

SH10 Series

10 W DC/DC Converters

CoolPower
Solutions

- Power Module for PCB Mountable
- 2:1 Wide Input Range
- Regulated Output
- Low Ripple and Noise
- 2-Years Product Warranty



Electrical specifications

Model No. (Single Output)	SH10-12-3.3S	SH10-12-5S	SH10-12-12S	SH10-12-15S	SH10-12-24S
Input Voltage (V.DC.)	12V (9-18V)	12V (9-18V)	12V (9-18V)	12V (9-18V)	12V (9-18V)
Output Voltage (V.DC.)	3.3V/2500mA	5V/2000mA	12V/830mA	15V/670mA	24V/416mA
Efficiency (typ.)	82%	83%	86%	86%	86%
Capacitor Load (max)	2200µF	2200µF	560µF	470µF	100µF

Model No. (Single Output)	SH10-24-3.3S	SH10-24-5S	SH10-24-12S	SH10-24-15S	SH10-24-24S
Input Voltage (V.DC.)	24V (18-36V)	24V (18-36V)	24V (18-36V)	24V (18-36V)	24V (18-36V)
Output Voltage (V.DC.)	3.3V/2500mA	5V/2000mA	12V/830mA	15V/670mA	24V/416mA
Efficiency (typ.)	82%	85%	86%	86%	86%
Capacitor Load (max)	2200µF	2200µF	560µF	470µF	100µF

Model No. (Single Output)	SH10-48-3.3S	SH10-48-5S	SH10-48-12S	SH10-48-15S	SH10-48-24S
Input Voltage (V.DC.)	48V (36-75V)	48V (36-75V)	48V (36-75V)	48V (36-75V)	48V (36-75V)
Output Voltage (V.DC.)	3.3V/2500mA	5V/2000mA	12V/830mA	15V/670mA	24V/416mA
Efficiency (typ.)	82%	85%	86%	86%	86%
Capacitor Load (max)	2200µF	2200µF	560µF	470µF	100µF

Model No. (Single Output)	SH10-12-3.3S	SH10-12-5S	SH10-12-12S	SH10-12-15S	SH10-12-24S	
	SH10-24-3.3S	SH10-24-5S	SH10-24-12S	SH10-24-15S	SH10-24-24S	
	SH10-48-3.3S	SH10-48-5S	SH10-48-12S	SH10-48-15S	SH10-48-24S	
Max Output Wattage (W)	10W					
Input	Input Filter π type					
Output	Voltage (V.DC.)	3.3	5	12	15	24
	Voltage Accuracy	±2%				
	Current (mA) max	2500	2000	830	670	416
	Line Regulation (LL-HL) (typ.)	±0.5%				
	Load Regulation (10-100%) (typ.)	±3%	±1%	±1%	±1%	±1%
	Minimum Load	0%				
	Ripple	50 mV max. 1% max.				
	Noise	50 mV max. 1% max.				
Protection	Switching Frequency	300KHz				
	Over Power Protection	Above 105% Rated Output Power				
Isolation	Short Circuit Protection	Current limit, auto-recovery				
	Voltage	1600 VDC.				
	Resistance	108 ohms				
Environment	Capacitance	1000 pF				
	Operating Temperature	-25°C...+60°C (at Full Load)				
	Storage Temperature	-55°C...+105°C				
	Case Temperature	+100°C max.				
	Temperature Coefficient	±0.02% Per°C				
	Humidity	95% RH				
Physical	MTBF	>800,000 h @ 25°C (MIL-HDBK-217F)				
	Dimension (L x W x H)	1.25 x 0.8 x 0.44 Inches (31.8 x 20.3 x 11.2 mm) Tolerance ±0.5 mm				
	Case Material	Nickel-Coated Copper with Non-Conductive Base, Six-side shielded.				
	Weight	20 g				
	Cooling Method	Free-air convection				

All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated

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Model No. (Dual Output)	SH10-12-5D	SH10-12-12D	SH10-12-15D
Input Voltage (V.DC.)	12V (9-18V)	12V (9-18V)	12V (9-18V)
Output Voltage (V.DC.)	±5V / ±1000mA	±12 / ±416mA	±15 / ±333mA
Efficiency (typ.)	83%	86%	86%
Capacitor Load (max)	±1200µF	±330µF	±120µF

Model No. (Dual Output)	SH10-24-5D	SH10-24-12D	SH10-24-15D
Input Voltage (V.DC.)	24V (18-36V)	24V (18-36V)	24V (18-36V)
Output Voltage (V.DC.)	±5V / ±1000mA	±12 / ±416mA	±15 / ±333mA
Efficiency (typ.)	83%	87%	86%
Capacitor Load (max)	±1200µF	±470µF	±330µF

