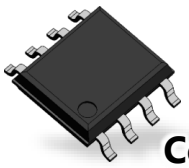

Power Factor Correction(PFC) ICs MH2501SC/MH2511SC

Current critical multiphase interleave PFC

Input voltage：AC 85 ～ 264V

Output	Voltage [V]	Output Power		
		min	typ	max
1	+395	0W	900W	900W

J571-1-en (2023.09)

Notes on the use of this document

1. **The technical information contained in this document describes the specifications, external dimensional drawings, typical operation, selection of components and handling precautions for the reference circuit of our products.**

2. **The reference power supplies in this document are for understanding the performance of our products, and do not guarantee output, temperature, and any other characteristics, nor do they guarantee characteristics or safety specified by public authorities.**

3. **Our products described in this document are semiconductor components for general electronic equipment and general industrial use. Please ensure the safety and reliability of your equipment are in accordance with the criticality of the applications. For further information, please contact our sales department.**

4. **In applications where extremely high reliability and safety are required (e.g. for nuclear power control, aerospace equipment, traffic equipment, life support-related medical equipment, combustion control equipment and various safety devices),safety design with fail-safe in mind (such as using particularly reliable components) in order to ensure safety is required. For further information, please contact our sales department.**

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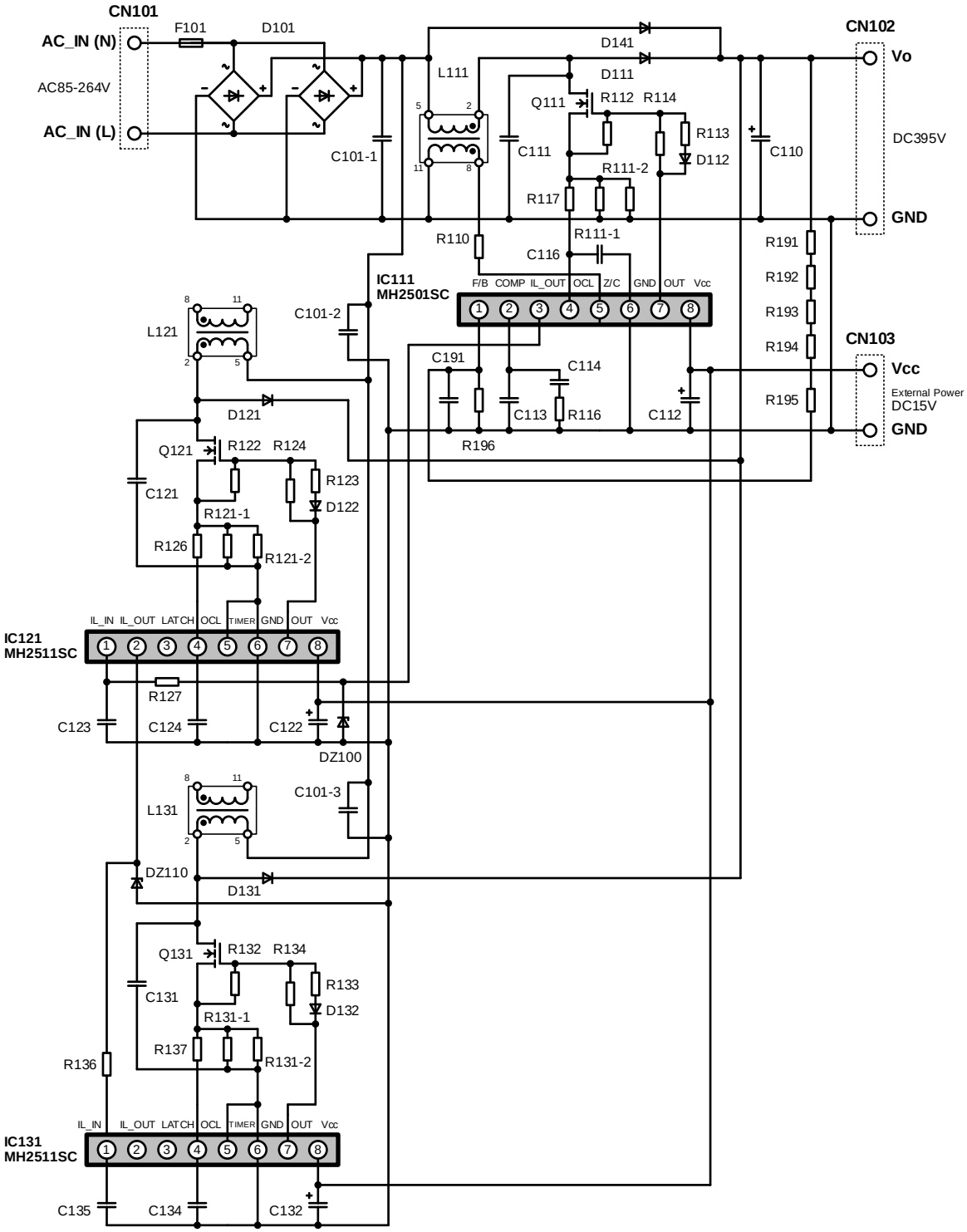
Reference circuit diagram



