RoHS Compliant

Features

- RoHS compliant for all six substances
- High power density in an industry-standard 3" x 5" footprint
- Power Factor Correction (PFC) meets EN61000-3-2
- Main output remote sense
- Power Good signals
- CE marked to Low Voltage Directive
- Input transient & ESD compliance to EN61000-4-2/-3/-4/-5

Description

The MPB150 Series incorporates patented high efficiency circuitry, high power density and active Power Factor Correction (PFC) to meet the requirements of networking and data communications systems, as well as commercial and industrial configurations.

MPB150's deliver a regulated main output plus a second 12V output for fans or other system functions. The MPB150 is rated for convection as well as forced-air cooling. Full output power is available with as few as 15 Cubic Feet per Minute (CFM) forced-air cooling.

The MPB150 product line is approved to the latest international regulatory standards, and displays the CE Mark.

Model Selection

MODEL	OUTPUT VOLTAGE (VOLTS)	MAXIMUM OUTPUT CURRENT (AMPS), 130 LFM	TOTAL REGULATION %	RIPPLE & NOISE % pk-pk (NOTE 1)	REGULATION RANGE
MPB150-2012G	+12V	12.5A	±3%	1%	11.64V to 12.36V
(NOTE 2, 3, 4)	12V	0.5A	±5%	1%	11.40V to 12.60V
MPB150-2024G	+24V	6.0A	±3%	1%	23.28V to 24.72V
(NOTE 2, 3, 4)	12V	0.5A	±5%	1%	11.40V to 12.60V
MPB150-2048G	+48V	3.1A	±3%	1%	46.56V to 49.44V
(NOTE 2, 3, 4)	12V	0.5A	±5%	1%	11.40V to 12.60V

NOTES: 1) Maximum peak-to-peak noise expressed as a percentage of output voltage, 20 MHz bandwidth.
2) Maximum forced-air output power is 150 watts with 15 CFM airflow.
3) Maximum convection output power is 70 watts.
4) V2 is isolated from V1 and can be used as a negative or positive output.

Input Specifications

PARAMETER	CONDITIONS/DESCRIPTION	MIN	NOM	MAX	UNITS
Input Voltage- AC	Continuous input range.	90		264	VAC
Input Frequency	AC Input.	47		63	Hz
Brownout Protection	Lowest AC input voltage that regulation is maintained with full rated loads.	90			VAC
Hold-up Time	Over full AC input voltage range at full rated load.	17			ms
Input Current	90 VAC at full rated load.			2.2	ARMS
Input Protection	Non-user serviceable internally located AC input line fuse, 250 VAC, 3.15A.				
Inrush Surge Current	Internally limited by thermistor, one cycle, 25° C. 110VAC: 220VAC:			23 46	APK
Power Factor Circuitry	Active PFC meets requirements of EN61000-3-2.				
Operating Frequency	Switching frequency of main transformer.		45		kHz

Output Specifications

PARAMETER	CONDITIONS/DESCRIPTION	MIN	NOM	MAX	UNITS
Efficiency	Full Load, 230VAC. Varies with distribution of loads among outputs.	75	80	85	%
Minimum Loads	V1 load for full regulation on V2. All models operate at no load without any damage and meet all specs on V1 above 0 amps.	5			Watts
Ripple and Noise	Full load, 20 MHz bandwidth.	See Model Selection Chart			
Output Power (Note 1)	At 15 CFM forced-air cooling. See Application Note for details. Convection: Consult Factory.			150	Watts
Overshoot /Undershoot	Output voltage overshoot/undershoot at turn-on.			10	%
Regulation	Varies by output. Total regulation includes: line changes from 85-132 VAC or 170-264 VAC, changes in load starting at 20% load and changing to 100% load.	See Model Selection Chart			
Transient Response	Maximum deviation due to a 25% load change with unit at 75% load.		3		%
Turn-on Delay	Time required for initial output voltage stabilization.	0.2		1.5	Sec
Turn-on Rise Time	Time required for output voltage to rise from 10% to 90%.	0.2		20	ms

