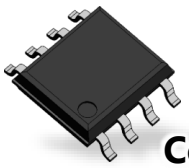

Power Factor Correction(PFC) ICs MH2501SC/MH2511SC

Current critical multiphase interleave PFC

Input voltage：AC 85 ～ 132V

Output	Voltage [V]	Output Power		
		min	typ	max
1	+395	0W	80W	80W

J570-1-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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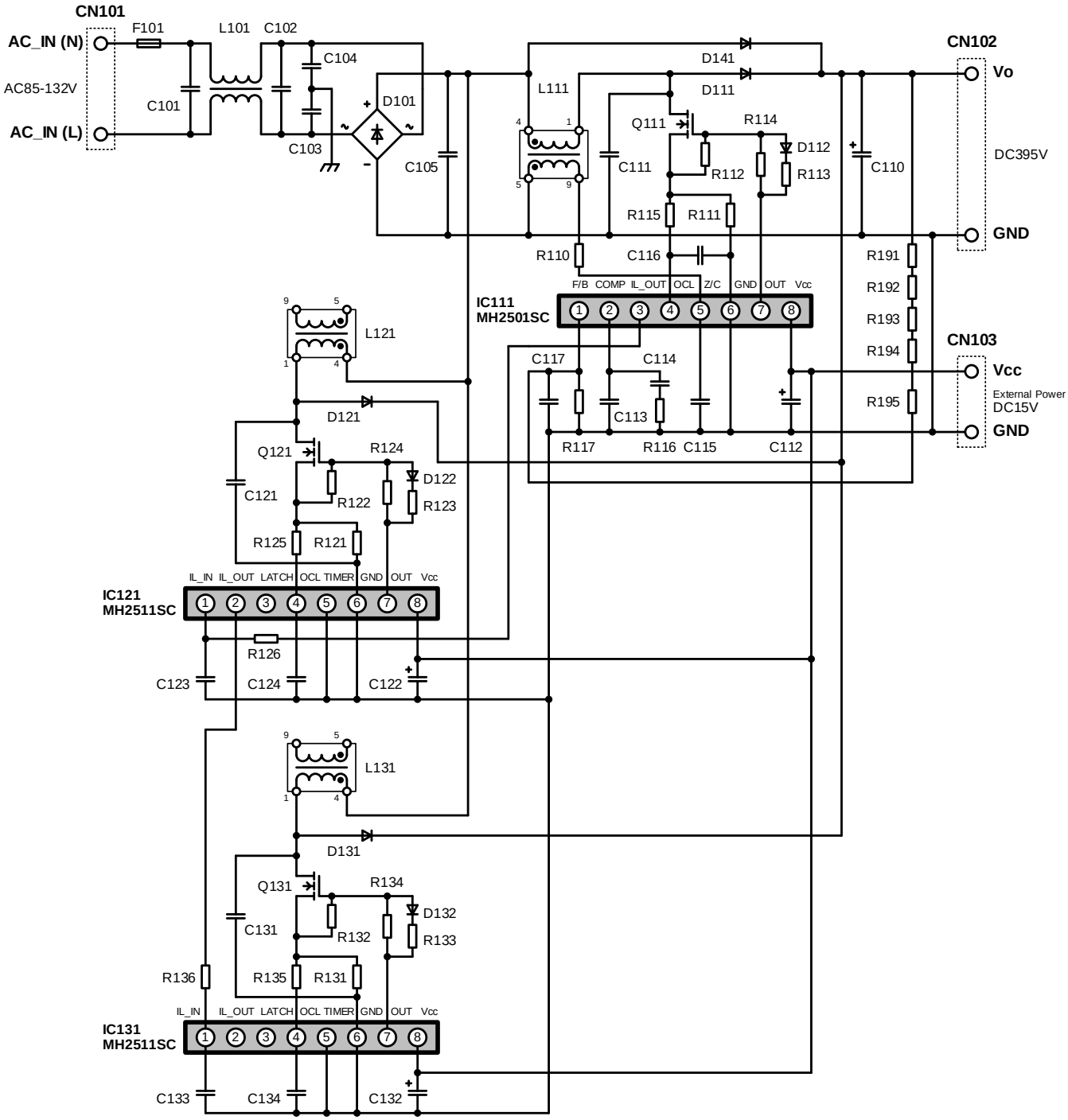
Reference circuit diagram



