

## KEY FEATURES

- Power Module for PCB Mountable
- High Efficiency and Reliability
- 4:1 Wide Input Range
- Single and Dual Output
- Regulated Output
- Low Ripple and Noise
- 3-Years Product Warranty



## ELECTRICAL SPECIFICATIONS

Model No. ( Single Output )	SH05-24F-3.3S	SH05-24F-5S	SH05-24F-12S	SH05-24F-15S	SH05-24F-24S
Max Output Wattage (W)	4W	5W	6W	6W	6W
Input Voltage (V.DC.)	24V (9-36V)	24V (9-36V)	24V (9-36V)	24V (9-36V)	24V (9-36V)
Output Voltage (V.DC.)	3.3V/1200mA	5V/1000mA	12V/500mA	15V/400mA	24V/250mA
Efficiency (typ.)	78%	78%	84%	82%	82%
Capacitor Load (max)	80000 uF	70000 uF	2200 uF	2900 uF	470 uF

Model No. ( Single Output )	SH05-48F-3.3S	SH05-48F-5S	SH05-48F-12S	SH05-48F-15S	SH05-48F-24S
Max Output Wattage (W)	4W	5W	6W	6W	6W
Input Voltage (V.DC.)	48V (18-75V)	48V (18-75V)	48V (18-75V)	48V (18-75V)	48V (18-75V)
Output Voltage (V.DC.)	3.3V/1200mA	5V/1000mA	12V/500mA	15V/400mA	24V/250mA
Efficiency (typ.)	76%	79%	81%	80%	80%
Capacitor Load (max)	80000 uF	70000 uF	2300 uF	3100 uF	580 uF

Model No. ( Single Output )	SH05-24F-3.3S SH05-48F-3.3S	SH05-24F-5S SH05-48F-5S	SH05-24F-12S SH05-48F-12S	SH05-24F-15S SH05-48F-15S	SH05-24F-24S SH05-48F-24S	
Max Output Wattage (W)	4W	5W	6W	6W	6W	
Input	Input Filter $\pi$ type					
Output	Voltage (V.DC.)	3.3	5	12	15	24
	Voltage Accuracy	$\pm 2\%$				
	Current (mA) max	1200	1000	500	400	250
	Line Regulation (LL-HL) (typ.)	$\pm 0.5\%$				
	Load Regulation (10-100%) (typ.)	$\pm 3\%$	$\pm 1\%$	$\pm 1\%$	$\pm 1\%$	$\pm 1\%$
	Minimum Load	0%				
	Ripple	$< 0.2\% V_{out} + 40mV \text{ max (Vp-p)}$				
	Noise	$< 0.5\% V_{out} + 50mV \text{ max (Vp-p)}$				
Protection	Switching Frequency	300KHz				
	Over Power Protection	Above 105% Rated Output Power				
Isolation	Short Circuit Protection	Current limit, auto-recovery				
	Voltage	1600 VDC.				
	Resistance	$10^8$ ohms				
Environment	Capacitance	1000 pF				
	Operating Temperature	$-25^{\circ}\text{C} \dots +60^{\circ}\text{C}$ (at Full Load)				
	Storage Temperature	$-55^{\circ}\text{C} \dots +105^{\circ}\text{C}$				
	Case Temperature	$+100^{\circ}\text{C}$ max.				
	Temperature Coefficient	$\pm 0.02\%$ Per $^{\circ}\text{C}$				
	Humidity	95% RH				
Physical	MTBF	$> 800,000$ h @ $25^{\circ}\text{C}$ (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 $\pm 0.5$ mm				
	Case Material	Nickel-Coated Copper with Non-Conductive Base, Six-side shielded.				
	Weight	20 g				
Cooling Method	Free-air convection					

1. All specifications valid at normal input voltage, full load and  $+25^{\circ}\text{C}$  after warm-up time unless otherwise stated.

2. Ripple & Noise are measured at 20MHz of bandwidth with 0.1uF & 47uF parallel capacitor.

Model No. ( Dual Output )	SH05-24F-5D	SH05-24F-12D	SH05-24F-15D
Max Output Wattage (W)	5W	6W	6W
Input Voltage (V.DC.)	24V (9-36V)	24V (9-36V)	24V (9-36V)
Output Voltage (V.DC.)	±5V / ±500mA	±12 / ±250mA	±15 / ±200mA
Efficiency (typ.)	81%	83%	83%
Capacitor Load (max)	±14700 uF	±700 uF	±100 uF

