-40 to 150	1.35	5.0	0.020	○	TU
		UCF20B40	400	20.0	121	150.0	-55 to 175	1.30	10.0	0.020	○	
TO-247(long lead) 40.0 × 15.6 × 5.0(mm)	M65	KCF30F60N	600	30.0	72	140.0	-55 to 175	1.57	※	0.030	○	TK
TO-277 6.5 × 4.0 × 1.1(mm)	M72	VSF05A20	200	5.0	125	80.0	-55 to 175	0.98	5.0	0.010	○	MV

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FRD Modules

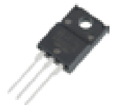
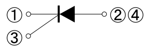
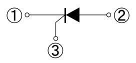
Package: Outline No.	Fig.	Type No.	VRRM [V]	Io [A]	UL	Series
E-38 38 × 30 × 17(mm)	M26	P2H30F2	200	30	–	P2H
		P2H60F2	200	60	–	
		P2H80F2	200	80	–	
		P2H30F4	400	30	–	
		P2H60F4	400	60	–	
		P2H80F4	400	80	–	
		P2H30F6	600	30	–	
		P2H60F6	600	60	○	
		P2H50F12	1200	50	○	
E-79 93 × 20 × 30(mm)	M48	PC100FYN6	600	100	○	PC
		PC100FYN6C	600	100	○	
		PC151FYN6	600	150	○	
		PC151FYN6C	600	150	○	
E-80 94 × 34 × 30(mm)	M49	PC150FYN6	600	150	○	
		PC150FYN6C	600	150	○	
		PC200FYN6	600	200	○	
		PC200FYN6C	600	200	○	
E-75 94 × 48 × 30(mm)	M45	K75FC300P060AAA	600	300	–	
E-79 93 × 20 × 30(mm)	M48	PD100FYN6	600	100	○	PD
		PD151FYN6	600	150	○	
E-80 94 × 34 × 30(mm)	M49	PD150FYN6	600	150	○	
		PD200FYN6	600	200	○	

FAST RECOVERY DIODES

THYRISTORS

The Thyristor, in its normal state, will block an applied voltage in either direction, but when an appropriate current pulse is applied to the gate, current will flow through the anode to the cathode thus turning on power to the load circuit.
The Thyristor has a planar passivation, and is available in both the general reverse-blocking type and the type without reverse voltage.
The Thyristor without reverse voltage is suitable for a circuit limiting inrush current.

Thyristors

Package		 10.0 × 6.6 × 2.3(mm)		 28.5 × 10.0 × 4.5(mm)	
JEDEC Code JEITA Code House Name		TO-252AA – FB		– SC-91 FTO-220AG	
Fig.		G2-2		J8-5	
Circuit					
$I_{T(AV)}$ [A]		3	5	5	8
V_{DRM} [V]	400	KC3FB40H	KC5FB40H		
	600		KC5FB60H KC5FB60HR KC5FB60HRT N KC5FB60HV	KC5SF60HRT	
	800				KC8SF80

N : New product

Thyristors

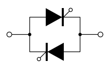
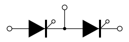
Package		Type No.	Absolute Maximum Ratings						Electrical Characteristics					Halogen free	Based on AEC-Q101	Automotive
JEDEC Code JEITA Code House Name	Fig.		V_{DRM} [V]	V_{RRM} [V]	I_T (AV) [A]	Conditions T_C [℃]	I_{TSM} [A]	T_j [℃]	V_{TM} (max) [V]	Conditions I_{TM} [A]	V_{GT} (max) [V]	I_{GT} (max) [μA]	I_H (max) [mA]			
TO-252AA – FB	G2-2	KC3FB40H	400	400	3	111	40	-40 to 125	1.4	4	0.8	100	5	–	–	–
		KC5FB40H	400	400	5	101	65	-40 to 125	1.6	10	0.8	200	typ.1	–	–	–
		KC5FB60H	600	600	5	98	90	-40 to 125	1.8	15	0.8	100	5	–	–	–
		KC5FB60HR	600	–	5	98	90	-40 to 125	1.8	15	0.8	100	5	–	–	–
		KC5FB60HRT	600	–	5	123	90	-55 to 150	1.8	15	0.8	100	5	–	–	–
		N KC5FB60HV	600	600	5	100	90	-40 to 125	1.8	15	0.8	50	5	–	–	–
– SC-91 FTO-220AG	J8-5	KC5SF60HRT	600	–	5	127	82	-40 to 150	1.8	15	0.8	100	5	–	–	–
		KC8SF80	800	800	8	130	120	-40 to 150	1.5	20	1.0	15mA	100	–	–	–

N : New product

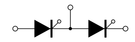
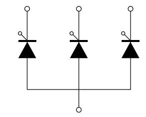
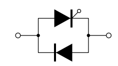
THYRISTORS

THYRISTORS

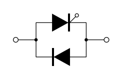
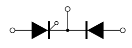
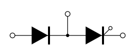
Thyristor Modules

Package Outline No.	Fig.	Type No.	VRRM [V]	Io [A]	UL	Series	Circuit
 E-38 38 × 30 × 17(mm)	M26	PHT308C	800	30	–	PHT	
		PHT608C	800	60	–		
		PHT608AC	800	60	○		
		PHT6016AC	1600	60	○		
 E-42 97.2 × 41.2 × 30(mm)	M27	PHT250N8	800	250	○		
		PHT250N16	1600	250	○		
 E-35 100 × 60 × 46.5(mm)	M24	K35TH400P080AAA	800	400	○		
		K35TH400P160AAA	1600	400	○		
 E-2 93 × 26.5 × 30(mm)	M18	K02TA030P080AAA	800	30	○	PAT	
		K02TA060P080AAA	800	60	○		
		K02TA100P080AAA	800	100	○		
 E-3 93 × 26.7 × 30(mm)	M19	K03TA030P080AAA	800	30	○		
		K03TA060P080AAA	800	60	○		
		K03TA100P080AAA	800	100	○		
		K03TA030P160AAA	1600	30	○		
		K03TA060P160AAA	1600	60	○		
		K03TA100P160AAA	1600	100	○		
 E-37 150 × 40 × 33(mm)	M25	K05TA150P080AAA	800	150	○		
		K05TA200P080AAA	800	200	○		
		K05TA150P160AAA	1600	150	○		
		K05TA200P160AAA	1600	200	○		
 E-34 150 × 40 × 33(mm)	M23	K34TA400P080AAA	800	400	○		
		K34TA400P160AAA	1600	400	○		
 E-2 93 × 26.5 × 30(mm)	M18	K02TD030P080AAA	800	30	○	PDT	
		K02TD060P080AAA	800	60	○		
		K02TD100P080AAA	800	100	○		
 E-3 93 × 26.7 × 30(mm)	M19	K03TD030P160AAA	1600	30	○		
		K03TD060P160AAA	1600	60	○		
		K03TD100P160AAA	1600	100	○		

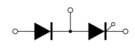
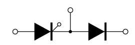
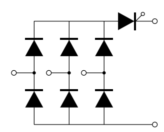
Thyristor Modules

Package Outline No.	Fig.	Type No.	VRRM [V]	Io [A]	UL	Series	Circuit
 E-5 150 × 40 × 33(mm)	M21	K05TD150P080AAA	800	150	○	PDT	
		K05TD200P080AAA	800	200	○		
		K05TD150P160AAA	1600	150	○		
		K05TD200P160AAA	1600	200	○		
 E-34 180 × 60 × 50(mm)	M23	K34TD400P080AAA	800	400	○		
		K34TD400P160AAA	1600	400	○		
 E-44 108 × 34 × 30(mm)	M28	K44TD150P080AAA	800	150	○		
		K44TD200P080AAA	800	200	○		
		K44TD150P160AAA	1600	150	○		
		K44TD200P160AAA	1600	200	○		
 E-80 94 × 34 × 30(mm)	M49	K80TD150P160AAA	1600	150	○		
		K80TD200P160AAA	1600	200	○		
 E-81 115 × 36 × 53(mm)	M50	K81TD250P160AAA	1600	250	○		
		K81TD280P160AAA	1600	280	○		
		K81TD320P160AAA	1600	320	○		
 E-3 93 × 26.7 × 30(mm)	M19	K03TF080N040AAA	400	80	–	PFT	
		K03TF100N040AAA	400	100	–		
 E-44 108 × 34 × 30(mm)	M28	K44TF150N040AAA	400	150	–		
		K44TF200N040AAA	400	200	–		
 E-66 82 × 42 × 22(mm)	M37	PAH30N8CM	800	30	○	PAH	
		PAH60N8CM	800	60	○		
		PAH100N8CM	800	100	○		
		PAH30N16CM	1600	30	○		
		PAH60N16CM	1600	60	○		
 E-71 82 × 35 × 14(mm)	M41	PAH60LN8	800	60	○		
		PAH100N8	800	100	○		
		PAH60LN16	1600	60	○		
 E-72 98 × 32 × 27(mm)	M42	PAH200N8	800	200	○		
		PAH250N8	800	250	○		
		PAH300N8	800	300	○		
		PAH100N16	1600	100	○		
		PAH150N16	1600	150	○		

Thyristor Modules

Package Outline No.	Package Fig.	Type No.	V_{RRM} [V]	I_O [A]	UL	Series	Circuit
 E-2 93 × 26.5 × 30(mm)	M18	K02HA030P080AAA	800	30	○	PAH	
		K02HA060P080AAA	800	60	○		
		K02HA100P080AAA	800	100	○		
 E-3 93 × 26.7 × 30(mm)	M19	K03HA030P160AAA	1600	30	○		
		K03HA060P160AAA	1600	60	○		
		K03HA100P160AAA	1600	100	○		
 E-37 150 × 40 × 33(mm)	M25	K05HA150P080AAA	800	150	○		
		K05HA200P080AAA	800	200	○		
		K05HA150P160AAA	1600	150	○		
		K05HA200P160AAA	1600	200	○		
 E-2 93 × 26.5 × 30(mm)	M18	K02HC030P080AAA	800	30	○	PCH	
		K02HC060P080AAA	800	60	○		
		K02HC100P080AAA	800	100	○		
 E-3 93 × 26.5 × 30(mm)	M19	K03HC030P160AAA	1600	30	○		
		K03HC060P160AAA	1600	60	○		
		K03HC100P160AAA	1600	100	○		
 E-4 150 × 40 × 33(mm)	M20	K04HC150P080AAA	800	150	○		
		K04HC200P080AAA	800	200	○		
		K04HC150P160AAA	1600	150	○		
		K04HC200P160AAA	1600	200	○		
 E-34 150 × 40 × 33(mm)	M23	K34HC400P080AAA	800	400	○		
		K34HC400P160AAA	1600	400	○		
 E-2 93 × 26.5 × 30(mm)	M18	K02HD030P080AAA	800	30	○	PDH	
		K02HD060P080AAA	800	60	○		
		K02HD100P080AAA	800	100	○		
 E-3 93 × 26.7 × 30(mm)	M19	K03HD030P160AAA	1600	30	○		
		K03HD060P160AAA	1600	60	○		
		K03HD100P160AAA	1600	100	○		

Thyristor Modules

Package Outline No.	Package Fig.	Type No.	V_{RRM} [V]	I_O [A]	UL	Series	Circuit
 E-5 150 × 40 × 33(mm)	M21	K05HD150P080AAA	800	150	○	PDH	
		K05HD200P080AAA	800	200	○		
		K05HD150P160AAA	1600	150	○		
		K05HD200P160AAA	1600	200	○		
 E-34 150 × 40 × 33(mm)	M23	K34HD400P080AAA	800	400	○		
		K34HD400P160AAA	1600	400	○		
 E-44 108 × 34 × 30(mm)	M28	K44HD150P080AAA	800	150	○		
		K44HD200P080AAA	800	200	○		
		K44HD150P160AAA	1600	150	○		
		K44HD200P160AAA	1600	200	○		
 E-80 94 × 34 × 30(mm)	M49	K80HD150P160BAA	1600	150	○		
		K80HD200P160BAA	1600	200	○		
 E-81 115 × 36 × 53(mm)	M50	K81HD250P160BAA	1600	250	○		
		K81HD280P160BAA	1600	280	○		
		K81HD320P160BAA	1600	320	○		
 E-2 93 × 26.5 × 30(mm)	M18	K02HK030P080AAA	800	30	○	PKH	
		K02HK060P080AAA	800	60	○		
		K02HK100P080AAA	800	100	○		
 E-3 93 × 26.7 × 30(mm)	M19	K03HK030P160AAA	1600	30	○		
		K03HK060P160AAA	1600	60	○		
		K03HK100P160AAA	1600	100	○		
 E-68 97 × 44 × 22.5(mm)	M38	PGH50N8	800	50	○	PGH	
		PGH75N8	800	75	○		
		PGH100N8	800	100	○		
		PGH101N8	800	100	○		
		PGH50N16	1600	50	○		
		PGH75N16	1600	75	○		
		PGH100N16	1600	100	○		
 E-69 108 × 62 × 27(mm)	M39	PGH150N8	800	150	○		
		PGH200N8	800	200	○		
		PGH150N16	1600	150	○		
		PGH200N16	1600	200	○		

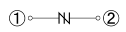
SIDACs

SIDAC series are two-terminal bidirectional thyristor energized by the addition of a specific voltage. They are commonly used for switching devices or pulse generating devices.

Bi-directional (K1V series)

Features
- Symmetrical characteristics.
- Operating directly from the AC mains, and can be used in all kinds of pulse generating circuits.
- The glass passivation ensures high reliability.

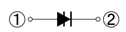
Applications
- Pulse generation : gas igniters,HID(high intensity discharge)lamp drive circuit,etc.
- AC switching : drive circuit for switching power supplies,voltage detecting circuits,etc.
- Over voltage protection : AC line surge protection,capacitor rupture prevention,etc.

Package		 5.0 × 2.5 × 2.0(mm)
JEDEC Code JEITA Code House Name		DO-214AC – 1F
Fig.		B4-3
Circuit		
V_{DRM}[V]	5	K1VZL09
	15	K1VZL20

Uni-directional (G1V series)

Features
- Uni-directional characteristics.
- Smaller package than bi-directional SIDAC.
- Switching operation from DC power for pulse generation.
- The glass passivation ensures high reliability.

Applications
- Pulse generation : gas igniters,negative ion generators, HID(high intensity discharge) lamp drive circuit,etc.
- Over voltage protection : DC line surge protection.

Package		 5.0 × 2.5 × 2.0(mm)
JEDEC Code JEITA Code House Name		DO-214AC – 1F
Fig.		B3-3
Circuit		
$V_{DRM(A)}$ [V]	70	G1VL8C
	90	G1VL10C
	120	G1VL15C
	170	G1VL20C
	190	G1VL22C G1VL24C

Bi-directional (K1V series)

Surface Mount

Package: JEDEC Code / JEITA Code / House Name	Fig.	Type No.	Absolute Maximum Ratings: V_{DRM} [V]	I_T [A]	Conditions T_l [℃]	Tstg [℃]	T_j [℃]	Electrical Characteristics: V_{BO} [V]	I_{DRM} (max) [μA]	Conditions V_D [V]	I_{BO} (max) [mA]	I_H (typ) [mA]	V_T (max) [V]	Conditions I_T [A]	Halogen free	Automotive
DO-214AC – 1F	B4-3	K1VZL09	5	0.5	110	-40 to 125	125	8 to 12	5	5	20	20	1.2	0.5	–	–
		K1VZL20	15	0.5	110	-40 to 125	125	18 to 22	5	15	20	20	1.2	0.5	–	–

Uni-directional (G1V series)

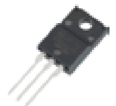
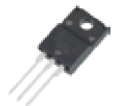
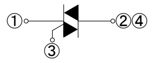
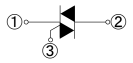
Surface Mount

Package: JEDEC Code / JEITA Code / House Name	Fig.	Type No.	Absolute Maximum Ratings: $V_{DRM(A)}$ [V]	I_T [A]	Conditions T_l [℃]	I_{TRM} [A]	Conditions f [Hz]	di_T/dt [A/μs]	Tj [℃]	Electrical Characteristics: $V_{BO(A)}$ [V]	$I_{H(A),(K)}$ (max) [mA]	$V_{T(A),(K)}$ (max) [V]	Conditions I_T [A]	Halogen free	Automotive
DO-214AC – 1F	B3-3	G1VL8C	70	1	98	80	60	150	125	75 to 90	100	1.5	1	–	–
		G1VL10C	90	1	98	150	60	150	125	95 to 110	100	1.5	1	–	–
		G1VL15C	120	1	98	120	60	150	125	142 to 157	60	1.5	1	–	–
		G1VL20C	170	1	98	120	60	150	125	190 to 210	60	1.5	1	–	–
		G1VL22C	190	1	98	280	5	150	125	210 to 230	60	1.5	1	–	–
		G1VL24C	190	1	98	280	5	150	150	230 to 250	60	1.5	1	–	–

TRIACs

TRIACs are bidirectional Thyristors.
Our TRIACs are easy to use for motor and heater controls due to balanced gate sensitivity and (di/dt)c.
Our lineup ranges from V_{DRM}=600 or 800V, $I_{T(RMS)}$=3 to 25A.

TRIACs (Triode for Alternating Current)

Package		 10.0 × 6.6 × 2.3(mm)	 28.5 × 10.0 × 4.5(mm)	 28.5 × 10.0 × 4.5(mm)	
JEDEC Code JEITA Code House Name		TO-252AA – FB	– SC-91 FTO-220A	– SC-91 FTO-220AG	
Fig.		G2-3	J7-4	J8-4	
Circuit					
V_{DRM}[V]		600			800
$I_{T(RMS)}$ [A]	3	KD3FB60		KD3SF60E KD3SF60	
	5			KD5SF60 KD5SF60S	★KD5SF80
	8			KD8SF60 KD8SF60S	KD8SF80
	12			KD12SF60 KD12SF60S	KD12SF80
	16		KD16SF60A	KD16SF60 KD16SF60S	★KD16SF80
	20		KD20SF60A	KD20SF60 KD20SF60S	KD20SF80
	25		KD25SF60A		

★ : Under development

TRIACs (Triode for Alternating Current)

Surface Mount

Package: JEDEC Code / JEITA Code / House Name	Fig.	Type No.	Absolute Maximum Ratings: V_{DRM} [V]	$I_{T(RMS)}$ [A]	Tj [℃]	Electrical Characteristics: V_{TM} (max) [V]	Conditions I_{TM} [A]	V_{GT} (max) (Ⅰ, Ⅱ, Ⅲ)＊ [V]	I_{GT} (max) (Ⅰ, Ⅱ, Ⅲ)＊ [mA]	(dv/dt)c (min) (Tj=150℃, V_D=2/3V_{DRM}) [V/μs]	Conditions (di/dt)c [A/ms]	Halogen free	Based on AEC-Q101	Automotive
TO-252AA – FB	G2-3	KD3FB60	600	3	-40 to 150	1.7	4.5	1.5	15	1	-1.5	–	–	–

＊ : Operation mode Ⅳ is not guaranteed.

Three Terminal Type

Package: JEDEC Code / JEITA Code / House Name	Fig.	Type No.	Absolute Maximum Ratings: V_{DRM} [V]	$I_{T(RMS)}$ [A]	Tj [℃]	Electrical Characteristics: V_{TM} (max) [V]	Conditions I_{TM} [A]	V_{GT} (max) (Ⅰ, Ⅱ, Ⅲ)＊ [V]	I_{GT} (max) (Ⅰ, Ⅱ, Ⅲ)＊ [mA]	(dv/dt)c (min) (Tj=150℃, V_D=2/3V_{DRM}) [V/μs]	Conditions (di/dt)c [A/ms]	Halogen free	Based on AEC-Q101	Automotive
– SC-91 FTO-220A	J7-4	KD16SF60A	600	16	-40 to 150	1.6	20	1.5	30	1	- 6	–	–	–
		KD20SF60A	600	20	-40 to 150	1.5	25	1.5	30	1	-8	–	–	–
		KD25SF60A	600	25	-40 to 150	1.4	30	1.5	30	1	-10	–	–	–
– SC-91 FTO-220AG	J8-4	KD3SF60E	600	3	-40 to 150	1.5	4.5	1.5	10	–	–	–	–	–
		KD3SF60	600	3	-40 to 150	1.5	4.5	1.5	20	1	-1.5	–	–	–
		KD5SF60	600	5	-40 to 150	1.8	7	1.5	20	1	-2.5	–	–	–
		KD8SF60	600	8	-40 to 150	1.6	12	1.5	30	1	-4.0	–	–	–
		KD12SF60	600	12	-40 to 150	1.6	20	1.5	30	1	-6.0	–	–	–
		KD16SF60	600	16	-40 to 150	1.5	25	1.5	30	1	-8.0	–	–	–
		KD20SF60	600	20	-40 to 150	1.4	30	1.5	30	1	-10.0	–	–	–
		KD5SF60S	600	5	-40 to 150	1.5	4.5	1.5	20	1	-1.5	–	–	–
		KD8SF60S	600	8	-40 to 150	1.8	7	1.5	20	1	-2.5	–	–	–
		KD12SF60S	600	12	-40 to 150	1.6	12	1.5	30	1	-4	–	–	–
		KD16SF60S	600	16	-40 to 150	1.6	20	1.5	30	1	-6	–	–	–
		KD20SF60S	600	20	-40 to 150	1.5	25	1.5	30	1	-8	–	–	–
		★KD5SF80	800	5	-40 to 150	1.8	7	1.5	35	1	-1.5	–	–	–
		KD8SF80	800	8	-40 to 150	1.6	12	1.5	35	1	-4	–	–	–
		KD12SF80	800	12	-40 to 150	1.6	20	1.5	35	1	-4	–	–	–
		★KD16SF80	800	16	-40 to 150	1.5	25	1.5	35	1	-4	–	–	–
		KD20SF80	800	20	-40 to 150	1.4	30	1.5	35	1	-4	–	–	–

★ : Under development　＊ : Operation mode Ⅳ is not guaranteed.

	Terminal Characteristics		
Operation Mode	① T1	②④ T2	③ G
Ⅰ	–	+	+
Ⅱ	–	+	–
Ⅲ	+	–	–
Ⅳ	+	–	+

TRIACs

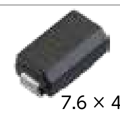
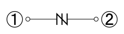
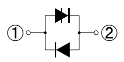
SURGE ABSORBERS

Surge Absorbers are semiconductor devices of the Thyristor type that turns on when triggered by their rated voltage.
They are commonly used for lightning surge protection in communications equipment.

Thyristor Surge Suppressors

Features
- Bi-directional or uni-directional characteristics.
- High speed response.
- Large surge current capacity.
- Repetitive use against surges is possible.

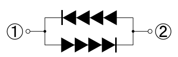
Applications
- Lightning surge adsorption for communications circuits.
- Lightning surge adsorption for transmitters and switchboards.
- Surge protection for ISDN terminals.

Series		KL series	KU series		KP series
Package		 5.0 × 2.5 × 2.0(mm)	 5.1 × 3.75 × 2.0(mm)		 7.6 × 4.0 × 2.8(mm)
JEDEC Code JEITA Code House Name		DO-214AC – 1F	DO-214AA similar – M2F		– – 2F
Fig.		B4-3	B7	B8	B9-4
Circuit					
Off-state Voltage V_D [V]	5	KL3Z07			
	15	KL3Z18			
	58	KL3L07			
	63		KU10L08		
	70		KU4F8		
	90			KU10NU11	
	92				KP20NU11 KP40NU11
	100		KU4F12		
	115			KU10NU13	
	120	KL3N14	KU10N14 KU15N14		
	175	KL3R20			
	180				KP40RU22
	190		KU10R23NS		
	220		KU10R27NS		
	250		KU10R29NS		
	275		KU5S31NS KU10S31NS KU10S35NS		

Varistor

Features
- Bi-directional surge absorption is possible.
- Low junction capacitance.

Applications
- Telephone set surge absorption.
- Digital communications circuit surge absorption.
- ISDN terminal surge absorption.

Package		 5.0 × 2.5 × 2.0(mm)
JEDEC Code JEITA Code House Name		DO-214AC – 1F
Fig.		B4-1
Circuit		
V_F [V]	2.3 ± 0.25	VR61F1

Thyristor Surge Suppressors

Package: JEDEC Code / JEITA Code / House Name	Fig.	Type No.	Absolute Maximum Ratings: V_{DRM} [V]	I_{TSM} [A]	Conditions [μs]	Tj [℃]	Electrical Characteristics: V_{BO} (min) [V]	I_H (min) [mA]	Ct (max) [pF]	Halogen free	UL	Automotive
DO-214AC – 1F	B4-3	KL3Z07	5	30	10/1000	125	5.5 *1	50	–	–	–	–
		KL3Z18	15	30	10/1000	125	15.5 *1	50	–	–	–	–
		KL3L07	58	30	10/1000	125	65	100	90	–	–	–
		KL3N14	120	30	10/1000	125	130	100	50	–	–	–
		KL3R20	175	30	10/1000	125	180	100	30	–	–	–
DO-214AA similar – M2F	B7	KU10L08	63	100	10/1000	125	70	100	180	–	UR	–
		KU4F8	70	40	10/1000	125	75	100	100	–	–	–
	B8	KU10NU11	60	100	10/1000	125	100	150	–	–	–	–
	B7	KU4F12	100	40	10/1000	125	110	100	100	–	–	–
	B8	KU10NU13	60	100	10/1000	125	120	100	–	–	–	–
	B7	KU10N14	120	100	10/1000	125	125	100	140	–	UR	–
		KU15N14	120	150	10/1000	125	125	100	110	–	UR	–
		KU10R23NS	190	100	10/1000	125	290 *2	100	90	–	–	–
		KU10R27NS	220	100	10/1000	125	320 *2	100	70	–	UR	–
		KU10R29NS	250	100	10/1000	125	400 *2	100	70	–	UR	–
		KU5S31NS	275	50	10/1000	125	420 *2	150	70	–	–	–
		KU10S31NS	275	100	10/1000	125	420 *2	100	90	–	UR	–
		KU10S35NS	275	100	10/1000	125	450 *2	100	90	–	UR	–
– – 2F	B9-4	KP20NU11	60	325	10/700	125	100	150	295 *3	–	–	–
		KP40NU11	60	500	10/700	125	100	150	485 *3	–	–	–
		KP40RU22	60	500	10/700	125	195	100	285 *3	–	–	–

*1 : V_{BR} *2 : V_{CL}(max) *3 : typ. UR : UL497B recognized (UL File No. E183905)

Varistor

Package: JEDEC Code / JEITA Code / House Name	Fig.	Type No.	Absolute Maximum Ratings: $I_{F(RMS)}$ [A]	$I_{FSM(R.M.S)}$ [A]	Tj [℃]	Electrical Characteristics: V_F [V]	Conditions I_F [mA]	Halogen free	Automotive
DO-214AC – 1F	B4-1	VR61F1	0.37(*1)/0.28(*2)	7.5	-55 to 150	2.3 ± 0.25	1	–	–

*1 : On alumina substrate *2 : On glass-epoxy substrate

SURGE ABSORBERS

TVS (Transient Surge Suppressor)

TVSs are low voltage PN junction type devices.
These devices utilize technologically stable glass passivation (an in-house design) with a structural advantage that brings high resistance against heat and humidity.
They are available with a voltage range between 12 to 320V and peak pulse power from 200 to 8000W.

TVS

■ Features
- High speed response.
- Absorption energy tolerance capacity.
- Narrow clamping voltage width.
- Lineup of Bi-directional type (DL series) for surge absorption.

■ Applications
- IC protection for telephones.
- IC protection against abnormal voltage.
- Protection for load dump noise.

Peak pulse power		200W			600W
Package		 3.5 × 1.6 × 0.8(mm)	 5.0 × 2.5 × 2.0(mm)		 4.7 × 2.4 × 0.98(mm)
JEDEC Code JEITA Code House Name		DO-219AB similar SC-109 G1F	DO-214AC – 1F	DO-214AC – 1F	– SC-110B CE
Fig.		B1-2	B3-2	B4-2	B5-2
Circuit		①–②		①–②	①–②
VBR (typ) [V]	12.5	ST02-12G1	ST04-12F1		
	14	ST02-14G1	ST04-14F1		
	16	ST02-16G1	ST04-16F1		
	18	ST02-18G1	ST04-18F1	DL04-18F1	ST06-18CE
	20	ST02-20G1	ST04-20F1		
	24	ST02-24G1	ST04-24F1		
	27	ST02-27G1	ST04-27F1	★DL04B-27F1	ST06-27CE
	30	ST02-30G1	ST04-30F1	★DL04B-30F1	ST06-30CE
	33	ST02-33G1	ST04-33F1	DL04-33F1 ★DL04B-33F1	ST06-33CE
	36	ST02-36G1	ST04-36F1	DL04-36F1 ★DL04B-36F1	ST06-36CE
	39	ST02-39G1	ST04-39F1	★DL04B-39F1	ST06-39CE
	43	ST02-43G1	ST03-43F1	★DL04B-43F1	
	47	ST02-47G1	ST03-47F1	★DL04B-47F1	
	58	ST02-58G1	ST03-58F1	★DL04B-58F1	
	63			★DL04B-63F1	
	68		ST03-68F1	★DL04B-68F1	
	75		ST02-75F1	★DL04B-75F1	
	82		ST02-82F1	★DL04B-82F1	
	100		ST02-100F1	★DL04B-100F1	
	120		ST02-120F1		
	145		ST02-140F1		
	170		ST02-170F1		
	200		ST02-200F1		
	240		ST03-240F1		
	280		ST02-280F1		
	320		ST02-320F1		

★ : Under development

TVS

Package: JEDEC Code / JEITA Code / House Name	Fig.	Type No.	Absolute Maximum Ratings: PRSM [W]	VR (DC) [V]	IRSM [A]	Tj [℃]	Electrical Characteristics: VBR (min) [V]	VBR (max) [V]	Conditions IR [mA]	IR (max) [μA]	Conditions VR [V]	Halogen free	Based on AEC-Q101	Automotive
DO-219AB similar SC-109 G1F	B1-2	ST02-12G1	200	9	11.2	-55 to 175	11.5	13.5	5	5	9	–	○	○
		ST02-14G1	200	12.8	10.0	-55 to 175	13.5	15	5	5	12.8	–	○	○
		ST02-16G1	200	13.6	9.1	-55 to 175	14.4	17.6	5	5	13.6	–	○	○
		ST02-18G1	200	13	7.5	-55 to 175	16.8	19.1	5	5	13	–	○	○
		ST02-20G1	200	16	6.7	-55 to 175	18.8	22	5	5	16	–	○	○
		ST02-24G1	200	20	5.8	-55 to 175	22	25.6	5	5	20	–	○	○
		ST02-27G1	200	23	5.5	-55 to 175	25.1	28.9	2	5	23	–	○	○
		ST02-30G1	200	24	5.0	-55 to 175	28	32	2	5	24	–	○	○
		ST02-33G1	200	25	4.5	-55 to 175	31	35	2	5	25	–	○	○
		ST02-36G1	200	27	4.0	-55 to 175	34	38	2	5	27	–	○	○
		ST02-39G1	200	30	3.8	-55 to 175	37	41	2	5	30	–	○	○
		ST02-43G1	200	33	3.5	-55 to 175	40	45	2	5	33	–	○	○
		ST02-47G1	195	37	3.0	-55 to 175	42	52	2	5	37	–	○	○
		ST02-58G1	175	45	2.2	-55 to 175	52	64	2	5	45	–	○	○
DO-214AC – 1F	B3-2	ST04-12F1	400	9	24.0	-55 to 175	11.5	13.5	1	5	9	–	○	○
		ST04-14F1	400	12.8	18.0	-55 to 175	13.5	15	1	5	12.8	–	○	○
		ST04-16F1	400	13.6	15.0	-55 to 175	14.4	17.6	1	5	13.6	–	○	○
		ST04-18F1	400	15.3	15.0	-55 to 175	16.8	19.1	1	5	15.3	–	○	○
		ST04-20F1	400	16	15.0	-55 to 175	18.8	21.2	1	5	16	–	○	○
		ST04-24F1	400	20	12.0	-55 to 175	22.8	25.6	1	5	20	–	○	○
		ST04-27F1	400	23	10.0	-55 to 175	24.3	29.7	1	5	23	–	○	○
		ST04-30F1	400	24	8.5	-55 to 175	28	32	1	5	24	–	○	○
		ST04-33F1	400	25	8.0	-55 to 175	31	35	1	5	25	–	○	○
		ST04-36F1	400	27	7.5	-55 to 175	34	38	1	5	27	–	○	○
		ST04-39F1	400	30	7.0	-55 to 175	37	41	1	5	30	–	○	○
		ST03-43F1	300	33	5.0	-55 to 150	40	45	1	5	33	–	○	○
		ST03-47F1	300	37	5.0	-55 to 150	42	52	1	5	37	–	○	○
		ST03-58F1	300	45	4.0	-55 to 150	52	64	1	5	45	–	○	○
		ST03-68F1	300	58	3.0	-55 to 150	64.4	71.2	1	5	58	–	○	○
		ST02-75F1	200	61	2.0	-55 to 150	70	79	1	5	61	–	○	○
		ST02-82F1	200	67	2.0	-55 to 150	74	90	1	5	67	–	○	○
		ST02-100F1	200	80	1.7	-55 to 150	90	110	1	5	80	–	○	○
		ST02-120F1	200	100	1.4	-55 to 150	110	130	1	5	33	–	○	○
		ST02-140F1	200	120	1.0	-55 to 150	130	160	1	5	120	–	○	○
		ST02-170F1	200	145	0.75	-55 to 150	155	185	1	5	145	–	○	○
		ST02-200F1	200	170	0.7	-55 to 150	185	215	1	5	170	–	○	○
		ST03-240F1	310	200	1.0	-55 to 175	220	250	1	5	200	–	○	○
		ST02-280F1	200	230	0.5	-55 to 175	250	300	1	5	230	–	○	○
		ST02-320F1	150	260	0.38	-55 to 175	300	350	1	5	260	–	○	○
DO-214AC – 1F	B4-2	DL04-18F1	400	13	–	-55 to 150	16.8	19.1	5	5	13	–	○	○
		★DL04B-27F1	400	23	TBD	-55 to 175	25.0	29.0	1	5	23	–	○	○
		★DL04B-30F1	400	24	TBD	-55 to 175	28.0	32.0	1	5	24	–	○	○
		DL04-33F1	400	25	9.5	-55 to 175	31	35	1	5	25	–	○	○
		★DL04B-33F1	400	25	TBD	-55 to 175	31.0	35.0	1	5	25	–	○	○
		DL04-36F1	400	27	8.0	-55 to 175	34	38	1	5	27	–	○	○
		★DL04B-36F1	400	27	TBD	-55 to 175	34.0	38.0	1	5	27	–	○	○
		★DL04B-39F1	400	30	TBD	-55 to 175	37.0	41.0	1	5	30	–	○	○
		★DL04B-43F1	400	33	TBD	-55 to 175	40.0	45.0	1	5	33	–	○	○
		★DL04B-47F1	400	37	TBD	-55 to 175	42.0	52.0	1	5	37	–	○	○
		★DL04B-58F1	400	45	TBD	-55 to 175	52.0	64.0	1	5	45	–	○	○
		★DL04B-63F1	400	53	TBD	-55 to 175	59.8	66.1	1	5	53	–	○	○
		★DL04B-68F1	400	58	TBD	-55 to 175	64.4	71.2	1	5	58	–	○	○
		★DL04B-75F1	400	61	TBD	-55 to 175	70.0	79.0	1	5	61	–	○	○
		★DL04B-82F1	400	67	TBD	-55 to 175	74.0	90.0	1	5	67	–	○	○
		★DL04B-100F1	400	80	TBD	-55 to 175	90.0	110.0	1	5	80	–	○	○
– SC-110B CE	B5-2	ST06-18CE	600	13	26.0	-55 to 175	16.8	19.1	1	5	13	–	○	○
		ST06-27CE	600	23	17.3	-55 to 175	25	29	1	5	23	–	○	○
		ST06-30CE	600	24	15.0	-55 to 175	28	32	1	5	24	–	○	○
		ST06-33CE	600	25	14.0	-55 to 175	31	35	1	5	25	–	○	○
		ST06-36CE	600	27	12.4	-55 to 175	34	38	1	5	27	–	○	○
		ST06-39CE	600	30	11.0	-55 to 175	37	41	1	5	30	–	○	○

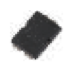
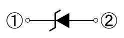
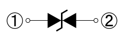
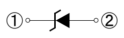
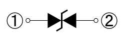
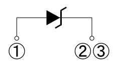
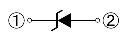
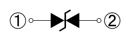
★ : Under development

TVS (Transient Surge Suppressor)

TVS

■ Features
- High speed response.
- Absorption energy tolerance capacity.
- Narrow clamping voltage width.
- Lineup of Bi-directional type (DL series) for surge absorption.

■ Applications
- IC protection for telephones.
- IC protection against abnormal voltage.
- Protection for load dump noise.

