

MSC60 SERIES
60 Watts
KEY FEATURES

- Switching Power Modules for PCB Mounting
- Fully Encapsulated Plastic Case
- Universal Input Range 90-264VAC
- Regulated Output
- Low Ripple and Noise
- <0.3W No Load Input Power
- Isolation Class II
- CE, CB, UL, cUL Approvals
- 3-Year Product Warranty


ELECTRICAL SPECIFICATIONS

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

Model No. (Single Output)	MSC60-5S	MSC60-9S	MSC60-12S	MSC60-15S	MSC60-24S
Max output wattage (W)	51W	60W			
Input	Voltage				
	90-264 VAC or 120-370 VDC, "N" to DC "+"; "L" to DC "-"				
	Frequency (Hz)				
	47-440 Hz				
	Current (Full load)				
	1.5 A max. (115 VAC) / 1 A max. (230 VAC)				
Inrush current (<2ms, Cold Start)					
55 A max. (115 VAC) / 95 A max. (230 VAC)					
Leakage Current					
< 0.1mA / 264 VAC (Touch Current)					
External fuse (recommend)					
3.15A, slow blow type					
Output	Voltage (V.DC.)				
	5.1V	9V	12V	15V	24V
	Voltage set accuracy				
	±2%				
	Current (mA) max				
	10,000	6666	5000	4000	2500
	Maximum Capacitive Load (at 230 VAC)				
	10000uF	5000uF	5000uF	4000uF	2000uF
Line regulation (typ.)					
0.5%					
Load regulation (1-100%) (typ.)					
1.5%			1%		
Ripple & Noise (max) (Note 1)					
100mV (Vp-p)			1% of Vout		
Efficiency (at 230 VAC)					
86%	87%	88%	86%	87%	
Hold-up time					
10 ms min.					
Protection	Over current protection				
	Automatic recovery				
	Over voltage protection				
Zener diode clamp					
Short circuit protection					
Automatic recovery					
Isolation	Input-Output (V.AC)				
4000V					
Environment	Operating temperature				
	-40°C...+80°C (with derating)				
	Storage temperature				
	-40°C...+90°C				
	Max Case Operating Temperature				
	Under 115 VAC 73°C, others 80°C				
	Temperature coefficient				
	±0.05%/°C				
Altitude During Operation					
5000m					
Humidity					
up to 95% RH					
MTBF					
200,000 h~400,000 h @ 25°C					
Atmospheric Pressure					
540 hPa to 1060 hPa					
Physical	Dimensions (L x W x H)				
	3.5 x 2.5 x 1.06 Inches (89.0 x 63.5 x 27.0 mm) Tolerance ±0.5 mm				
	Case Material				
	Plastic resin (flammability to UL 94V-0)				
Weight					
260 g					
Cooling method					
Free air convection					

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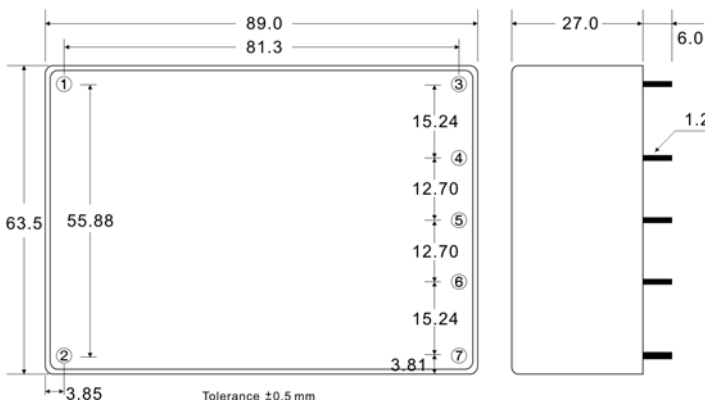
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Model No. (Single Output)	MSC60-5S	MSC60-9S	MSC60-12S	MSC60-15S	MSC60-24S
Safety	Approval cUL / UL Standard: UL 60950-1, CAN/CSA C22.2 No. 60950-1-07 ANSI/AAMI ES60601-1 (2005 + C1:09 + A2:10), CAN/CSA-C22.2 No. 60601-1 (2008), 2 x MOPP CB Standard: IEC 60950-1:2005 (2nd Edition) + Am 1:2009 + Am 2:2013 IEC 60601-1:2005 (3rd Edition) + CORR. 1 (2006) + CORR. 2 (2007) + AM1 (2012) or IEC 60601-1 (2012 reprint), 2 x MOPP				
EMC	Conducted and radiated EMI	EN55011 class B (Radiation Class A for MSC60 A2 Series)			
	EMS	EN60601-1-2 4th edition			