Model No. ( Dual Output )	SH05-48F-5D	SH05-48F-12D	SH05-48F-15D
Max Output Wattage (W)	5W	6W	6W
Input Voltage (V.DC.)	48V (18-75V)	48V (18-75V)	48V (18-75V)
Output Voltage (V.DC.)	±5V / ±500mA	±12 / ±250mA	±15 / ±200mA
Efficiency (typ.)	81%	84%	83%
Capacitor Load (max)	±36000 uF	±820 uF	±240 uF

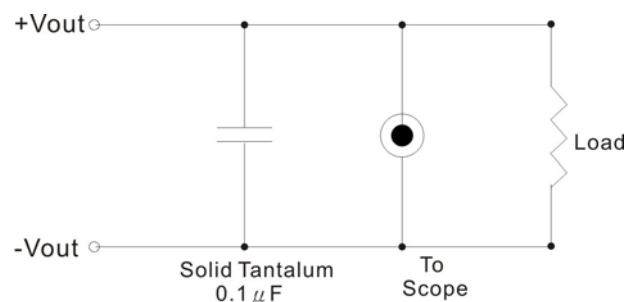
Model No. ( Dual Output )	SH05-24F-5D SH05-48F-5D	SH05-24F-12D SH05-48F-12D	SH05-24F-15D SH05-48F-15D
Max Output Wattage (W)	5W	6W	6W
Input	Input Filter	π type	
Output	Voltage (V.DC.)	±5	±12
	Voltage Accuracy	±2%	
	Current (mA) max	±500	±250
	Line Regulation (LL-HL) (typ.)	±0.5%	
	Load Regulation (10-100%) (typ.)	±1%	±1%
	Minimum Load	0%	
	Ripple	<0.2% Vout +40mV max (Vp-p)	
	Noise	<0.5% Vout +50mV max (Vp-p)	
Protection	Over Power Protection	Works over 120% of rating and recovers automatically.	
	Short Circuit Protection	Current limit, auto-recovery	
Isolation	Voltage	1600 VDC.	
	Resistance	10 <sup>8</sup> ohms	
	Capacitance	1000 pF	
Environment	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	

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

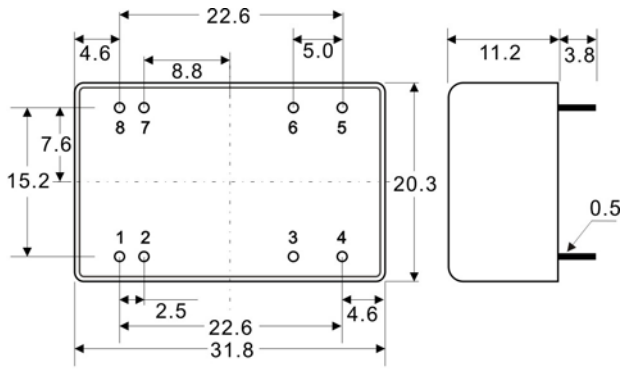
2. Ripple & Noise are measured at 20MHz of bandwidth with 0.1uF & 47uF parallel capacitor.

## OUTPUT NOISE

The output noise is measured with 0.1μF tantalum capacitor



**MECHANICAL DIMENSION ( Top View )**

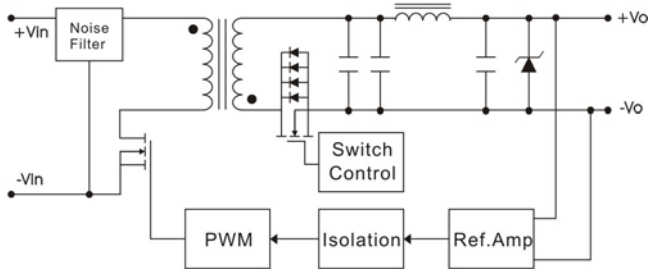


Tolerance  $\pm 0.5$  mm

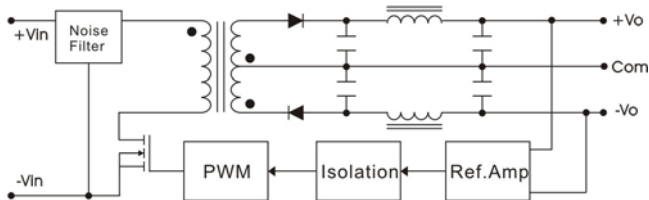
PIN#	Single	Dual
1	-VIN	-VIN
2	-VIN	-VIN
3	NO PIN	COMMON
4	NC	-VOUT
5	+VOUT	+VOUT
6	-VOUT	COMMON
7	+VIN	+VIN
8	+VIN	+VIN

**BLOCK DIAGRAM**

**Single Output**



**Dual Outputs**



**DERATING**