Peak pulse power		600W		2000W				3000W	
Package		 5.0 × 2.5 × 2.0(mm)		 7.6 × 4.0 × 2.8(mm)			 6.5 × 4.5 × 1.1(mm)	 6.9 × 5.9 × 2.3(mm)	
JEDEC Code JEITA Code House Name		DO-214AC – 1F		– – 2F			TO-277A similar – FY	DO-214AB – CH	
Fig.		B3-2	B4-2	B9-5	B10	B11	G4-2	B13-1	B13-2
Circuit									
V_{BR} (typ) [V]	12.5	★ST06-12M2						★ ST30-12CH	
	14	★ ST06-14M2						★ ST30-14CH	
	16	★ ST06-16M2						★ ST30-16CH	
	18	★ ST06-18M2					N ST20-18FY	★ ST30-18CH	
	20	★ ST06-20M2						★ ST30-20CH	
	24	★ ST06-24M2						★ ST30-24CH	
	27	★ ST06-27M2	★ DL06B-27M2		ST20-27F2	N DL20B-27F2	N ST20-27FY	★ ST30-27CH	★ DL30B-27CH
	30	★ ST06-30M2	★ DL06B-30M2		ST20-30F2	N DL20B-30F2	N ST20-30FY	★ ST30-30CH	★ DL30B-30CH
	33	★ ST06-33M2	★ DL06B-33M2		ST20-33F2	N DL20B-33F2	N ST20-33FY	★ ST30-33CH	★ DL30B-33CH
	36	★ ST06-36M2	★ DL06B-36M2		ST20-36F2	N DL20B-36F2	N ST20-36FY	★ ST30-36CH	★ DL30B-36CH
	39	★ ST06-39M2	★ DL06B-39M2				N ST20-39FY	★ ST30-39CH	★ DL30B-39CH
	43	★ ST06-43M2	★ DL06B-43M2					★ ST30-43CH	★ DL30B-43CH
	47	★ ST06-47M2	★ DL06B-47M2	ST20-47F2				★ ST30-47CH	★ DL30B-47CH
	58	★ ST06-58M2	★ DL06B-58M2					★ ST30-58CH	★ DL30B-58CH
	63	★ ST06-63M2	★ DL06B-63M2					★ ST30-63CH	★ DL30B-63CH
	68	★ ST06-68M2	★ DL06B-68M2					★ ST30-68CH	★ DL30B-68CH
	75	★ ST06-75M2	★ DL06B-75M2					★ ST30-75CH	★ DL30B-75CH
	82	★ ST06-82M2	★ DL06B-82M2					★ ST30-82CH	★ DL30B-82CH
	100	★ ST06-100M2	★ DL06B-100M2					★ ST30-100CH	★ DL30B-100CH

N : New product ★ : Under development

TVS

Package			Absolute Maximum Ratings				Electrical Characteristics							
JEDEC Code JEITA Code House Name	Fig.	Type No.	P_{RSM} [W]	V_R (DC) [V]	I_{RSM} [A]	Tj [℃]	V_{BR} (min) [V]	V_{BR} (max) [V]	Conditions I_R [mA]	I_R (max) [μA]	Conditions V_R [V]	Halogen free	Based on AEC-Q101	Automotive
DO-214AC – 1F	B3-2	★ ST06-12M2	600	9.0	TBD	-55 to 175	11.5	13.5	1	5.0	9.0	–	○	○
		★ ST06-14M2	600	12.8	TBD	-55 to 175	13.5	15.0	1	5.0	12.8	–	○	○
		★ ST06-16M2	600	13.6	TBD	-55 to 175	14.4	17.6	1	5.0	13.6	–	○	○
		★ ST06-18M2	600	16.0	TBD	-55 to 175	17.2	19.1	1	5.0	16.0	–	○	○
		★ ST06-20M2	600	17.0	TBD	-55 to 175	16.8	22.0	1	5.0	17.0	–	○	○
		★ ST06-24M2	600	20.0	TBD	-55 to 175	22.0	25.6	1	5.0	20.0	–	○	○
		★ ST06-27M2	600	23.0	TBD	-55 to 175	25.0	29.0	1	5.0	23.0	–	○	○
		★ ST06-30M2	600	24.0	TBD	-55 to 175	28.0	32.0	1	5.0	24.0	–	○	○
		★ ST06-33M2	600	25.0	TBD	-55 to 175	31.0	35.0	1	5.0	25.0	–	○	○
		★ ST06-36M2	600	27.0	TBD	-55 to 175	34.0	38.0	1	5.0	27.0	–	○	○
		★ ST06-39M2	600	30.0	TBD	-55 to 175	37.0	41.0	1	5.0	30.0	–	○	○
		★ ST06-43M2	600	33.0	TBD	-55 to 175	40.0	45.0	1	5.0	33.0	–	○	○
		★ ST06-47M2	600	37.0	TBD	-55 to 175	42.0	52.0	1	5.0	37.0	–	○	○
		★ ST06-58M2	600	45.0	TBD	-55 to 175	52.0	64.0	1	5.0	45.0	–	○	○
		★ ST06-63M2	600	53.0	TBD	-55 to 175	59.8	66.1	1	5.0	53.0	–	○	○
		★ ST06-68M2	600	58.0	TBD	-55 to 175	64.4	71.2	1	5.0	58.0	–	○	○
		★ ST06-75M2	600	61.0	TBD	-55 to 175	70.0	79.0	1	5.0	61.0	–	○	○
		★ ST06-82M2	600	67.0	TBD	-55 to 175	74.0	90.0	1	5.0	67.0	–	○	○
		★ ST06-100M2	600	80.0	TBD	-55 to 175	90.0	110.0	1	5.0	80.0	–	○	○
	B4-2	★ DL06B-27M2	600	23	TBD	-55 to 175	25	29	1	5	23	–	○	○
		★ DL06B-30M2	600	24	TBD	-55 to 175	28	32	1	5	24	–	○	○
		★ DL06B-33M2	600	25	TBD	-55 to 175	31	35	1	5	25	–	○	○
		★ DL06B-36M2	600	27	TBD	-55 to 175	34	38	1	5	27	–	○	○
		★ DL06B-39M2	600	30	TBD	-55 to 175	37	41	1	5	30	–	○	○
		★ DL06B-43M2	600	33	TBD	-55 to 150	40.0	45.0	1	5	33	–	○	○
		★ DL06B-47M2	600	37	TBD	-55 to 150	42.0	52.0	1	5	37	–	○	○
		★ DL06B-58M2	600	45	TBD	-55 to 150	52.0	64.0	1	5	45	–	○	○
		★ DL06B-63M2	600	53	TBD	-55 to 150	59.8	66.1	1	5	53	–	○	○
		★ DL06B-68M2	600	58	TBD	-55 to 150	64.4	71.2	1	5	58	–	○	○
		★ DL06B-75M2	600	61	TBD	-55 to 150	70.0	79.0	1	5	61	–	○	○
		★ DL06B-82M2	600	67	TBD	-55 to 150	74.0	90.0	1	5	67	–	○	○
		★ DL06B-100M2	600	80	TBD	-55 to 150	90.0	110.0	1	5	80	–	○	○
– – 2F	B9-5	ST20-47F2	1700	37	31.0	-55 to 175	42	52	1	5	37	–	○	○
	B10	ST20-27F2	2000	23	54.0	-55 to 175	24.3	29.7	1	5	23	–	○	○
		ST20-30F2	2000	24	50.0	-55 to 175	28	32	1	5	24	–	○	○
		ST20-33F2	2000	25	45.0	-55 to 175	31	35	1	5	25	–	○	○
		ST20-36F2	2000	27	40.0	-55 to 175	34	38	1	5	27	–	○	○
	B11	N DL20B-27F2	2000	23	51	-55 to 175	25	29	1	5	23	–	○	○
		N DL20B-30F2	2000	24	46	-55 to 175	28	32	1	5	24	–	○	○
		N DL20B-33F2	2000	25	41	-55 to 175	31	35	1	5	25	–	○	○
		N DL20B-36F2	2000	27	36	-55 to 175	34	38	1	5	27	–	○	○
TO-277A similar – FY	G4-2	N ST20-18FY	1800	16	57	-55 to 175	17.2	19.1	1	5	16	–	○	○
		N ST20-27FY	1800	23	45	-55 to 175	25.0	29.0	1	5	23	–	○	○
		N ST20-30FY	1800	24	41	-55 to 175	28.0	32.0	1	5	24	–	○	○
		N ST20-33FY	1800	25	38	-55 to 175	31.0	35.0	1	5	25	–	○	○
		N ST20-36FY	1800	27	35	-55 to 175	34.0	38.0	1	5	27	–	○	○
		N ST20-39FY	1800	30	30	-55 to 175	37.0	41.0	1	5	30	–	○	○
DO-214AB – CH	B13-1	★ ST30-12CH	3000	9.0	TBD	-55 to 175	11.5	13.5	1	5	9.0	–	○	○
		★ ST30-14CH	3000	12.8	TBD	-55 to 175	13.5	15.0	1	5	12.8	–	○	○
		★ ST30-16CH	3000	13.6	TBD	-55 to 175	14.4	17.6	1	5	13.6	–	○	○
		★ ST30-18CH	3000	16.0	TBD	-55 to 175	17.2	19.1	1	5	16.0	–	○	○
		★ ST30-20CH	3000	17.0	TBD	-55 to 175	18.8	22.0	1	5	17.0	–	○	○
		★ ST30-24CH	3000	20.0	TBD	-55 to 175	22.0	25.6	1	5	20.0	–	○	○
		★ ST30-27CH	3000	23.0	TBD	-55 to 175	25.0	29.0	1	5	23.0	–	○	○
		★ ST30-30CH	3000	24.0	TBD	-55 to 175	28.0	32.0	1	5	24.0	–	○	○
		★ ST30-33CH	3000	25.0	TBD	-55 to 175	31.0	35.0	1	5	25.0	–	○	○
		★ ST30-36CH	3000	27.0	TBD	-55 to 175	34.0	38.0	1	5	27.0	–	○	○
		★ ST30-39CH	3000	30.0	TBD	-55 to 175	37.0	41.0	1	5	30.0	–	○	○
		★ ST30-43CH	3000	33.0	TBD	-55 to 150	40.0	45.0	1	5	33.0	–	○	○
		★ ST30-47CH	3000	37.0	TBD	-55 to 150	42.0	52.0	1	5	37.0	–	○	○
		★ ST30-58CH	3000	45.0	TBD	-55 to 150	50.0	64.0	1	5	45.0	–	○	○
		★ ST30-63CH	3000	53.0	TBD	-55 to 150	59.8	66.1	1	5	53.0	–	○	○
		★ ST30-68CH	3000	58.0	TBD	-55 to 150	64.4	71.2	1	5	58.0	–	○	○
		★ ST30-75CH	3000	61.0	TBD	-55 to 150	70.0	79.0	1	5	61.0	–	○	○
		★ ST30-82CH	3000	67.0	TBD	-55 to 150	74.0	90.0	1	5	67.0	–	○	○
		★ ST30-100CH	3000	80.0	TBD	-55 to 150	90.0	110.0	1	5	80.0	–	○	○
	B13-2	★ DL30B-27CH	3000	23	TBD	-55 to 175	25	29	1	5	23	–	○	○
		★ DL30B-30CH	3000	24	TBD	-55 to 175	28	32	1	5	24	–	○	○
		★ DL30B-33CH	3000	25	TBD	-55 to 175	31	35	1	5	25	–	○	○
		★ DL30B-36CH	3000	27	TBD	-55 to 175	34	38	1	5	27	–	○	○
		★ DL30B-39CH	3000	30	TBD	-55 to 175	37	41	1	5	30	–	○	○
		★ DL30B-43CH	3000	33	TBD	-55 to 150	40.0	45.0	1	5	33	–	○	○
		★ DL30B-47CH	3000	37	TBD	-55 to 150	42.0	52.0	1	5	37	–	○	○
		★ DL30B-58CH	3000	45	TBD	-55 to 150	52.0	64.0	1	5	45	–	○	○
		★ DL30B-63CH	3000	53	TBD	-55 to 150	59.8	66.1	1	5	53	–	○	○
		★ DL30B-68CH	3000	58	TBD	-55 to 150	64.4	71.2	1	5	58	–	○	○
		★ DL30B-75CH	3000	61	TBD	-55 to 150	70.0	79.0	1	5	61	–	○	○
		★ DL30B-82CH	3000	67	TBD	-55 to 150	74.0	90.0	1	5	67	–	○	○
		★ DL30B-100CH	3000	80	TBD	-55 to 150	90.0	110.0	1	5	80	–	○	○

N : New product ★ : Under development

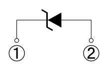
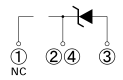
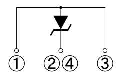
TVS

TVS (Transient Surge Suppressor)

TVS

■ Features
- High speed response.
- Absorption energy tolerance capacity.
- Narrow clamping voltage width.
- Lineup of Bi-directional type (DL series) for surge absorption.

■ Applications
- IC protection for telephones.
- IC protection against abnormal voltage.
- Protection for load dump noise.

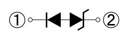
Peak pulse power		6000 ~ 8000W (Load Dump Surge Protecting)		
Package		 9.0 × 7.0 × 9.0(mm)	 13.2 × 10.2 × 4.7(mm)	 15.0 × 10.2 × 4.0(mm)
JEDEC Code JEITA Code House Name		– – MCP	– SC-83 similar STO-220	TO-263AB – FZ
Fig.		E1	H1-6	H6
Circuit				
V_{BR} (typ) [V]	14	ST80-14MF		
	22	N ST70-22MF		
	27	ST70-27MF	ST70-27F	ST70-27FZ
	30	ST70-30MF		
	40	ST60-40MF		
	48	ST60-48MF		
	68	★ ST60-68MF		

N : New product ★ : Under development

Power Clampers

■ Features
- High speed response.
- Absorption energy tolerance capacity.
- Narrow clampingvoltage width.
- Reverse blocking type.

■ Application
- Snubber circuit in the primary side of switch-mode power supplies.

Package		 7.6 × 4.0 × 2.8(mm)
JEDEC Code JEITA Code House Name		– – 2F
Fig.		B9-3
Circuit		
V_{BR} (typ) [V]	145	ST02D-140F2
	170	ST02D-170F2

TVS

Package		Type No.	Absolute Maximum Ratings				Electrical Characteristics					Halogen free	Based on AEC-Q101	Automotive
JEDEC Code JEITA Code House Name	Fig.		P_{RSM} [W]	V_R (DC) [V]	I_{RSM} [A]	Tj [℃]	V_{BR} (min) [V]	V_{BR} (max) [V]	Conditions I_R [mA]	I_R (max) [μA]	Conditions V_R [V]			
– – MCP	E1	ST80-14MF	8000	12	400	-40 to 150	13	15	1	10	12	–	–	○
		N ST70-22MF	7000	18	220	-40 to 150	20.8	23.6	1	5	18	–	–	○
		ST70-27MF	7000	23	180	-40 to 150	24.3	29.7	1	5	23	–	–	○
		ST70-30MF	7000	26	160	-40 to 150	27.5	33	1	5	26	–	–	○
		ST60-40MF	6000	32	100	-40 to 150	36.5	44	1	5	32	–	–	○
		ST60-48MF	6000	40	100	-40 to 150	43.2	54	1	5	40	–	–	○
		★ ST60-68MF	6000	58	TBD	-40 to 150	64.4	71	1	5	58	–	–	○
– SC-83 similar STO-220	H1-6	ST70-27F	7000	23	180	-40 to 150	24.3	29.7	1	5	23	–	–	○
TO-263AB – FZ	H6	ST70-27FZ	7000	23	180	-55 to 175	25	29	1	5	23	○	○	○

N : New product ★ : Under development

Power Clampers

Surface Mount

Package		Type No.	Absolute Maximum Ratings				Electrical Characteristics						Halogen free	Automotive
				ZD	Di		ZD				Di			
JEDEC Code JEITA Code House Name	Fig.		P_{RSM} [W]	V_{RRM} [V]	$V_{R(DC)}$ [V]	Tj [℃]	V_{BR} (min) [V]	V_{BR} (max) [V]	Conditions I_R [mA]	I_R (max) [μA]	I_R (max) [μA]	Conditions V_R [V]		
– – 2F	B9-3	ST02D-140F2	200	120	600	-40 to 150	130	160	1	5	5	600	–	–
		ST02D-170F2	200	145	600	-40 to 150	155	185	1	5	5	600	–	–

TVS

POWER MOSFETs

The EETMOS series offer world-class performance applying a trench-gate structure with an optimized layout hence lowered Qg.

Series	Feature
EETMOS2	Evenly balanced Ron and Qg
EETMOS3/3Z	Low Ron, Low Qg
EETMOS4	Ultra Low Ron, Low Qg
EETMOS5	Ultra Low Ron, Low Qg
EETMOS6	Ultra Low Ron, Low Qg, Low Noise

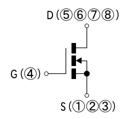
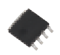
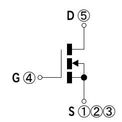
How to read

P 20 LF 4 Q T K D

- 20: Drain Current (I_D) or Ronmax
- LF: Package
- 4: V_{DSS}/10
- Q: Series — E=EETMOS2 S=EETMOS3 Q=EETMOS4 G=EETMOS5 R=EETMOS6
- T: Vth_typ — N=3V L=2V T=2V(Low Capacitance) M=other
- K: K=for Automotive, non=for Consumer goods
- D: D=Dual type, non=Single type

EETMOS Series (Nch Single)

Surface Mount

Package	JEDEC Code / JEITA Code / House Name	Fig.	ID [A]	VDSS [V] 40	60	75	100	120	Circuit
 6.0 × 4.9 × 1.0(mm)	– / – / LA	G6	15					P15LA12SL	
			18					P18LA12SL	
			19				P19LA10SL		
			23				P23LA10SL		
			25					P25LA12SL	
			30				P30LA10SL		
			56	P56LA4SN					
 6.05 × 5.00 × 1.05(mm)	MO-235B similar / – / LF	G7-1	18		P18LF6QLK P18LF6QNK				
			24	P24LF4QLK P24LF4QMK P24LF4QNK					
			25					P25LF12SLK P25LF12SL P25LF12SNK P25LF12SN	
			26		N P26LF6GLK				
			32				P32LF10SLK P32LF10SL P32LF10SNK P32LF10SN		
			38		P38LF6QLK P38LF6QL P38LF6QNK P38LF6QN				
			40					P40LF12SLK P40LF12SL P40LF12SNK P40LF12SN	
			46			P46LF7R5SLK P46LF7R5SL P46LF7R5SNK P46LF7R5SN			
			50				P50LF10SLK P50LF10SL P50LF10SNK P50LF10SN		
			56		N P56LF6GMK				
			58		N P58LF6GLK				
			64		P64LF6QLK P64LF6QL P64LF6QNK P64LF6QN				
			70	P70LF4QLK P70LF4QL P70LF4QNK P70LF4QN					
			72			P72LF7R5SLK P72LF7R5SL P72LF7R5SNK P72LF7R5SN			
			88		N P88LF6GMK				
			90		N P90LF6GLK				
			98		P98LF6QLK P98LF6QL P98LF6QNK P98LF6QN				
			105	P105LF4QLK P105LF4QL P105LF4QNK P105LF4QN					
			120		N P120LF6GLK N P120LF6GMK				
			140	P140LF4QLK P140LF4QL P140LF4QNK P140LF4QN					
			180	★ PR76LF4RNK					

N : New product ★ : Under development

EETMOS Series (Nch Single)

Surface Mount

Package: JEDEC Code / JEITA Code / House Name	Fig.	Type No.	Absolute Maximum Ratings: VDSS [V]	ID [A]	IDP [A]	PT [W]	Tch [℃]	Electrical Characteristics: RDS(ON) (typ) [mΩ] VGS=10V	RDS(ON) (max) [mΩ] VGS=10V	Ciss (typ) [pF]	Qg (typ) [nC]	Vth (typ) [V]	Halogen free	Based on AEC-Q101	Automotive	Series
– / – / LA	G6	P56LA4SN	40	56	168	99	-55 to 150	4.5	5.7	1680	38	3.0	○	–	–	EETMOS3
		P19LA10SL	100	19	57	83	-55 to 150	28	35	1730	38	2.0	○	–	–	EETMOS3
		P23LA10SL	100	23	69	99	-55 to 150	23	29	2080	46	2.0	○	–	–	EETMOS3
		P30LA10SL	100	30	90	142	-55 to 150	16.8	21.0	2890	61	2.0	○	–	–	EETMOS3
		P15LA12SL	120	15	45	83	-55 to 150	40	50	1735	38.5	2.0	○	–	–	EETMOS3
		P18LA12SL	120	18	54	99	-55 to 150	35	44	2090	47	2.0	○	–	–	EETMOS3
		P25LA12SL	120	25	75	142	-55 to 150	24	30	2900	61	2.0	○	–	–	EETMOS3
MO-235B similar / – / LF	G7-1	P24LF4QLK	40	24	72	50	-55 to 175	10.6	13.2	884	21	2.0	○	○	○	EETMOS4
		P24LF4QMK	40	24	72	50	-55 to 175	10.5	13.2	856	22	1.6	○	○	○	EETMOS4
		P24LF4QNK	40	24	72	50	-55 to 175	11.3	14.1	756	17	3.0	○	○	○	EETMOS4
		P70LF4QLK	40	70	210	123	-55 to 175	3.6	4.5	2360	49	2.0	○	○	○	EETMOS4
		P70LF4QL	40	70	210	123	-55 to 175	3.6	4.5	2360	49	2.0	○	–	–	EETMOS4
		P70LF4QNK	40	70	210	123	-55 to 175	3.9	4.9	1890	38	3.0	○	○	○	EETMOS4
		P70LF4QN	40	70	210	123	-55 to 175	3.9	4.9	1890	38	3.0	○	–	–	EETMOS4
		P105LF4QLK	40	105	315	168	-55 to 175	2.1	2.7	4090	76	2.0	○	○	○	EETMOS4
		P105LF4QL	40	105	315	168	-55 to 175	2.1	2.7	4090	76	2.0	○	–	–	EETMOS4
		P105LF4QNK	40	105	315	168	-55 to 175	2.2	2.8	3400	62	3.0	○	○	○	EETMOS4
		P105LF4QN	40	105	315	168	-55 to 175	2.2	2.8	3400	62	3.0	○	–	–	EETMOS4
		P140LF4QLK	40	140	560	217	-55 to 175	1.17	1.42	6630	122	2.0	○	○	○	EETMOS4
		P140LF4QL	40	140	560	217	-55 to 175	1.17	1.42	6630	122	2.0	○	–	–	EETMOS4
		P140LF4QNK	40	140	560	217	-55 to 175	1.22	1.48	5530	96	3.0	○	○	○	EETMOS4
		P140LF4QN	40	140	560	217	-55 to 175	1.22	1.48	5530	96	3.0	○	–	–	EETMOS4
		★ PR76LF4RNK	40	180	720	217	-55 to 175	0.64	0.76	6768	103	3.0	○	○	○	EETMOS6
		P18LF6QLK	60	18	54	50	-55 to 175	22	28	920	21	2.0	○	○	○	EETMOS4
		P18LF6QNK	60	18	54	50	-55 to 175	22	28	757	17	3.0	○	○	○	EETMOS4
		N P26LF6GLK	60	26	78	50	-55 to 175	14.7	18.4	581	14.9	2.0	○	○	○	EETMOS5
		P38LF6QLK	60	38	114	123	-55 to 175	7.9	9.9	2340	49	2.0	○	○	○	EETMOS4
		P38LF6QL	60	38	114	123	-55 to 175	7.9	9.9	2340	49	2.0	○	–	–	EETMOS4
		P38LF6QNK	60	38	114	123	-55 to 175	8.3	10.4	1875	35	3.0	○	○	○	EETMOS4
		P38LF6QN	60	38	114	123	-55 to 175	8.3	10.4	1875	35	3.0	○	–	–	EETMOS4
		N P56LF6GMK	60	56	168	123	-55 to 175	5.9	7.3	1615	27	3.0	○	○	○	EETMOS5
		N P58LF6GLK	60	58	174	123	-55 to 175	5.4	6.7	1410	27	2.0	○	○	○	EETMOS5
		P64LF6QLK	60	64	192	168	-55 to 175	4.5	5.7	4260	77	2.0	○	○	○	EETMOS4
		P64LF6QL	60	64	192	168	-55 to 175	4.5	5.7	4260	77	2.0	○	–	–	EETMOS4
		P64LF6QNK	60	64	192	168	-55 to 175	4.5	5.7	3540	61	3.0	○	○	○	EETMOS4
		P64LF6QN	60	64	192	168	-55 to 175	4.5	5.7	3540	61	3.0	○	–	–	EETMOS4
		N P88LF6GMK	60	88	264	168	-55 to 175	3.2	4.0	2880	44	3.0	○	○	○	EETMOS5
		N P90LF6GLK	60	90	270	168	-55 to 175	3.1	3.8	2700	46	2.0	○	○	○	EETMOS5
		P98LF6QLK	60	98	392	217	-55 to 175	2.5	3.2	6770	126	2.0	○	○	○	EETMOS4
		P98LF6QL	60	98	392	217	-55 to 175	2.5	3.2	6770	126	2.0	○	–	–	EETMOS4
		P98LF6QNK	60	98	392	217	-55 to 175	2.6	3.3	5650	96	3.0	○	○	○	EETMOS4
		P98LF6QN	60	98	392	217	-55 to 175	2.6	3.3	5650	96	3.0	○	–	–	EETMOS4
		N P120LF6GLK	60	120	480	217	-55 to 175	1.7	2.3	4800	78	2.0	○	○	○	EETMOS5
		N P120LF6GMK	60	120	480	217	-55 to 175	1.83	2.3	4950	70	3.0	○	○	○	EETMOS5
		P46LF7R5SLK	75	46	138	168	175	8.2	10.3	2890	61	2.0	○	○	○	EETMOS3
		P46LF7R5SL	75	46	138	168	-55 to 175	8.2	10.3	2890	61	2.0	○	–	–	EETMOS3
		P46LF7R5SNK	75	46	138	168	175	8	10	2380	48	3.0	○	○	○	EETMOS3
		P46LF7R5SN	75	46	138	168	-55 to 175	8	10	2380	48	3.0	○	–	–	EETMOS3
		P72LF7R5SLK	75	72	288	217	175	4.6	5.8	4870	100	2.0	○	○	○	EETMOS3
		P72LF7R5SL	75	72	288	217	-55 to 175	4.6	5.8	4870	100	2.0	○	–	–	EETMOS3
		P72LF7R5SNK	75	72	288	217	175	4.5	5.7	4080	78	3.0	○	○	○	EETMOS3
		P72LF7R5SN	75	72	288	217	-55 to 175	4.5	5.7	4080	78	3.0	○	–	–	EETMOS3
		P32LF10SLK	100	32	96	168	175	15.7	19.7	2890	61	2.0	○	○	○	EETMOS3
		P32LF10SL	100	32	96	168	-55 to 175	15.7	19.7	2890	61	2.0	○	–	–	EETMOS3
		P32LF10SNK	100	32	96	168	175	14.4	18.0	2430	48	3.0	○	○	○	EETMOS3
		P32LF10SN	100	32	96	168	-55 to 175	14.4	18.0	2430	48	3.0	○	–	–	EETMOS3
		P50LF10SLK	100	50	200	217	175	9.0	11.3	4900	102	2.0	○	○	○	EETMOS3
		P50LF10SL	100	50	200	217	-55 to 175	9.0	11.3	4900	102	2.0	○	–	–	EETMOS3
		P50LF10SNK	100	50	200	217	175	8.3	10.4	4130	80	3.0	○	○	○	EETMOS3
		P50LF10SN	100	50	200	217	-55 to 175	8.3	10.4	4130	80	3.0	○	–	–	EETMOS3
		P25LF12SLK	120	25	75	168	175	23	29	2930	61	2.0	○	○	○	EETMOS3
		P25LF12SL	120	25	75	168	-55 to 175	23	29	2930	61	2.0	○	–	–	EETMOS3
		P25LF12SNK	120	25	75	168	175	21	27	2430	48	3.0	○	○	○	EETMOS3
		P25LF12SN	120	25	75	168	-55 to 175	21	27	2430	48	3.0	○	–	–	EETMOS3
		P40LF12SLK	120	40	160	217	175	13.0	16.3	5000	102	2.0	○	○	○	EETMOS3
		P40LF12SL	120	40	160	217	-55 to 175	13.0	16.3	5000	102	2.0	○	–	–	EETMOS3
		P40LF12SNK	120	40	160	217	175	12.3	15.4	4075	80	3.0	○	○	○	EETMOS3
		P40LF12SN	120	40	160	217	-55 to 175	12.3	15.4	4075	80	3.0	○	–	–	EETMOS3

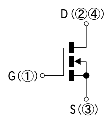
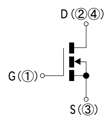
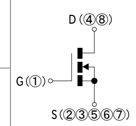
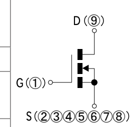
N : New product ★ : Under development

POWER MOSFETs

POWER MOSFETs

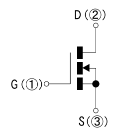
EETMOS Series (Nch Single)

Surface Mount

Package	JEDEC Code JEITA Code House Name	Fig.	ID [A]	VDSS [V]						Circuit
				40	60	100	120	150	200	
 10.0 × 6.6 × 2.3(mm)	TO-252AA – FB	G2-1	8			P8B10SBK P8B10SB				
			16		[N] P16B6SBK P16B6SB					
			20				P20B12SLK P20B12SL P20B12SN			
			24	[N] P24B4SBK P24B4SB				P24B15SL		
			25		P25B6EB					
			26			P26B10SLK P26B10SL P26B10SN				
			30			P30B10EL				
			32				P32B12SLK P32B12SN			
			40		[N] P40B6SLK P40B6SL	P40B10SL P40B10SN				
			54	[N] P54B4SLK P54B4SN						
			60	P60B4EL P60B4SN	P60B6EL P60B6EN P60B6SN					
 9.5 × 6.6 × 2.65(mm)	TO-252AB similar SC-63 FE	G3-2	8			P8FE10SBK				
			14		P14FE6SBK					
			20				P20FE12SLK			
			22	P22FE4SBK						
			26			P26FE10SLK				
			30	P30FE4SLK	P30FE6SLK					
 15.0 × 10.2 × 4.0(mm)	TO-263SC – FZ-7p	H7	170		P170FZ6QNKA					
			240	P240FZ4QLA P240FZ4QNKA						
 11.68 × 9.8 × 2.3(mm)	MO-299B – LG(TOLL)	G9	90						★ P90LG20GNK	
			104						★ P104LG20GNK	
			120						★ P120LG20GNK	
			130			[N] P130LG10GN [N] P130LG10GNK				
			158			★ P158LG10RNK				
			168			[N] P168LG10GN [N] P168LG10GNK				
			200			[N] P200LG10GN [N] P200LG10GNK				
			232			[N] P232LG10GN [N] P232LG10GNK				

[N] : New product ★ : Under development

THD (Through Hole Device)

Package	JEDEC Code JEITA Code House Name	Fig.	ID [A]						Circuit
				50	60	75	100	120	
 28.5 × 10.0 × 4.5(mm)	– SC-91 FTO-220AG	J8-2	22				P22F10SN		
			32					P32F12SN	
			34		P34F6EL				
			40				P40F10SN	P40F12SN	
			42		P42F6EN				
			50				P50F10SN		
			55		P55F6EN				
			66			P66F7R5SNK P66F7R5SN			
			70	P70F5EN		P70F7R5EN			
			82			P82F7R5SN			
			86		P86F6SN				

EETMOS Series (Nch Single)

Surface Mount

Package: JEDEC Code JEITA Code House Name	Fig.	Type No.	VDSS [V]	ID [A]	IDP [A]	PT [W]	Tch [℃]	RDS(ON) (typ) [mΩ] VGS=10V	RDS(ON) (max) [mΩ] VGS=10V	Ciss (typ) [pF]	Qg (typ) [nC]	Vth (typ) [V]	Halogen free	Based on AEC-Q101	Automotive	Series
TO-252AA – FB	G2-1	[N] P24B4SBK	40	24	72	23	-55 to 175	14.8	18.5	645	16.5	2.0	○	○	○	EETMOS3
		P24B4SB	40	24	72	20	-55 to 150	14.8	18.5	645	16.5	2.0	○	–	–	EETMOS3
		[N] P54B4SLK	40	54	162	46	-55 to 175	5.2	6.5	2020	43	2.0	○	○	○	EETMOS3
		P54B4SN	40	54	162	44	-55 to 150	5.0	6.3	1650	36	3.0	○	–	–	EETMOS3
		P60B4EL	40	60	240	62.5	-55 to 150	3.3	4.2	2900	57	2.0	○	–	–	EETMOS2
		P60B4SN	40	60	180	62.5	-55 to 150	3.2	4.0	2830	59	3.0	○	–	–	EETMOS3
		[N] P16B6SBK	60	16	48	23	-55 to 175	29	37	655	17	2.0	○	○	○	EETMOS3
		P16B6SB	60	16	48	20	-55 to 150	29	37	655	17	2.0	○	–	–	EETMOS3
		P25B6EB	60	25	70	35	-55 to 150	23	29	785	14.5	2.0	○	–	–	EETMOS2
		[N] P40B6SLK	60	40	120	46	-55 to 175	9.5	12	2050	43	2.0	○	○	○	EETMOS3
		P40B6SL	60	40	120	44	-55 to 150	9.5	12.0	2050	43	2.0	○	–	–	EETMOS3
		P60B6EL	60	60	240	62.5	-55 to 150	6.1	7.7	2920	55	2.0	○	–	–	EETMOS2
		P60B6EN	60	60	240	62.5	-55 to 150	6.4	8.0	2550	44	3.0	○	–	–	EETMOS2
		P60B6SN	60	60	180	62.5	-55 to 150	5.3	6.7	2780	55	3.0	○	–	–	EETMOS3
		P8B10SBK	100	8	24	23	-55 to 175	75	94	665	16.5	2.0	○	○	○	EETMOS3
		P8B10SB	100	8	24	20	-55 to 150	75	94	665	16.5	2.0	○	–	–	EETMOS3
		P26B10SLK	100	26	78	46	-55 to 175	24	30	1975	43	2.0	○	○	○	EETMOS3
		P26B10SL	100	26	78	44	-55 to 150	24	30	1975	43	2.0	○	–	–	EETMOS3
		P26B10SN	100	26	78	44	-55 to 150	22	28	1700	35	3.0	○	–	–	EETMOS3
		P30B10EL	100	30	90	44	-55 to 150	24	30	2000	37	2.0	○	–	–	EETMOS2
		P40B10SL	100	40	120	62.5	-55 to 150	14.8	18.5	3210	66	2.0	○	–	–	EETMOS3
		P40B10SN	100	40	120	62.5	-55 to 150	13.4	16.8	2880	56	3.0	○	–	–	EETMOS3
		P20B12SLK	120	20	60	46	-55 to 175	35	44	2110	48	2.0	○	○	○	EETMOS3
		P20B12SL	120	20	60	44	-55 to 150	35	44	2110	46	2.0	○	–	–	EETMOS3
		P20B12SN	120	20	60	44	-55 to 150	33	42	1740	37	3.0	○	–	–	EETMOS3
		P32B12SLK	120	32	96	75	-55 to 175	19.9	25	3513	69	2.0	○	○	○	EETMOS3
		P32B12SN	120	32	96	62.5	-55 to 150	20	25	2915	57	3.0	○	–	–	EETMOS3
		P24B15SL	150	24	72	62.5	-55 to 150	32	40	3466	71	2.0	○	–	–	EETMOS3
TO-252AB similar SC-63 FE	G3-2	P22FE4SBK	40	22	66	24	-55 to 175	15.2	19.0	645	16.5	2.0	–	○	○	EETMOS3
		P30FE4SLK	40	30	90	44	-55 to 175	6.3	8.0	2020	44	2.0	–	○	○	EETMOS3
		P14FE6SBK	60	14	42	24	-55 to 175	31	39	655	16.3	2.0	–	○	○	EETMOS3
		P30FE6SLK	60	30	90	44	-55 to 175	10.9	13.8	2050	43	2.0	–	○	○	EETMOS3
		P8FE10SBK	100	8	24	24	-55 to 175	79	99	665	16.5	2.0	–	○	○	EETMOS3
		P26FE10SLK	100	26	78	44	-55 to 175	24	30	1975	43	2.0	–	○	○	EETMOS3
		P20FE12SLK	120	20	60	44	-55 to 175	35	44	2110	46	2.0	–	○	○	EETMOS3
TO-263SC – FZ-7p	H7	P240FZ4QLA	40	240	720	178	-55 to 175	1.03	1.29	9675	171	2.0	○	–	–	EETMOS4
		P240FZ4QNKA	40	240	720	178	-55 to 175	1.07	1.34	7915	133	3.0	○	○	○	EETMOS4
		P170FZ6QNKA	60	170	510	178	-55 to 175	1.93	2.4	8090	130	3.0	○	○	○	EETMOS4
MO-299B – LG(TOLL)	G9	[N] P130LG10GN	100	130	520	272	-55 to 175	4.0	5.0	3500	69	3.0	○	–	–	EETMOS5
		[N] P130LG10GNK	100	130	520	272	-55 to 175	4.0	5.0	3500	69	3.0	○	○	○	EETMOS5
		★ P158LG10RNK	100	300	800	441	-55 to 175	1.34	1.58	8482	136	3.0	○	○	○	EETMOS6
		[N] P168LG10GN	100	168	672	365	-55 to 175	2.5	3.1	6035	96	3.0	○	–	–	EETMOS5
		[N] P168LG10GNK	100	168	672	365	-55 to 175	2.5	3.1	6035	96	3.0	○	○	○	EETMOS5
		[N] P200LG10GN	100	200	680	394	-55 to 175	2.2	2.7	7300	121	3.0	○	–	–	EETMOS5
		[N] P200LG10GNK	100	200	680	394	-55 to 175	2.2	2.7	7300	121	3.0	○	○	○	EETMOS5
		[N] P232LG10GN	100	232	696	441	-55 to 175	1.83	2.20	8140	120	3.0	○	–	–	EETMOS5
		[N] P232LG10GNK	100	232	696	441	-55 to 175	1.83	2.20	8140	120	3.0	○	○	○	EETMOS5
		★ P90LG20GNK	200	90	360	333	-55 to 175	10.3	12.9	4748	65	3.0	○	○	○	EETMOS5
		★ P104LG20GNK	200	104	416	395	-55 to 175	8.7	10.9	5666	78	3.0	○	○	○	EETMOS5
		★ P120LG20GNK	200	120	480	441	-55 to 175	7.5	9.4	6619	91	3.0	○	○	○	EETMOS5

[N] : New product ★ : Under development

THD (Through Hole Device)

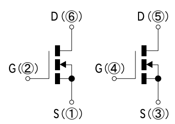
Package: JEDEC Code JEITA Code House Name	Fig.	Type No.	VDSS [V]	ID [A]	IDP [A]	PT [W]	Tch [℃]	RDS(ON) (typ) [mΩ] VGS=10V	RDS(ON) (max) [mΩ] VGS=10V	Ciss (typ) [pF]	Qg (typ) [nC]	Vth (typ) [V]	Halogen free	Based on AEC-Q101	Automotive	Series
– SC-91 FTO-220AG	J8-2	P70F5EN	50	70	280	53	150	2.7	3.2	5500	100	3.0	–	–	–	EETMOS2
		P34F6EL	60	34	136	35	-55 to 150	9.0	11.0	1960	41	2.0	–	–	–	EETMOS2
		P42F6EN	60	42	168	40	150	6.7	8.4	2540	47	3.0	–	–	–	EETMOS2
		P55F6EN	60	55	220	44	150	4.4	5.5	4100	73	3.0	–	–	–	EETMOS2
		P86F6SN	60	86	344	58	150	2.4	3.0	9380	181	3.0	–	–	–	EETMOS3
		P66F7R5SNK	75	66	264	51	-55 to 150	4.0	5.0	6070	115	3.0	–	–	■	EETMOS3
		P66F7R5SN	75	66	264	51	150	4.0	5.0	6070	115	3.0	–	–	–	EETMOS3
		P70F7R5EN	75	70	280	53	150	3.8	4.8	5720	105	3.0	–	–	–	EETMOS2
		P82F7R5SN	75	82	328	58	-55 to 150	3.0	3.8	9600	168	3.0	–	–	–	EETMOS3
		P22F10SN	100	22	66	35	150	22	28	1700	34	3.0	–	–	–	EETMOS3
		P40F10SN	100	40	160	44	150	8.5	10.7	4500	92	3.0	–	–	–	EETMOS3
		P50F10SN	100	50	200	51	150	6.9	8.7	5880	114	3.0	–	–	–	EETMOS3
		P32F12SN	120	32	128	44	150	12.4	15.5	4540	92	3.0	–	–	–	EETMOS3
		P40F12SN	120	40	160	51	150	9.5	11.9	6000	117	3.0	–	–	–	EETMOS3

■ : Please contact us.