Bill Of Material

No.	Type	Qt'y	Spec	Model Name	Vendor	Remarks
F101	Fuse	1	AC250V 15A		-	-
L111	PFC Choke Coil	1	80uH	PQ3221	SUMIDA	-
L121	PFC Choke Coil	1	80uH	PQ3221	SUMIDA	-
L131	PFC Choke Coil	1	80uH	PQ3221	SUMIDA	-
IC111	Control IC	1	- -	MH2501SC	SHINDENGEN	-
IC121	Control IC	1	- -	MH2511SC	SHINDENGEN	-
IC131	Control IC	1	- -	MH2511SC	SHINDENGEN	-
Q111	Power MOSFET	1	600V 0.16Ω相当		-	-
Q121	Power MOSFET	1	600V 0.16Ω相当		-	-
Q131	Power MOSFET	1	600V 0.16Ω相当		-	-
D101	Bridge Diode	2	600V 25A	LL25XB60	SHINDENGEN	-
D111	FRD	1	600V 10A	SF10K60M	SHINDENGEN	-
D112	SBD	1	40V 1.33A	M1FS4	SHINDENGEN	-
D121	FRD	1	600V 10A	SF10K60M	SHINDENGEN	-
D122	SBD	1	40V 1.33A	M1FS4	SHINDENGEN	-
D131	FRD	1	600V 10A	SF10K60M	SHINDENGEN	-
D132	SBD	1	40V 1.33A	M1FS4	SHINDENGEN	-
D141	Diode	1	600V 4A	D4F60	SHINDENGEN	-
DZ100	Zener Diode	1	4.7V		-	-
DZ110	Zener Diode	1	4.7V		-	-
C101	Film Capacitor	3	450V 2.2uF	450MPK225	Rubycon	-
C110	Electrolytic Capacitor	3	450V 330uF	450MXH330M	Rubycon	-
C111	Ceramic Capacitor	1	1kV 100pF	DEA1X3A101JA2B	Murata	-
C112	Electrolytic Capacitor	1	35V 150uF	35ZL150M	Rubycon	-
C113	MLCC	1	10V 0.22uF		-	-
C114	MLCC	1	10V 2.2uF		-	-
C115	MLCC	1	open		-	-
C116	MLCC	1	10V 1000pF		-	-
C121	Ceramic Capacitor	1	1kV 100pF	DEA1X3A101JA2B	Murata	-
C122	Electrolytic Capacitor	1	35V 150uF	35ZL150M	Rubycon	-
C123	MLCC	1	10V 47pF		-	-
C124	MLCC	1	10V 1000pF		-	-
C131	Ceramic Capacitor	1	1kV 100pF	DEA1X3A101JA2B	Murata	-
C132	Electrolytic Capacitor	1	35V 150uF	35ZL150M	Rubycon	-
C134	MLCC	1	10V 1000pF		-	-
C135	MLCC	1	10V 47pF		-	-
C191	MLCC	1	10V 2200pF		-	-
R110	Chip Resistor	1	1/8W 12kΩ		-	-
R111-1	Metal Plate Resistor	1	2W 0.068Ω	BPR28CF68LJ	KOA	-
R111-2	Metal Plate Resistor	1	2W 0.068Ω	BPR28CF68LJ	KOA	-
R112	Chip Resistor	1	1/10W 10kΩ		-	-
R113	Chip Resistor	1	1/8W 4.7Ω		-	-
R114	Chip Resistor	1	1/8W 47Ω		-	-
R116	Chip Resistor	1	1/10W 1kΩ		-	-
R117	Chip Resistor	1	1/10W 100Ω		-	-
R121-1	Metal Plate Resistor	1	2W 0.068Ω	BPR28CF68LJ	KOA	-
R121-2	Metal Plate Resistor	1	2W 0.068Ω	BPR28CF68LJ	KOA	-
R122	Chip Resistor	1	1/10W 10kΩ		-	-
R123	Chip Resistor	1	1/8W 4.7Ω		-	-
R124	Chip Resistor	1	1/8W 47Ω		-	-

