

MPG-60S Series

Single & Dual Output, 60W Green, Open Frame AC/DC Power Supplies



Key Features:

- 60W Output Power
- 80W With Only 7 CFM
- Universal 90-264 AC Input
- EN 60950 Approved (UL)
- Meets ErP Directive
- Compact 2 x 4 Inch Size
- Meets EN 55022 B
- Optional +5V SB Output
- >400 kHour MTBF



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Electrical Specifications

Specifications typical @ +25°C, nominal input voltage & rated output current, unless otherwise noted. Specifications subject to change without notice.

Input

Parameter	Conditions	Min.	Typ.	Max.	Units
Input Voltage Range	Universal	90		264	VAC
		110		373	VDC
Input Frequency		47		63	Hz
Input Filter	Meets EN 55022 Class B; FCC Class B				
Input Current	See Model Selection Guide				
Inrush Current	Cold Start, 115 VAC			30.0	A Pk
	Cold Start, 230 VAC			60.0	
Leakage Current				0.25	mA
No Load Power Consumption				0.5	W

Output

Parameter	Conditions	Min.	Typ.	Max.	Units
Output Voltage/Current	See Model Selection Guide				
Output Voltage Tolerance	See Note 1		±1.0		%
Line Regulation	See Note 2		±1.0		%
Load Regulation	See Note 3		±1.0		%
Ripple & Noise (20 MHz)	See Note 4		±1.0		%
Hold-Up Time	115 VAC		16		mSec
Temperature Coefficient			±0.05		%/°C
Over Voltage Protection			140		%
Short Circuit Protection	Continuous (Autorecovery)				

General

Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation Voltage	Input to Output	3,000			VAC
Isolation Resistance	500 VDC		100		MΩ
Isolation Capacitance			2,200		pF

EMI Characteristics

Parameter	Standard	Min.	Typ.	Max.	Units
Radiated Emissions, See Note 5	EN 55022			Class B	
Conducted Emissions, See Note 5	EN 55022			Class B	
ESD	EN 61000-4-2			Criteria A; ±8 kV Air/±6 kV Contact	
RS	EN 61000-4-3			Criteria A; 10V/m	
EFT	EN 61000-4-4			Criteria A; ±2 kV Line & PE	
Surge	EN 61000-4-5			Criteria A; L-N: ±1kV, L/N-PE: ±2kV	
CS	EN 61000-4-6			Criteria A; 10 Vrms	
PFMF	EN 61000-4-8			Criteria A; 10 Vrms	
Voltage Dips, See Note 6	EN 61000-4-11			Criteria A; Volt. Dips >95%, 0.5 Cycle	
				Criteria A; Volt. Dips 30%, 25 Cycles	
				Criteria A/B; Volt. Dips 60%, 5 Cycles	
				Criteria B; Volt. Inter. >95%, 250 Cycles	
Switching Frequency	Fixed		65		kHz

Environmental

Parameter	Conditions	Min.	Typ.	Max.	Units
Operating Temperature Range	Ambient	-20	+25	+70	°C
Storage Temperature Range		-40		+85	°C
Cooling	Free Air Convection (See Derating Curve)				
Humidity	RH, Non-condensing			95	%

Physical

Size	4.00 x 2.00 x 1.20 Inches (101.60 x 50.08 x 30.48 mm)				
Weight	5.99 Oz (0.170 kg)				

Reliability Specifications

Parameter	Conditions	Min.	Typ.	Max.	Units
MTBF	MIL HDBK 217F, 25°C, Gnd Benign	400			kHours
Safety Standards	UL 60950, EN 60950				

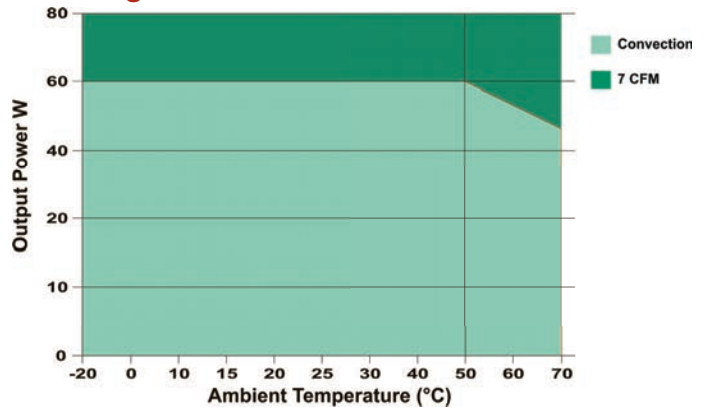
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Model Number	Input		No.	Voltage (VDC)	Output			Max Output Power (W)		Efficiency (% Typ)
	Current (A)				Rated	Current (A)		Convection Cooled	With 7CFM Air Flow	
	115 VAC	230 VAC				Max. (W/7 CFM)	Min.			
MPG-60S-12	1.50	0.75		12.0	5.00	6.66	0.00	60	80	87
MPG-60S-12SB	1.50	0.75	1	12.0	5.00	6.66	0.00	60	80	87
			2	5.0	0.10	0.10	0.00			
MPG-60S-24	1.50	0.75		24.0	2.50	3.33	0.00	60	80	89
MPG-60S-24SB	1.50	0.75	1	24.0	2.50	3.33	0.00	60	80	89
			2	5.0	0.10	0.10	0.00			
MPG-60S-48	1.50	0.75		48.0	1.25	1.67	0.00	60	80	90
MPG-60S-48SB	1.50	0.75	1	48.0	1.25	1.67	0.00	60	80	90
			2	5.0	0.10	0.10	0.00			
MPG-60D-0512	1.50	0.75	1	5.0	3.50	4.00	0.00	17.5	20	87
			2	12.0	3.50	5.00	0.00	42	60	