POWER MOSFETs

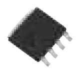
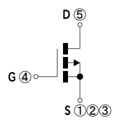
EETMOS Series (Nch Dual)

Surface Mount

Package	JEDEC Code JEITA Code House Name	Fig.	I_D [A]	V_{DSS} [V] 40	60	100	Circuit
 6.05 × 5.00 × 1.05(mm)	MO-235B – LF-Dual	G8	12			P12LF10SLKD	
			15		P15LF6QTKD		
			17			P17LF10SLKD	
			20	P20LF4QTKD			
			33		P33LF6QLKD P33LF6QTKD		
			39		P39LF6QTKD		
			41	P41LF4QTKD			
			50	P50LF4QTKD			

EETMOS Series (Pch Single)

Surface Mount

Package	JEDEC Code JEITA Code House Name	Fig.	I_D [A]	V_{DSS} [V] -40	-60	Circuit
 6.05 × 5.00 × 1.05(mm)	MO-235B similar – LF	G7-2	-35		★ P35LF6PQLK	
			-50		★ P50LF6PQLK	
			-56	★ P56LF4PQLK		
			-63		★ P63LF6PQLK	
			-74	★ P74LF4PQLK		
			-96	★ P96LF4PQLK		

★ : Under development

EETMOS Series (Nch Dual)

Surface Mount

Package JEDEC Code JEITA Code House Name	Fig.	Type No.	V_{DSS} [V]	I_D [A]	I_{DP} [A]	P_T [W]	Tch [°C]	$R_{DS(ON)}$ (typ) [mΩ] V_{GS}=10V	$R_{DS(ON)}$ (max) [mΩ] V_{GS}=10V	Ciss (typ) [pF]	Qg (typ) [nC]	Vth (typ) [V]	Halogen free	Based on AEC-Q101	Automotive	Series
MO-235B – LF-Dual	G8	P20LF4QTKD	40	20	60	35	-55 to 175	12.3	15.3	630	16	2	○	○	○	EETMOS4
		P41LF4QTKD	40	41	123	50	-55 to 175	5.3	6.7	1478	31	2	○	○	○	EETMOS4
		P50LF4QTKD	40	50	150	62	-55 to 175	4.4	5.5	1748	35	2	○	○	○	EETMOS4
		P15LF6QTKD	60	15	45	35	-55 to 175	24	30	632	15	2	○	○	○	EETMOS4
		P33LF6QLKD	60	33	99	50	-55 to 175	10.5	13.1	1913	37	2	○	○	○	EETMOS4
		P33LF6QTKD	60	33	99	50	-55 to 175	10	12.5	1495	30	2	○	○	○	EETMOS4
		P39LF6QTKD	60	39	117	62	-55 to 175	8.3	10.4	1765	35	2	○	○	○	EETMOS4
		P12LF10SLKD	100	12	36	50	-55 to 175	34	42	1420	32	2	○	■	○	EETMOS3
		P17LF10SLKD	100	17	51	62	-55 to 175	29	36	1685	36	2	○	■	○	EETMOS3

■ : Please contact us.

EETMOS Series (Pch Single)

Surface Mount

Package JEDEC Code JEITA Code House Name	Fig.	Type No.	V_{DSS} [V]	I_D [A]	I_{DP} [A]	P_T [W]	Tch [°C]	$R_{D(S ON)}$ (typ) [mΩ] V_{GS}=10V	$R_{D(S ON)}$ (max) [mΩ] V_{GS}=10V	Ciss (typ) [pF]	Qg (typ) [nC]	Vth (typ) [V]	Halogen free	Based on AEC-Q101	Automotive	Series
MO-235B similar – LF	G7-2	★ P56LF4PQLK	-40	-56	-168	124	175	9.3	11.6	2206	43	-2.0	○	TBD	○	EETMOS4
		★ P74LF4PQLK	-40	-74	-222	169	175	5.5	6.9	3589	71	-2.0	○	TBD	○	EETMOS4
		★ P96LF4PQLK	-40	-96	-384	217	175	3.1	3.9	5570	112	-2.0	○	TBD	○	EETMOS4
		★ P35LF6PQLK	-60	-35	-105	124	175	25	32	1963	TBD	-2.0	○	TBD	○	EETMOS4
		★ P50LF6PQLK	-60	-50	-150	169	175	14.5	18.1	3402	TBD	-2.0	○	TBD	○	EETMOS4
		★ P63LF6PQLK	-60	-63	-252	217	175	8.4	10.5	5515	TBD	-2.0	○	TBD	○	EETMOS4

★ : Under development

POWER MOSFETs

The Hi-PotMOS series are MOSFETs with a high breakdown strength,and they are 100% screened using di/dt & avalanche testing.

Series	Feature
HP2 (Hi-PotMOS2)	High breakdown registance, Avalanche rated, di/dt inspection(all parts)
VX3	Automotive qualified, Avalanche rated, di/dt inspection(all parts), High Breakdown registance, High ESD Capability
SiCMOS	SiC MOSFET, Low Ron, High Speed Swiching

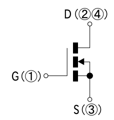
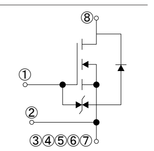
How to read

P 15 F 60 HP2 □

P:Si
WP:SiC
ID
Package
VDSS/10
Series
HP2=Hi-PotMOS2
VX=VX
W=SiCMOS
Appendix

HP2・VX・SiC Series (Nch Single)

Surface Mount

Package	JEDEC Code JEITA Code House Name	Fig.	ID [A]	VDSS [V] 280/300	400	500/525	600/650	900	1200	Circuit
 10.0 × 6.6 × 2.3(mm)	TO-252AA – FB	G2-1	0.5				P0R5B60HP2			 D(②④) G(①) S(③)
			1			P1B52HP2		N P1B90VX3K		
			1.5		P1R5B40HP2					
			2				P2B60HP2F	N P2B90VX3K		
			2.5			P2R5B52HP2F				
			3	P3B28HP2						
			4		P4B40HP2		P4B60HP2F			
			5			P5B50HP2F P5B52HP2				
			6	P6B28HP2	P6B40HP2	P6B52HP2				
			8	P8B28HP2 P8B30HP2						
			9	P9B30HP2F	P9B40HP2					
			10	P10B28HP2						
 9.5 × 6.6 × 2.65(mm)	TO-252AB similar SC-63 FE	G3-2	1					P1FE90VX3		
 10.4 × 10.2 × 4.0(mm)	TO-263-7pin - GF	H8	1						★P1GF120VX3KA	 ⑧ ① ② ③④⑤⑥⑦
			2					★P2GF90VX3KA		
			3					★P3GF90VX3KA		
			4					★P4GF90VX3KA		

N : New product ★ : Under development

HP2・VX・SiC Series (Nch Single)

Surface Mount

Package: JEDEC Code JEITA Code House Name	Fig.	Type No.	Absolute Maximum Ratings: VDSS [V]	ID [A]	PT [W]	Tch [℃]	Electrical Characteristics: RDS(ON) (typ) [Ω] VGS=10V	RDS(ON) (max) [Ω] VGS=10V	Ciss (typ) [pF]	Qg (typ) [nC]	Vth (typ) [V]	Body Diode trr (typ) [ns]	Halogen free	Based on AEC-Q101	Automotive	Series
TO-252AA – FB	G2-1	P3B28HP2	280	3	35	150	1.7	2.0	120	3.6	3.75	–	○	–	–	HP2
		P6B28HP2	280	6	35	150	0.66	0.85	240	5.7	3.75	–	○	–	–	HP2
		P8B28HP2	280	8	54	150	0.38	0.50	400	9.8	3.75	–	○	–	–	HP2
		P8B30HP2	300	8	54	150	0.42	0.50	400	9.8	3.75	–	○	–	–	HP2
		P9B30HP2F	300	9	54	-55 to 150	0.44	0.55	402	14.0	4.5 *	72	○	–	–	HP2
		P10B28HP2	280	10	70	150	0.30	0.40	500	11.4	3.75	–	○	–	–	HP2
		P1R5B40HP2	400	1.5	35	150	4.2	5.0	120	3.9	3.75	–	○	–	–	HP2
		P4B40HP2	400	4	35	150	1.54	1.90	245	6.5	3.75	–	○	–	–	HP2
		P6B40HP2	400	6	54	150	0.84	1.05	400	10	3.75	–	○	–	–	HP2
		P9B40HP2	400	9	40	150	0.65	0.80	575	14.5	3.75	–	○	–	–	HP2
		P1B52HP2	525	1	35	150	6.0	7.2	125	4.3	3.75	–	○	–	–	HP2
		P2R5B52HP2F	525	2.5	35	150	2.5	3.2	240	6.7	3.25	52	○	–	–	HP2
		P5B50HP2F	500	5	54	-55 to 150	1.20	1.65	382	10.5	4.5 *	72	○	–	–	HP2
		P5B52HP2	525	5	54	150	1.4	1.7	400	10.5	3.75	–	○	–	–	HP2
		P6B52HP2	525	6	70	150	1.10	1.35	520	15	3.75	–	○	–	–	HP2
		P0R5B60HP2	600	0.5	35	150	8.3	10.0	120	4.3	3.75	–	○	–	–	HP2
		P2B60HP2F	600	2	35	150	3.4	4.2	240	6.8	3.25	52	○	–	–	HP2
		P4B60HP2F	600	4	70	150	1.6	1.9	520	13	3.25	75	○	–	–	HP2
		N P1B90VX3K	900	1	36	-55 to 150	9.5	14.0	201	10.5	3.5	–	○	○	○	VX3
		N P2B90VX3K	900	2	44	-55 to 150	5.6	7.2	370	15	3.5	–	○	○	○	VX3
TO-252AB similar SC-63 FE	G3-2	P1FE90VX3	900	1	36	-55 to 150	9.5	14.0	193	10.8	3.5	–	○	○	○	VX3
TO-263-7pin - GF	H8	★ P2GF90VX3KA	900	2	TBD	150	5.6	7.2	TBD	TBD	TBD	–	○	○	○	VX3
		★ P3GF90VX3KA	900	3	TBD	150	2.6	3.4	TBD	TBD	TBD	–	○	○	○	VX3
		★ P4GF90VX3KA	900	4	TBD	150	1.9	2.5	TBD	TBD	TBD	–	○	○	○	VX3
		★ P1GF120VX3KA	1200	1	TBD	150	19.6	24.5	TBD	TBD	TBD	–	○	○	○	VX3

N : New product ★ : Under development * : max.

パワー MOSFET

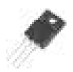
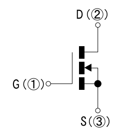
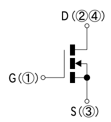
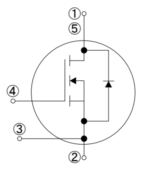
Series	Feature
HP2 (Hi-PotMOS2)	High breakdown registance, Avalanche rated, di/dt inspection(all parts)
VX3	Automotive qualified, Avalanche rated, di/dt inspection(all parts), High Breakdown registance, High ESD Capability
SiCMOS	SiC MOSFET, Low Ron, High Speed Swiching

How to read

P:Si
WP:SiC
P 15 F 60 HP2 □
ID
Package
VDSS/10
Series
HP2=Hi-PotMOS2
VX=VX
W=SiCMOS
Appendix

HP2・VX・SiC Series (Nch Single)

THD (Through Hole Device)

Package	JEDEC Code JEITA Code House Name	Fig.	ID [A]	VDSS [V] 250/280	400	500	600	650	750	900	1200	Circuit
 28.5 × 10.0 × 4.5(mm)	– SC-91 FTO-220AG	J8-2	3				P3F60HP2					 D(②) G(①) S(③)
			4				P4F60HP2			P4F90VX3		
			5			P5F50HP2	P5F60HP2					
			6			P6F50HP2						
			7				P7F60HP2			P7F90VX3		
			8	P8F28HP2		P8F50HP2						
			10			P10F50HP2	P10F60HP2					
			12				P12F60HP2					
			13	P13F28HP2		P13F50HP2						
			15			P15F50HP2	P15F60HP2 P15F60HP2F					
			17	P17F28HP2								
			20			P20F50HP2						
			21	P21F28HP2								
			26	P26F28HP2								
			36	P36F25HP2 P36F28HP2								
 28.5 × 10.0 × 4.5(mm)	– SC-91 FTO-220A	J7-2	23		P23F40HP2FM							
 41.02 × 15.94 × 5.02(mm)	TO-247AD – GC	K8-1	33					★WP33GC65A				 D(②④) G(①) S(③)
			38					★WP38GC65A				
			60					★WP60GC65A				
			80					★WP80GC65A				
			85	P85GC28HP2F								
 41.02 × 15.94 × 5.02(mm)	TO-247-4L – GE [Kelvin Source]	K9	30								★WP30GES120AK	 ① ⑤ ④ ③ ②
			33						★WP33GES75AK			
			35								★WP35GES120AK	
			38						★WP38GES75AK			
			55								★WP55GES120AK	
			60						★WP60GES75AK			
			65								★WP65GES120AK	
			80						★WP80GES75AK			

★ : Under development

HP2・VX・SiC Series (Nch Single)

THD (Through Hole Device)

Package: JEDEC Code JEITA Code House Name	Fig.	Type No.	Absolute Maximum Ratings: VDSS [V]	ID [A]	PT [W]	Tch [℃]	Electrical Characteristics: RDS(ON) (typ) [Ω] VGS=10V	RDS(ON) (max) [Ω] VGS=10V	Ciss (typ) [pF]	Qg (typ) [nC]	Vth (typ) [V]	Body Diode trr (typ) [ns]	Halogen free	Based on AEC-Q101	Automotive	Series
– SC-91 FTO-220AG	J8-2	P36F25HP2	250	36	77	-55 to 150	0.08	0.12	1313	35	4.5 *	–	–	–	–	HP2
		P8F28HP2	280	8	52.5	-55 to 150	0.38	0.5	400	9.8	3.75	–	–	–	–	HP2
		P13F28HP2	280	13	65	150	0.23	0.3	630	15	3.75	–	–	–	–	HP2
		P17F28HP2	280	17	79	150	0.17	0.23	830	19.5	3.75	–	–	–	–	HP2
		P21F28HP2	280	21	85	150	0.13	0.18	1000	20.5	3.75	–	–	–	■	HP2
		P26F28HP2	280	26	90	150	0.11	0.15	1200	24.5	3.75	–	–	–	–	HP2
		P36F28HP2	280	36	95	150	0.08	0.12	1730	35	3.75	–	–	–	–	HP2
		P5F50HP2	500	5	52.5	150	1.3	1.6	400	10.5	3.75	–	–	–	–	HP2
		P6F50HP2	500	6	62.5	150	1.00	1.25	500	12.5	3.75	–	–	–	–	HP2
		P8F50HP2	500	8	65	150	0.8	1.0	610	15	3.75	–	–	–	–	HP2
		P10F50HP2	500	10	79	-55 to 150	0.60	0.75	820	20	3.75	–	–	–	–	HP2
		P13F50HP2	500	13	85	150	0.48	0.60	1050	25	3.75	–	–	–	–	HP2
		P15F50HP2	500	15	90	150	0.4	0.5	1340	27	3.75	–	–	–	–	HP2
		P20F50HP2	500	20	95	150	0.29	0.36	1735	40	3.75	–	–	–	■	HP2
		P3F60HP2	600	3	52.5	150	1.92	2.30	400	10	3.75	–	–	–	–	HP2
		P4F60HP2	600	4	62.5	150	1.5	1.8	505	12.5	3.75	–	–	–	–	HP2
		P5F60HP2	600	5	65	150	1.17	1.40	615	15	3.75	–	–	–	–	HP2
		P7F60HP2	600	7	79	150	0.88	1.05	810	19	3.75	–	–	–	–	HP2
		P10F60HP2	600	10	85	150	0.67	0.80	1040	23	3.75	–	–	–	–	HP2
		P12F60HP2	600	12	90	150	0.56	0.67	1230	26.5	3.75	–	–	–	–	HP2
		P15F60HP2	600	15	95	-55 to 150	0.41	0.49	1750	37	3.75	–	–	–	–	HP2
		P15F60HP2F	600	15	95	-55 to 150	0.44	0.53	1720	34	3.25	88	–	–	–	HP2
		P4F90VX3	900	4	79	150	2.8	3.6	595	21	4.0 *	–	–	–	–	VX3
		P7F90VX3	900	7	95	150	1.2	1.7	1375	42	4.0 *	–	–	–	–	VX3
– SC-91 FTO-220A	J7-2	P23F40HP2FM	400	23	104	150	0.17	0.24	1620	40	3.25	68	–	–	–	HP2
TO-247AD – GC	K8-1	P85GC28HP2F	280	85	430	-55 to 150	0.035	0.045	4375	110	4.5 *	83	○	–	–	HP2
		★ WP33GC65A	650	33	TBD	-55 to 175	0.063	0.082	TBD	TBD	3.8 *	TBD	○	–	–	SiCMOS
		★ WP38GC65A	650	38	TBD	-55 to 175	0.050	0.065	TBD	TBD	3.8 *	TBD	○	–	–	SiCMOS
		★ WP60GC65A	650	60	TBD	-55 to 175	0.028	0.037	TBD	TBD	3.8 *	TBD	○	–	–	SiCMOS
		★ WP80GC65A	650	80	TBD	-55 to 175	0.018	0.024	TBD	TBD	3.8 *	TBD	○	–	–	SiCMOS
TO-247-4L – GE [Kelvin Source]	K9	★ WP33GES75AK	750	33	TBD	-55 to 175	0.063	0.082	TBD	TBD	3.8 *	TBD	○	○	○	SiCMOS
		★ WP38GES75AK	750	38	TBD	-55 to 175	0.050	0.065	TBD	TBD	3.8 *	TBD	○	○	○	SiCMOS
		★ WP60GES75AK	750	60	TBD	-55 to 175	0.028	0.037	TBD	TBD	3.8 *	TBD	○	○	○	SiCMOS
		★ WP80GES75AK	750	80	TBD	-55 to 175	0.018	0.024	TBD	TBD	3.8 *	TBD	○	○	○	SiCMOS
		★ WP30GES120AK	1200	30	TBD	-55 to 175	0.080	0.104	TBD	TBD	3.8 *	TBD	○	○	○	SiCMOS
		★ WP35GES120AK	1200	35	TBD	-55 to 175	0.065	0.085	TBD	TBD	3.8 *	TBD	○	○	○	SiCMOS
		★ WP55GES120AK	1200	55	TBD	-55 to 175	0.036	0.047	TBD	TBD	3.8 *	TBD	○	○	○	SiCMOS
		★ WP65GES120AK	1200	65	TBD	-55 to 175	0.024	0.032	TBD	TBD	3.8 *	TBD	○	○	○	SiCMOS

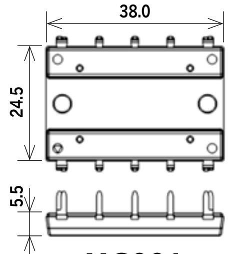
★ : Under development　* : max.　■ : Please contact us.

POWER MOSFETs

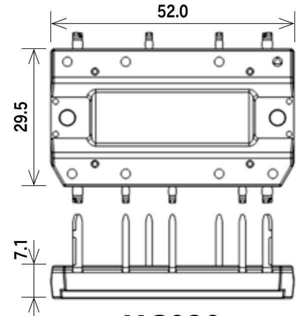
POWER MODULES

Power Modules include combinations of various power semiconductors.
They are easy to design,reduce the number of components needed in the device, are suitable for device downsizing, and mitigate heat-dissipation concerns.
At Shindengen, a multitude of packages allow us to meet customer needs of MOSFET, diodes, and other products.
Semi customizable support and customizable package design support are available.

Transfer Type Package Sample



MG001



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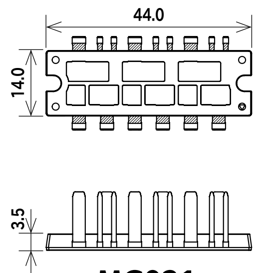
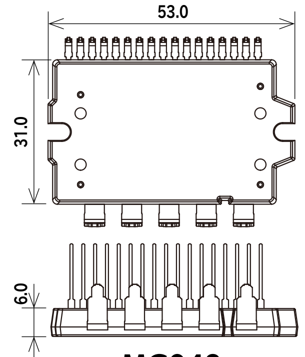
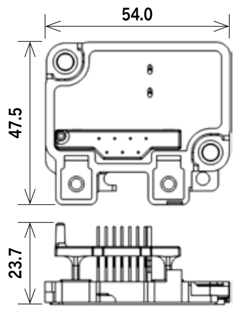


MG031

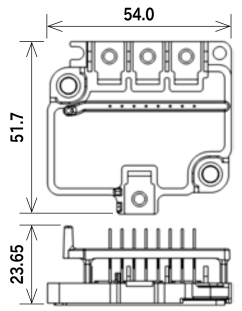


MG048

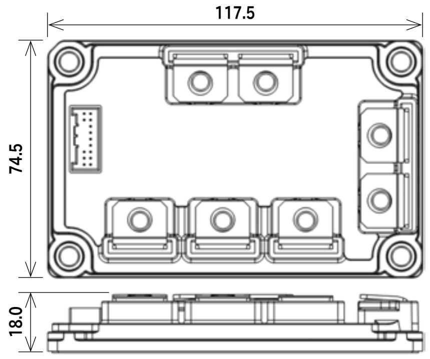
Potting Type Package Sample



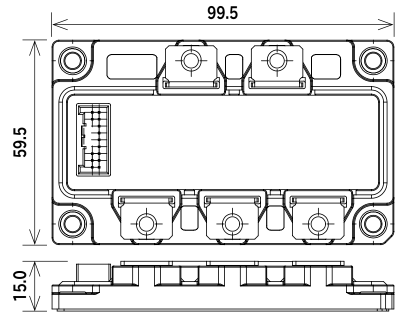
MG033



MG034



MG032



MG055

CB Module Series

Converter + Brake Modules

Package: JEDEC Code / JEITA Code / House Name	Fig.	Type No.	Converter Diode Absolute Maximum Ratings VRRM [V]	IF (AV) [A]	Conditions Tc [℃]	Converter Diode Electric Characteristics VF (max) [V]	Conditions IF [A]	Brake IGBT Absolute Maximum Ratings VCES [V]	Ic [A]	Brake IGBT Electric Characteristics VCE (sat) (typ) [V]	Conditions Ic [A]	Brake FRD Absolute Maximum Ratings VRRM [V]	IF (AV) [A]	Conditions Tc [℃]	Brake FRD Electric Characteristics VF (max) [V]	Conditions IF [A]	trr (max) [ns]	Halogen free	UL	Automotive
– / – / MG001	F4	MG001AK028060A	600	20	137	1.05	7	600	28	1.70	28	600	3	137	1.65	3	50	○	UR	–
		MG001AL030060A	600	30	136	1.05	10	600	30	1.5	30	600	3	137	1.65	3	50	○	UR	–

UR : UL recognized (UL File No. E142422)

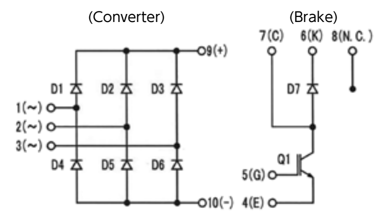
SiC Module Series

SiC Modules

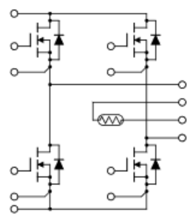
Package: JEDEC Code / JEITA Code / House Name	Fig.	Type No.	Absolute Maximum Ratings VDSS [V]	ID [A]	IDP [A]	PT [W]	Tch [℃]	Electrical Characteristics RDS(ON) (typ) [mΩ] VGS=18V	RDS(ON) (max) [mΩ] VGS=18V	Ciss [pF]	Qg [nC]	Vth [V]	Rth(j-c) (max) [℃/W]	Halogen free	UL	Automotive
– / – / MG074	F13	★ MG074D	750	■	■	■	■	(13)	TBD	■	■	■	■	■	■	■
		★ MG074E	750	■	■	■	■	(26)	TBD	■	■	■	■	■	■	■
		★ MG074F	750	■	■	■	■	(45)	TBD	■	■	■	■	■	■	■
		★ MG074G	750	■	■	■	■	(28)	TBD	■	■	■	■	■	■	■
		★ MG074H	750	■	■	■	■	(50)	TBD	■	■	■	■	■	■	■

★ : Under development ■ : Please contact us.

Equivalent Circuit Schematic



MG001



MG074

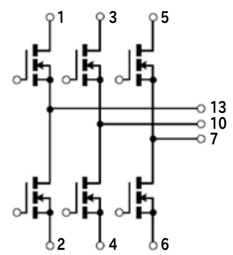
INV Module Series

Inverter Modules

Package: JEDEC Code / JEITA Code / House Name	Fig.	Type No.	Absolute Maximum Ratings VDSS [V]	ID [A]	IDP [A]	PT [W]	Tch [℃]	Electrical Characteristics RDS(ON) (typ) [mΩ] VGS=10V	RDS(ON) (max) [mΩ] VGS=10V	Ciss (typ) [pF]	Qg (typ) [nC]	Vth (typ) [V]	Rth(j-c) (max) [℃/W]	Halogen free	UL	Automotive
– / – / MG031	F5	MG031B090004A	40	90	360	125	175	2.34	3.2	4180	76	2.0	1.2	○	–	○
		MG031E120004A	40	120	480	125	175	2.4	3.1	3297	61	3.0	1.2	○	–	○
		MG031G148004A	40	148	592	154	175	1.75	2.2	5330	96	3.0	0.97	○	–	○
		MG031L080006A	60	80	320	125	175	4.2	5.6	3381	60	3.0	1.2	○	–	○
		MG031N110006A	60	110	440	154	175	2.9	3.8	5535	96	3.0	0.97	○	–	○
		MG031MC148004A	40	148	592	154	175	1.75	2.2	5330	96	3.0	0.97	○	–	○
		MG031MD110006A	60	110	440	154	175	2.9	3.8	5535	96	3.0	0.97	○	–	○
		N MG031AD200004A	40	200	800	154	175	1.37	1.71	5700	83	3.0	0.97	○	–	○
		N MG031MF200004A	40	200	800	154	175	1.37	1.71	5700	83	3.0	0.97	○	–	○
		N MG031AF150006A	60	150	600	154	175	2.36	2.95	4800	72	3.0	0.97	○	–	○
		N MG031MH150006A	60	150	600	154	175	2.36	2.95	4800	72	3.0	0.97	○	–	○
– / – / MG032	F6	MG032A4207R5A	75	420	840	500	150	–	0.98	80120	505	3.0	0.25	–	–	○
		MG032B420010A	100	420	840	500	150	0.99	1.37	91800	500	3.0	0.25	–	–	○

N : New product

Equivalent Circuit Schematic



MG031
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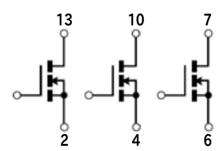
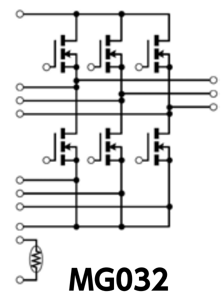
MG031AF150006A)



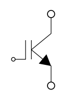
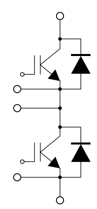
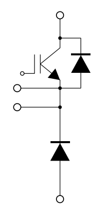
MG031
(MG031MC148004A
MG031MD110006A
MG031MF200004A
MG031MH150006A)



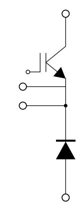
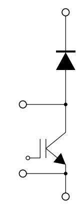
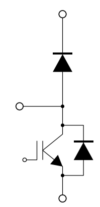
MG032

POWER MODULES

IGBT Modules

Package: Outline No.	Package: Fig.	Type No.	VCES [V]	IC [A]	UL	Series	Circuit
 E-38 38 × 30 × 17(mm)	M26	K38IH100P065TAA	650	100	○	PHMB	
		K38IH075P125TAA	1250	75	○		
 E-74 94 × 35 × 30(mm)	M44	PDMB50W6	650	50	○	PDMB	
		PDMB75W6	650	75	○		
		PDMB100W6	650	100	○		
		PDMB150W6	650	150	○		
		PDMB200W6	650	200	○		
		PDMB50W12	1200	50	○		
		PDMB75W12	1200	75	○		
		PDMB100W12	1200	100	○		
 E-75 94 × 48 × 30(mm)	M45	PDMB300W6	650	300	○		
		PDMB400W6	650	400	○		
		PDMB150W12	1200	150	○		
		PDMB200W12	1200	200	○		
 E-56 108 × 62 × 30(mm)	M30	PDMB300W12	1200	300	○		
		PDMB400W12	1200	400	○		
 E-74 94 × 35 × 30(mm)	M44	PCFMB50W6	650	50	○	PCFMB	
		PCFMB75W6	650	75	○		
		PCFMB100W6	650	100	○		
		PCFMB150W6	650	150	○		
		PCFMB200W6	650	200	○		
		PCFMB50W12	1200	50	○		
		PCFMB75W12	1200	75	○		
		PCFMB100W12	1200	100	○		
 E-75 94 × 48 × 30(mm)	M45	PCFMB300W6	650	300	○		
		PCFMB400W6	650	400	○		
		PCFMB150W12	1200	150	○		
		PCFMB200W12	1200	200	○		
 E-56 108 × 62 × 30(mm)	M30	PCFMB300W12	1200	300	○		
		PCFMB400W12	1200	400	○		

IGBT Modules

Package: Outline No.	Package: Fig.	Type No.	VCES [V]	IC [A]	UL	Series	Circuit
 E-74 94 × 35 × 30(mm)	M44	PCHMB50W6	650	50	○	PCHMB	
		PCHMB75W6	650	75	○		
		PCHMB100W6	650	100	○		
		PCHMB150W6	650	150	○		
		PCHMB200W6	650	200	○		
		PCHMB50W12	1200	50	○		
		PCHMB75W12	1200	75	○		
		PCHMB100W12	1200	100	○		
 E-75 94 × 48 × 30(mm)	M45	PCHMB300W6	650	300	○		
		PCHMB400W6	650	400	○		
		PCHMB150W12	1200	150	○		
		PCHMB200W12	1200	200	○		
 E-56 108 × 62 × 30(mm)	M30	PCHMB300W12	1200	300	○		
		PCHMB400W12	1200	400	○		
 E-74 94 × 35 × 30(mm)	M44	PRHMB50W6	650	50	○	PRHMB	
		PRHMB75W6	650	75	○		
		PRHMB100W6	650	100	○		
		PRHMB150W6	650	150	○		
		PRHMB200W6	650	200	○		
		PRHMB50W12	1200	50	○		
		PRHMB75W12	1200	75	○		
		PRHMB100W12	1200	100	○		
 E-75 94 × 48 × 30(mm)	M45	PRHMB300W6	650	300	○		
		PRHMB400W6	650	400	○		
		PRHMB150W12	1200	150	○		
		PRHMB200W12	1200	200	○		
 E-56 108 × 62 × 30(mm)	M30	PRHMB300W12	1200	300	○		
		PRHMB400W12	1200	400	○		
 E-74 94 × 35 × 30(mm)	M44	PRFMB50W6	650	50	○	PRFMB	
		PRFMB75W6	650	75	○		
		PRFMB100W6	650	100	○		
		PRFMB150W6	650	150	○		
		PRFMB200W6	650	200	○		
		PRFMB50W12	1200	50	○		
		PRFMB75W12	1200	75	○		
		PRFMB100W12	1200	100	○		
 E-75 94 × 48 × 30(mm)	M45	PRFMB300W6	650	300	○		
		PRFMB400W6	650	400	○		
		PRFMB150W12	1200	150	○		
		PRFMB200W12	1200	200	○		
 E-56 108 × 62 × 30(mm)	M30	PRFMB300W12	1200	300	○		
		PRFMB400W12	1200	400	○		

POWER ICs

Line up

IC for LED Lighting

- LED Lighting
  - Insulated LLC Mode — MCZ Series
  - Critical Current Mode — MV Series

IC for Power Supply

- LLC Current Resonant Mode
  - MCZ5216ST
  - MCZ5211ST
  - MCZ5208SG
  - MCZ5207SG
  - MCZ5203SE
  - with PFC control
    - MCZ5209SN
    - MCZ5205SE
- Driver IC
  - MCZ5607SC
  - MCZ5606SC
  - MCZ5601SC
- Quasi-Resonant Mode — IC — MS Series
- for PFC circuit — MH Series

Ideal Diode IC

- MF Series

IC for LED Lighting

Current Mode Power Supply ICs for LED Lighting : MV Series

■ Outline The MV series has a specialized function for LED lighting with PWM & Linear dimming that operates critical current mode without auxiliary winding.
On and off width modulation function allows for smooth deep dimming of 1% or less.

MV Series

Critical Current Mode Power Supply ICs for LED Lighting

Package JEDEC Code / JEITA Code / House Name		Fig.	Type No.	HV Startup	Vcc [V]	Output	ON/OFF	Built-in Regulator Voltage [V]	Linear Dimming	PWM Dimming	Halogen free	Automotive
	– / – / SOP8J	L2	MV1001SC	Yes	9 to 16	1ch	–	–	Yes	Yes	–	–
			MV1002SC	No							–	–
			MV1011SC	Yes			Cont. by REF Voltage				–	–
			MV1012SC	No							–	–
	– / – / SOP16	L5	MV2002SG	No	10 to 16	2ch		3.3			–	–
			MV2052SG	No				5			–	–

POWER ICs

IC for Power Supply

LLC Current Resonant Mode Controller ICs for Bridge Converter : MCZ Series

■ Outline The MCZ series is an advanced symmetric LLC current resonant mode controller for bridge converters.
Symmetric LLC resonant converter applications are greatly expanding due to their extremely high efficiency and low noise characteristics.

High/Low Side Driver IC

■ Outline A driving IC for MOSFET and IGBT power devices.
With built-in high-withstand voltage components, it can be used for a variety of uses such as inverter and power supply, etc.

Low Power Standby Quasi-Resonant Power Supply ICs : MS Series

■ Outline The MS series consumes much less power in standby mode.
The ICs incorporate various functions to make it more user-friendly and easier to design a power supply with fewer external components.

PFC ICs : MH Series

■ Outline The MH series is a PFC circuit control IC which enables multistage interleave.
An efficient, high power operation is possible by utilizing a follower IC composed of multistage interleave and a leader IC that can be used alone.

Ideal Diode IC

Ideal Diode IC V-Diode™ MF Series

■ Outline This is an ideal diode IC with a built-in reverse connection and reverse current protection it is used for electronic units with batteries as input sources.
By using a built-in or a separate MOSFET to control the IC, it allows reducing the size of the circuit board as well as lowering loss and increasing heat dissipation.