Interface Signals and Internal Protection

PARAMETER	CONDITIONS/DESCRIPTION		MIN	NOM	MAX	UNITS
Overvoltage Protection	V1 output.	MPB150-2012 MPB150-2024 MPB150-2048	13.5 26.9 57.6		16.5 31.1 62.4	VDC
Overload Protection	Fully protected against output short circuit or overload. Automatic recovery upon removal of overload condition.					
Remote Sense (Note 1)	Total (+sense and -sense) voltage compensation for cable losses.				500	mV
Power Good Signal	AC/DC indicator - This signal indicates the status of the AC input or DC outputs. When there is sufficient AC voltage and the outputs are operating normally, an open collector signal is provided.					
	Turn-On delay time from application of AC:		50		500	
	Warning time before outputs go out of regulation:		5			ms
	Warning time before outputs deviate ±10% from the nominal value:		15			
		Sink Current			20	mA
		Pull-up Voltage			30	V
Power Supply OK Signal	Provided on dual-output models. Open collector signal intended to drive an LED. Closed collector occurs when the Power Good Signal is in its open collector state.					
		Sink Current			20	mA
		Pull-up Voltage			30	V
Thermal Shutdown	Protected against overtemperature conditions. Unit recovers when overtemperature condition is removed.					
Current Share	Up to 4 units can be connected in parallel. There are some limits for parallel operation. See Applications Note. N+1 redundancy is provided. V2 needs an external isolation diode for N+1 operation.					
Isolation Diode	Internal isolation diode is provided on V1.					

NOTES: 1) Negative (-) sense must be connected to output common or load common for proper power supply operation.

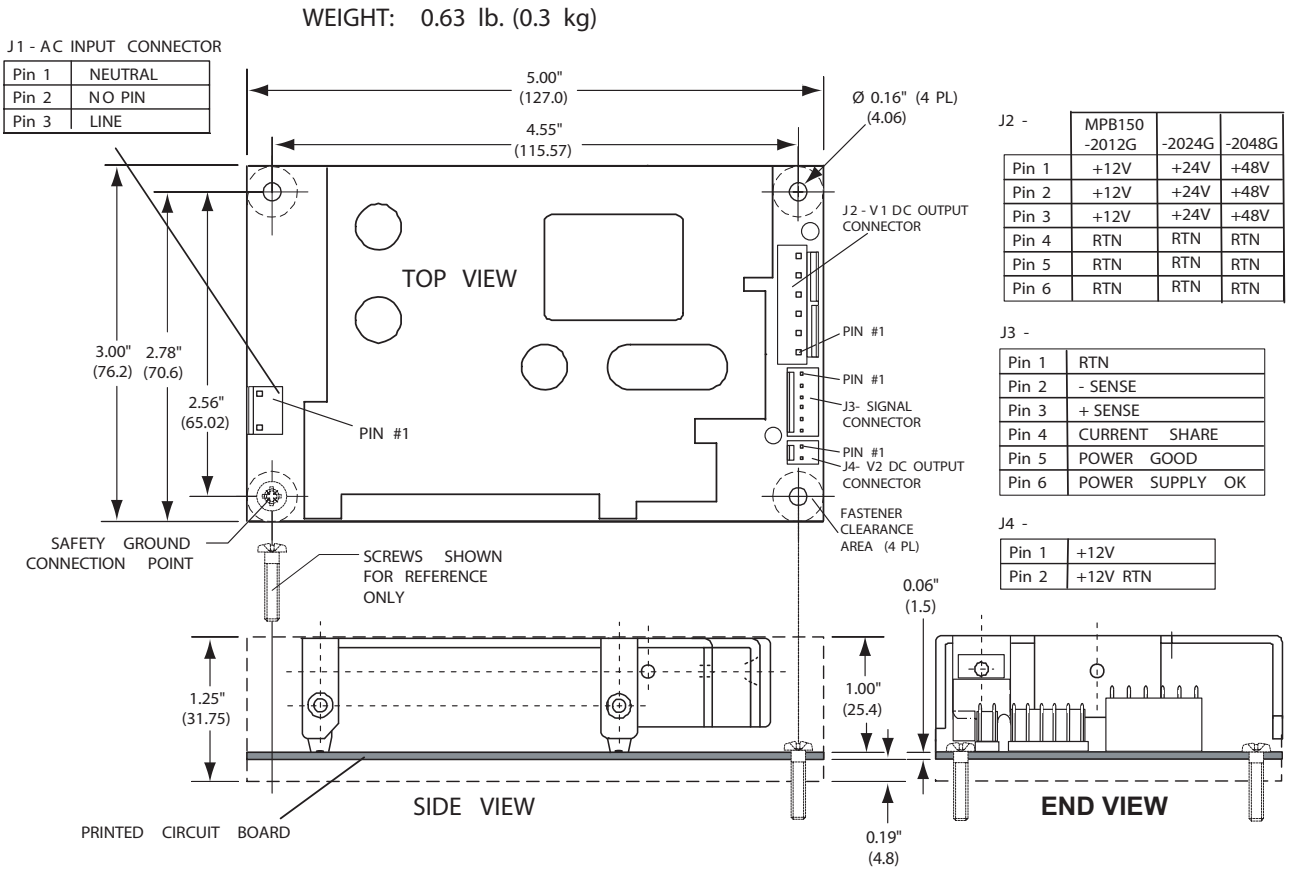
Safety, Regulatory, and EMI Specifications