Bill Of Material

No.	Type	Qt'y	Spec		Model Name	Vendor	Remarks
R126	Chip Resistor	1	1/10W	100Ω		-	-
R127	Chip Resistor	1	1/10W	1kΩ		-	-
R131-1	Metal Plate Resistor	1	2W	0.068Ω	BPR28CF68LJ	KOA	-
R131-2	Metal Plate Resistor	1	2W	0.068Ω	BPR28CF68LJ	KOA	-
R132	Chip Resistor	1	1/10W	10kΩ		-	-
R133	Chip Resistor	1	1/8W	4.7Ω		-	-
R134	Chip Resistor	1	1/8W	47Ω		-	-
R136	Chip Resistor	1	1/10W	1kΩ		-	-
R137	Chip Resistor	1	1/10W	100Ω		-	-
R191	Chip Resistor	1	1/8W	180kΩ		-	1%
R192	Chip Resistor	1	1/8W	510kΩ		-	1%
R193	Chip Resistor	1	1/8W	910kΩ		-	1%
R194	Chip Resistor	1	1/8W	910kΩ		-	1%
R195	Chip Resistor	1	1/8W	910kΩ		-	1%
R196	Chip Resistor	1	1/10W	22kΩ		-	0.5%
HS101	Heat Sink	1	-	-	30BS138	RYOSAN	-
HS102	Heat Sink	1	-	-	30BS058	RYOSAN	-
HS103	Heat Sink	1	-	-	30BS058	RYOSAN	-
HS104	Heat Sink	1	-	-	30BS058	RYOSAN	-

PFC Choke Coil

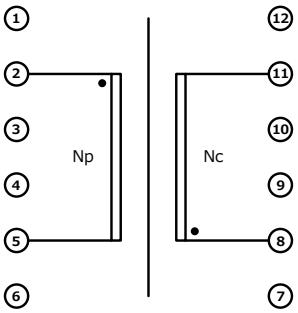
Vin= AC85~264V fmin= 62kHz
Po= 900W

Inductance (Lp)	2-5pin	80uH

Core
PQ3221 Material : PC44 Manufacturer : SUMIDA

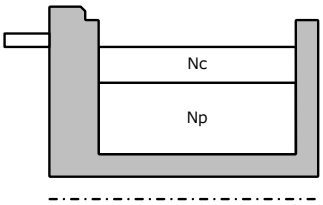
Bobbin
PQ3221 Pin Number : 12 Manufacturer : SUMIDA

< Pin assignment >



Bottom View
●(Dot Mark) : Polarity

< Structure drawing >

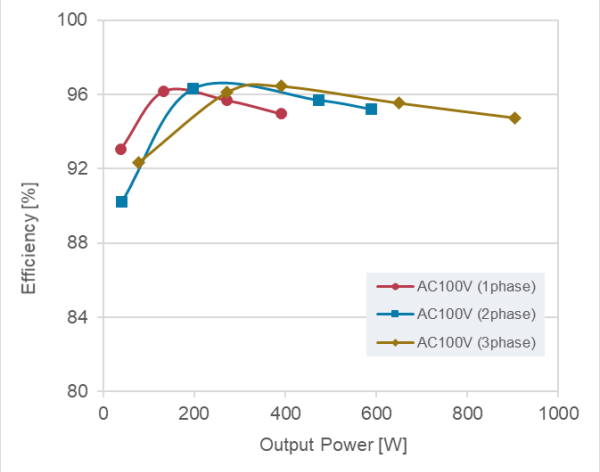


< Winding Specifications >

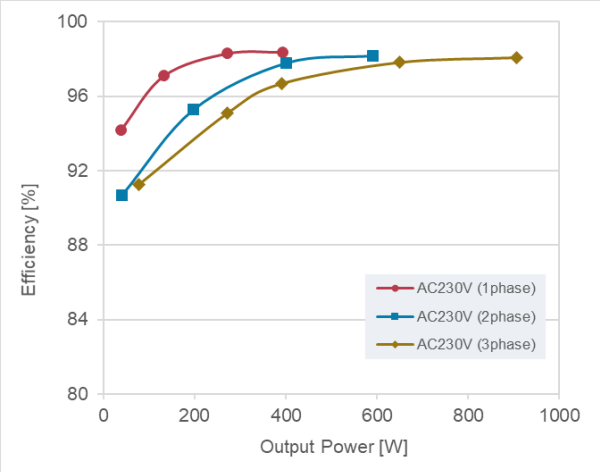
Winding Order	Current Name	Pin Number Start	Pin Number End	Turn [T]	diameter [mm dia]	Material	Output Voltage	Output Current	Notes
1	Np	2	5	24	0.1×80	Litz/1UEW	395V	0.76A	Aligned Winding
2	Nc	8	11	2	0.23	1UEW	-	-	Intermediate Aligned Winding