MCZ Series

LLC Current Resonant Mode Controller ICs for Bridge Converter

Package: JEDEC Code / JEITA Code / House Name	Fig.	Type No.	Type	HV Startup	High-side Drive	Vcc (max) [V]	Vin Sensing	Burst Mode	Maximum Frequency [kHz]	X-cap. discharge	Capacitive Mode Protection	Over Voltage Protection	Over Current Protection	Halogen free	Automotive
– / – / SOP18	L6	N MCZ5216ST	LLC Current Resinant Mode	Yes	Yes	35	Yes	Yes	500	Yes	Yes	Latch	Timer Latch	○	–
		N MCZ5211ST								No					–
– / – / SOP24	L8	MCZ5209SN	LLC Current Resinant Mode with PFC Control						300	No					–
– / – / SOP16	L5	MCZ5207SG	LLC Current Resinant Mode	No						No				–	–
		MCZ5208SG		No					500	No				○	–
– / – / SOP22	L7	MCZ5205SE	LLC Current Resinant Mode with PFC Control	No				No	300	No				–	–
– / – / SOP22	L7	MCZ5203SE	LLC Current Resinant Mode	No				No		No		–		–	–

N : New product

High/Low Side Driver ICs

Package: JEDEC Code / JEITA Code / House Name	Fig.	Type No.	Output	High-side Floating Supply Voltage [V]	Vcc (max) [V]	Input/ Output Channel	Vcc_UVLO [V]	VBS_UVLO [V]	Source [mA]	Sink [mA]	Halogen free	Automotive
– / – / SOP8J	L2	N MCZ5607SC	High-side/ Low-side	622	22	2/2	8.2 to 8.9	8.2 to 8.9	0.22	0.45	○	–
		N MCZ5606SC		622	22	2/2	8.2 to 8.9	8.2 to 8.9	0.22	0.45	○	–
		N MCZ5601SC		600	22	2/2	8.2 to 9.0	7.2 to 8.0	0.40	0.40	○	–
– / – / SOP18	L6	★ MCZ6001ST	High-side/ Low-side	300	22	2/2	8.3 to 8.8	7.6 to 8.1	4	○	○	–

N : New product ★ : Under development

MS Series

Low Power Standby Quasi-Resonant Power Supply ICs

Package: JEDEC Code / JEITA Code / House Name	Fig.	Type No.	Vin [V]	Vcc [V]	Over Voltage Protection	Over Current Protection	Stand-by Operation	Bottom Skip	Halogen free	Automotive
– / – / SOP8/7J	L3	N MS1007SH	95 to 450	11 to 21	Auto restart	Auto restart	Auto Burst Mode	1 skip	○	–
		MS1004SH		11 to 24	Vcc Latch	Timer Latch 2sec.（typ)	Auto Burst Mode/ S-Stby Mode	2 skip	–	–
		MS1003SH						1 skip	–	–

N : New product

MH Series

PFC ICs

Package: JEDEC Code / JEITA Code / House Name	Fig.	Type No.	Type	Operation Mode	Vin Sensing	Vcc [V]	Zero Current Detection	Diodes Short Protection	FB Open Short Protection	Over Voltage Protection	Halogen free	Automotive
– / – / SOP8J	L2	MH2501SC	Critical Current Mode	Leader	Unnecessary	13 to 23	Auxiliary Winding	Yes	Yes	Yes	–	–
		MH2511SC	Synchronizes with Leader IC	Follower		11 to 23	–	No	No	No	–	–
		★ MH2503SC	Critical Current Mode	Leader	Unnecessary	-0.3 to 26	No Auxiliary Winding or Auxiliary Winding	Yes	Yes	Yes	–	–
		★ MH2513SC	Synchronizes with Leader IC	Follower	Unnecessary	-0.3 to 26	–	Yes	No	Yes	–	–

★ : Under development

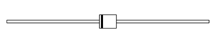
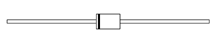
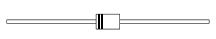
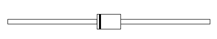
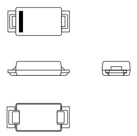
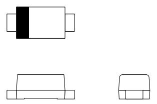
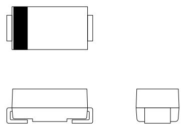
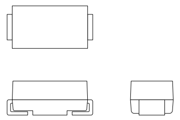
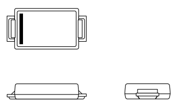
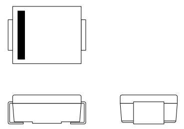
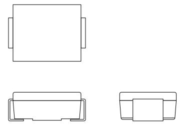
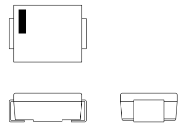
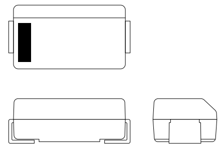
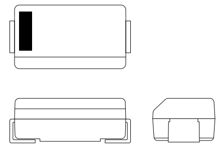
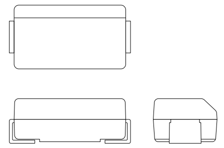
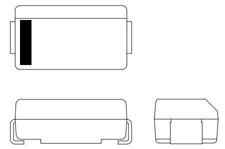
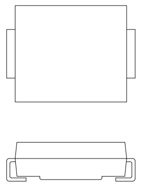
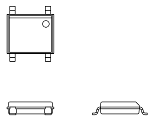
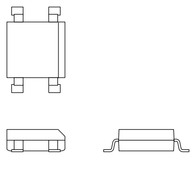
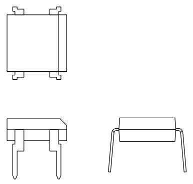
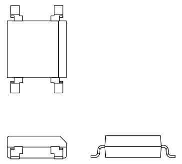
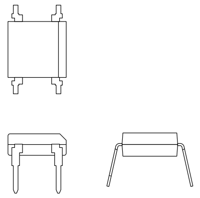
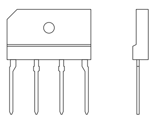
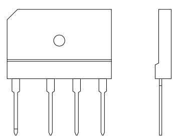
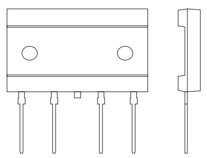
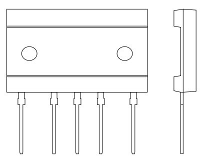
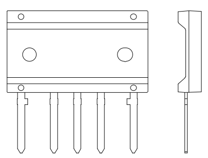
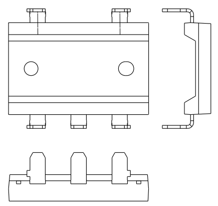
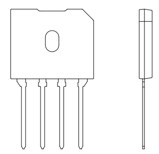
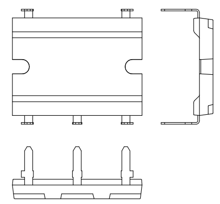
MF Series

Ideal Diode IC

Package: JEDEC Code / JEITA Code / House Name	Fig.	Type No.	Featured Type	Operating Voltage [V]	Reverse Connection Protection	Reverse Current Prevention	Ron(typ.) [mΩ]	Quiescent Current/ Shutdown Supply Current	Halogen free	Automotive
– / – / WSON8	L9	N MF2003SV	Built-in Pch MOSFET	2.5 to 40	Yes	Yes	53	Quiescent Current = 3μA	○	○
		★ MF2013SV	Built-in Pch MOSFET	2.5 to 40	Yes	Yes	15	Quiescent Current = 12μA	○	○
– / – / TSSOP10	L10	N MF2007SW	Driver IC for Separate Nch MOSFET	4.5 to 65	Yes	Yes	–	Shutdown Supply Current = 5μA	○	○
		N MF2008SW	Driver IC for Separate Nch MOSFET	4.5 to 65	Yes	Yes	–	Shutdown Supply Current = 5μA	○	○
		★ MF2010SW	Driver IC for Separate Nch MOSFET	4.5 to 75	Yes	Yes	–	Shutdown Supply Current = 5μA	○	○

N : New product ★ : Under development

PACKAGE LIST

A	A1 Package:AX057	A2 Package:AX06	A3 Package:AX06	A4 Package:AX078 	A5 Package:AX10 	A6 Package:AX10 		A7 Package:AX14 					
B	B1 Package:DO-219AB similar G1F 	B2 Package:DO-219AA similar M1F 	B3 Package:DO-214AC 1F, CF 	B4 Package:DO-214AC 1F 	B5 Package:SC-110B CE 	B6 Package:DO-214AA similar M2F 		B7 Package:DO-214AA similar M2F 	B8 Package:DO-214AA similar M2F 	B9 Package:2F 	B10 Package:2F 	B11 Package:2F 	B12 Package:CG 
	B13 Package:DO-214AB CH 												
C	C1 Package:SOPA-4 	C4 Package:1N (SMD) 	C5 Package:1N (DIP) 	C6 Package:1NA (SMD) 	C7 Package:1NA (DIP) 								
D	D3 Package:3S 	D4 Package:5S 	D7 Package:TSB (4pin), JC (4pin) 	D8 Package:TSB (5pin), JC (5pin) 	D9 Package:JF 	D10 Package:JH 		D11 Package:D6K 	D12 Package:JK 				

PACKAGE LIST

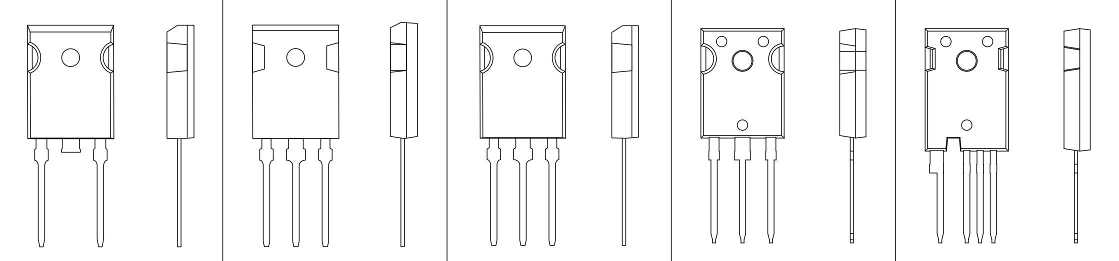
PACKAGE LIST

E	E1 Package:MCP	E2 Package:D30VC	E3 Package:S2VB	E4 Package:S4VB	E5 Package:S5VB	E6 Package:S10VB		E7 Package:S15VB	E8 Package:S25VB	E9 Package:S50VB	E10 Package:S3WB	E11 Package:S10WB	E12 Package:S15WB
	E13 Package:S20WB	E14 Package:SVTA	E15 Package:SVT										
F	F1 Package:Module	F2 Package:Module	F3 Package:Module	F4 Package:MG001	F5 Package:MG031	F6 Package:MG032		F7 Package:MG038	F8 Package:MG048	F9 Package:MG060	F10 Package:MG061	F12 Package:MG073	F13 Package:MG074
G	G1 Package:SC-63 E-pack	G2 Package:TO-252AA FB	G3 Package:TO-252AB similar FE	G4 Package:TO-277A similar FY	G5 Package:TO-252AA similar FR	G6 Package:LA		G7 Package:MO-235B similar LF	G8 Package:MO-235B LF_Dual	G9 Package:MO-299B LG(TOLL)	G10 Package:MO-299B LG(Kelvin Source)		
H	H1 Package:SC-83 similar STO-220	H2 Package:SC-83 similar FD	H6 Package:TO-263AB FZ	H7 Package:TO-263-SC FZ-7p	H8 Package:TO-263-7pin GF								
J	J1 Package:SC-91A FTO-220(2pin)	J2 Package:SC-91 FTO-220A(2pin)	J3 Package:SC-91 FTO-220AG(2pin)	J4 Package:SC-91 FTO-220G(2pin)	J6 Package:SC-91A FTO-220(3pin)	J7 Package:SC-91 FTO-220A(3pin)		J8 Package:SC-91 FTO-220AG(3pin)	J9 Package:SC-91 FTO-220G(3pin)				

PACKAGE LIST

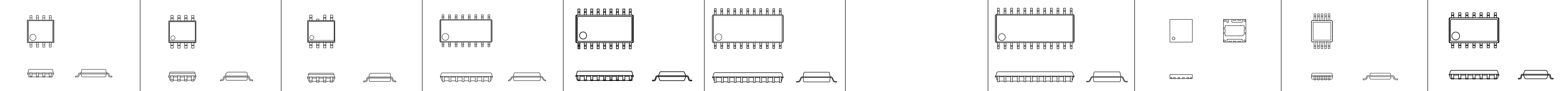
K

K2 Package:TO-247AD MTO-3PT(2pin) | K4 Package:TO-247AD MTO-3P(3pin) | K5 Package:TO-247AD MTO-3PT(3pin) | K8 Package:TO-247AD GC | K9 Package:TO-247-4 GE [Kelvin Source]



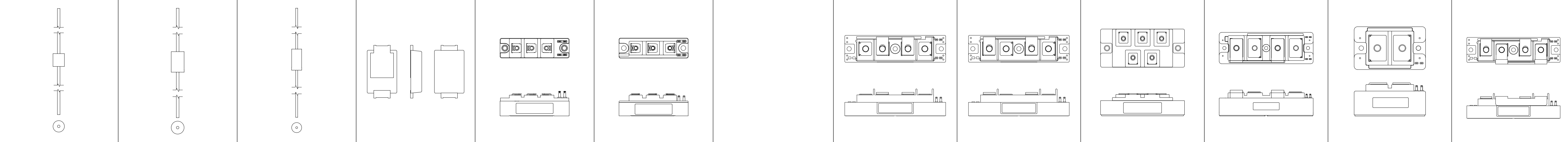
L

L1 Package:SOP8 | L2 Package:SOP8J | L3 Package:SOP8/7J | L5 Package:SOP16 | L6 Package:SOP18 | L7 Package:SOP22 | L8 Package:SOP24 | L9 Package:WSON8 | L10 Package:TSSOP10 | L11 Package:SOP14

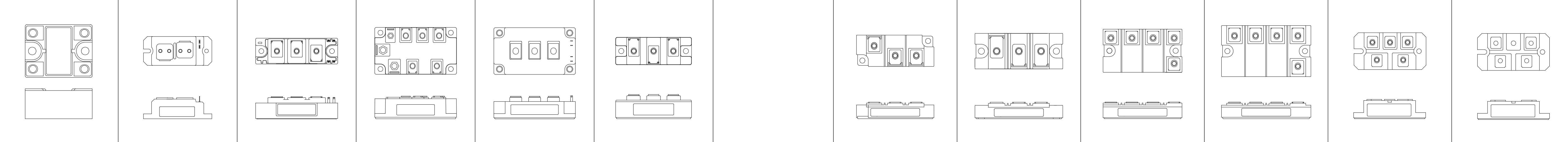


M

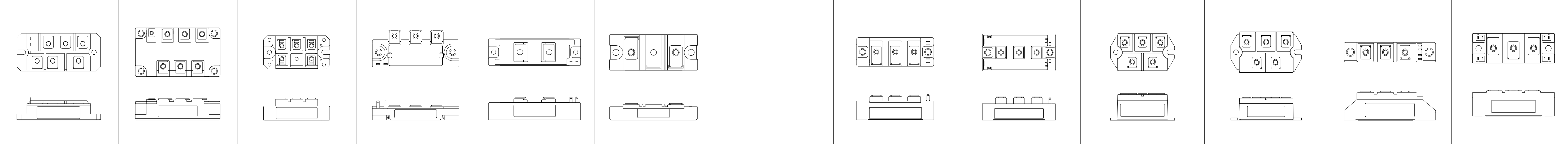
M1 Package:3Max×ϕ2.7(DO-41S) | M15 Package:DO-201AD | M16 Package:DO-204AC(DO-15) | M17 Package:DO-221BC | M18 Package:E-2 | M19 Package:E-3 | M20 Package:E-4 | M21 Package:E-5 | M22 Package:E-18 | M23 Package:E-34 | M24 Package:E-35 | M25 Package:E-37



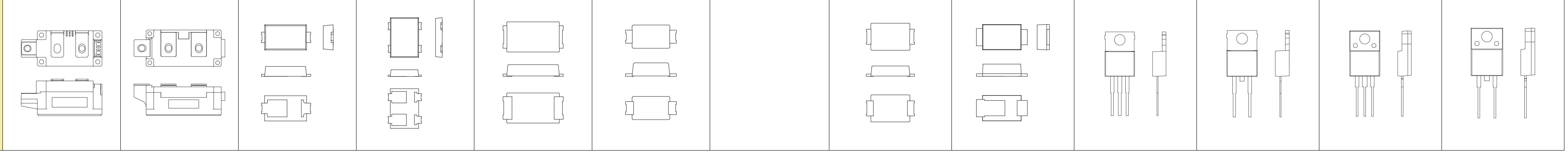
M26 Package:E-38 | M27 Package:E-42 | M28 Package:E-44 | M29 Package:E-51 | M30 Package:E-56 | M31 Package:E-58 | M32 Package:E-60 | M33 Package:E-61 | M34 Package:E-62 | M35 Package:E-63 | M36 Package:E-64 | M37 Package:E-66



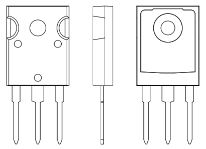
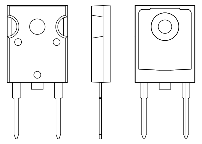
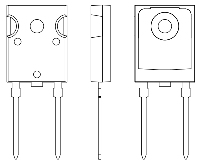
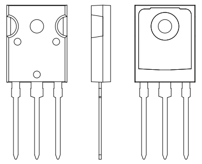
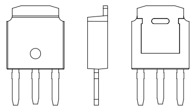
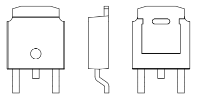
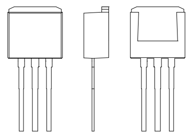
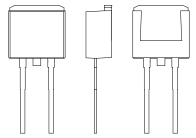
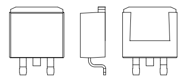
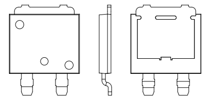
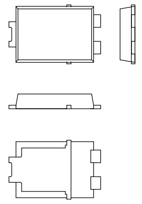
M38 Package:E-68 | M39 Package:E-69 | M40 Package:E-7 | M41 Package:E-71 | M42 Package:E-72 | M43 Package:E-73 | M44 Package:E-74 | M45 Package:E-75 | M46 Package:E-77 | M47 Package:E-78 | M48 Package:E-79 | M49 Package:E-80



M50 Package:E-81 | M51 Package:E-82 | M52 Package:NA(DO-221BC) | M53 Package:NB | M54 Package:nSMC_FL | M55 Package:SOD-123FL | M56 Package:SOD-128 | M57 Package:SOD-323FL | M58 Package:TO-220 | M59 Package:TO-220 2pin | M60 Package:TO-220 Full-Mold | M61 Package:TO-220 Full-Mold 2pin



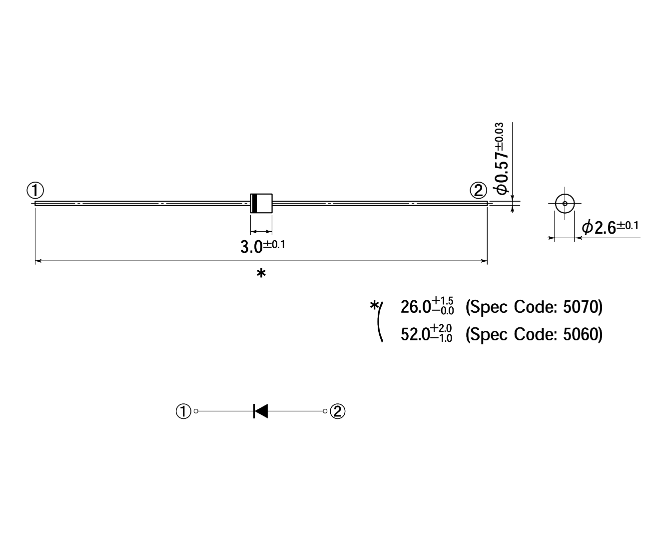
PACKAGE LIST

M	M62 Package:TO-247 	M63 Package:TO-247 2pin 	M64 Package:TO-247 2pin(long lead) 	M65 Package:TO-247(long lead) 	M66 Package:TO-251 	M67 Package:TO-252(Dpak) 		M68 Package:TO-262 	M69 Package:TO-262 2pin 	M70 Package:TO-263(D2pak) 	M71 Package:TO-263LP 	M72 Package:TO-277 	

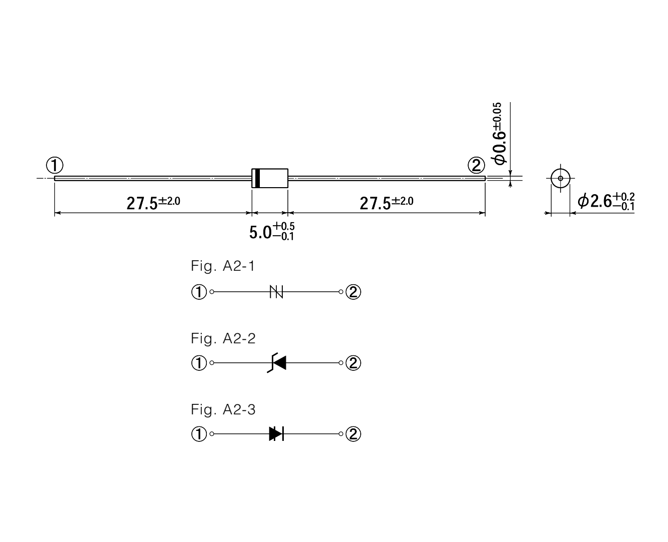
OUTLINE DIMENSIONS

[Unit:mm]

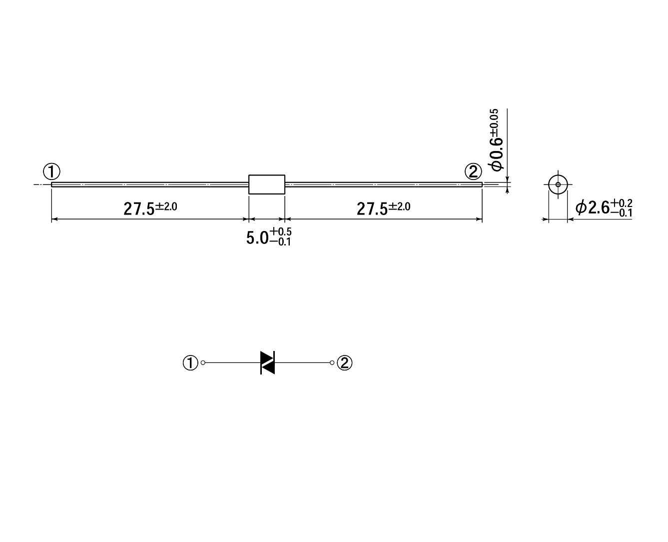
A1 Package: AX057



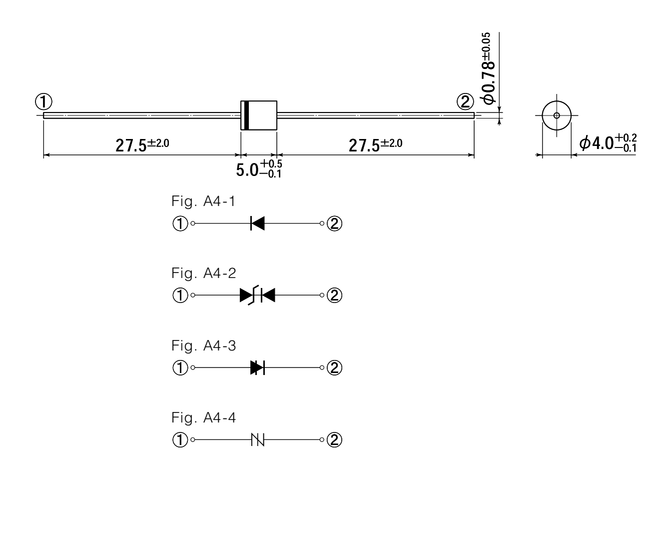
A2 Package: AX06



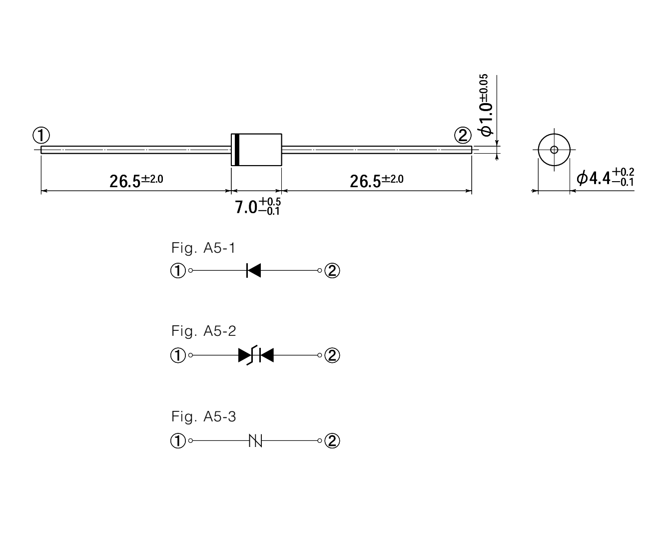
A3 Package: AX06



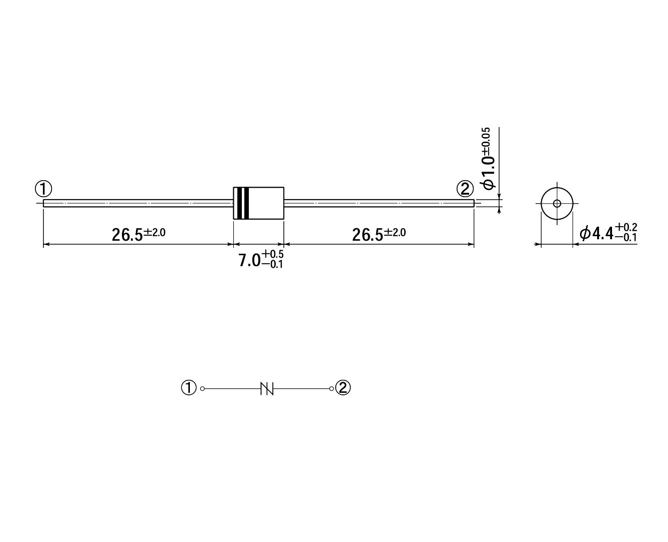
A4 Package: AX078



A5 Package: AX10

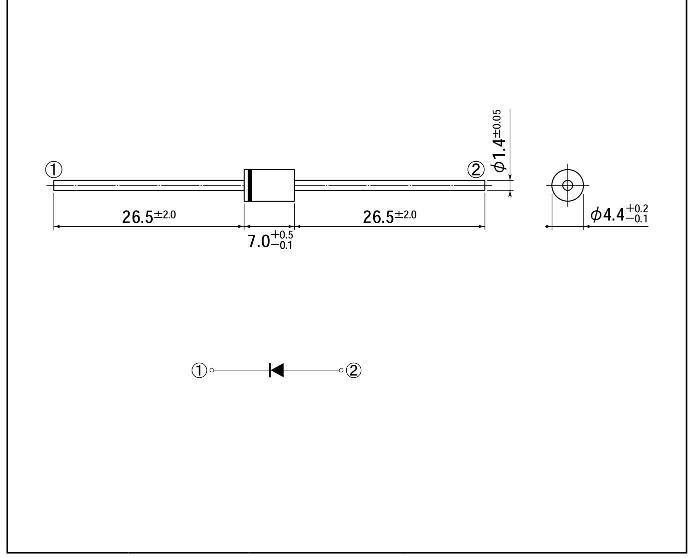


A6 Package: AX10

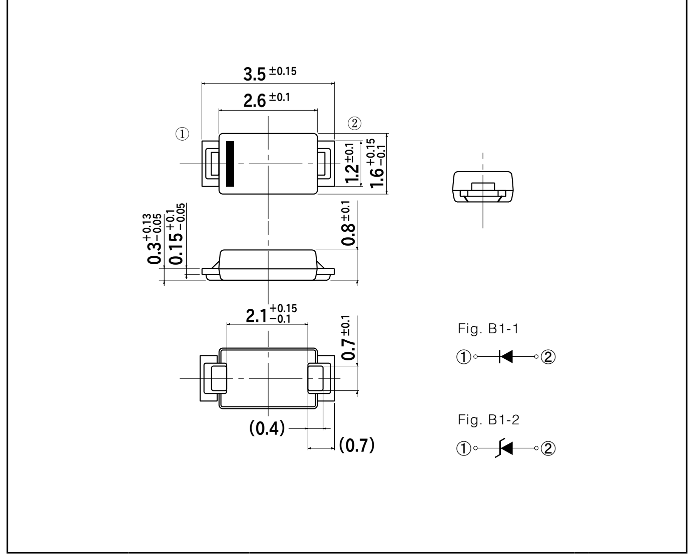


[Unit:mm]

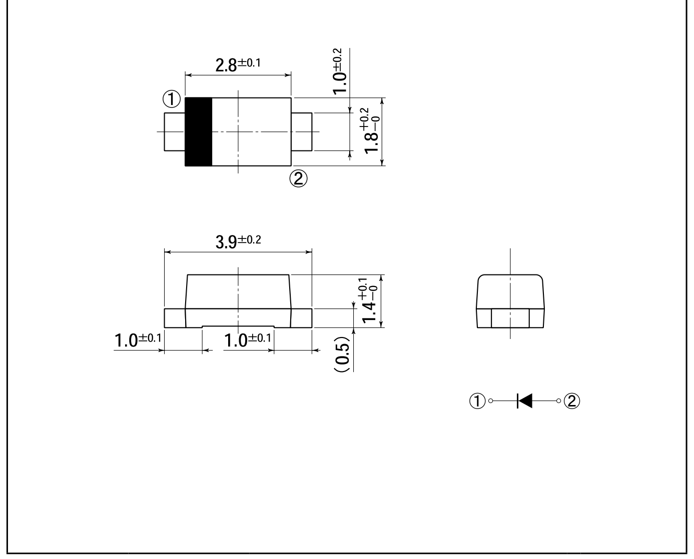
A7 Package: AX14



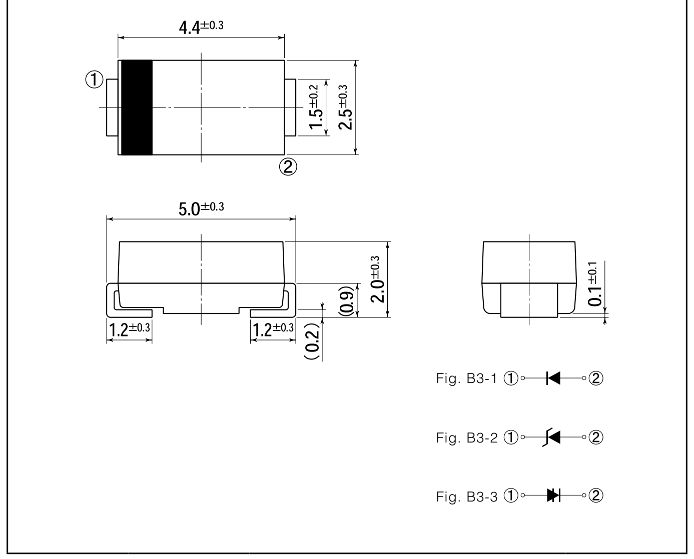
B1 Package: DO-219AB similar G1F



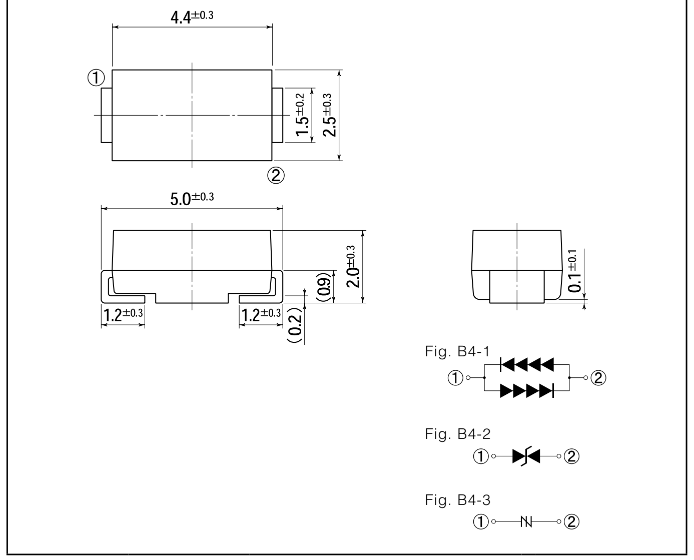
B2 Package: DO-219AA similar M1F



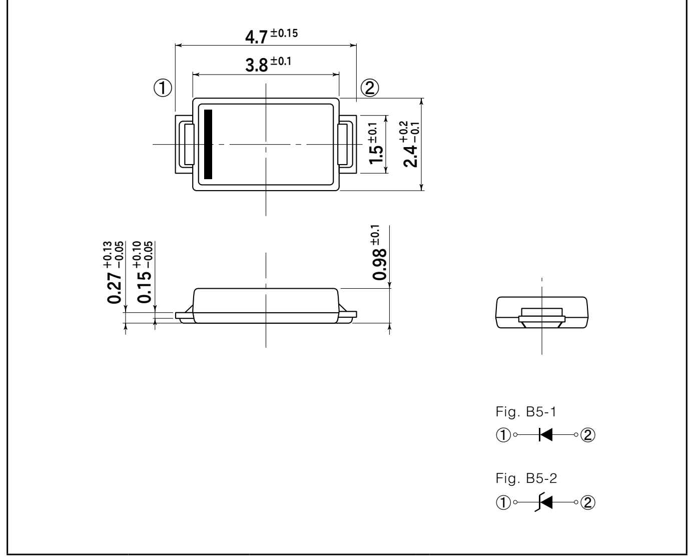
B3 Package: DO-214AC 1F, CF



B4 Package: DO-214AC 1F



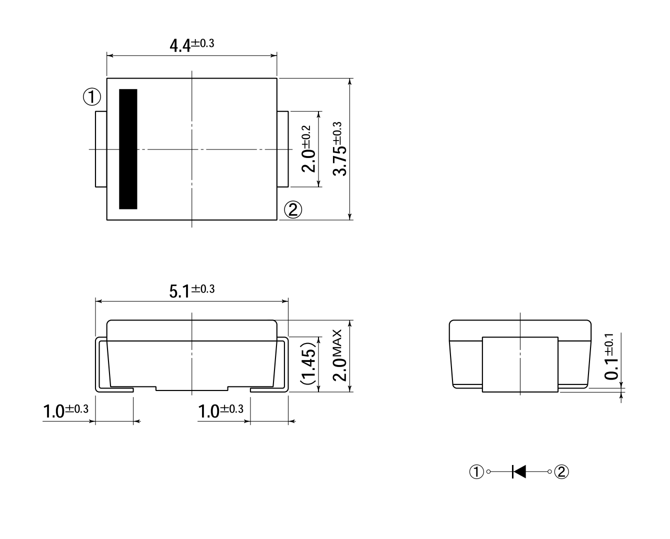
B5 Package: SC-110B CE



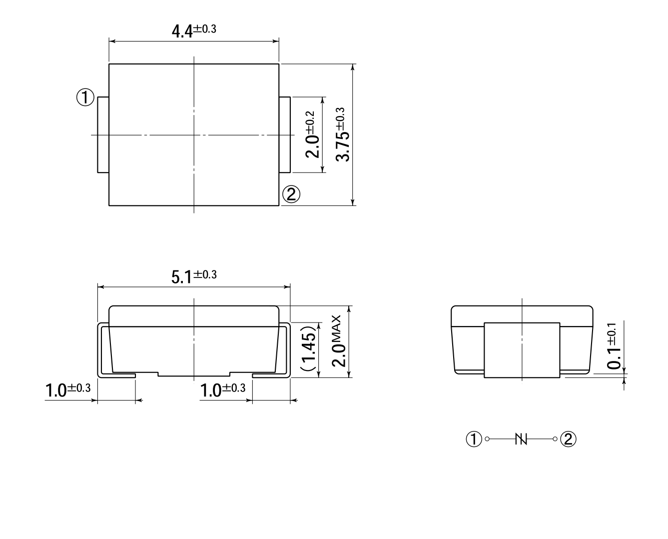
OUTLINE DIMENSIONS

[Unit:mm]

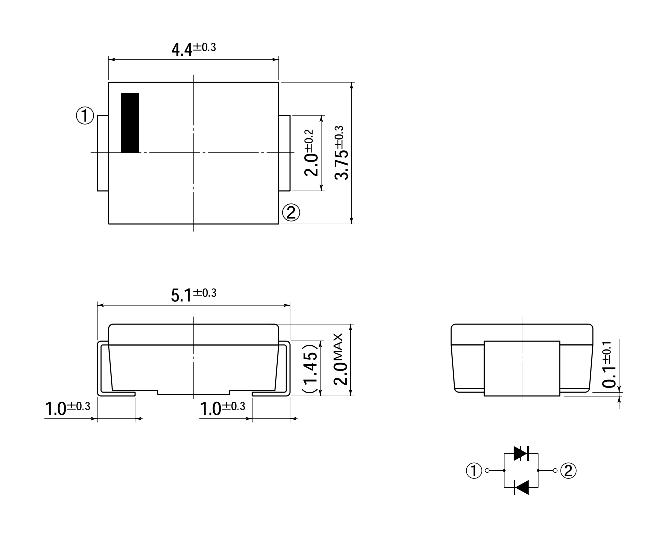
B6 Package: DO-214AA similar M2F



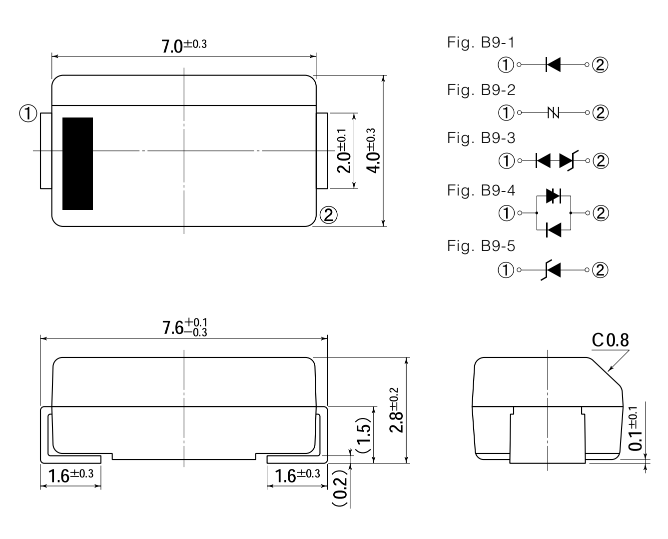
B7 Package: DO-214AA similar M2F



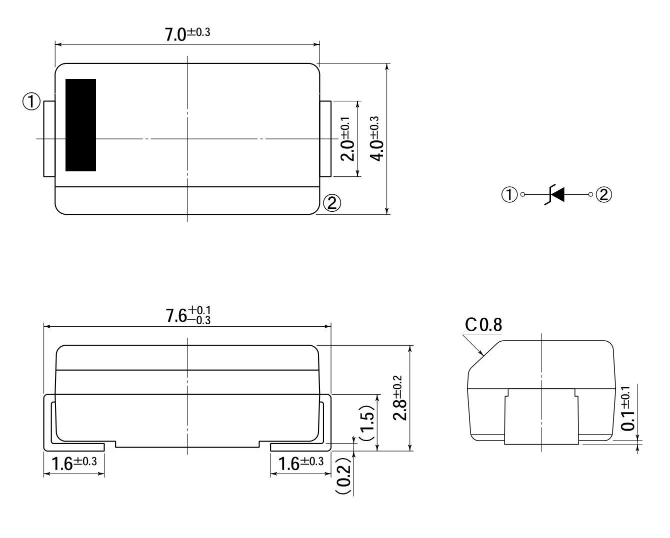
B8 Package: DO-214AA similar M2F



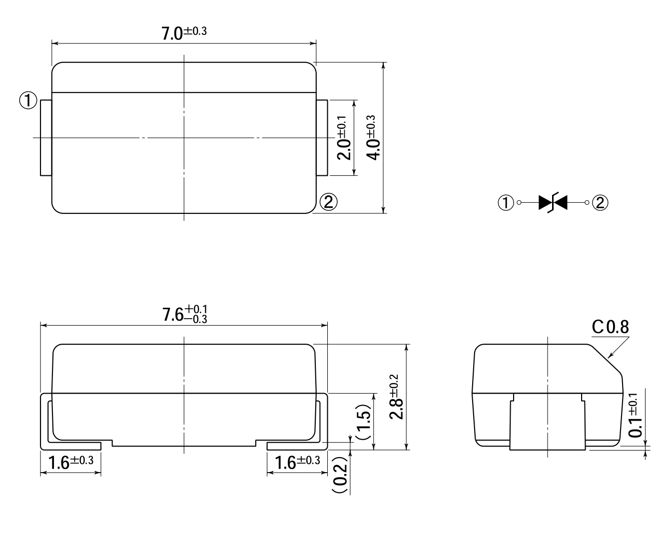
B9 Package: 2F



B10 Package: 2F

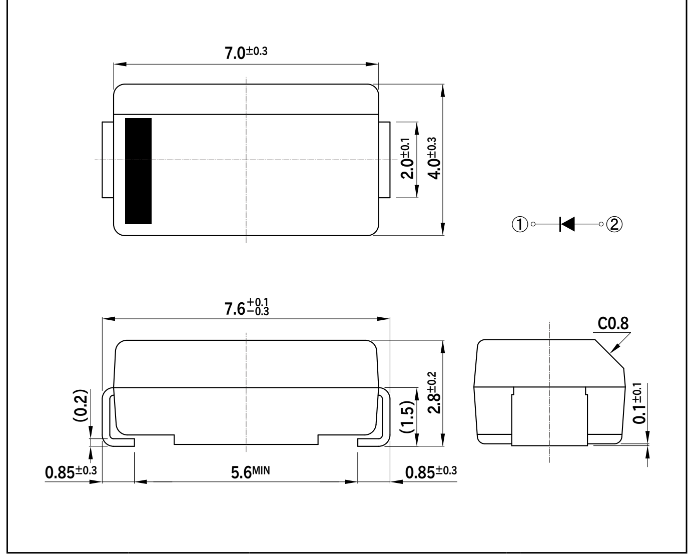


B11 Package: 2F

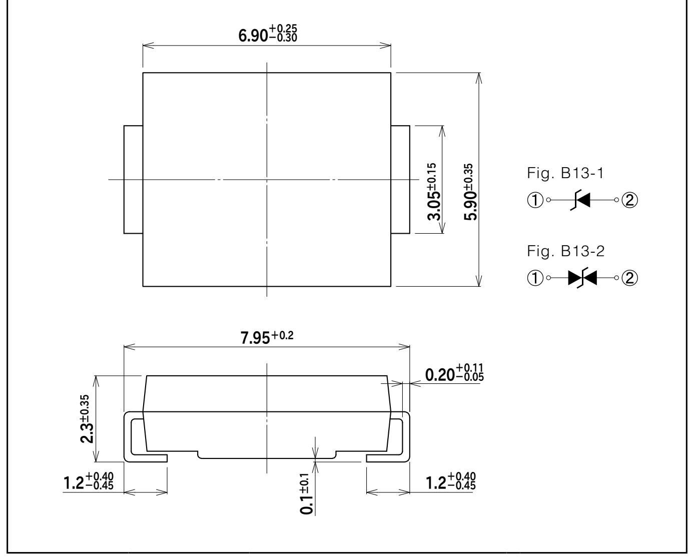


[Unit:mm]