Bill Of Material

No.	Type	Qt'y	Spec		Model Name	Vendor	Remarks
F101	Fuse	1	AC250V	3.15A		-	-
L101	Line Filter	1	7.9mH	2.0A	LH26-592Y2R0-01	TDK	-
L111	PFC Choke Coil	1		0.618mH	EPC17	-	-
L121	PFC Choke Coil	1		0.618mH	EPC17	-	-
L131	PFC Choke Coil	1		0.618mH	EPC17	-	-
IC111	Control IC	1	-	-	MH2501SC	SHINDENGEN	-
IC121	Control IC	1	-	-	MH2511SC	SHINDENGEN	-
IC131	Control IC	1	-	-	MH2511SC	SHINDENGEN	-
Q111	Power MOSFET	1	525V	6A	P6B52HP2	SHINDENGEN	-
Q121	Power MOSFET	1	525V	6A	P6B52HP2	SHINDENGEN	-
Q131	Power MOSFET	1	525V	6A	P6B52HP2	SHINDENGEN	-
D101	Bridge Diode	1	600V	6A	D6JBB60V	SHINDENGEN	-
D111	FRD	1	600V	2.1A	D3FK60	SHINDENGEN	-
D112	SBD	1	40V	1.5A	M1FJ4	SHINDENGEN	-
D121	FRD	1	600V	2.1A	D3FK60	SHINDENGEN	-
D122	SBD	1	40V	1.5A	M1FJ4	SHINDENGEN	-
D131	FRD	1	600V	2.1A	D3FK60	SHINDENGEN	-
D132	SBD	1	40V	1.5A	M1FJ4	SHINDENGEN	-
D141	Diode	1	600V	4A	D4F60	SHINDENGEN	-
C101	Film Capacitor	1	A250V	0.1uF		-	-
C102	Film Capacitor	1	A250V	0.1uF		-	-
C103	Ceramic Capacitor	1	AC250 V	470pF		-	-
C104	Ceramic Capacitor	1	AC250 V	470pF		-	-
C105	Film Capacitor	1	450V	1uF	450MPK105K	Rubycon	-
C110	Electrolytic Capacitor	2	450V	39uF	450BXW39M	Rubycon	-
C111	Ceramic Capacitor	1	1kV	100pF	DEA1X3A101JA2B	Murata	-
C112	Electrolytic Capacitor	1	25V	100uF	25ZL100M	Rubycon	-
C113	MLCC	1	10V	0.1uF		-	-
C114	MLCC	1	10V	1uF		-	-
C115	MLCC	1	10V	18pF		-	-
C116	MLCC	1	10V	1000pF		-	-
C117	MLCC	1	10V	1000pF		-	-
C121	Ceramic Capacitor	1	1kV	100pF	DEA1X3A101JA2B	Murata	-
C122	Electrolytic Capacitor	1	25V	100uF	25ZL100M	Rubycon	-
C123	MLCC	1	10V	47pF		-	-
C124	MLCC	1	10V	1000pF		-	-
C131	Ceramic Capacitor	1	1kV	100pF	DEA1X3A101JA2B	Murata	-
C132	Electrolytic Capacitor	1	25V	100uF	25ZL100M	Rubycon	-
C133	MLCC	1	10V	47pF		-	-
C134	MLCC	1	10V	1000pF		-	-
R110	Chip Resistor	1	1/8W	33kΩ			-
R111	Metal Plate Resistor	1	2W	0.47Ω	BPR28CR47J	KOA	-
R112	Chip Resistor	1	1/10W	10kΩ		-	-
R113	Chip Resistor	1	1/8W	4.7Ω		-	-

Bill Of Material

No.	Type	Qt'y	Spec	Model Name	Vendor	Remarks
R114	Chip Resistor	1	1/8W 47Ω		-	-
R115	Chip Resistor	1	1/10W 1kΩ		-	-
R116	Chip Resistor	1	1/10W 10kΩ		-	-
R117	Chip Resistor	1	1/10W 22kΩ		-	1%
R121	Metal Plate Resistor	1	2W 0.47Ω	BPR28CR47J	KOA	-
R122	Chip Resistor	1	1/10W 10kΩ		-	-
R123	Chip Resistor	1	1/8W 4.7Ω		-	-
R124	Chip Resistor	1	1/8W 47Ω		-	-
R125	Chip Resistor	1	1/10W 1kΩ		-	-
R126	Chip Resistor	1	1/10W 1kΩ		-	-
R131	Metal Plate Resistor	1	2W 0.47Ω	BPR28CR47J	KOA	-
R132	Chip Resistor	1	1/10W 10kΩ		-	-
R133	Chip Resistor	1	1/8W 4.7Ω		-	-
R134	Chip Resistor	1	1/8W 47Ω		-	-
R135	Chip Resistor	1	1/10W 1kΩ		-	-
R136	Chip Resistor	1	1/10W 1kΩ		-	-
R191	Chip Resistor	1	1/8W 200kΩ		-	1%
R192	Chip Resistor	1	1/8W 270kΩ		-	1%
R193	Chip Resistor	1	1/8W 1MΩ		-	1%
R194	Chip Resistor	1	1/8W 1MΩ		-	1%
R195	Chip Resistor	1	1/8W 1MΩ		-	1%