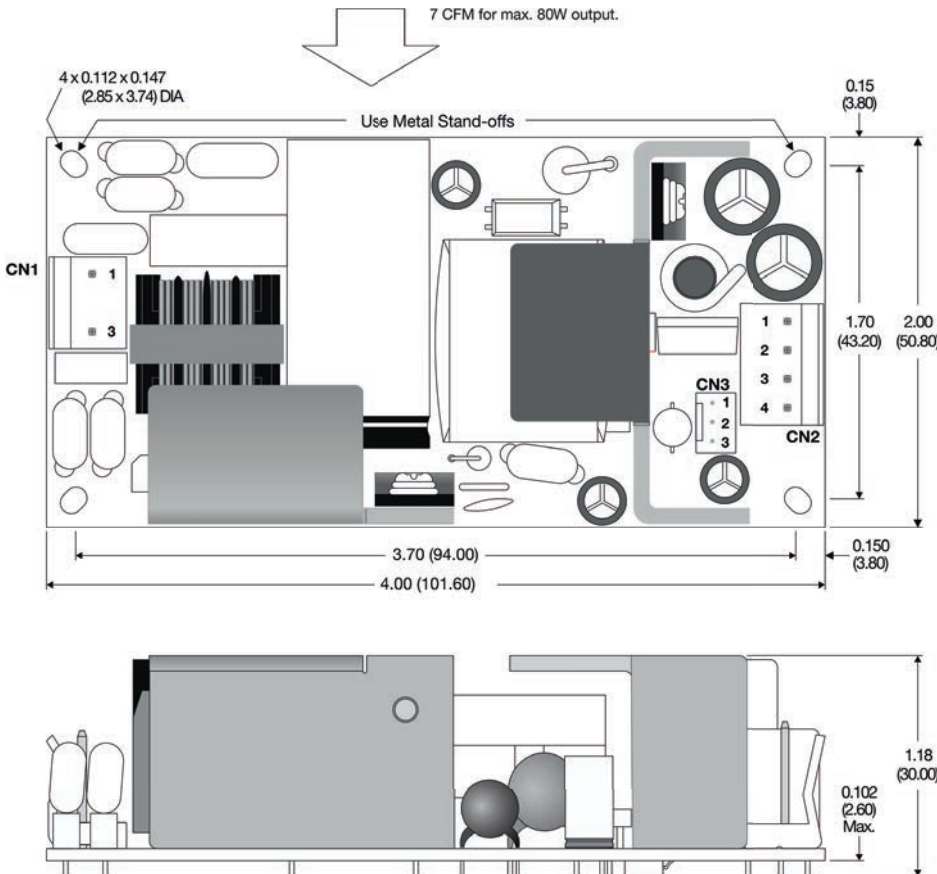
Notes:

- Output voltage tolerance is measured at 110 VAC input and 60% load.
- Line regulation is measured at a 115 VAC input with the rated load. The line is varied $\pm 10\%$.
- Load regulation is specified for a load change of $60\% \pm 40\%$ (of full load).
- Output ripple is measured at 20 MHz bandwidth and rated load using $0.1 \mu F$ and $10 \mu F$ capacitors connected in parallel as close to the power supply terminals as possible.
- To meet the EMI limits, the mounting holes must be connected together (by using metal standoffs).
- The unit meets EN 61000-4-11 criteria A for voltage dips of 60% at 100 VAC input. At 240 VAC input, it meets criteria B.
- These units will operate at no load without damage. However, they may not meet all specifications.
- The optional remote on/off function is active low. Contact the factory for details.
- Each unit includes an input fuse (250V/2A). Since this fuse is not field replaceable, it is recommended that an external fuse of the same size be used on the input of the power supply for protection.

Derating Curve



Mechanical Dimensions



Connections

Input Connector (CN1):

- Molex 09-65-2038 or equivalent (one pin removed)
- Mating Housing: Molex 09-50-1031 or equivalent

Pin	Function
1	AC-Neutral
2	Removed
3	AC-Line

Safety Ground:

The mounting holes marked "Use metal standoffs" should be connected to the system earth ground via metal spacers or a cable. The input side mounting hole marked "FG" provides the safety earth ground for the unit. This connection should be locked to prevent possible loosening. Connecting the output side mounting hole improves EMI.

Output Connector (CN2):

- Molex 09-65-2048 or equivalent
- Mating Housing: Molex 09-50-1041 or equivalent

Pin	60S(-SB)	60D
1	+V _{OUT}	+5V
2	+V _{OUT}	Grnd
3	-V _{OUT}	Grnd
4	-V _{OUT}	+12V

Connector (CN3):

- Molex 22-04-1031 or equivalent
- Mating Housing: Molex 51191-0300 or equivalent

Pin	Function
1	Remote On/Off
2	Grnd
3	+5Vsb

Connector CN3 is only installed on "SB" models

Notes:

- All dimensions are typical in inches (mm)
- Tolerance x.xx = ± 0.02 (± 0.50)



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