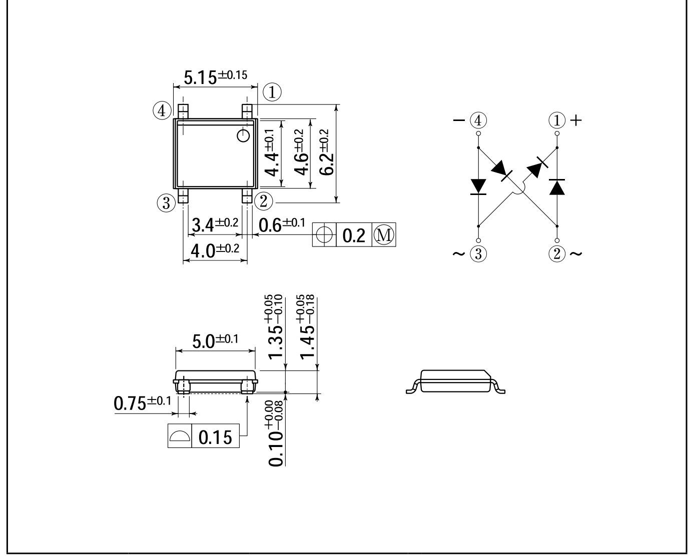
B12 Package: CG



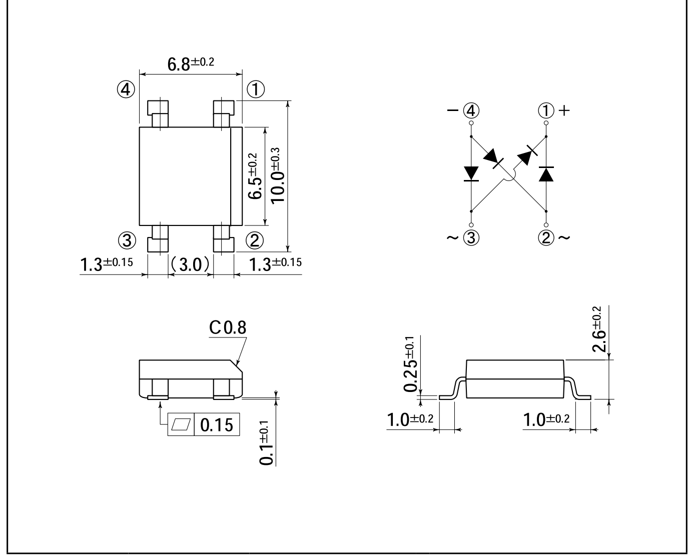
B13 Package: DO-214AB CH



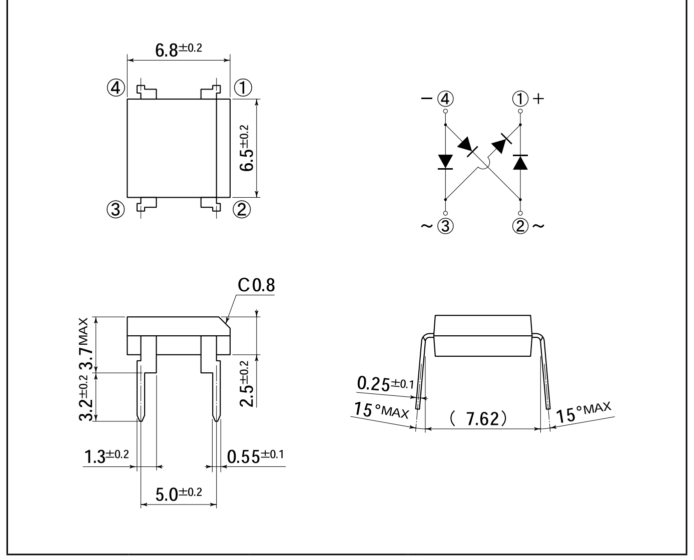
C1 Package: SOPA-4



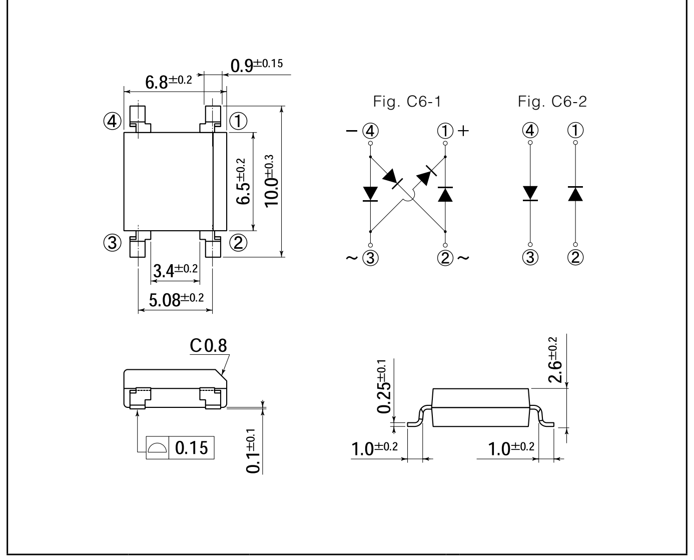
C4 Package: 1N (SMD)



C5 Package: 1N (DIP)



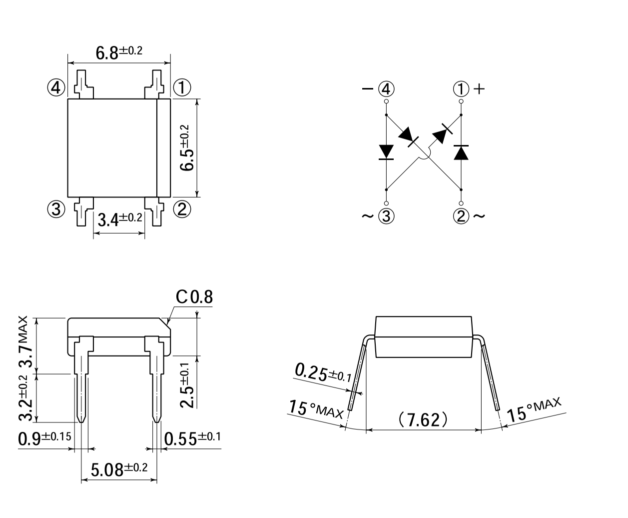
C6 Package: 1NA (SMD)



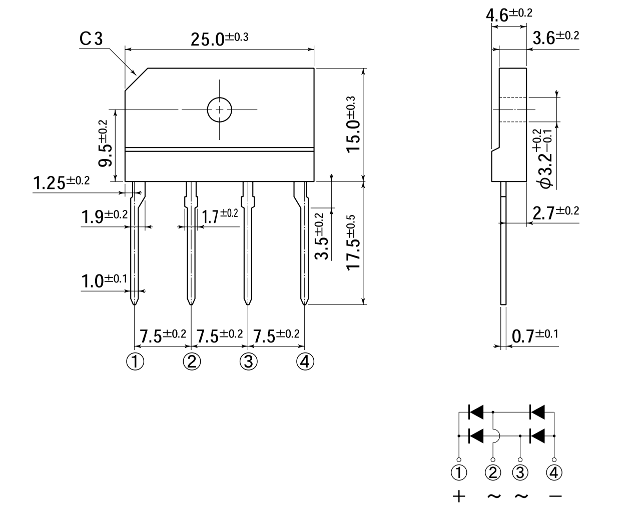
OUTLINE DIMENSIONS

[Unit:mm]

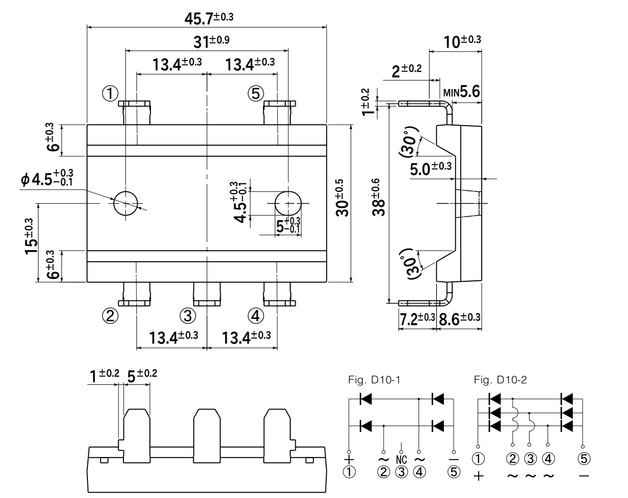
C7 Package: 1NA (DIP)



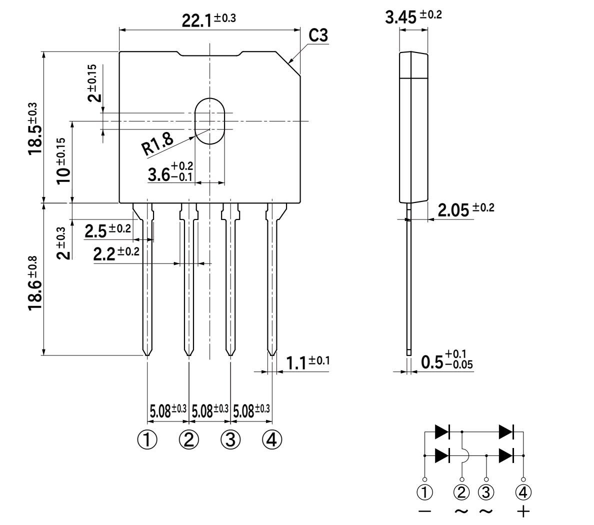
D3 Package: 3S



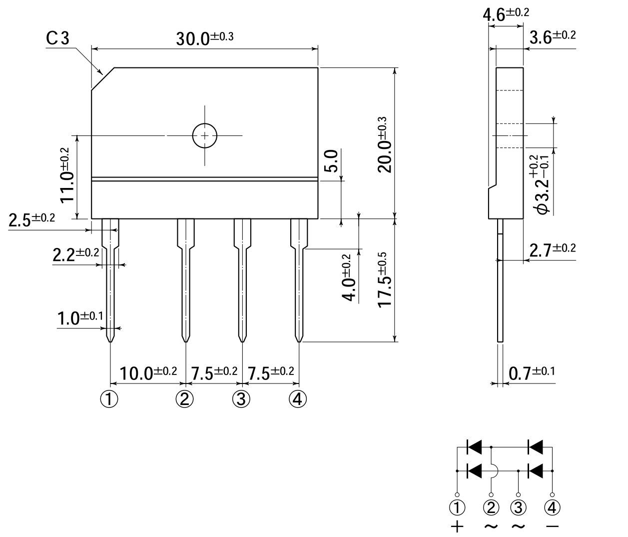
D10 Package: JH



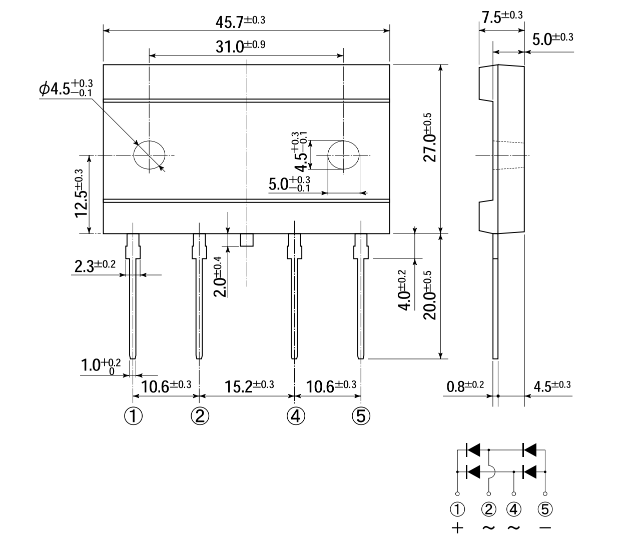
D11 Package: D6K



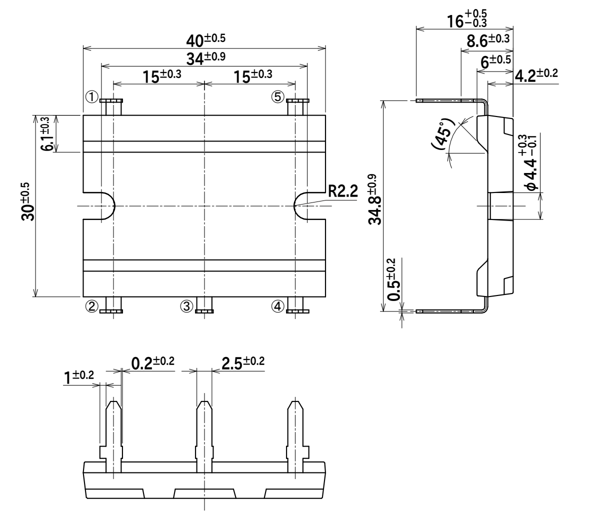
D4 Package: 5S



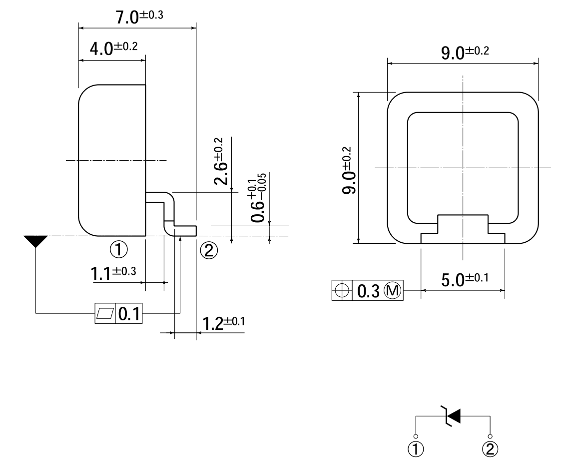
D7 Package: TSB (4pin) ,JC (4pin)



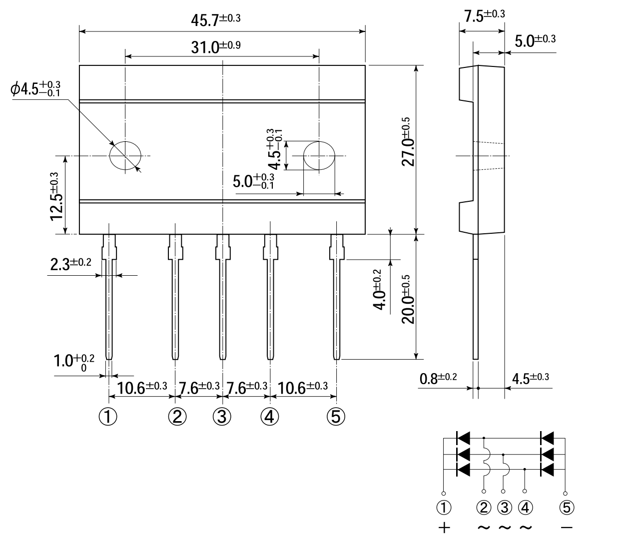
D12 Package: JK



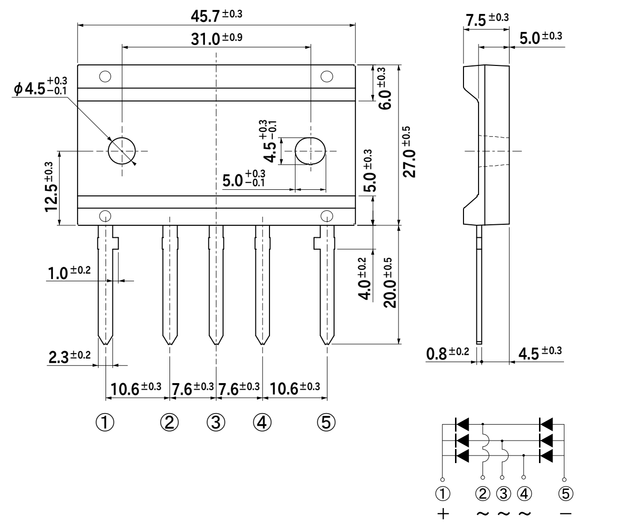
E1 Package: MCP



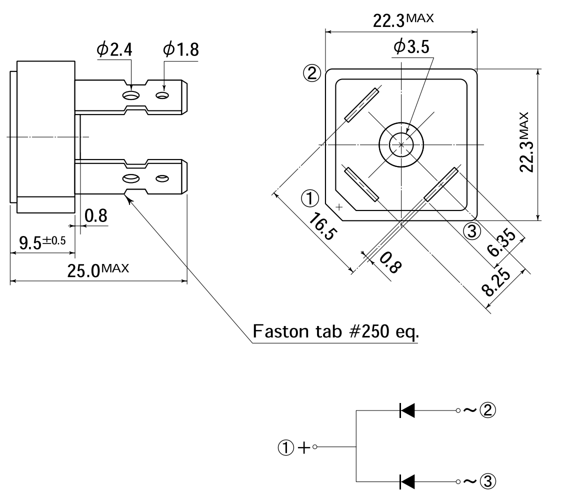
D8 Package: TSB (5pin) ,JC (5pin)



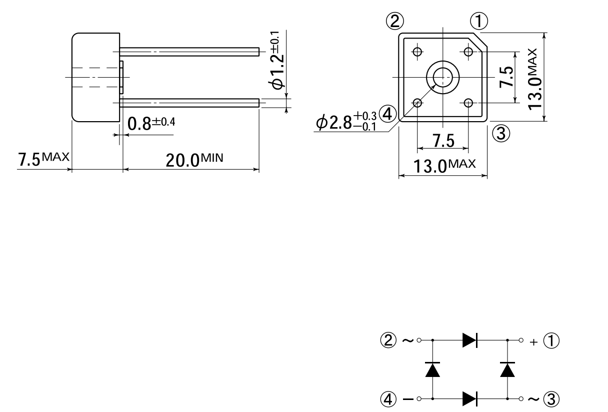
D9 Package: JF



E2 Package: D30VC



E3 Package: S2VB

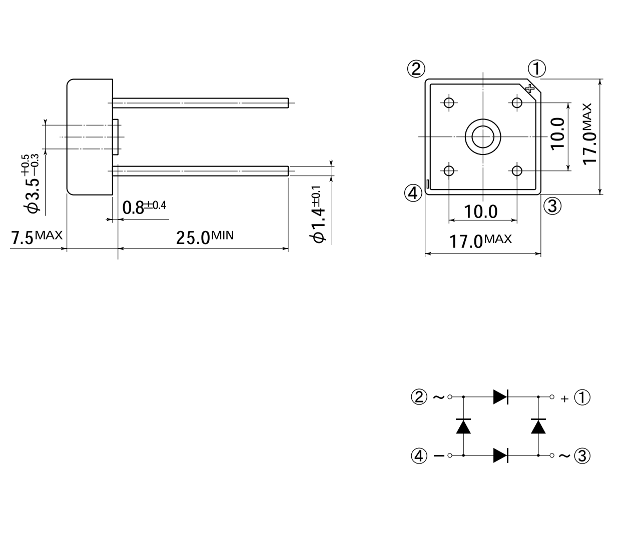


[Unit:mm]

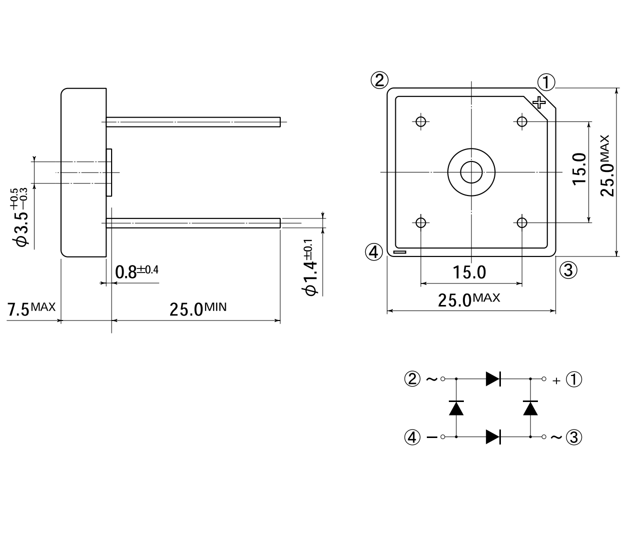
OUTLINE DIMENSIONS

[Unit:mm]

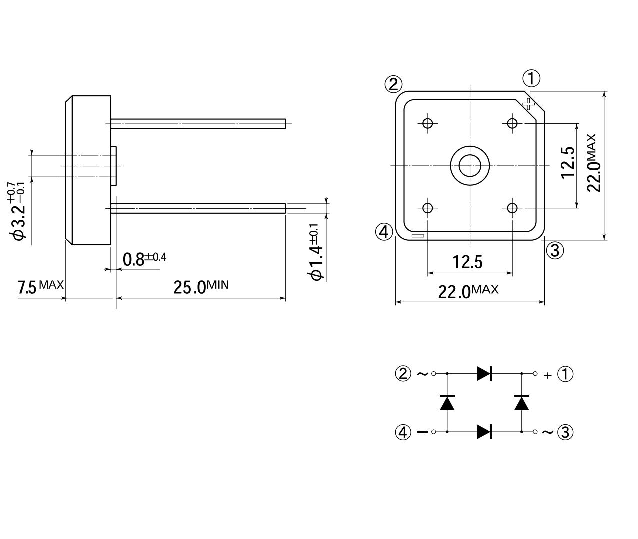
E4 Package: S4VB



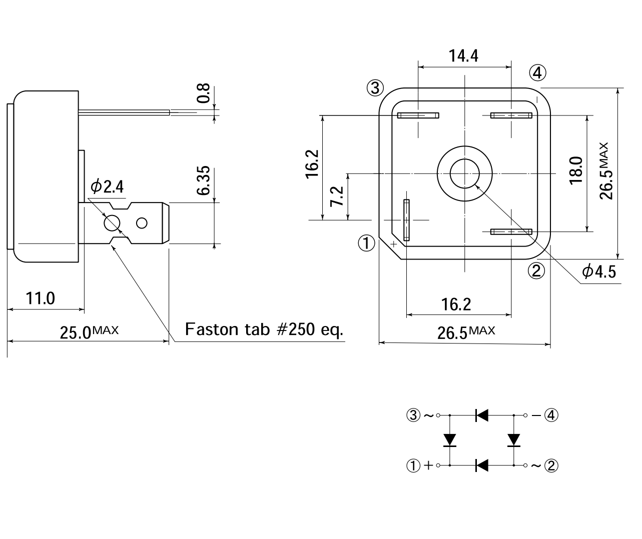
E5 Package: S5VB



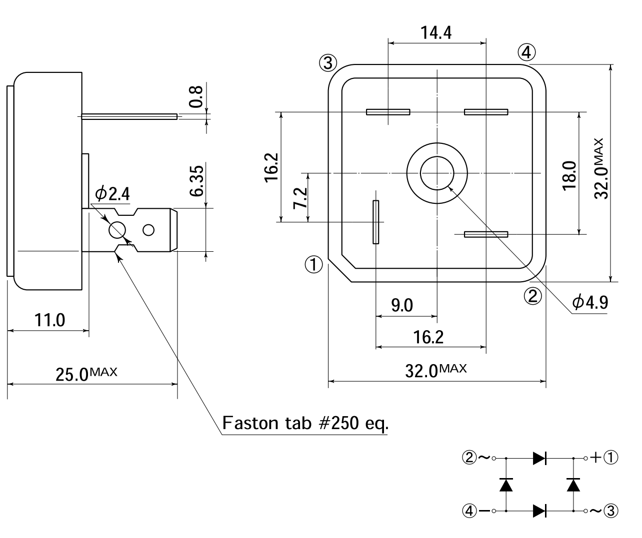
E6 Package: S10VB



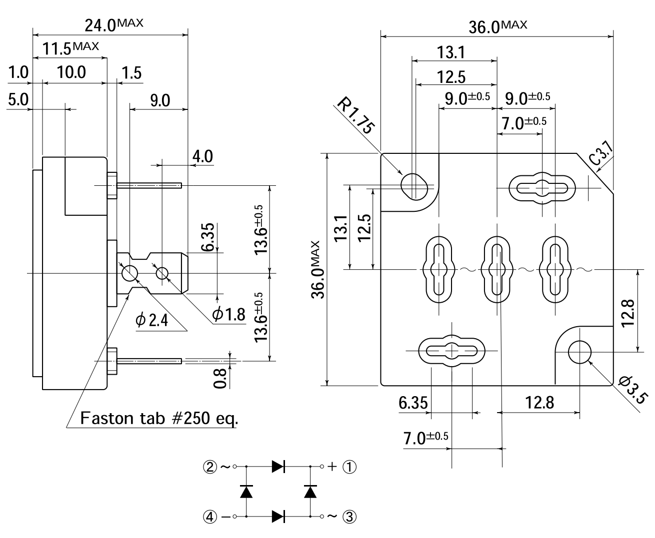
E7 Package: S15VB



E8 Package: S25VB

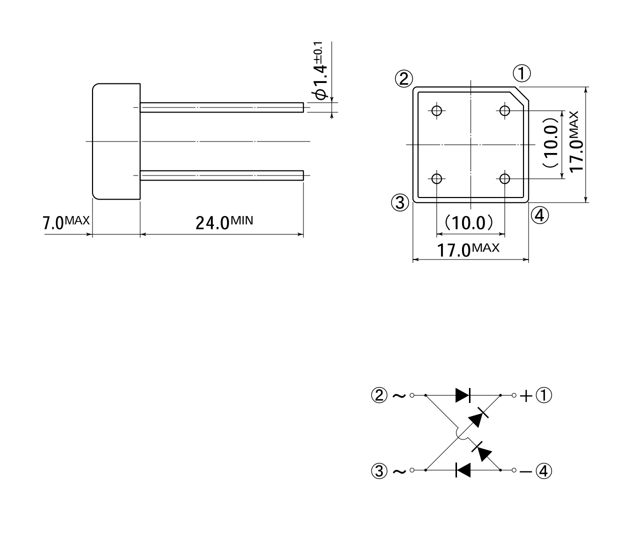


E9 Package: S50VB

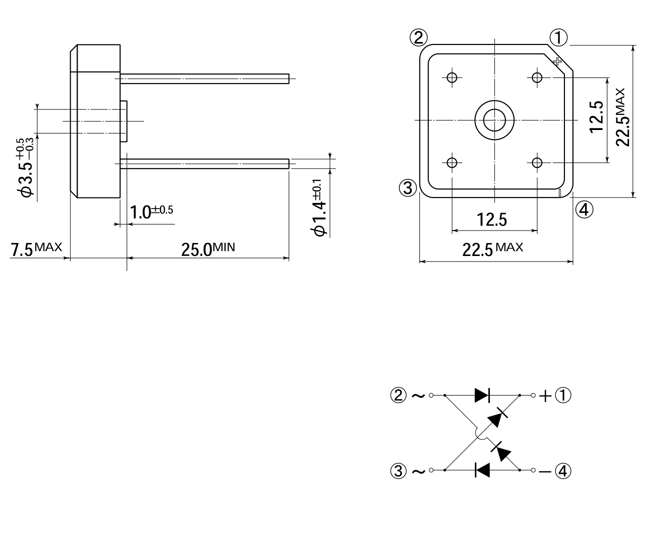


[Unit:mm]

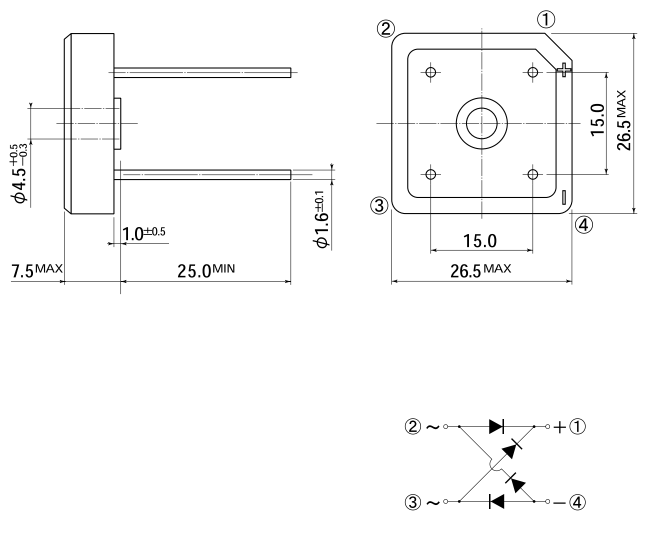
E10 Package: S3WB



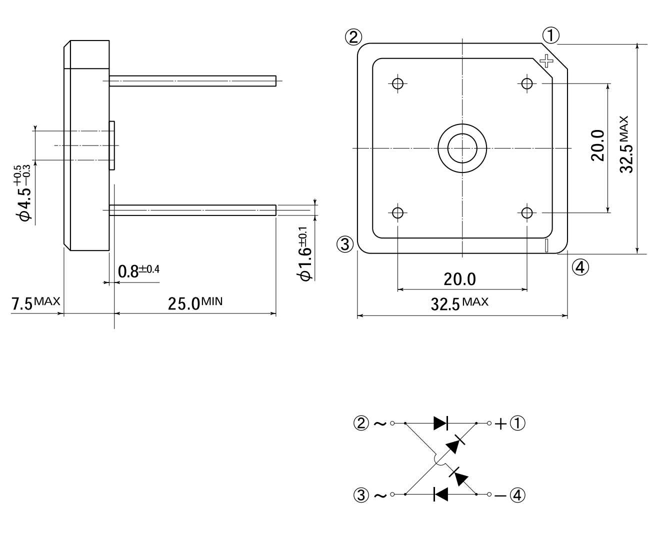
E11 Package: S10WB



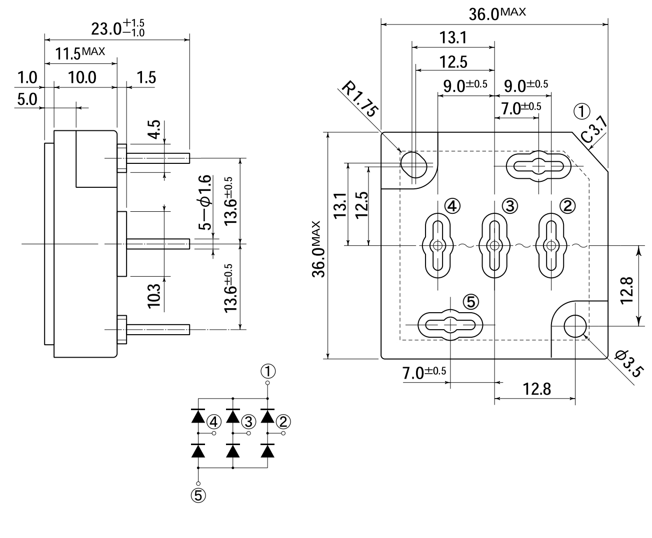
E12 Package: S15WB



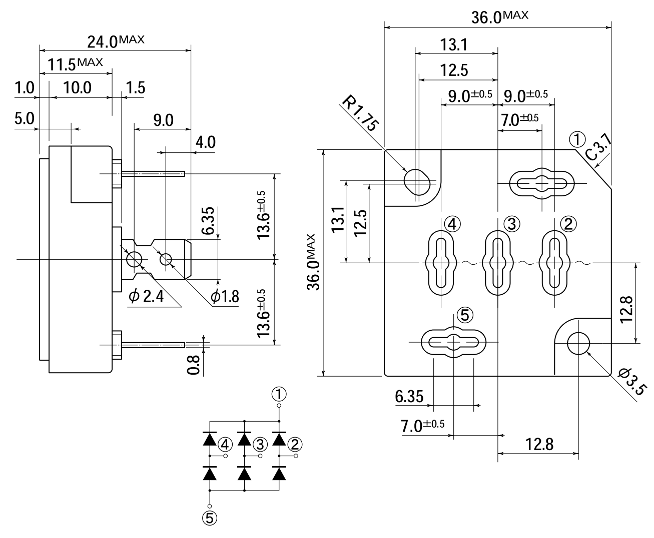
E13 Package: S20WB



E14 Package: SVTA



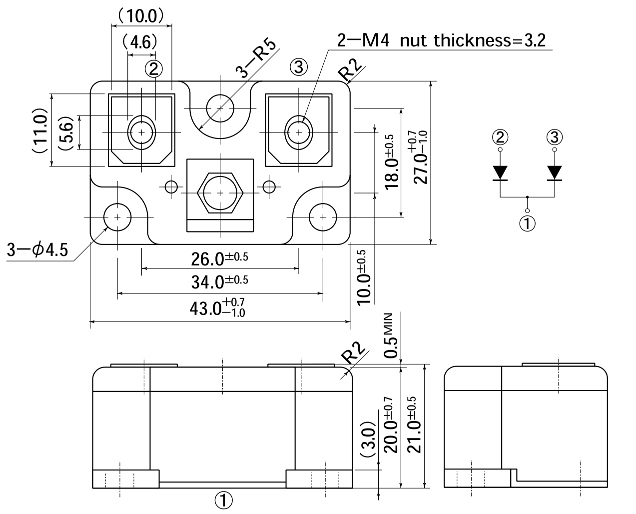
E15 Package: SVT



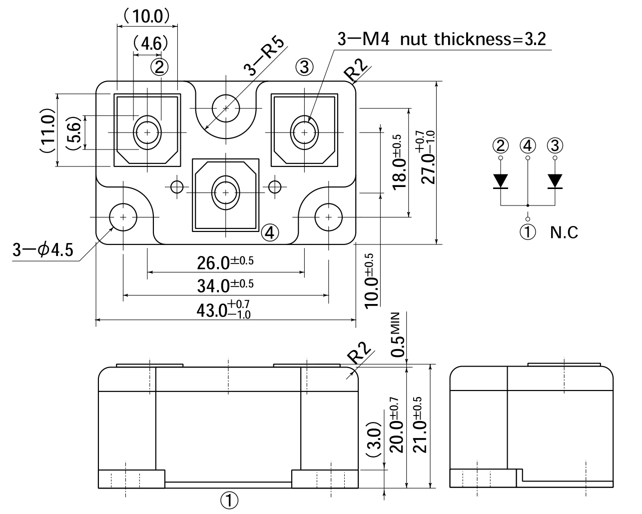
OUTLINE DIMENSIONS

[Unit:mm]

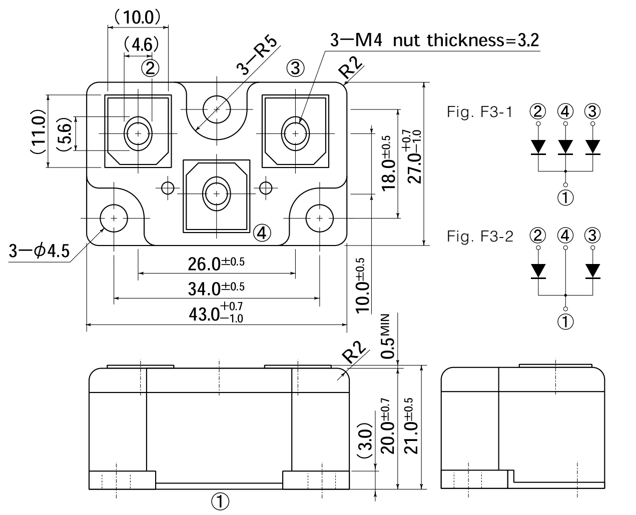
F1 Package: Module



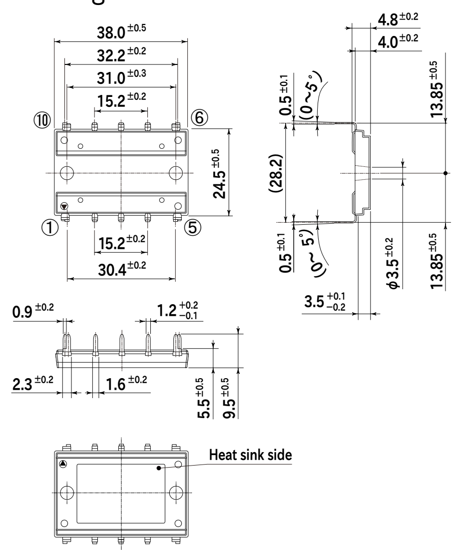
F2 Package: Module



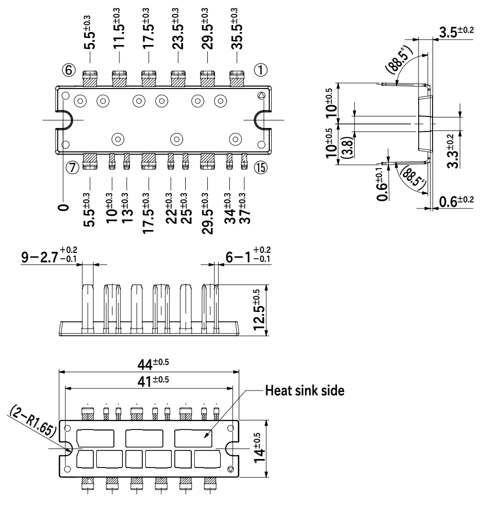
F3 Package: Module



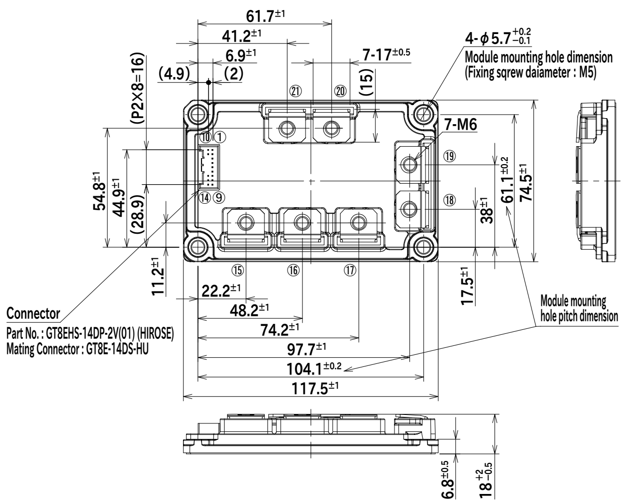
F4 Package: MG001



F5 Package: MG031

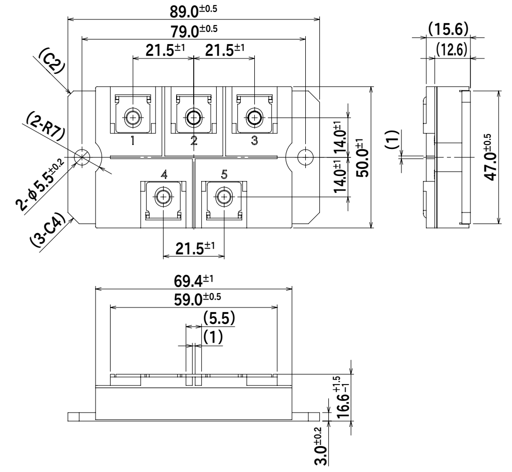


F6 Package: MG032

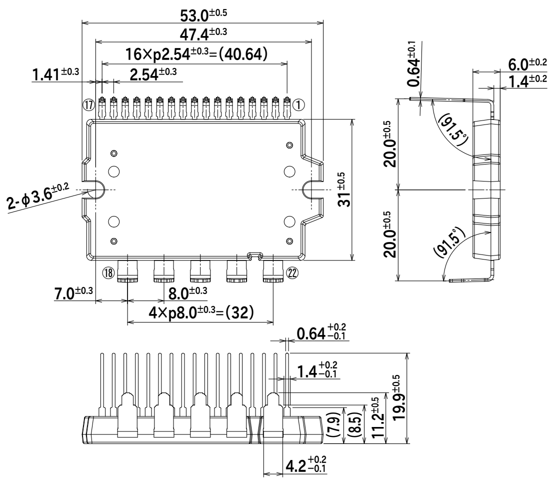


[Unit:mm]