PFC Choke Coil

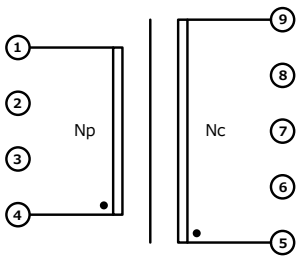
Vin= AC85~132V fmin= 115kHz
Po= 80W

Inductance (Lp)	1-4pin	0.618mH

Core
EPC17 Material : PC44 Manufacturer : -

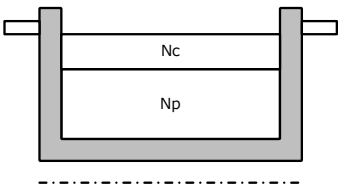
Bobbin
EPC17 Pin Number : 9 Manufacturer : -

< Pin assignment >



Bottom View
●(Dot Mark) : Polarity

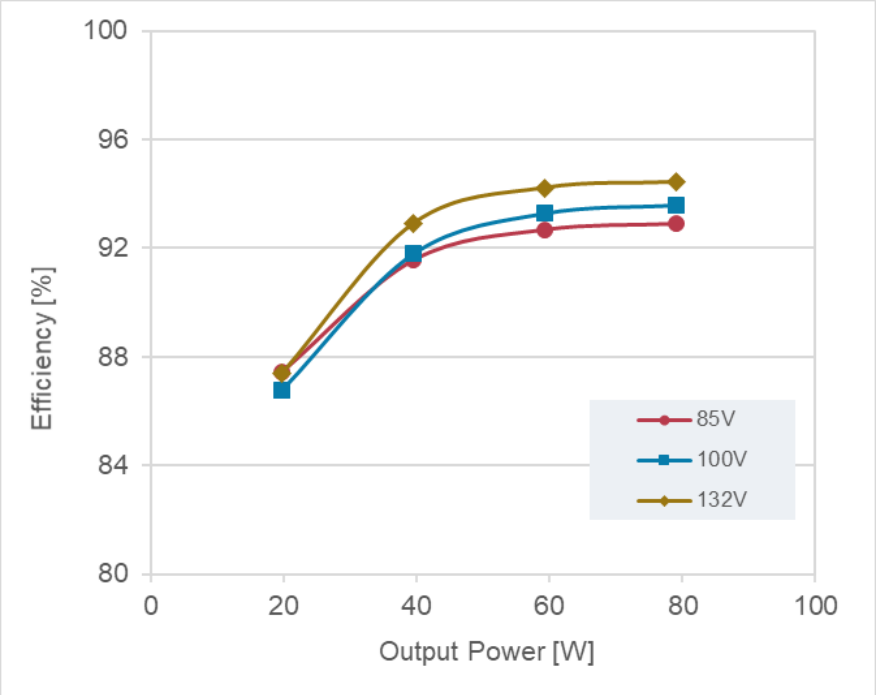
< Structure drawing >



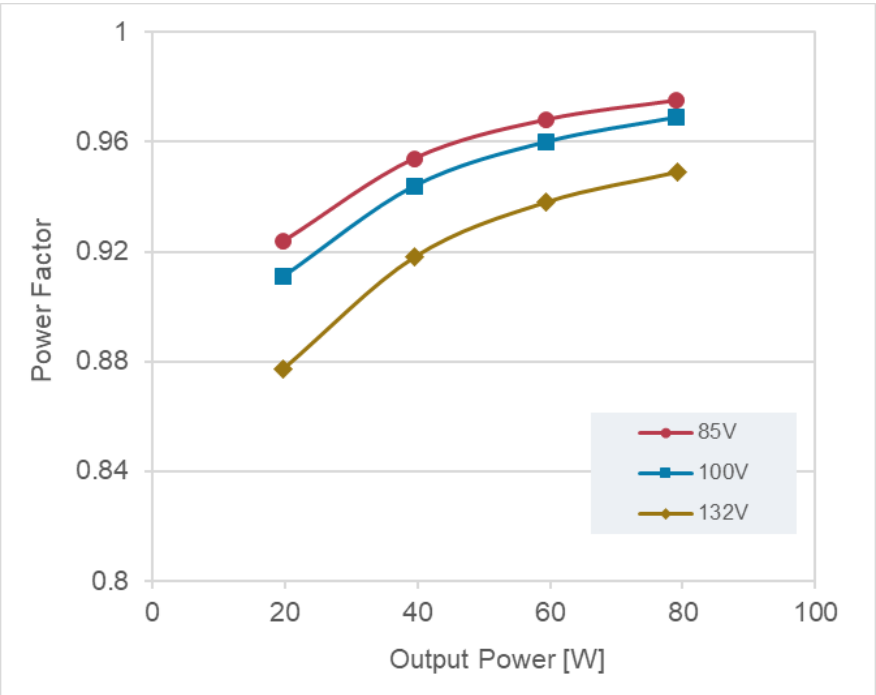
< Winding Specifications >

Winding Order	Current Name	Pin Number Start	Pin Number End	Turn [T]	diameter [mm dia]	Material	Output Voltage	Output Current	Notes