NOTE

1. Ripple & Noise are measured at 20MHz of bandwidth with 0.1uF & 47uF parallel capacitor.
2. Safety approvals cover frequency 47-63 Hz.
3. That “natural convection” is about 20LFM but is not equal to still air (0 LFM).
4. It's recommended to add Varistor 14S471K at L / N input side in parallel.

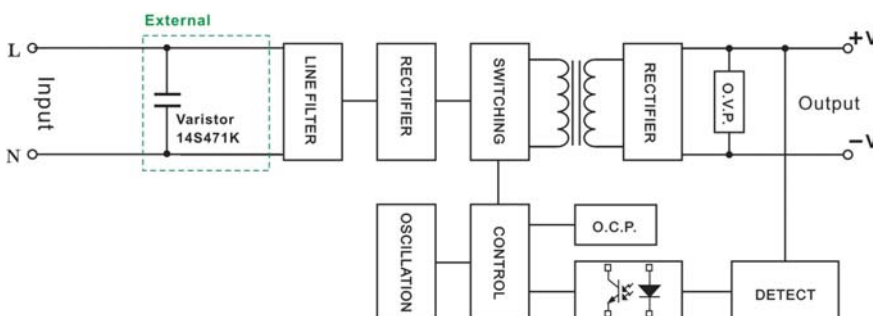
MECHANICAL DIMENSIONS (Top View)



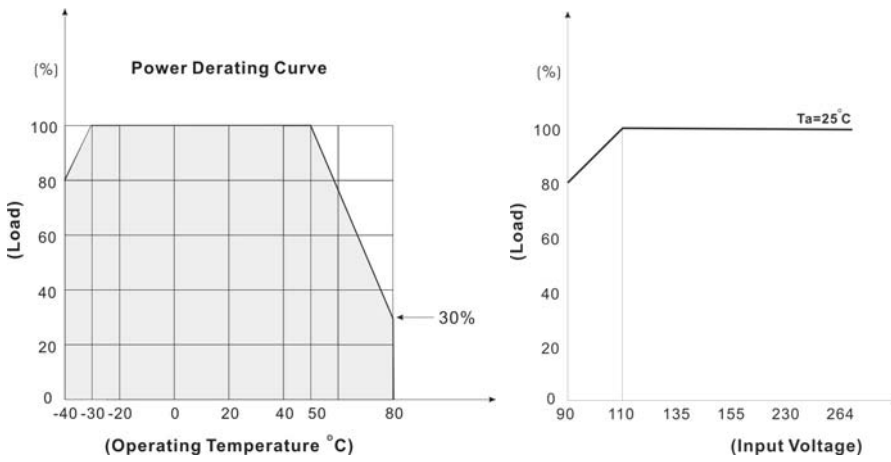
PIN#	Single
1	AC IN (L)
2	AC IN (N)
3	+DC OUT
4	NO PIN
5	-DC OUT
6	NO PIN
7	NO PIN

BLOCK DIAGRAM

Single Output



DERATING



SCREW TERMINAL

MSC60-A2



PIN#	Single
1	AC IN (L)
2	NO CONNECT
3	AC IN (N)
4	+DC OUT
5	NO CONNECT
6	-DC OUT
7	NO CONNECT
8	NO CONNECT