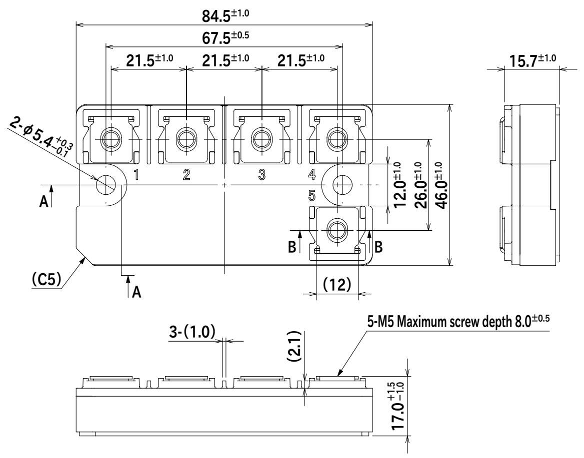
F7 Package: MG038



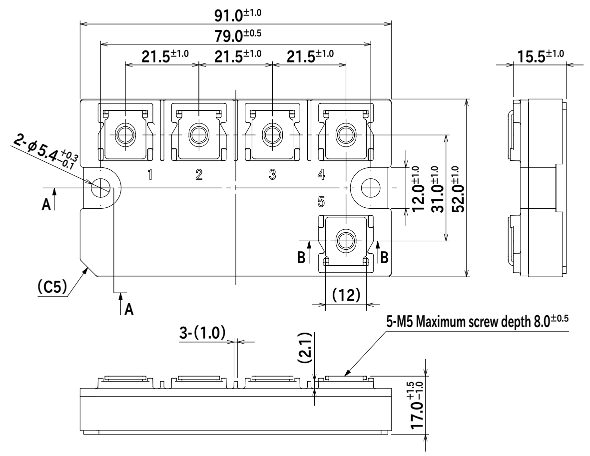
F8 Package: MG048



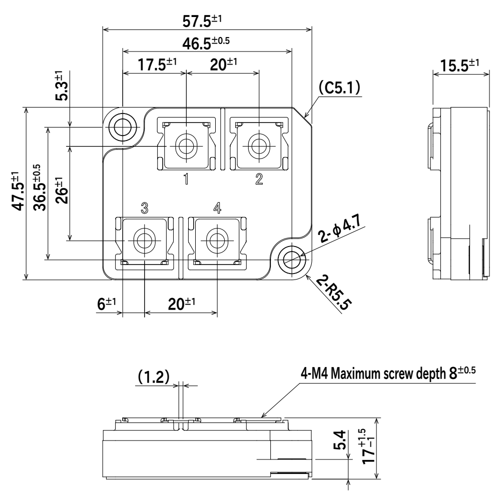
F9 Package: MG060



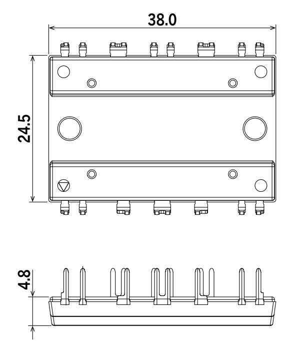
F10 Package: MG061



F12 Package: MG073



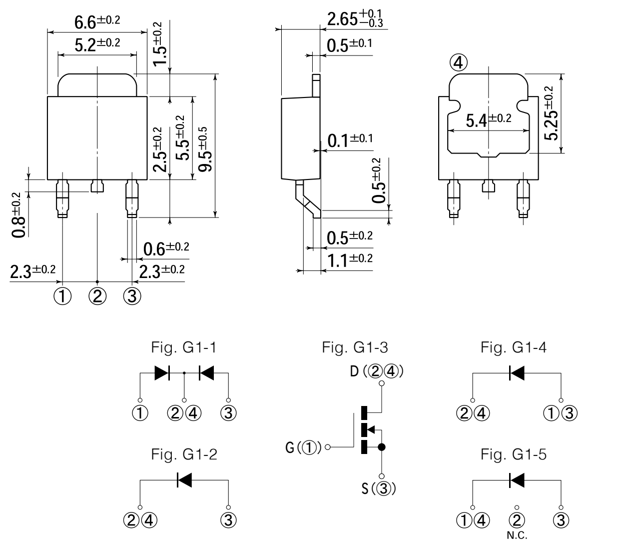
F13 Package: MG074



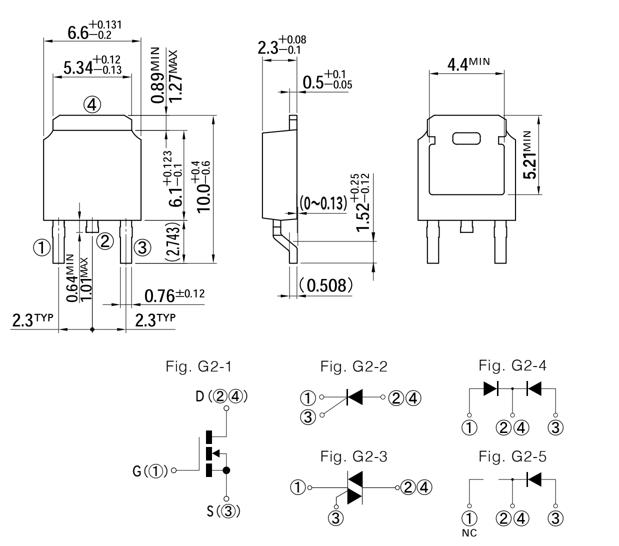
OUTLINE DIMENSIONS

[Unit:mm]

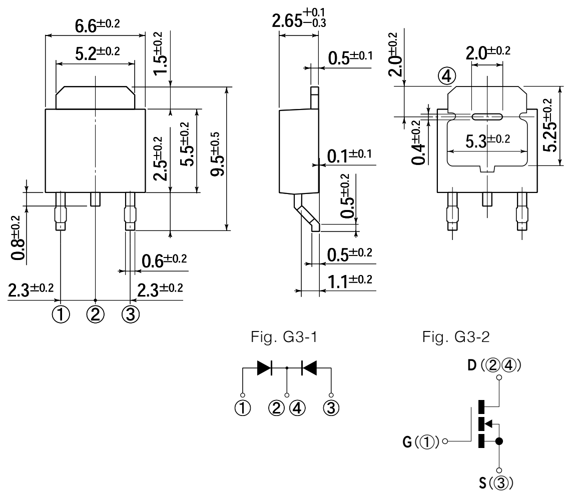
G1 Package: SC-63 E-pack



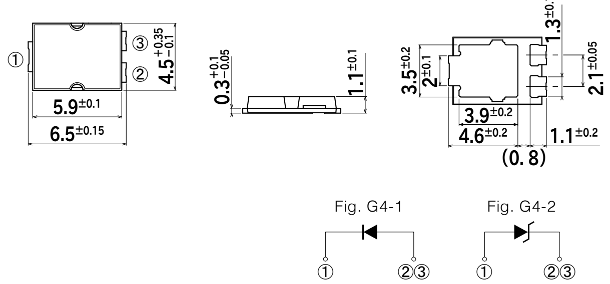
G2 Package: TO-252AA FB



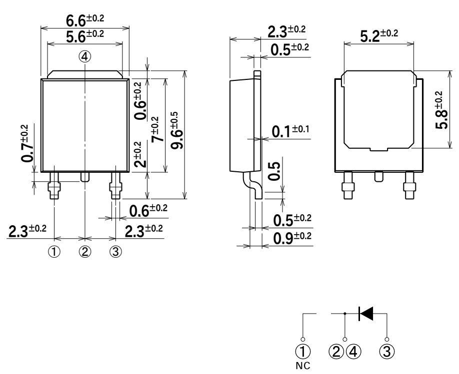
G3 Package: TO-252AB similar FE



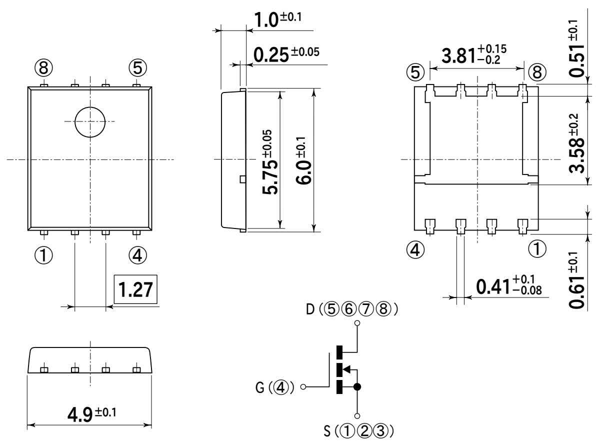
G4 Package: TO-277A similar FY



G5 Package: TO-252AA similar FR

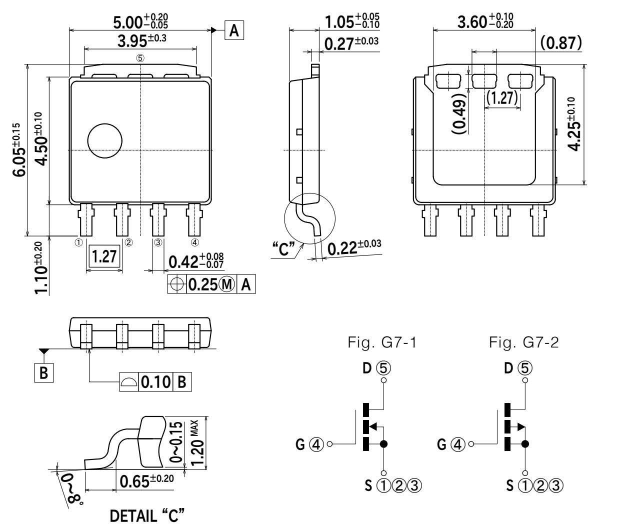


G6 Package: LA

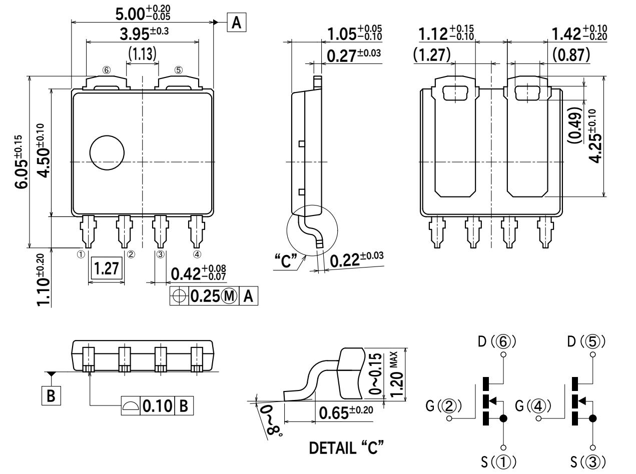


[Unit:mm]

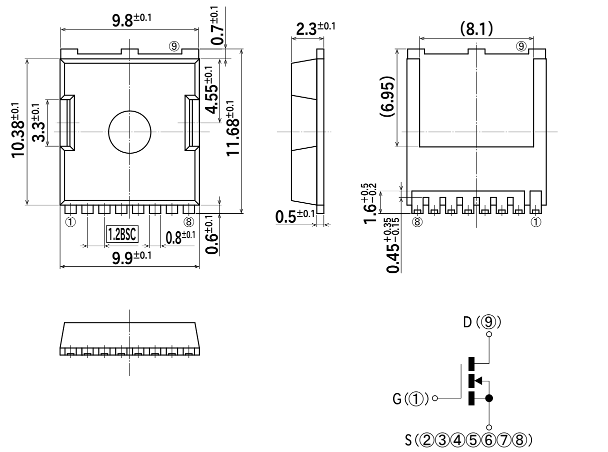
G7 Package: MO-235B similar LF



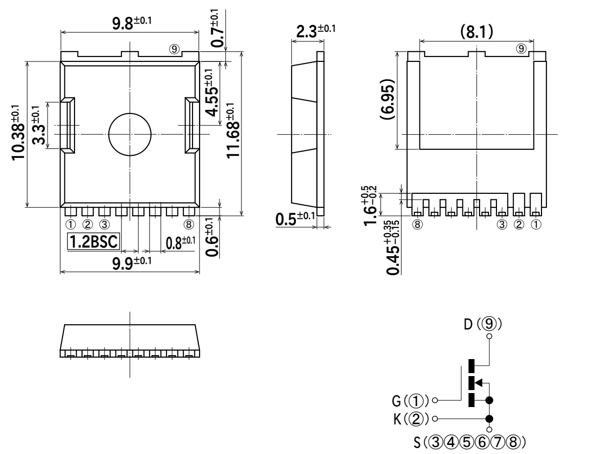
G8 Package: MO-235B LF_Dual



G9 Package: MO-299B LG(TOLL)



G10 Package: MO-299B LG(Kelvin Source)

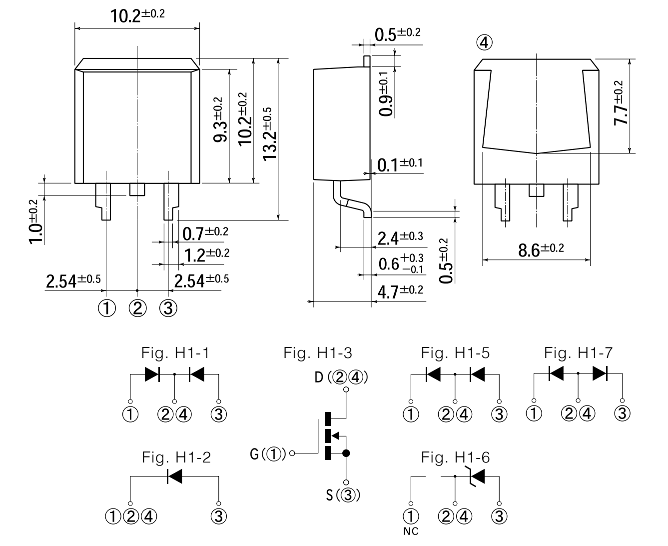


OUTLINE DIMENSIONS

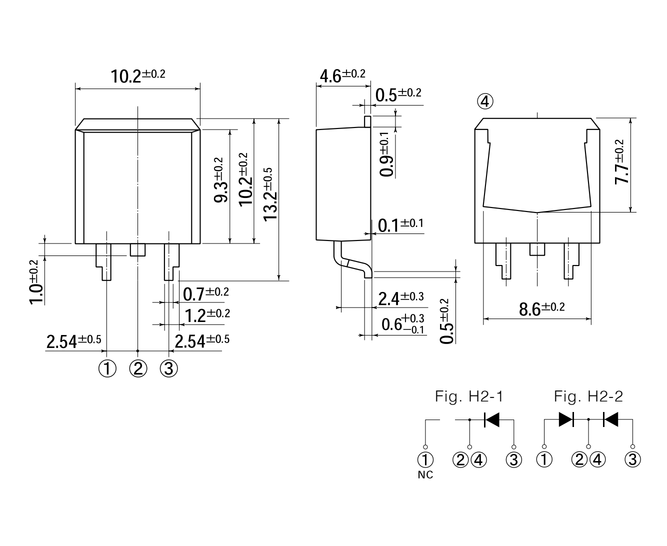
OUTLINE DIMENSIONS

[Unit:mm]

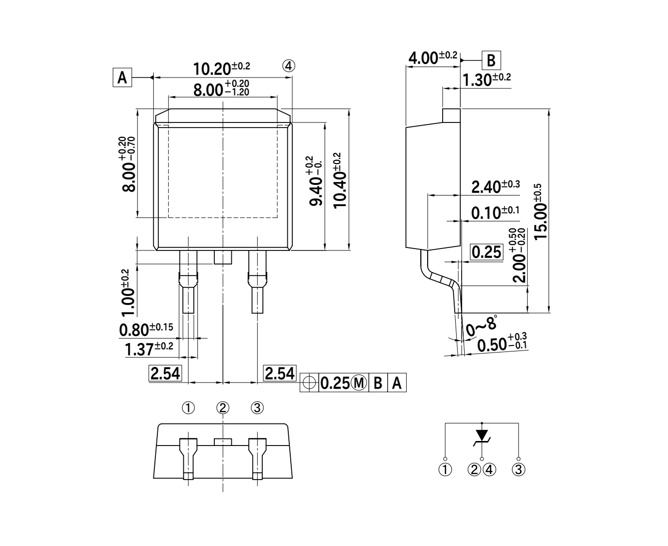
H1 Package: SC-83 similar — STO-220



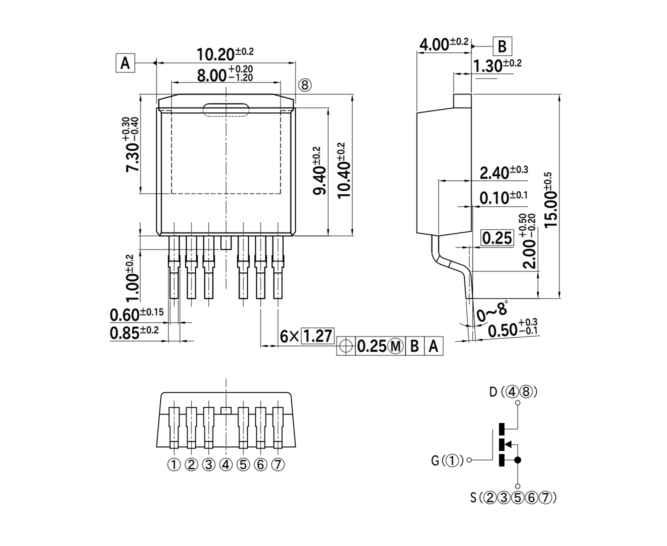
H2 Package: SC-83 similar — FD



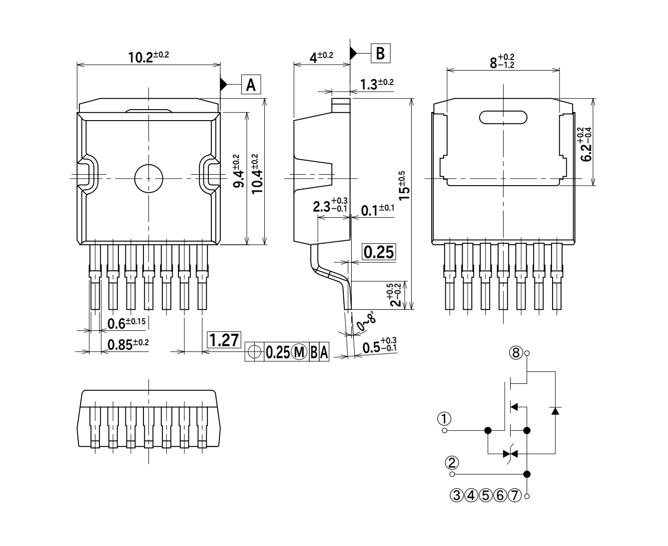
H6 Package: TO-263AB — FZ



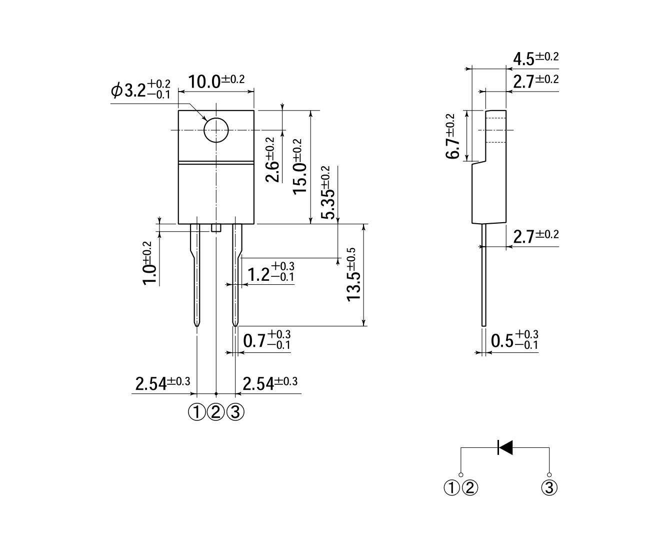
H7 Package: TO-263SC — FZ-7p



H8 Package: TO-263-7pin — GF

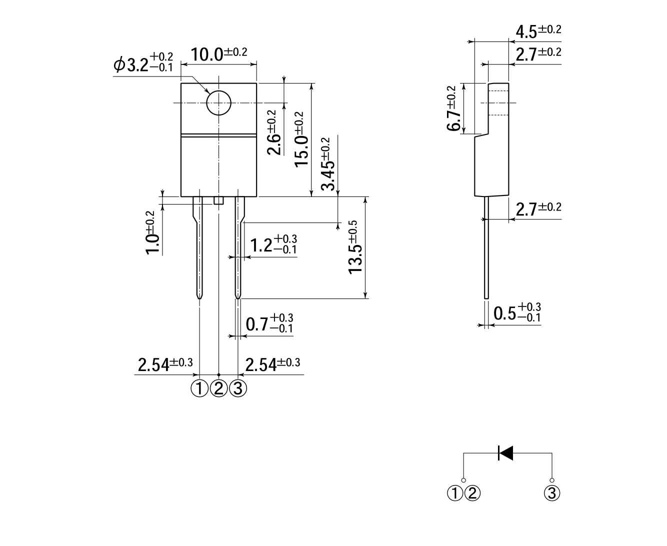


J1 Package: SC-91A — FTO-220 (2pin)

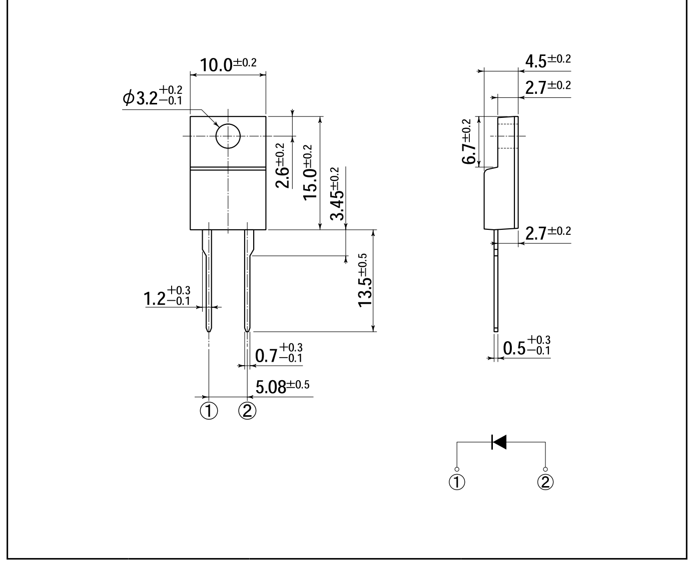


[Unit:mm]

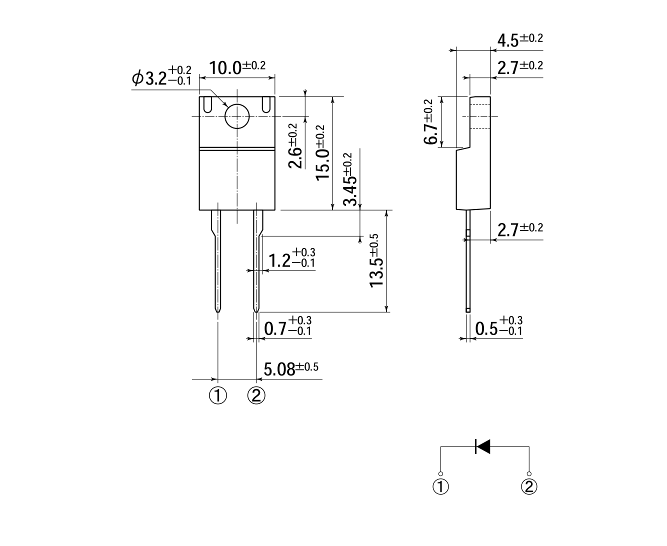
J2 Package: SC-91 — FTO-220A (2pin)



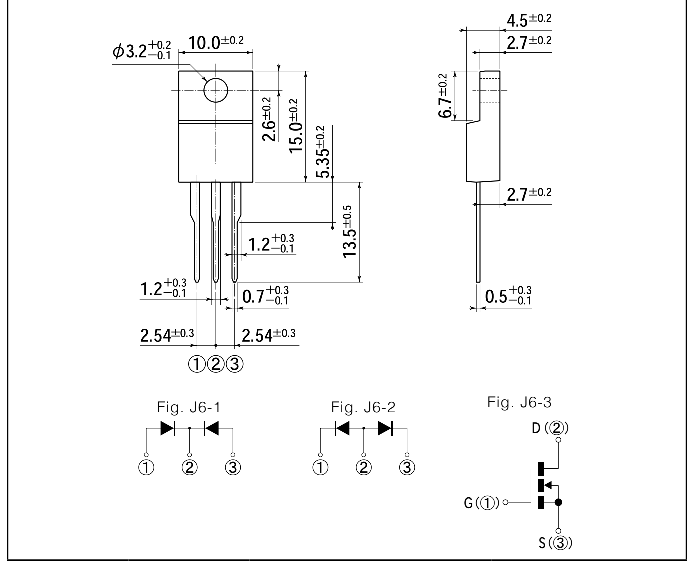
J3 Package: SC-91 — FTO-220AG (2pin)



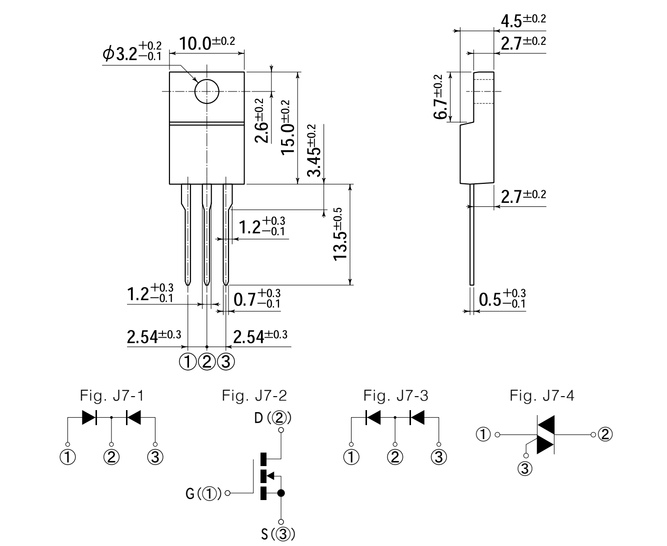
J4 Package: SC-91 — FTO-220G (2pin)



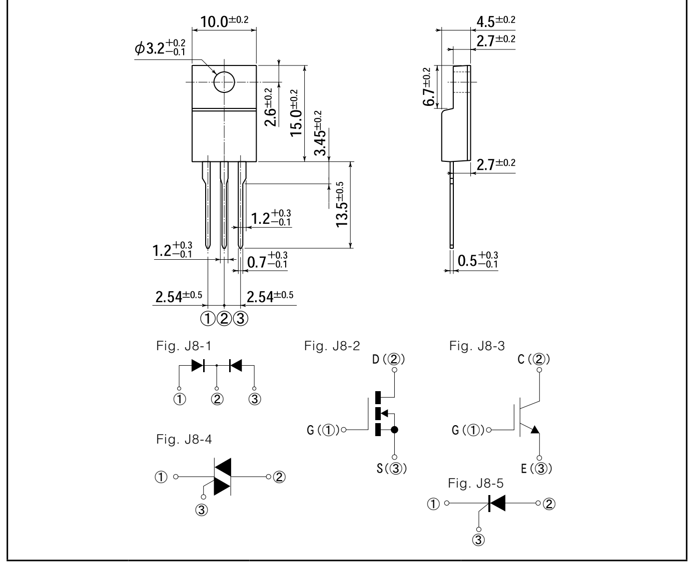
J6 Package: SC-91A — FTO-220 (3pin)



J7 Package: SC-91 — FTO-220A (3pin)



J8 Package: SC-91 — FTO-220AG (3pin)

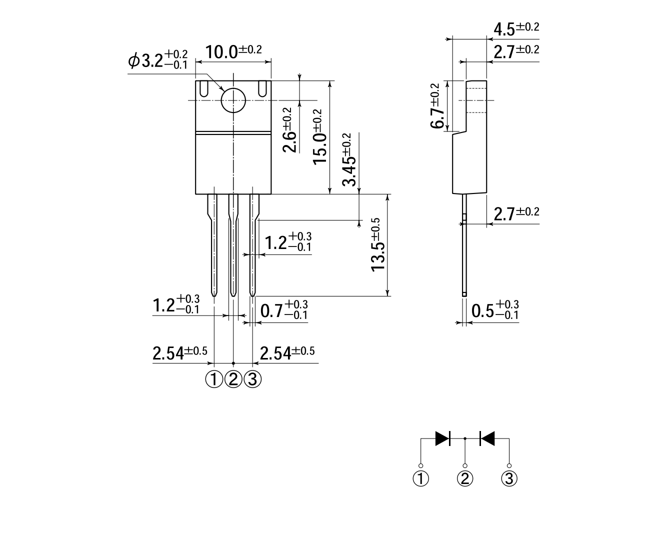


OUTLINE DIMENSIONS

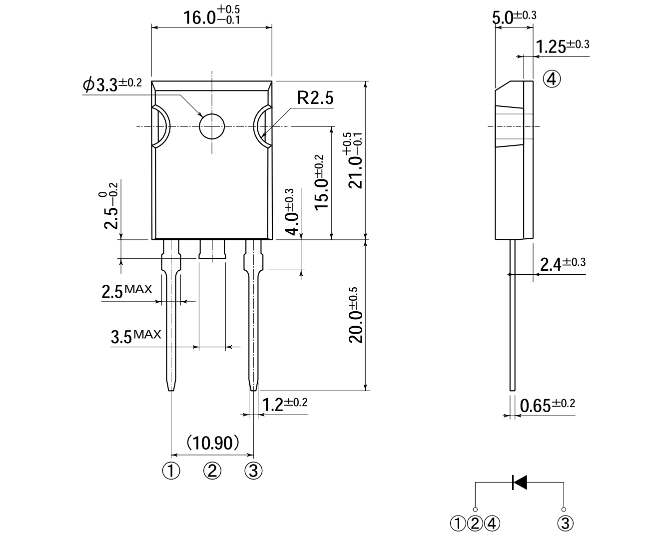
[Unit:mm]

[Unit:mm]

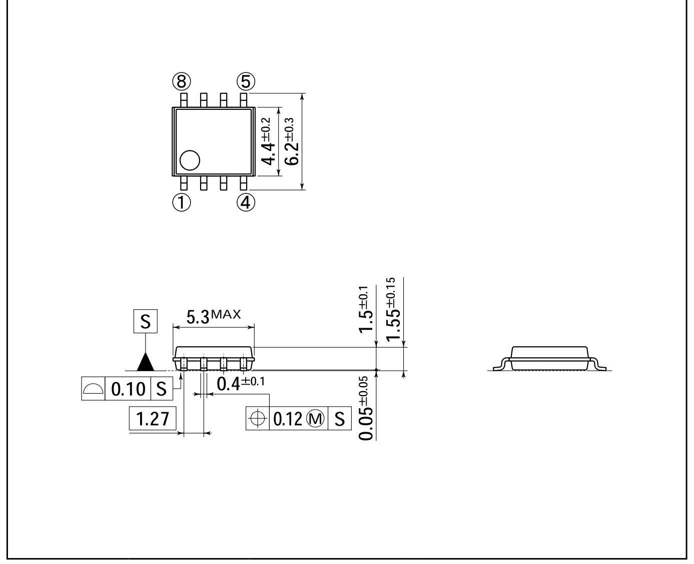
J9 Package: SC-91 FTO-220G(3pin)



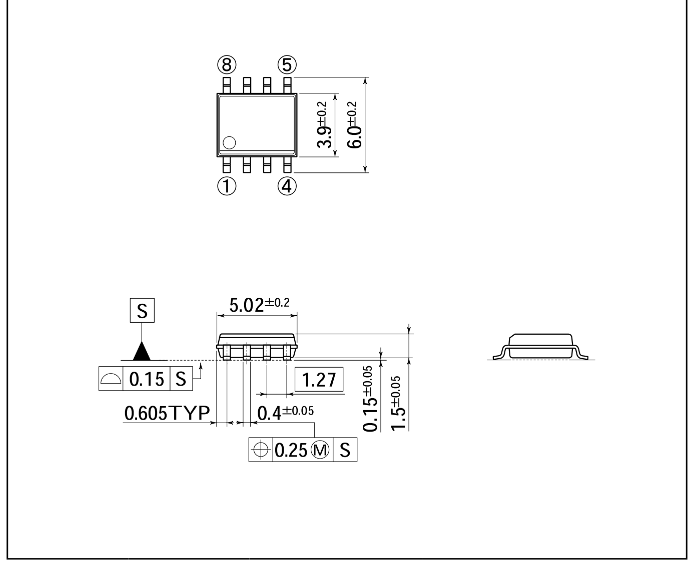
K2 Package: TO-247AD MTO-3PT(2pin)



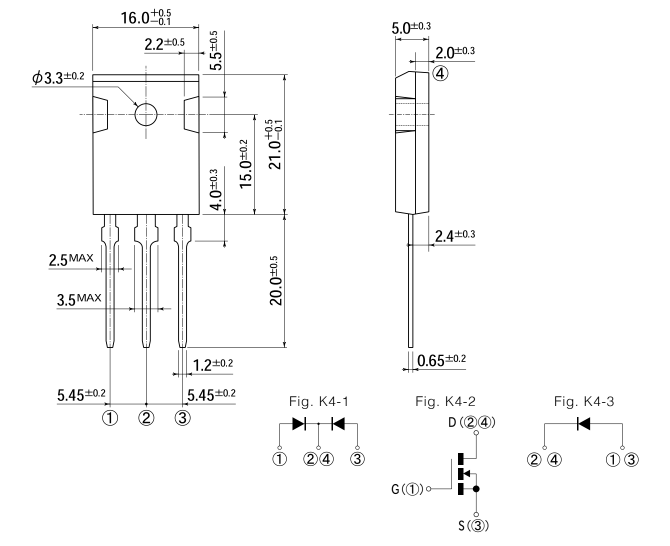
L1 Package: SOP8



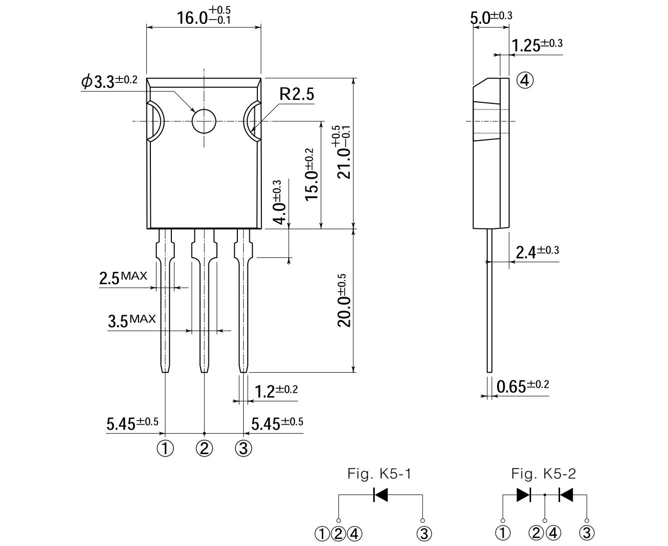
L2 Package: SOP8J



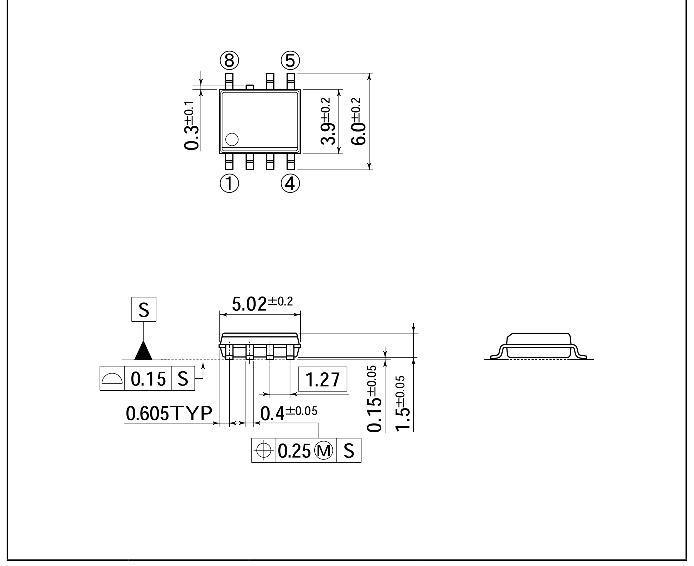
K4 Package: TO-247AD MTO-3P(3pin)