1	Np	4	1	90	0.08×15	Litz/1UEW	395V	0.75A	Bifilar Aligned Winding
2	Nc	5	9	9	0.23	1UEW	-	-	Uniform Winding

Efficiency

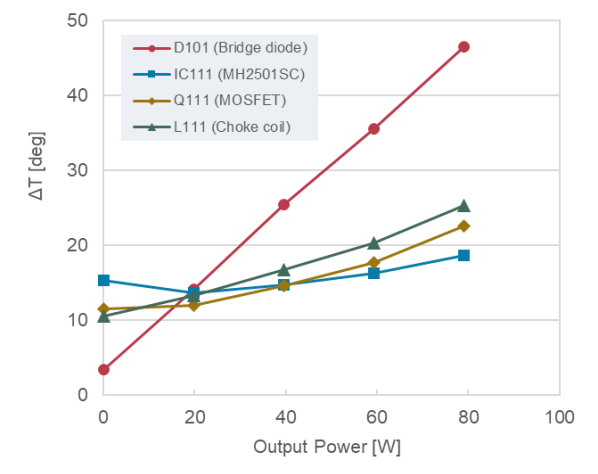


Power Factor

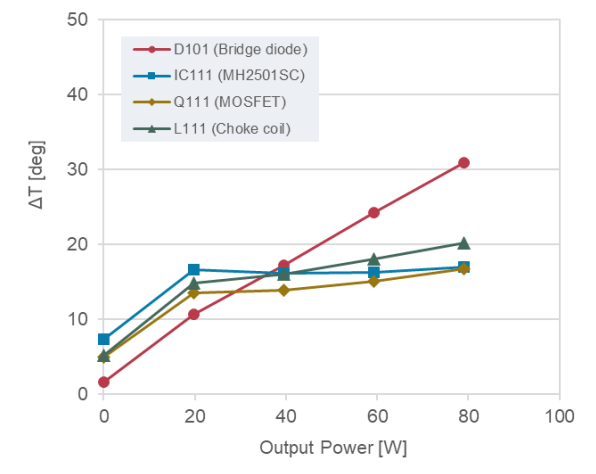


Temperature

AC85V



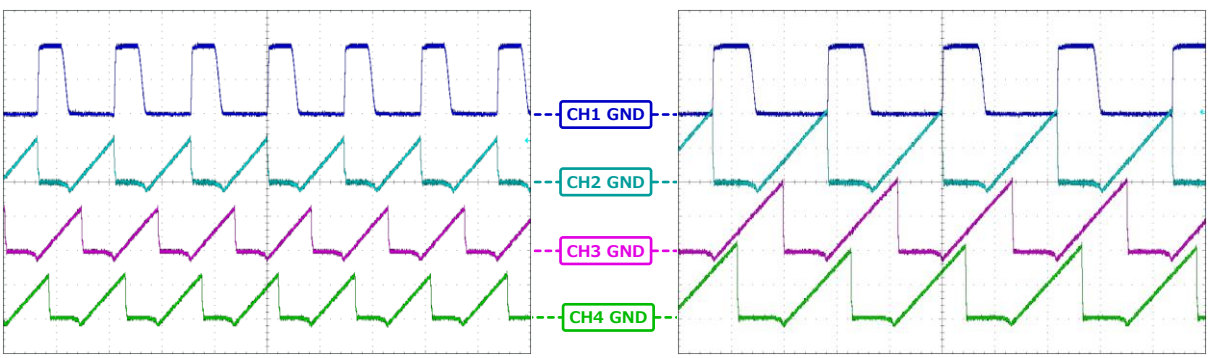
AC132V



Operation waveform

CH1	: Q111 V_{DS}	200V/div
CH2	: Q111 I_D	500mA/div
CH3	: Q121 I_D	500mA/div
CH4	: Q131 I_D	500mA/div
Time	: 4us/div	

AC100V Io=0.1A



AC100V Io=0.2A