PARAMETER	CONDITIONS/DESCRIPTION		MIN	NOM	MAX	UNITS
Agency Approvals	UL60950-1. CSA 22.2 No. 60950-1. EN60950 (TÜV). IEC60950-1.			(Approvals Pending)		
Dielectric Withstand Voltage	AC to chassis. Input to output.		1500 3000			VAC VDC
Electromagnetic Interference	EN55022 Conducted.	Class A	6			dB
ESD Susceptibility	Per EN61000-4-2, Level 4		8			kV
Flicker	Per EN61000-3-3.					
Radiated Susceptibility	Per EN61000-4-3.			3		V/m
EFT/Burst	Per EN61000-4-4.		1			kV
Input Transient Protection	Per EN61000-4-5, Level 3, 2 kV (Line-to-Gnd) minimum, 1 kV (Line-to-Line) minimum.					
RF Immunity	Per EN61000-4-6. 0.15 to 80 MHz (1 kHz sinewave)			3		V/m
Magnetic Fields	Per EN61000-4-8.			1		A/m
Voltage Dips	Per EN61000-4-11.					
Insulation Resistance	Input to output.			10		MΩ
Leakage Current	Per EN60950 (264 VAC)				1.0	mA

Environmental Specifications

PARAMETER	CONDITIONS/DESCRIPTION		MIN	NOM	MAX	UNITS
Altitude	Operating Non-Operating				10K 50K	ASL Feet
Operating Temperature	Derate linearly from 50 to 70°C to 50% power at 70°C. MPB150 models will operate at -20°C, but will not meet all specifications.	At 100% load:	0		50	°C
Storage Temperature			-40		85	°C
Forced-Air Cooling	Forced-air cooling of 15 CFM is required for full output power. Air velocity is measured with power supply mounted on 0.375" (9.5mm) standoffs. Airflow direction is from the input section to the output section. See Application Note for details.					
Temperature Coefficient	Included in total regulation of outputs.					
Relative Humidity	Non-Condensing.		5		85	%RH
Shock	Operating: 11 ±3ms, 3 axes, Half Sine. Non-operating: 11 ±3ms, 3 axes, Half Sine.				15 40	G_{pk}
Vibration	Operating: Random vibration, 5-500 Hz, 10 minutes each axis. Non-Operating: Random vibration, 5-500 Hz, 10 minutes each axis.				2.4 6.0	GRMS GRMS

Mechanical Drawing (-2012G, -2024G, & -2048G Models)



J2 -

	MPB150 -2012G	-2024G	-2048G
Pin 1	+12V	+24V	+48V
Pin 2	+12V	+24V	+48V
Pin 3	+12V	+24V	+48V
Pin 4	RTN	RTN	RTN
Pin 5	RTN	RTN	RTN
Pin 6	RTN	RTN	RTN

J3 -

Pin 1	RTN
Pin 2	- SENSE
Pin 3	+ SENSE
Pin 4	CURRENT SHARE
Pin 5	POWER GOOD
Pin 6	POWER SUPPLY OK

J4 -

Pin 1	+12V
Pin 2	+12V RTN

Mating Connectors

NOTE: Part numbers are MOLEX; equivalents are acceptable.

		MPB150 -2012G -2024G -2048G
J1	Housing	09-50-8031
	Pins	08-52-0113
J2	Housing	09-50-8061
	Pins	08-52-0113
J3	Housing	22-01-3067
	Pins	08-50-0114
J4	Housing	22-01-3027
	Pins	08-50-0114