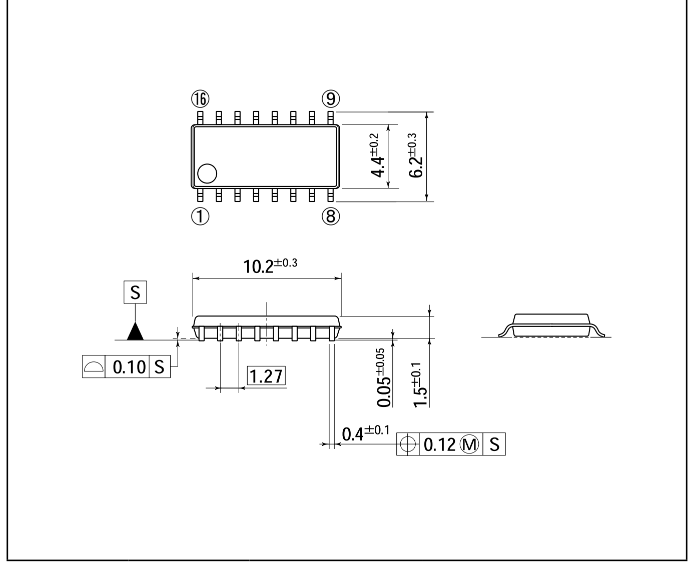
K5 Package: TO-247AD MTO-3PT(3pin)



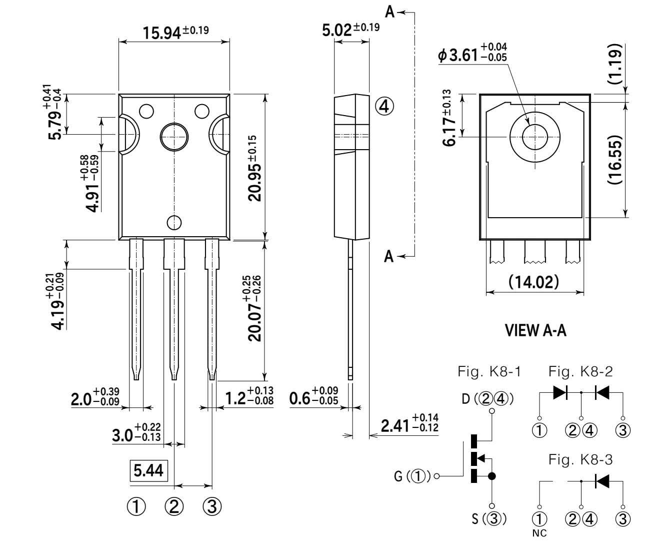
L3 Package: SOP8/7J



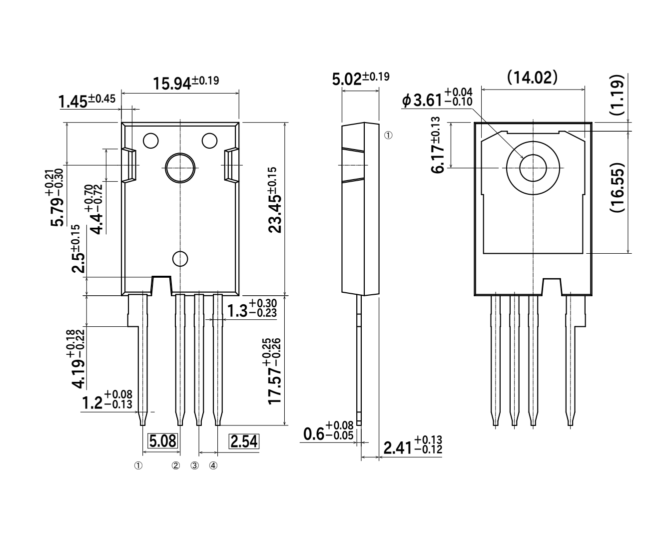
L5 Package: SOP16



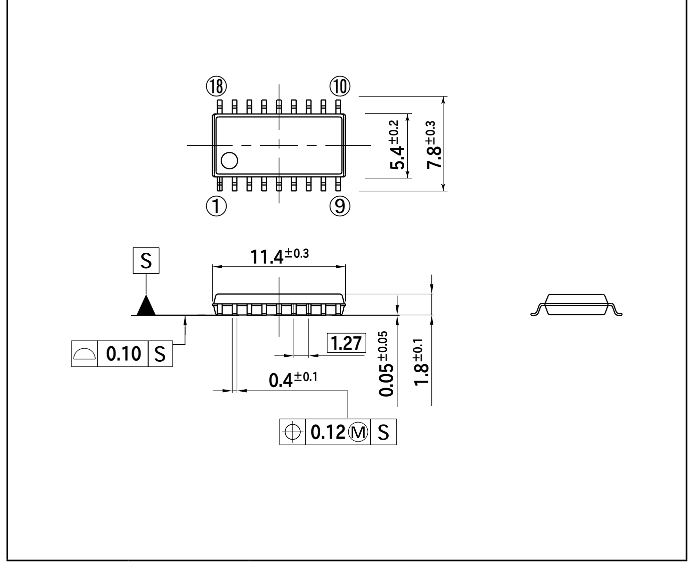
K8 Package: TO-247AD GC



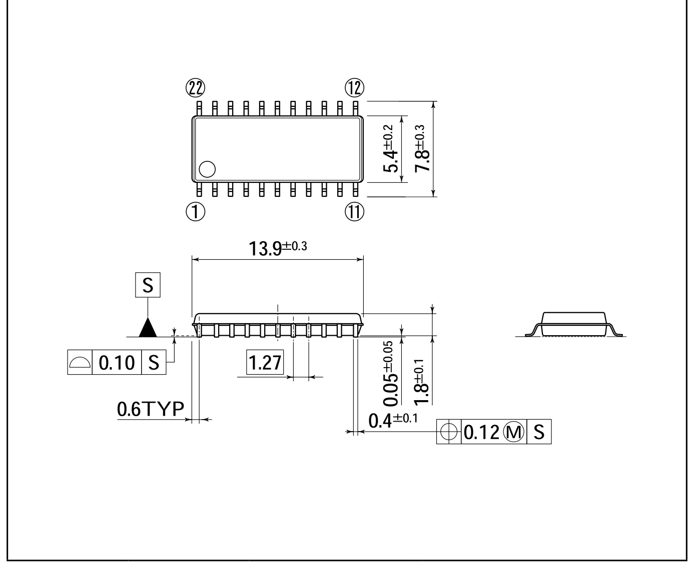
K9 Package: TO-247-4L GE [Kelvin Source]



L6 Package: SOP18



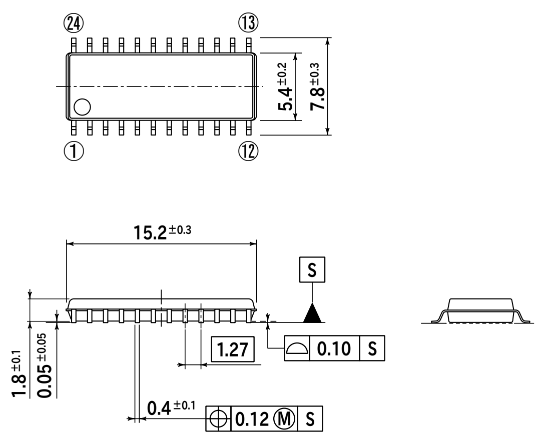
L7 Package: SOP22



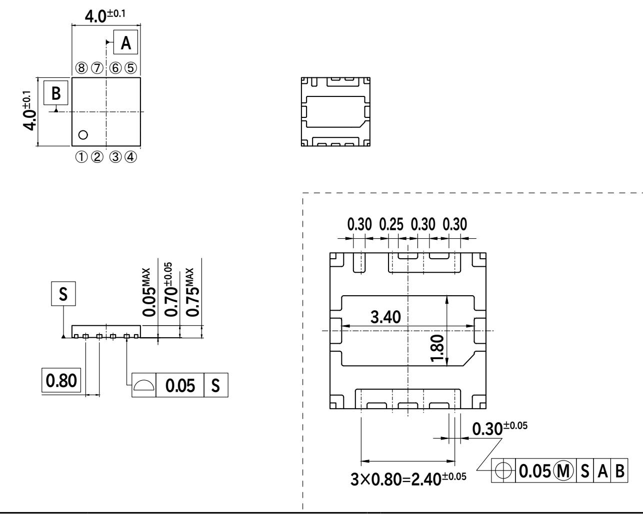
OUTLINE DIMENSIONS

[Unit:mm]

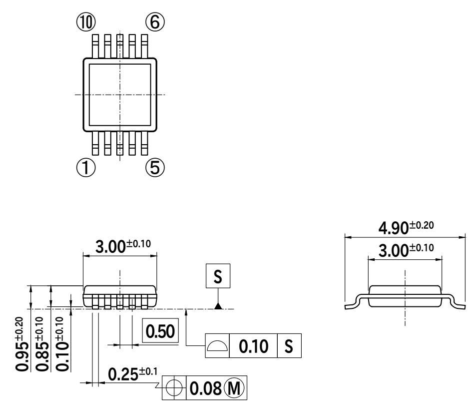
L8 Package: SOP24



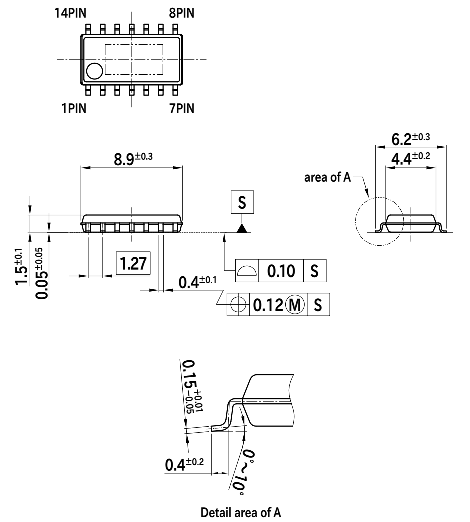
L9 Package: WSON8



L10 Package: TSSOP10

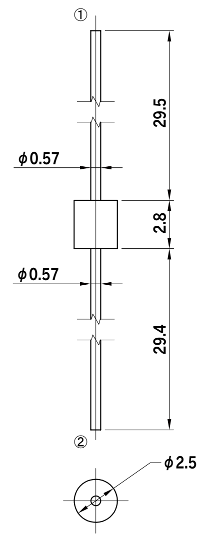


L11 Package: SOP14

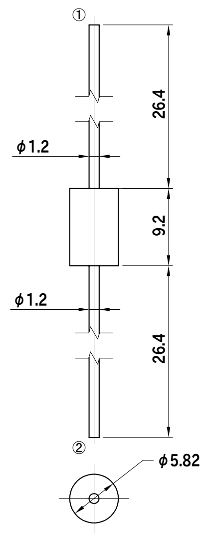


[Unit:mm]

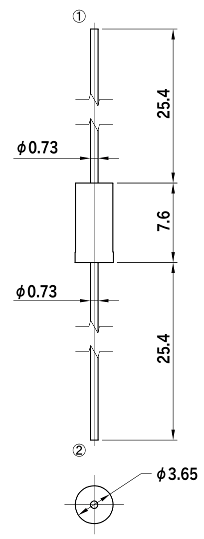
M1 Package: 3Max× ϕ 2.7 (DO-41S)



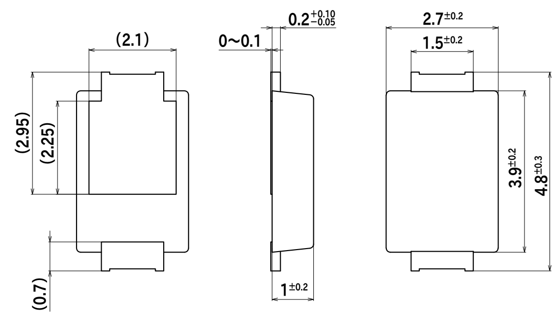
M15 Package: DO-201AD



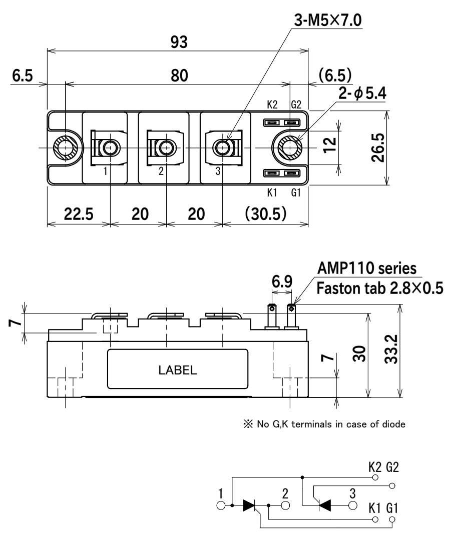
M16 Package: DO-204AC (DO-15)



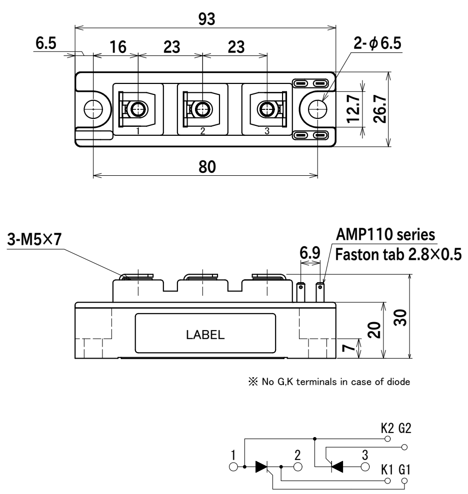
M17 Package: DO-221BC



M18 Package: E-2



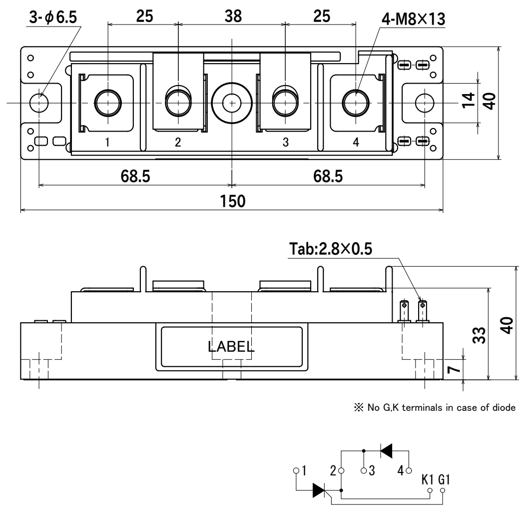
M19 Package: E-3



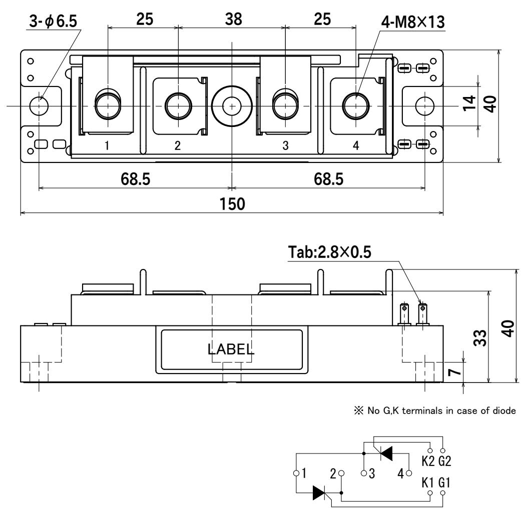
OUTLINE DIMENSIONS

[Unit:mm]

M20 Package: E-4

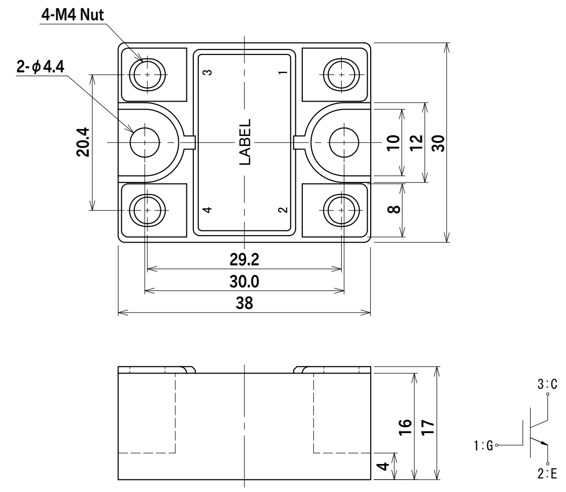


M21 Package: E-5

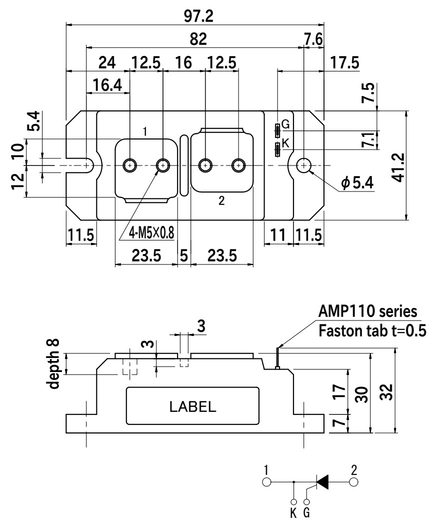


[Unit:mm]

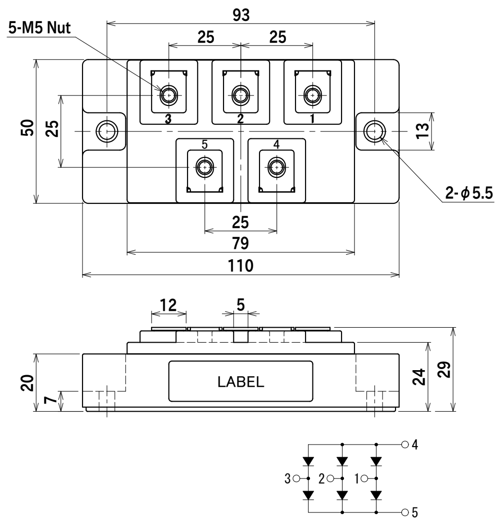
M26 Package: E-38



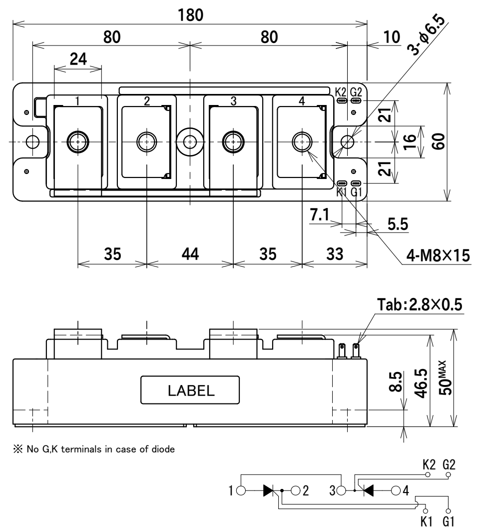
M27 Package: E-42



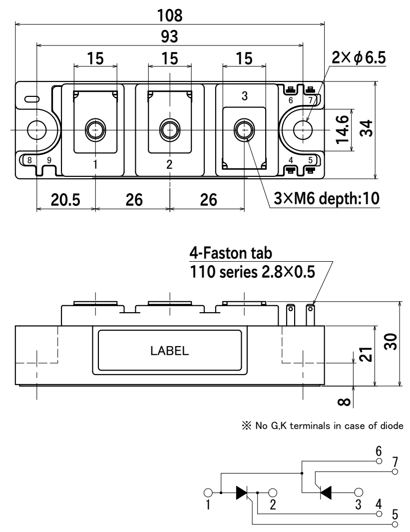
M22 Package: E-18



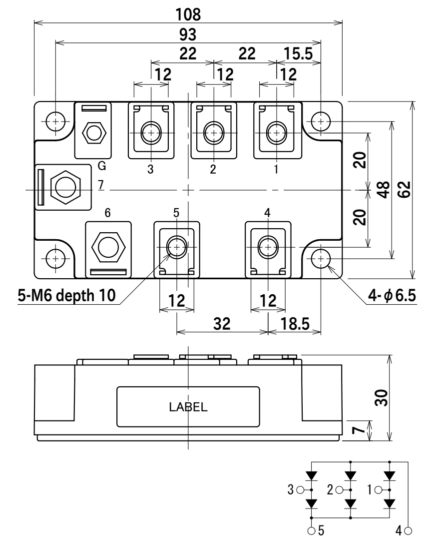
M23 Package: E-34



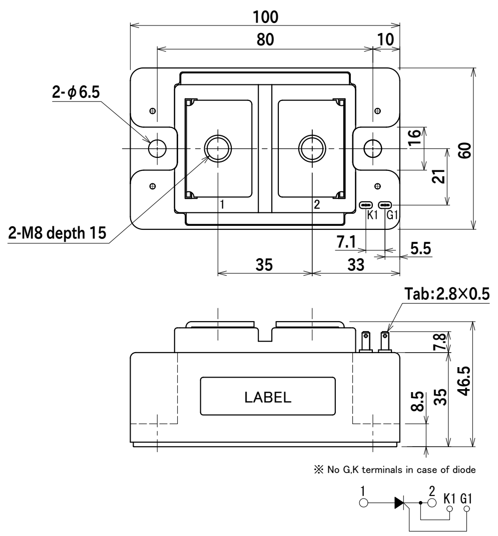
M28 Package: E-44



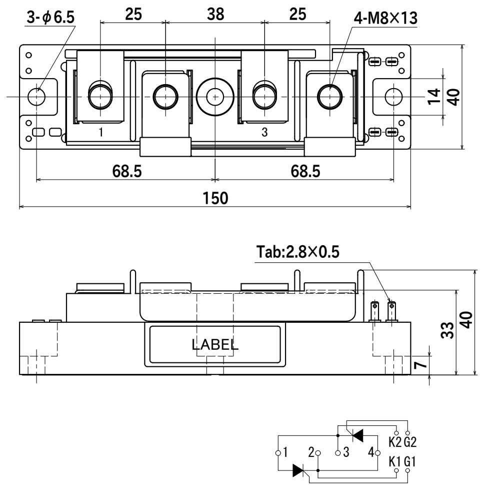
M29 Package: E-51



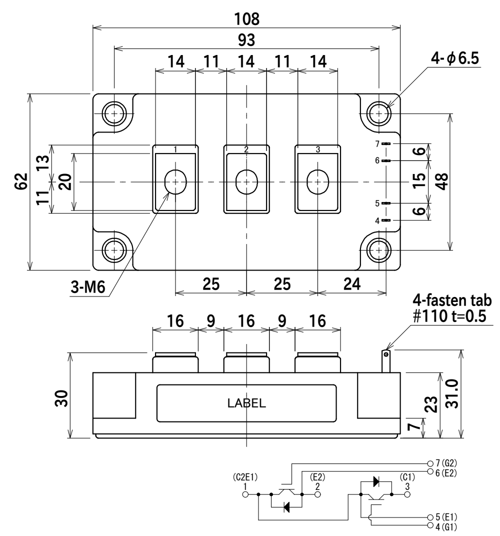
M24 Package: E-35



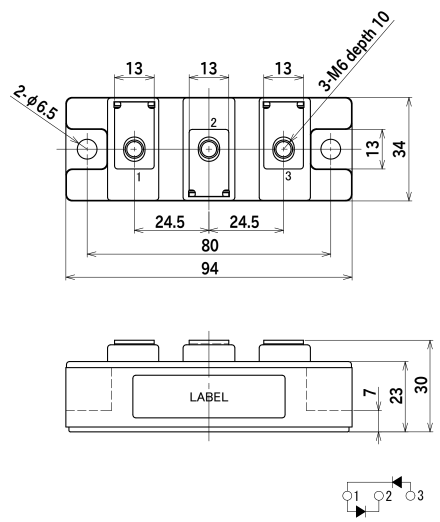
M25 Package: E-37



M30 Package: E-56



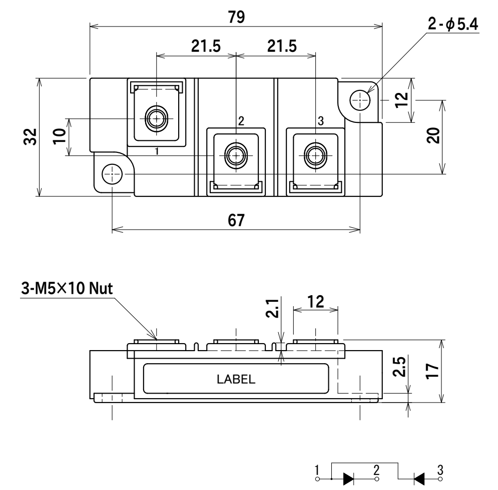
M31 Package: E-58



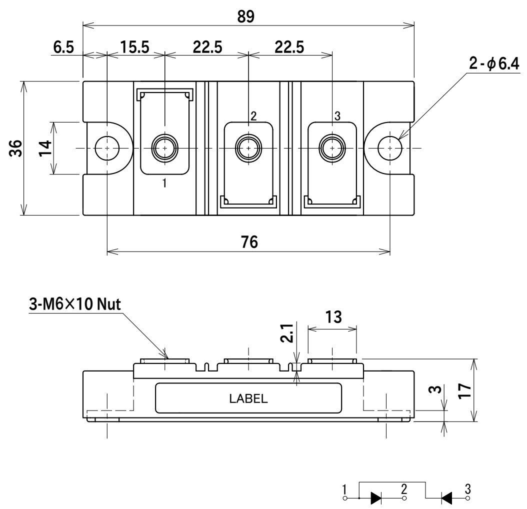
OUTLINE DIMENSIONS

[Unit:mm]

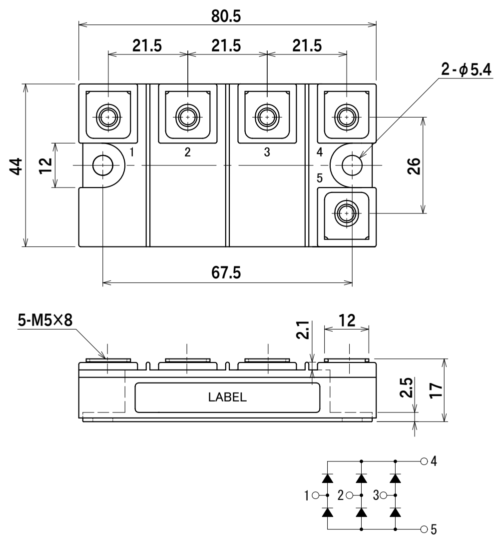
M32 Package: E-60



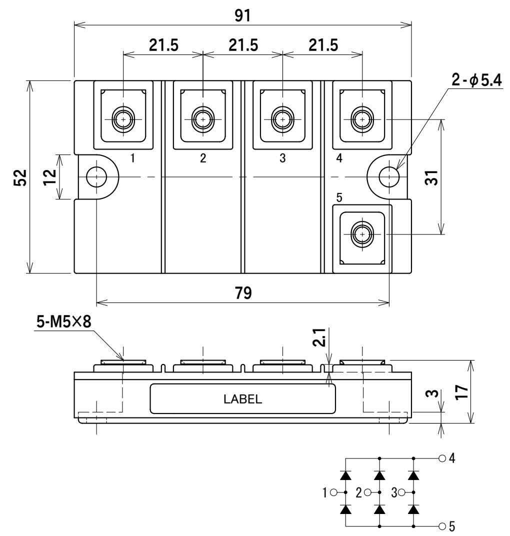
M33 Package: E-61



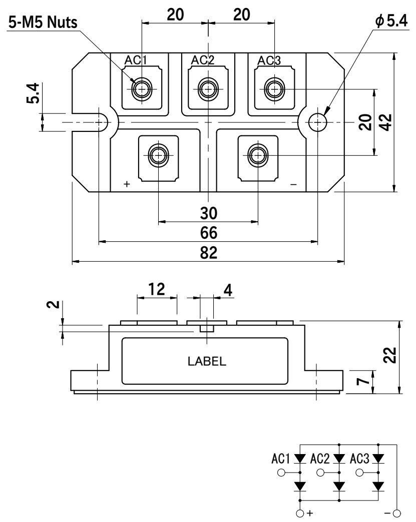
M34 Package: E-62



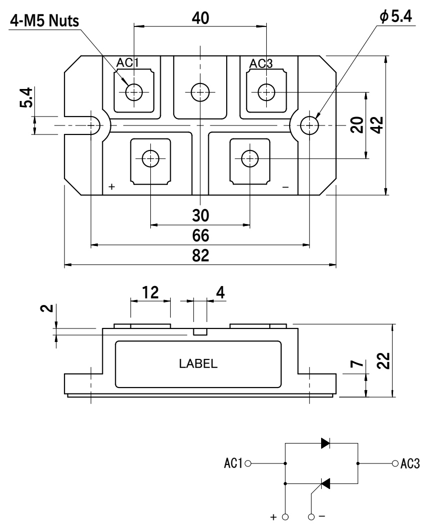
M35 Package: E-63



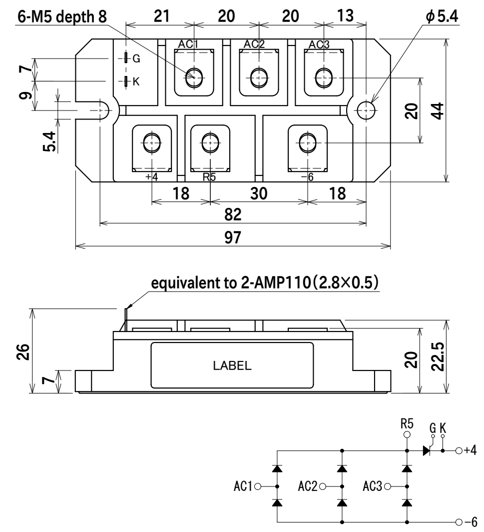
M36 Package: E-64



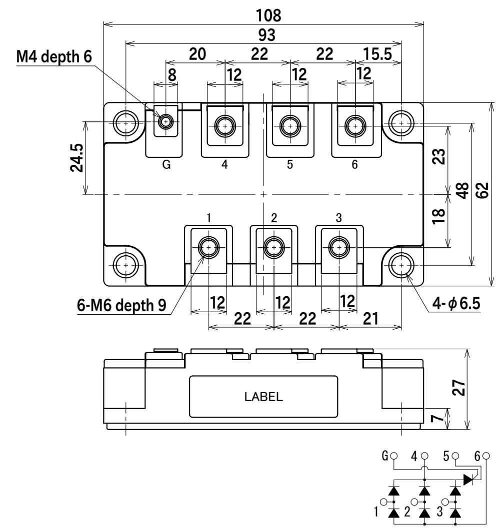
M37 Package: E-66



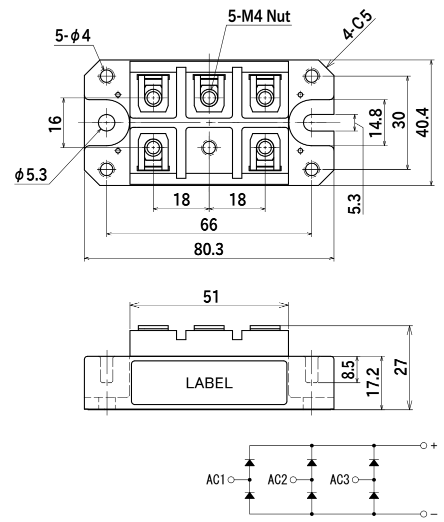
M38 Package: E-68



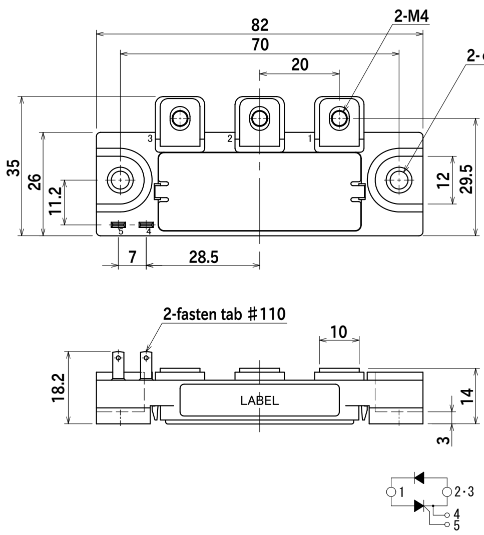
M39 Package: E-69



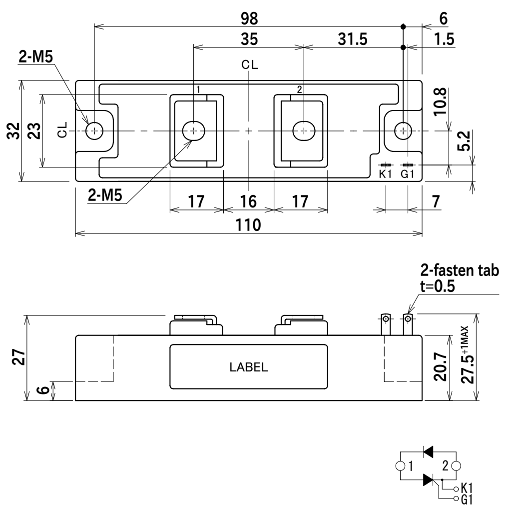
M40 Package: E-7



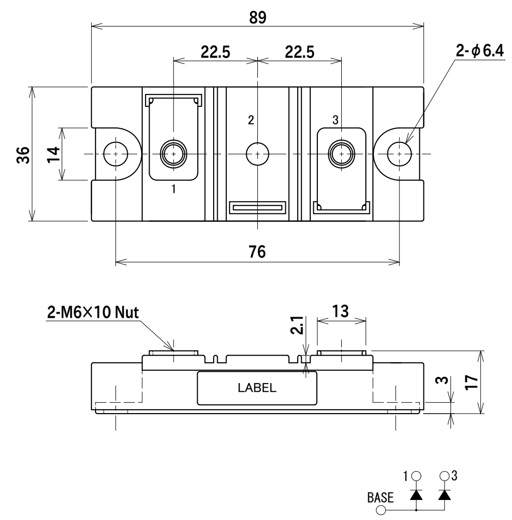
M41 Package: E-71



M42 Package: E-72



M43 Package: E-73

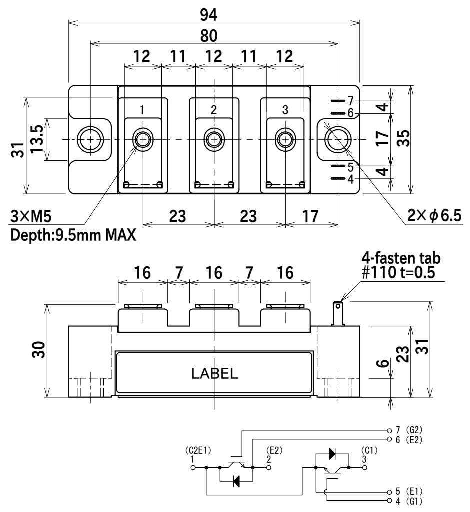


OUTLINE DIMENSIONS

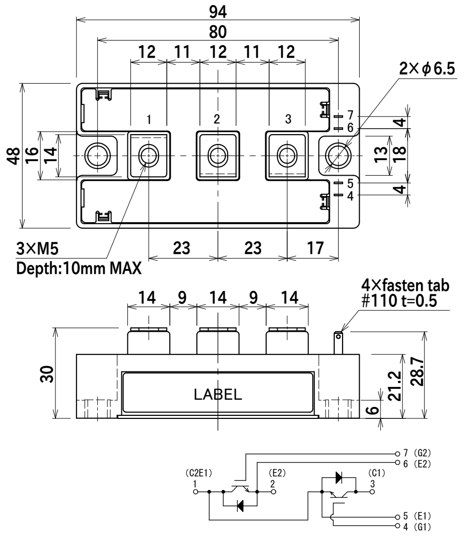
OUTLINE DIMENSIONS

[Unit:mm]

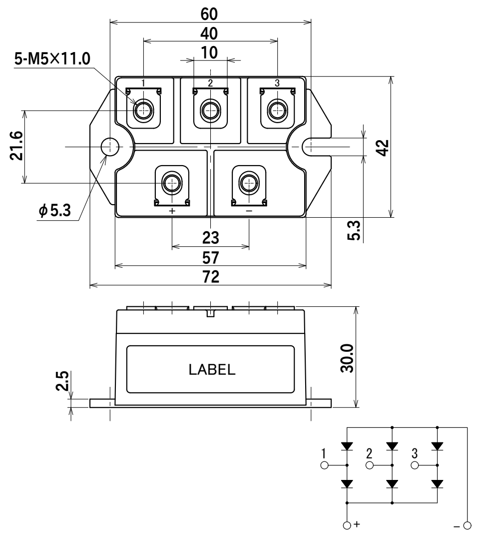
M44 Package: E-74



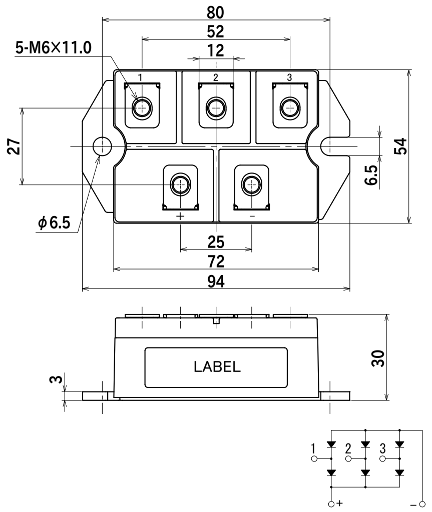
M45 Package: E-75



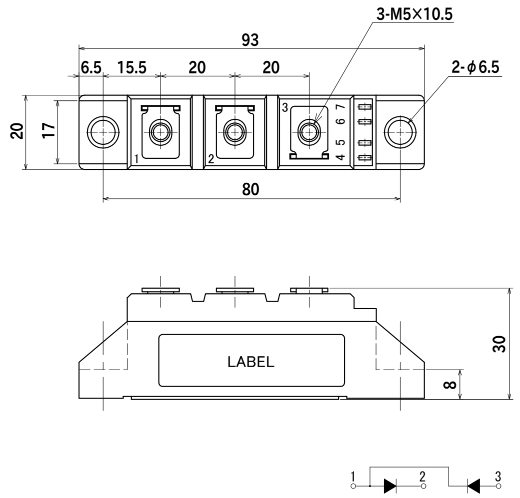
M46 Package: E-77



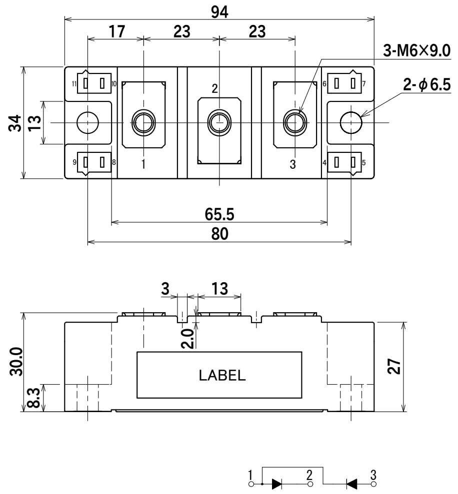
M47 Package: E-78



M48 Package: E-79

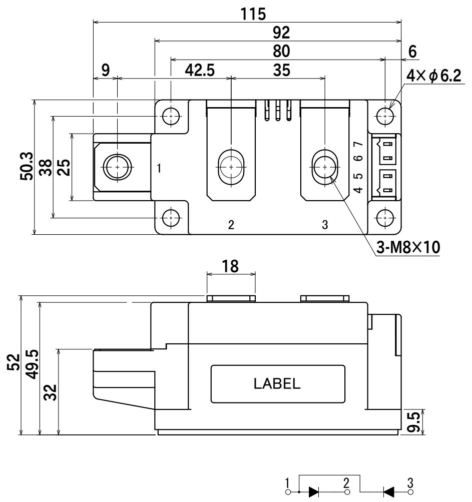


M49 Package: E-80

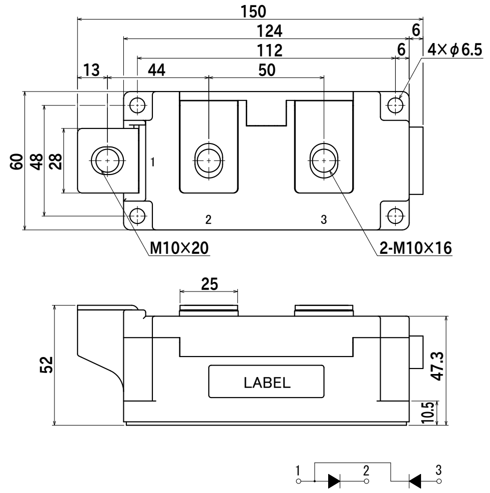


[Unit:mm]