Efficiency

AC 100V

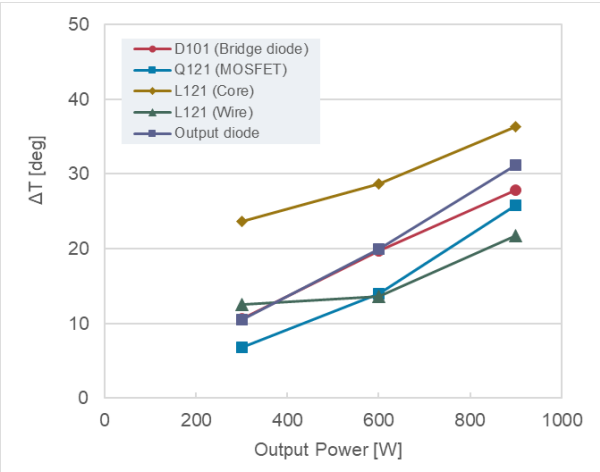


AC 230V

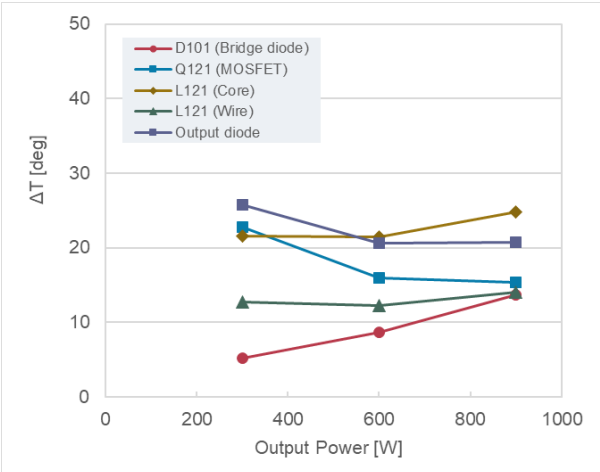


Temperature

AC 100V



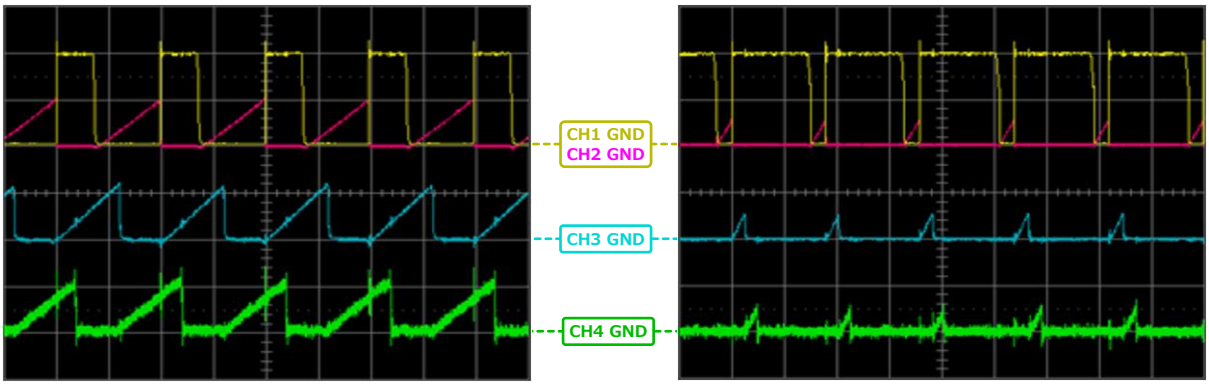
AC 230V



Operation waveform

CH1	: Q111 V_{DS}	200V/div
CH2	: Q111 I_D	10A/div
CH3	: Q121 I_D	10A/div
CH4	: Q131 I_D	10A/div
Time	: 5us/div	

AC100V Po=900W 3phase interleave



AC230V Po=900W 3phase interleave