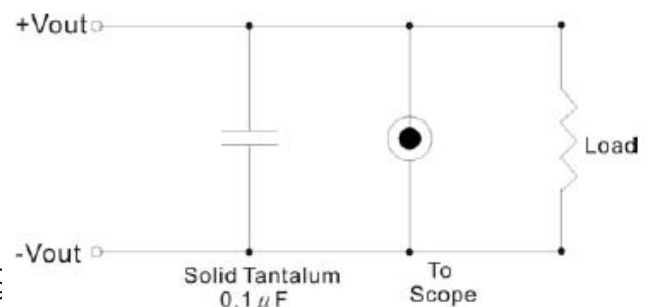
Model No. (Dual Output)	SH10-48-5D	SH10-48-12D	SH10-48-15D
Input Voltage (V.DC.)	48V (36-75V)	48V (36-75V)	48V (36-75V)
Output Voltage (V.DC.)	±5V / ±1000mA	±12 / ±416mA	±15 / ±333mA
Efficiency (typ.)	82%	87%	86%
Capacitor Load (max)	±1200µF	±470µF	±330µF

Model No. (Dual Output)	SH10-12-5D SH10-24-5D SH10-48-5D	SH10-12-12D SH10-24-12D SH10-48-12D	SH10-12-15D SH10-24-15D SH10-48-15D
Max Output Wattage (W)	10W		
Input	Input Filter L-C type		
Output	Voltage (V.DC.)	±5	±12
	Voltage Accuracy	±2%	±15
	Current (mA) max	±1000	±416
	Line Regulation (LL-HL) (typ.)	±0.5%	±333
	Load Regulation (10-100%) (typ.)	±1%	±1%
	Minimum Load	0%	
	Ripple	<0.2% Vout +20mV max (Vp-p)	
	Noise	<0.5% Vout +50mV max (Vp-p)	
Protection	Switching Frequency	300KHz	
	Over Power Protection	Works over 120% of rating and recovers automatically.	
Isolation	Short Circuit Protection	Current limit, auto-recovery	
	Voltage	1600 VDC.	
	Resistance	108 ohms	
Environment	Capacitance	1000 pF	
	Operating Temperature	-25°C...+60°C (at Full Load)	
	Storage Temperature	-55°C...+105°C	
	Case Temperature	+100°C max.	
	Temperature Coefficient	±0.02% Per°C	
	Humidity	95% RH	
Physical	MTBF	>800,000 h @ 25°C (MIL-HDBK-217F)	
	Dimension (L x W x H)	1.25 x 0.8 x 0.44 Inches (31.8 x 20.3 x 11.2 mm) Tolerance ±0.5 mm	
	Case Material	Nickel-Coated Copper with Non-Conductive Base, Six-side shielded.	
	Weight	20 g	
	Cooling Method	Free-air convection	

All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

Output noise

The output noise is measured with 0.1µF tantalum capacitor

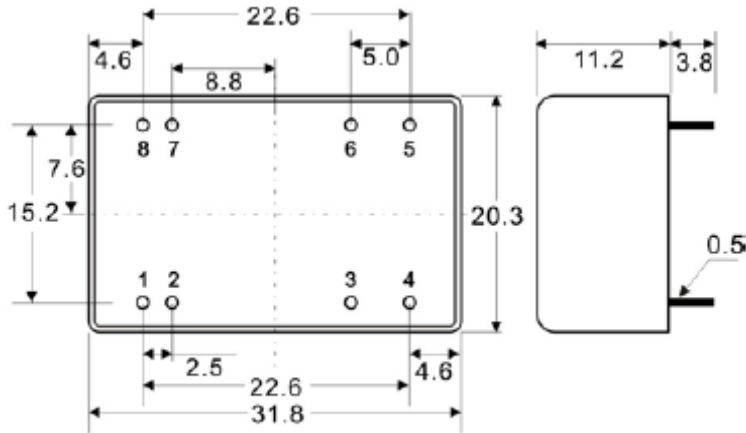


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Mechanical Specifications (top view)



Tolerance ± 0.5 mm

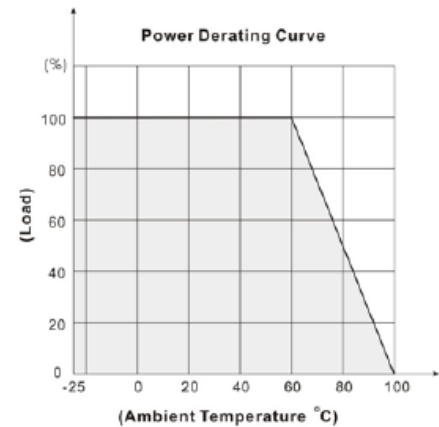
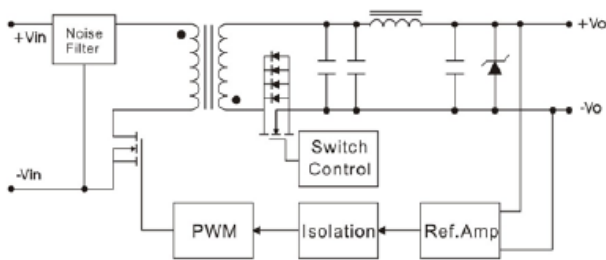
Pin no:	Single	Dual
1	-Vin	-Vin
2	-Vin	-Vin
3	No Pin	Common
4	NC	-Vout
5	+Vout	+Vout
6	-Vout	Common
7	+Vin	+Vin
8	+Vin	+Vin

Block Diagram

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Derating

Single Output



Dual Outputs