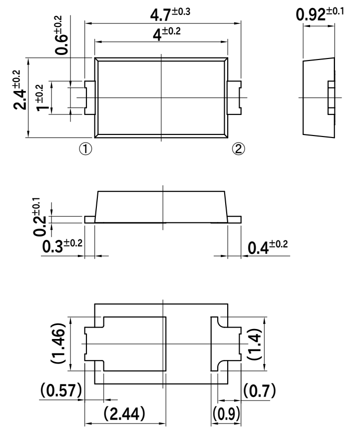
M50 Package: E-81



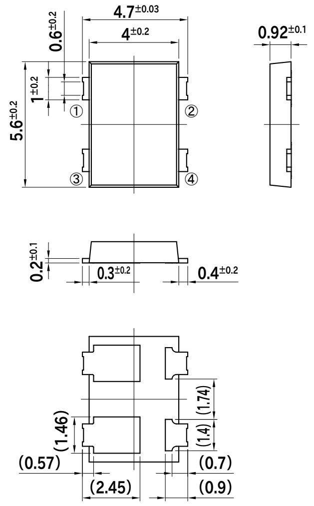
M51 Package: E-82



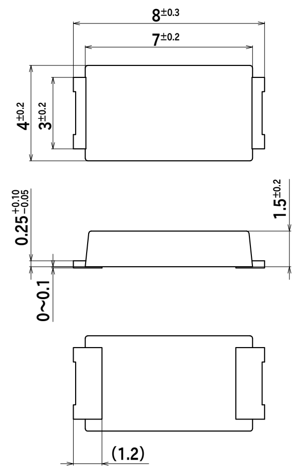
M52 Package: NA (DO-221BC)



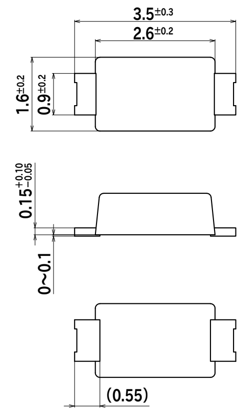
M53 Package: NB



M54 Package: nSMC_FL



M55 Package: SOD-123FL

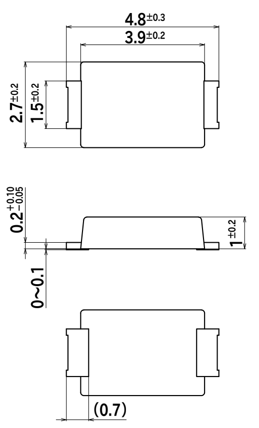


OUTLINE DIMENSIONS

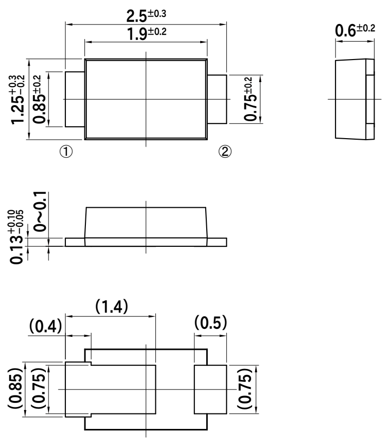
OUTLINE DIMENSIONS

[Unit:mm]

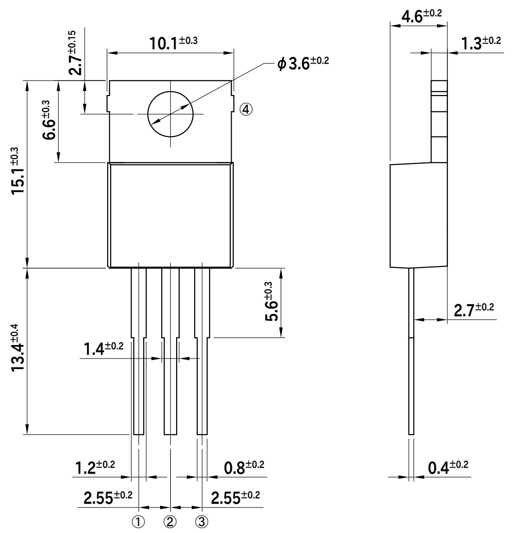
M56 Package: SOD-128



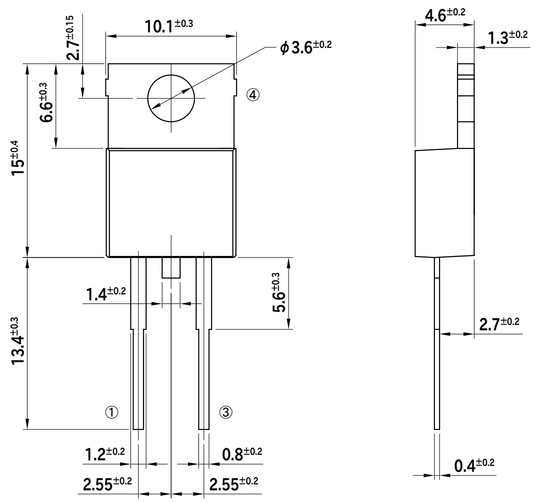
M57 Package: SOD-323FL



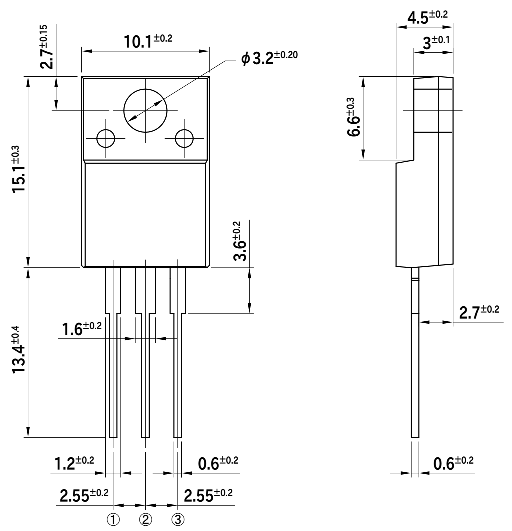
M58 Package: TO-220



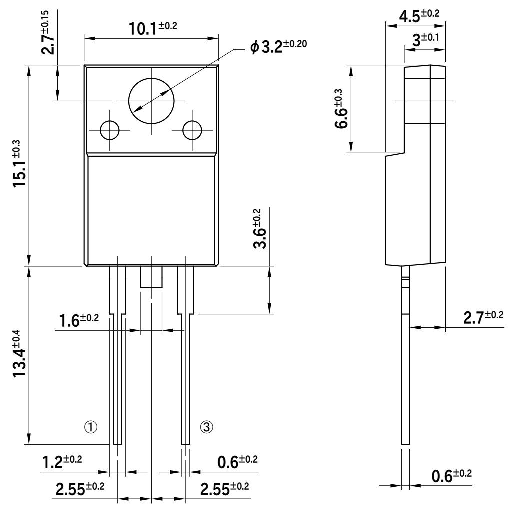
M59 Package: TO-220 2pin



M60 Package: TO-220 Full-Mold

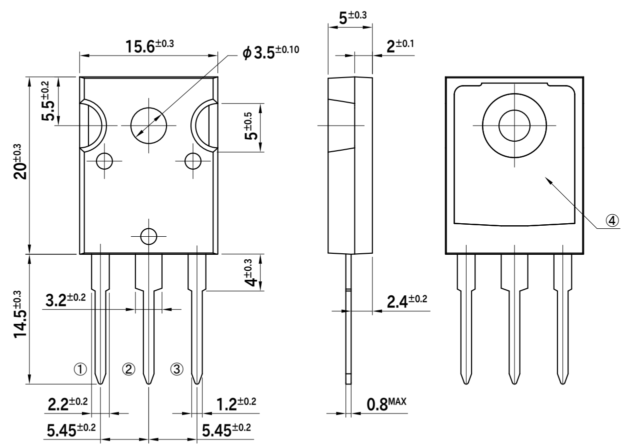


M61 Package: TO-220 Full-Mold 2pin

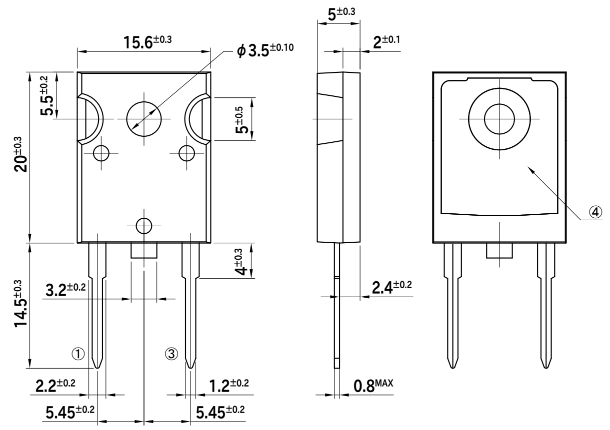


[Unit:mm]

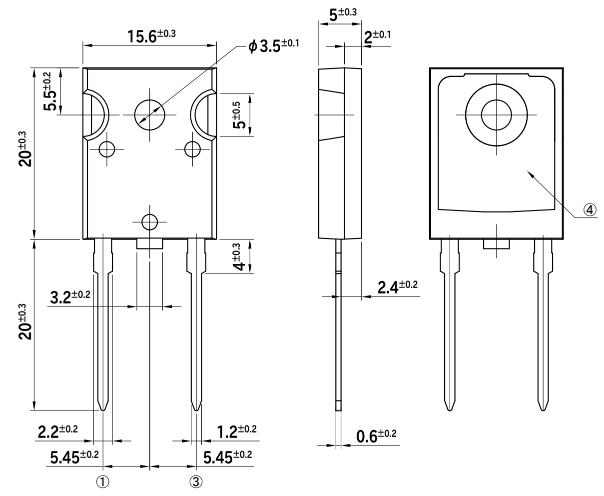
M62 Package: TO-247



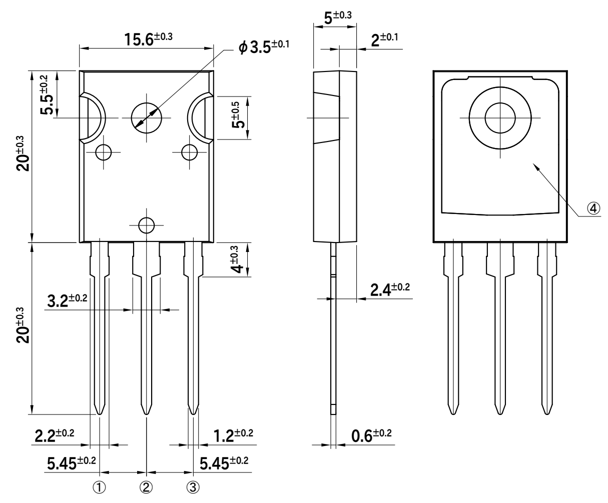
M63 Package: TO-247 2pin



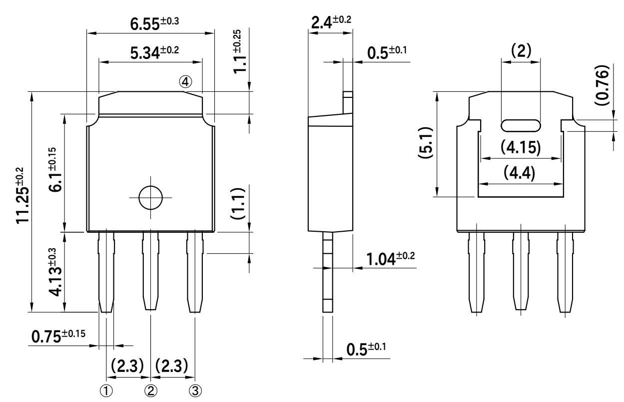
M64 Package: TO-247 2pin (long lead)



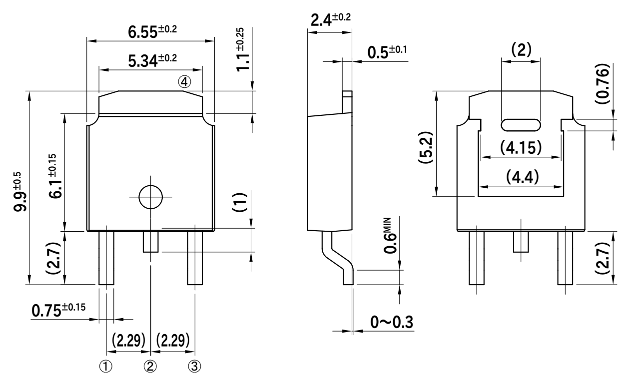
M65 Package: TO-247 (long lead)



M66 Package: TO-251



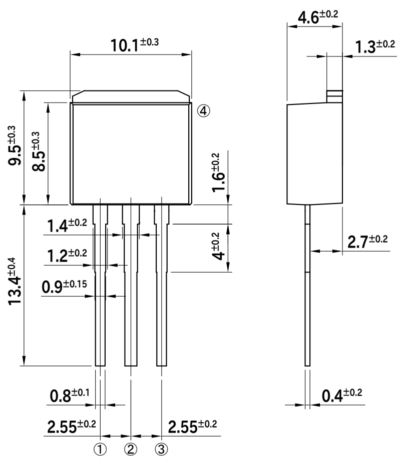
M67 Package: TO-252 (Dpak)



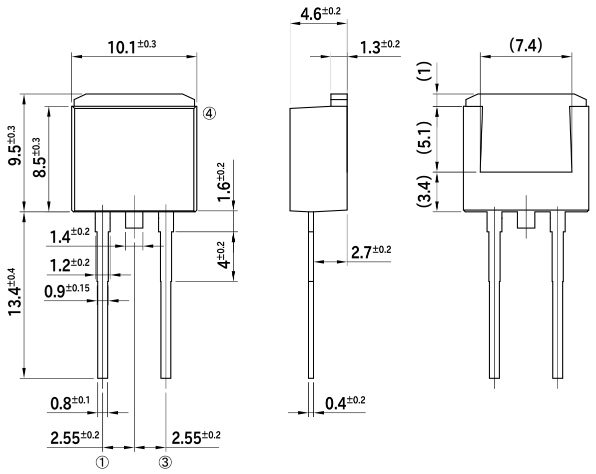
OUTLINE DIMENSIONS

[Unit:mm]

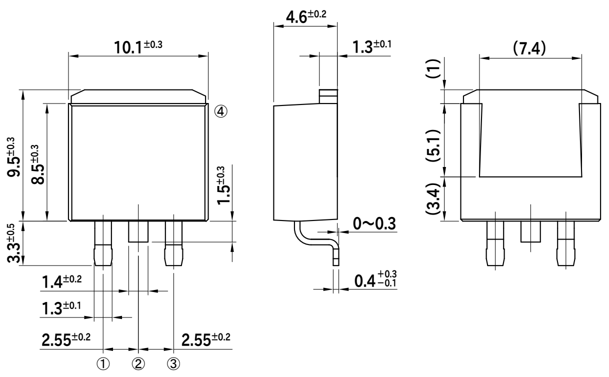
M68 Package: TO-262



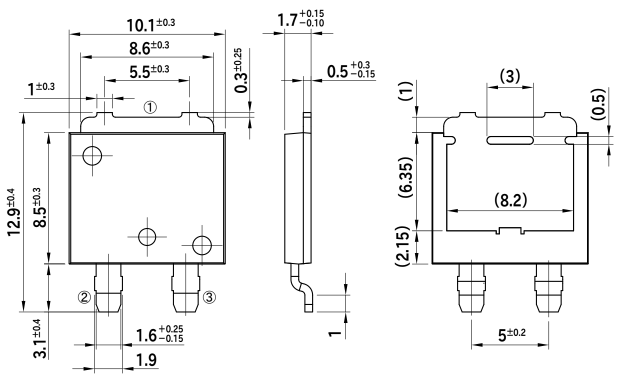
M69 Package: TO-262 2pin



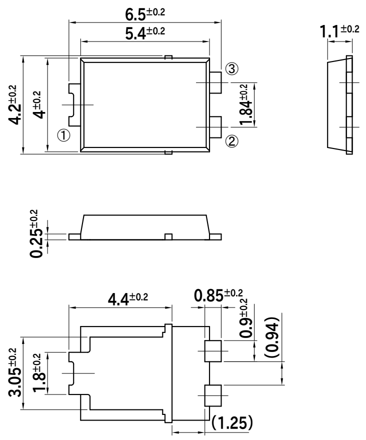
M70 Package: TO-263 (D2pak)



M71 Package: TO-263LP



M72 Package: TO-277



PACKING SPECIFICATION

Order Quantity & Packing Dimensions List

Please make your order: 'more than Inner Box Quantities' and 'a multiple of each Packing Unit'

Package										Inner Box		Standard Packing		Packing Box (mm)		
JEDEC Package Code	JEITA Code	House Name		Fig.	Spec Code	Terminal Plating	Weight (aprx.)	MSL	Circuit	Method	Quantity (Pcs./Box)	Pcs./Box	Weight (kg)	L	W	H
–	–	AX057	–	A1	-5060	Sn	190mg	–	Standard	Tape,Ammo-Pack 52mm	4,000	32,000	7.5	330	280	270
					-5070				Standard	Tape,Ammo-Pack 26mm	3,000	36,000	6.2	340	275	230
–	–	AX078	Diodes	A4	-5000	Sn	390mg	–		Bulk	200	16,000	7.9	480	355	230
					-5060				Standard	Tape,Ammo-Pack 52mm	2,000	16,000	7.5	325	325	260
					-5070					Tape,Ammo-Pack 26mm	1,500	18,000	7.2	325	325	260
–	–	AX10	Diodes	A5 A6	-5000	Sn	640mg	–		Bulk	200	16,000	11.1	480	355	230
					-5060				Standard	Tape,Ammo-Pack 52mm	1,200	9,600	7.3	325	325	260
					-5061					Tape&Reel,Diameter 300 ϕ 52mm	2,500	12,500	10.8	325	325	420
–	–	AX14	–	A7	-5000	Sn	1.1g	–		Bulk	200	16,000	17.5	480	355	230
					-5060				Standard	Tape,Ammo-Pack 52mm	1,200	9,600	11.2	325	325	260
					-5061					Tape&Reel,Diameter 300 ϕ 52mm	2,500	10,000	13.0	350	355	350
DO-219AB similar	SC-109	G1F	SMD	B1	-5063R	Sn	12mg	1		Tape&Reel,Diameter 180 ϕ	24,000	48,000	1.6	180	205	210
DO-219AA similar	–	M1F	SMD	B2	-6063	Sn	25mg	1		Tape&Reel,Diameter 180 ϕ	15,000	75,000	4.5	405	210	220
DO-214AC	–	1F CF	SMD	B3 B4	–	Sn	60mg	1		Magazine	100	15,000	2.3	545	145	110
					-5053				Standard	Tape&Reel,Diameter 180 ϕ	8,000	40,000	4.1	340	195	205
					-5073					Tape&Reel,Diameter 330 ϕ	45,000	90,000	10.8	395	245	395
–	SC-110B	CE	SMD	B5	-5063R	Sn	30mg			Tape&Reel,Diameter 180 ϕ	12,000	24,000	1.6	180	205	210
DO-214AA similar	–	M2F	SMD	B6 B7 B8	-5063	Sn	75mg	1	Standard	Tape&Reel,Diameter 180 ϕ	4,000	20,000	3.4	340	195	205
					-5073					Tape&Reel,Diameter 330 ϕ	4,000	48,000	8.6	395	245	395
–	–	2F	SMD	B9 B10 B11	–	Sn	180mg	1		Magazine	60	18,000	5.2	545	145	110
					-5063				Standard	Tape&Reel,Diameter 180 ϕ	3,000	15,000	4.2	340	195	205
					-5073					Tape&Reel,Diameter 330 ϕ	3,000	36,000	9.2	395	245	395
–	–	CG	SMD	B12	-5063	Sn	180mg	1		Tape&Reel,Diameter 180 ϕ	6,000	6,000	1.7	180	205	210
												12,000	3.4	265	205	210
												15,000	4.2	340	195	205
DO-214AB	–	CH	SMD	B13	-5073	Sn	0.25g	1	Standard	Tape&Reel,Diameter 330 ϕ	6,000	30,000	13	360	360	245
–	–	SOPA-4	SMD	C1	-7062	Sn-Bi	90mg	1		Tape&Reel,Diameter 180 ϕ	1,000	20,000	3.6	340	195	205
–	–	1N	SMD	C4	–	Sn-Bi	290mg	1		Magazine	70	5,600	4.1	545	145	100
					-7062					Tape&Reel,Diameter 250 ϕ	1,000	10,000	5.5	275	285	295
			THD	C5	-7101	Sn-Bi		1		Magazine	70	5,600	4.1	545	145	100
–	–	1NA	SMD	C6	–	Sn-Bi	290mg	1		Magazine	70	5,600	4.1	545	145	100
					-7062				Standard	Tape&Reel,Diameter 250 ϕ	1,000	10,000	5.5	275	285	295
			THD	C7	-7101					Magazine	70	5,600	4.1	545	145	100
–	–	3S	THD	D3	-7000	Sn-Bi	3.9-4.5g	–		Bulk	250	2,000	9.5	310	285	196
–	–	5S	THD	D4	-7000	Sn-Bi	6.3-7.5g	–		Bulk	250	2,000	14.5	330	330	215
–	–	TSB	THD (4pin) THD (5pin)	D7 D8	-7000	Sn-Bi	20g	–		Bulk	100	400	9.8	351	269	164
–	–	JC	THD (4pin) THD (5pin)	D7 D8	-7500	Sn-Bi	20g	–		Tray	40	200	5.6	503	356	135
–	–	JF	THD	D9	-7500	Sn-Bi	25g	–		Tray	40	200	5.6	503	356	135
–	–	JH	THD	D10	-7501	Sn-Bi	31g	–		Tray	40	200	5.6	503	356	135
–	–	D6K	THD	D11	-7000	Sn-Bi	4g	–		Bulk	500	2,000	8.0	260	220	222
–	–	JK	THD	D12	-7501	–	17.2g	–		Tray	40	200	4.2	503	356	135
–	–	MCP	SMD	E1	-4062	Ni	1.9g	1		Tape&Reel,Diameter 255 ϕ	300	1,500	5.0	280	275	190
					-4072				Standard	Tape&Reel,Diameter 330 ϕ	600	1,800	5.5	335	345	110
–	–	D30VC	THD	E2	-4000	Ag	12g	–		Tray	100	500	7.0	375	285	160
–	–	S2VB	THD	E3	-5000	Sn-Ag-Cu	3.0g	–		Tray	100	1,000	3.6	265	255	170
–	–	S4VB	THD	E4	-5000	Sn-Ag-Cu	5.2g	–		Tray	100	1,000	5.9	315	285	220
–	–	S5VB	THD	E5	-5000	Sn-Ag-Cu	9.1g	–		Tray	100	1,000	10.4	415	285	300
–	–	S10VB	THD	E6	-5000	Sn-Ag-Cu	8.0g	–		Tray	100	1,000	9.3	375	285	270
–	–	S15VB	THD	E7	-4000	Ag	16g	–		Tray	100	500	9.0	415	285	180
–	–	S25VB	THD	E8	-4000	Ag	21g	–		Bulk	60	300	7.0	335	205	165
–	–	S50VB	THD	E9	-4000	Ag	28g	–		Tray	50	200	6.2	335	205	165

Exterior packaging is an example.Depending on the quantity ordered, the number of incoming, outline and weight may change.

Package										Inner Box		Standard Packing		Packing Box (mm)		
JEDEC Package Code	JEITA Code	House Name		Fig.	Spec Code	Terminal Plating	Weight (aprx.)	MSL	Circuit	Method	Quantity (Pcs./Box)	Pcs./Box	Weight (kg)	L	W	H
–	–	S3WB	THD	E10	-5000	Sn-Ag-Cu	5.1g	–		Tray	100	1,000	6.1	315	285	220
–	–	S10WB	THD	E11	-5000	Sn-Ag-Cu	9.0g	–		Tray	100	1,000	9.3	375	285	270
–	–	S15WB	THD	E12	-5000	Sn-Ag-Cu	16g	–		Tray	100	1,000	15.1	415	285	300
–	–	S20WB	THD	E13	-5000	Sn-Ag-Cu	20g	–		Tray	100	700	15.0	415	285	300
–	–	SVTA	THD	E14	-5000	Sn-Ag-Cu	30g	–		Tray	50	250	8.7	460	295	240
–	–	SVT	THD	E15	-4000	Ag	31g	–		Bulk	200	200	13.6	335	205	165
–	–	Module	–	F1 F2 F3	-4000	Ni	42-66g	–		Tray	100	200	13.4	480	330	210
–	–	MG001	THD	F4	-7101	Sn-Bi	10g	–		Magazine	15	450	7.1	623	232	144
–	–	MG031	THD	F5	-7101	Sn-Bi	7.7g	–		Magazine	12	600	8.5	573	281	127
–	–	MG032	–	F6	-4500	Ni	340g	–		Tray	24	24	8.0	610	315	140
–	–	MG038	–	F7	-4500	Ni	180g	–		Tray	40	40	9.0	425	360	155
–	–	MG048	THD	F8	-7101	Sn-Bi	■	–		Magazine	9	108	4.9	533	244	130
–	–	MG060	–	F9	-4500	Ni	–	–		Tray	40	40	9.0	425	360	155
–	–	MG061	–	F10	-4500	Ni	–	–		Tray	40	40	11.0	425	360	155
–	–	MG073	–	F12	–	Ni	85g	–		Tray	–	–	–	–	–	–
–	–	MG074	–	F13	■	■	■	■	–	■	■	■	■	■	■	■
–	SC-63	E-pack	Only DE5VE40	G1	–	Sn	310mg	1		Magazine	80	10,000	6.9	560	130	109
					-5061				Standard	Tape&Reel,Diameter 250 ϕ	1,500	6,000	2.9	260	260	99
					-5071					Tape&Reel,Diameter 330 ϕ	3,000	12,000	5.5	335	335	99
			Other		–	Sn-Bi		1		Magazine	80	10,000	6.9	560	130	109
					-7061				Standard	Tape&Reel,Diameter 250 ϕ	1,500	6,000	2.9	260	260	99
					-7071					Tape&Reel,Diameter 330 ϕ	3,000	12,000	5.5	335	335	99
TO-252AA	–	FB	SMD	G2	-5071	Sn	320mg	1	Standard	Tape&Reel,Diameter 330 ϕ	6,000	36,000	18.2	380	365	390
TO-252AB similar	SC-63	FE	SMD	G3	-5061	Sn	320mg	1	Only Di	Tape&Reel,Diameter 254 ϕ	1,500	6,000	2.9	260	260	99
					-5071				Standard (Di,MOS)	Tape&Reel,Diameter 330 ϕ	3,000	12,000	5.5	335	335	99
TO-277A similar	–	FY	SMD	G4	-5063R	Sn	110mg	1		Tape&Reel,Diameter 180 ϕ	6,000	30,000	5.0	405	210	220
TO-252AA similar	–	FR	SMD	G5	-5071	Sn	350mg	1		Tape&Reel,Diameter 330 ϕ	3,000	12,000	6.3	348	348	122
–	–	LA	SMD	G6	-5070	Sn	100mg	1		Tape&Reel,Diameter 330 ϕ	3,000	12,000	3.0	350	350	135
MO-235B similar	–	LF	SMD	G7	-5071	Sn	100mg	1		Tape&Reel,Diameter 330 ϕ	10,000	50,000	11.6	385	370	238
MO-235B	–	LF_Dual	SMD	G8	-5071	Sn	100mg	1		Tape&Reel,Diameter 330 ϕ	10,000	50,000	11.6	385	370	238
MO-299B	–	LG	SMD	G9 G10	-5070	Sn	0.8g	1		Tape&Reel,Diameter 330 ϕ	2,000	12,000	14.5	365	380	390
–	SC-83 similar	STO-220	SMD	H1	–	Sn-Bi	1.4g	1		Magazine	50	4,500	9.5	555	145	110
					-7072				Standard	Tape&Reel,Diameter 330 ϕ	1,000	3,000	6.0	336	336	119
–	SC-83 similar	FD	SMD	H2	-5072	Sn	1.5g	1		Tape&Reel,Diameter 330 ϕ	1,000	3,000	6.0	336	336	119
TO-263AB	–	FZ	SMD	H6	-5071	Sn	1.5g	–		Tape&Reel,Diameter 330 ϕ	1,000	3,000	7.0	375	360	165
TO-263SC	–	FZ-7p	SMD	H7	-5071	Sn	1.5g	–		Tape&Reel,Diameter 330 ϕ	1,000	3,000	7.0	375	360	165
–	SC-91A	FTO-220	THD	J1 J6	-7600	Sn-Bi	1.9g	–		Bulk	2,000	4,000	8.3	365	220	335
–	SC-91	FTO-220A	THD	J2 J7	-5600	Sn-Bi	1.9g	–	Diodes	Bulk	2,000	4,000	8.3	365	220	335
					-7600	Sn-Bi	1.9g	–	MOS FET	Bulk	2,000	4,000	8.3	365	220	335
–	SC-91	FTO-220AG	THD	J3 J8	-5600	Sn	1.6g	–		Bulk	2,000	4,000	8.3	365	220	335
–	SC-91	FTO-220G	THD	J4 J9	-5600	Sn	1.6g	–		Bulk	2,000	4,000	8.3	365	220	335
TO-247AD	–	MTO-3PT	THD	K2 K5	-5000	Sn	5.1g	–		Bulk	500	1,000	6.8	351	176	123
TO-247AD	–	GC	THD	K8	-5100	Sn	6.3g	–		Magazine	600	1,200	11.0	560	220	135
–	–	SOP8	SMD	L1	-7062	Sn-Bi	90mg	1		Tape&Reel,Diameter 180 ϕ	1,000	10,000	2.5	300	265	220
–	–	SOP8J	SMD	L2	-5072	Sn	80mg	1		Tape&Reel,Diameter 330 ϕ	3,000	9,000	2.6	380	380	150
–	–	SOP8/7J	SMD	L3	-5072	Sn	80mg	1		Tape&Reel,Diameter 330 ϕ	3,000	9,000	2.6	380	380	150
–	–	SOP16	SMD	L5	-3072	Sn-Ag	150mg	1		Tape&Reel,Diameter 330 ϕ	2,000	6,000	3.7	380	380	150
–	–	SOP18	SMD	L6	-3072	Sn-Ag	260mg	3		Tape&Reel,Diameter 330 ϕ	2,000	6,000	4.3	380	380	150
–	–	SOP22	SMD	L7	-3072	Sn-Ag	320mg	1		Tape&Reel,Diameter 330 ϕ	2,000	6,000	4.3	380	380	150
–	–	SOP24	SMD	L8	-3072	Sn-Ag	320mg	1		Tape&Reel,Diameter 330 ϕ	2,000	6,000	4.3	380	380	150
–	–	WSON8	SMD	L9	-3070	Ni-Pd-Au	34mg	1		Tape&Reel,Diameter 330 ϕ	5,000	25,000	5.15	385	370	238
–	–	TSSOP10	SMD	L10	-5072	Sn	23mg	3		Tape&Reel,Diameter 330 ϕ	3,000	9,000	2.4	362	362	160
–	–	SOP14	SMD	L11	-3072	Sn-Ag	0.13g	1		Tape&Reel,Diameter 127 ϕ	2,000	6,000	3.4	380	380	150

■ : Please contact us.

NOTES

How to Order

1. Indication of Spec. Code when ordering

Please specify the Spec. Code when ordering semiconductors.
For the Spec. Code, Please refer to as follows and "PACKING SPECIFICATION".

Example Ordering M1F60
M1F60-6063

2. Spec Code

The code specifies each packing form, lead forming and terminal plate material.
Please refer to "PACKING SPECIFICATION".

Example 5 0 0 0

Terminal forming
- 0 : Straight terminal
- 1 to 9 : Each number shows type of form

Packing form
- 0 : Standard

In case of surface mounting devices
- 5, 6 : Small reel
- 7 : Large reel

In case of axial device
- 6 : Lead length 52mm (T52)
- 7 : Lead length 26mm (T26)

Minimum packing unit
- 0 : Bulk, tray or taping
- 1 : Magazine
- 5 : Tray
- 6 : Packed (FTO-220 Package)

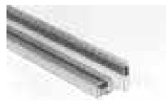
Terminal plate material
- 3 : Ni/Pd/Au, Sn-Ag
- 4 : Ni, Ag
- 5 : Sn-Ag-Cu, Sn, Ag, Sn-Cu
- 6 : Sn
- 7 : Sn-Bi

Outline of Packing Form

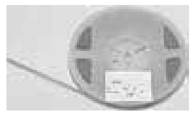
1. Minimum packing unit

- Bulk : The form in which parts are inserted into plastic bags or cardboard boxes.
- Tray : The form in which parts are inserted in to containers made of resin.

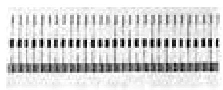
- Magazine : The form in which parts are inserted into resin cartridges designated for automatic inserters.



- Taping
  - Reel (Surface mounting devices)

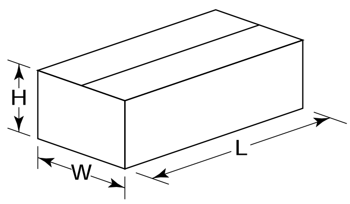


  - Box (Axial devices)



2. Packing Box Dimensions

See the following pages for the dimensions of each cardboard box.



About AEC-Q101 & Automotive Grade

1. AEC-Q101

These products are based on AEC-Q101.

2. Automotive Grade

These products are produced on a designated production line qualified for internal automotive standards.

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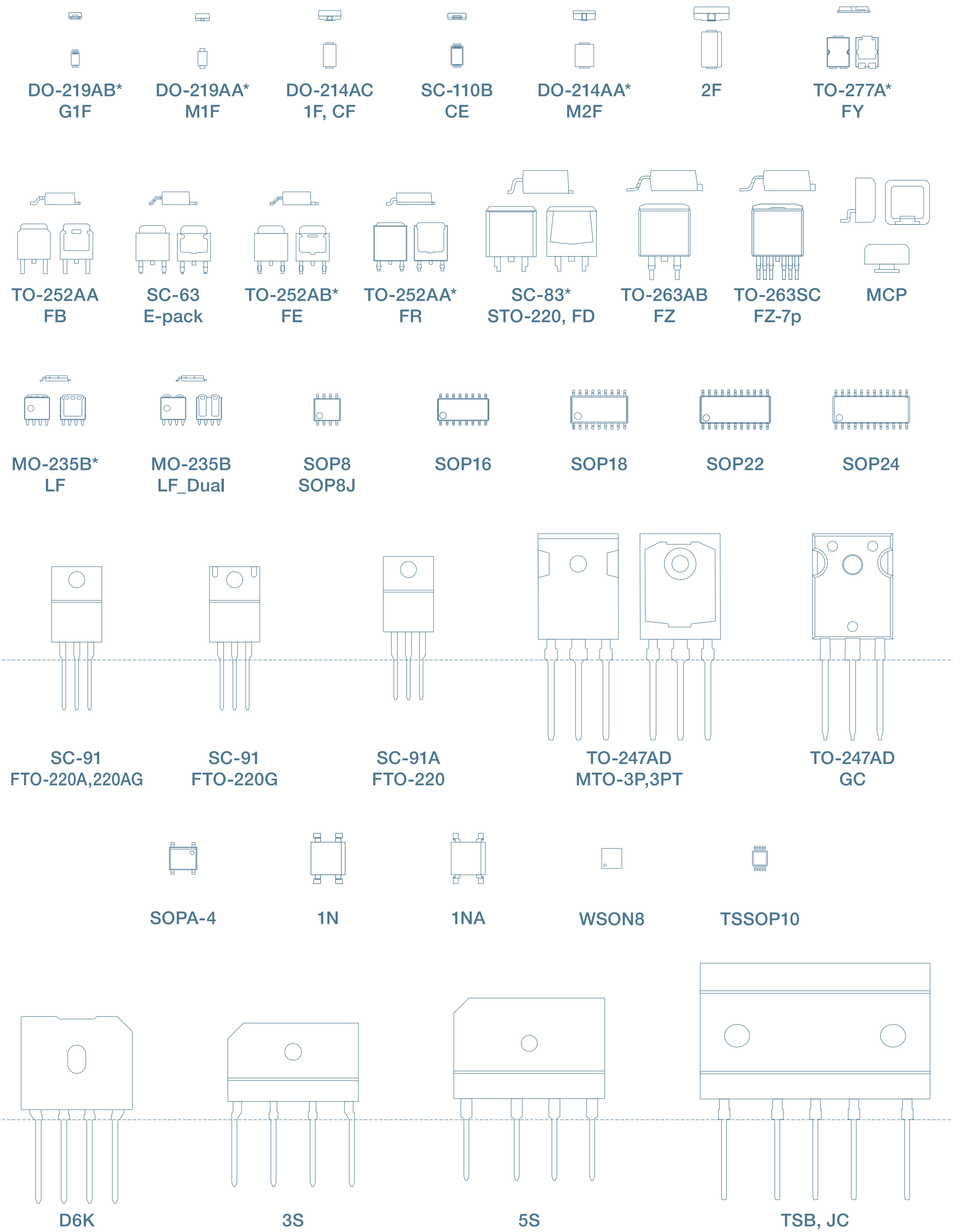
Chinese	:	https://cn.shindengen.co.jp/
Korean	:	https://kr.shindengen.co.jp/

• Printed February 2026

Package Outline

* = Similar Package



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