MPB150 Dual-Output AC-DC Series

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.

Key Features & Benefits

- RoHS Compliant for All Six Substances
- High Power Density
- 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

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MPB150 Dual-Output AC-DC Series

Model Selection

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

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Interface Signals and Internal Protection

PARAMETER	CONDITIONS/DESCRIPTION		MIN	NOM	MAX	UNITS
Overvoltage Protection	V1 output	MPB150-2012G MPB150-2024G MPB150-2048G	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: Warning time before outputs go out of regulation: Warning time before outputs deviate ±10% from the nominal value: Sink Current Pull-up Voltage		50 5 15		500 20 30	 ms mA 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 Pull-up Voltage				 20 30	 mA 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	Approved to latest edition of the following standards: UL/CSA60950-1, IEC60950-1 and EN60950-1.				
Dielectric Withstand Voltage	Input to Chassis Input to Output (Tested by manufacturer only)	2121 4242			VDC 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

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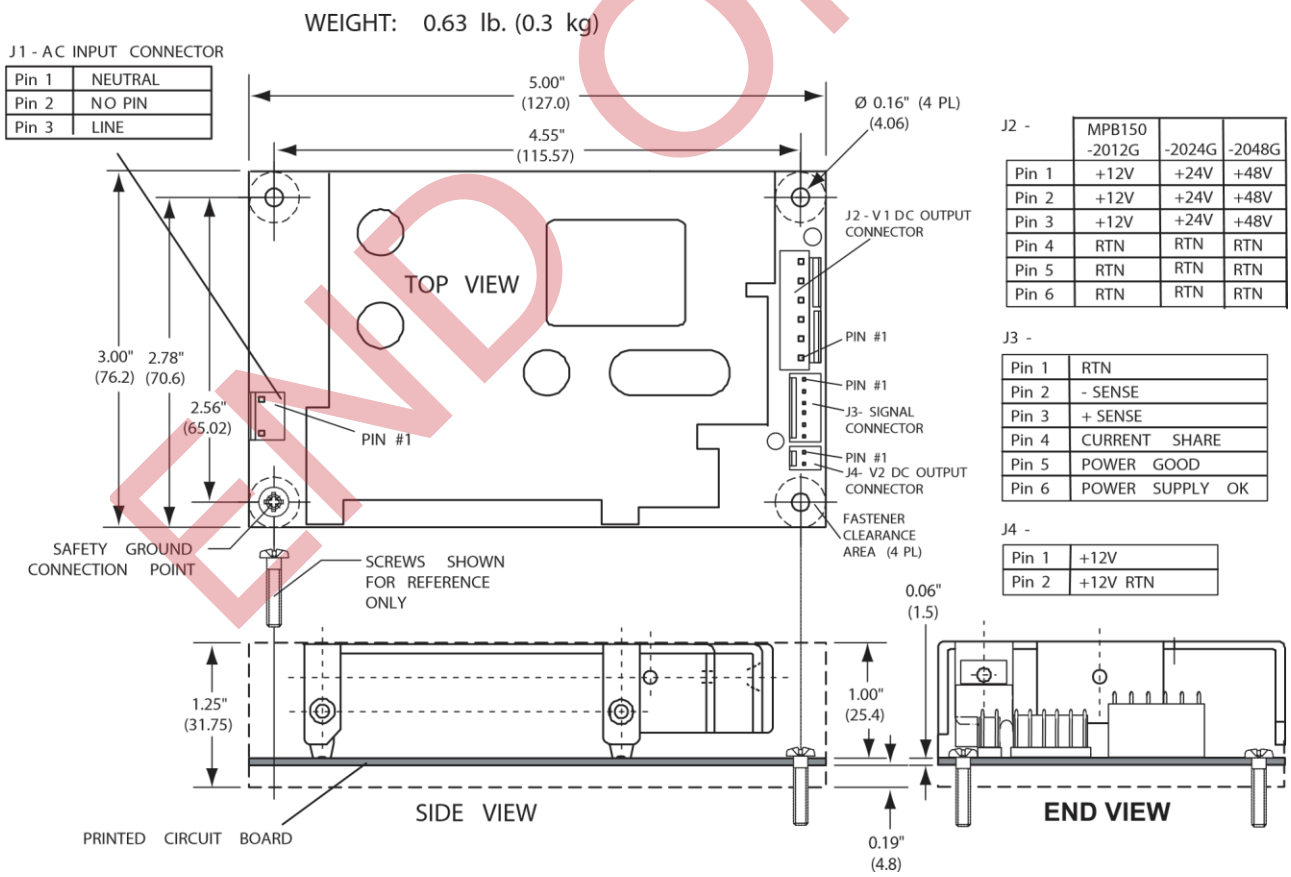
Environmental Specifications

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. At 100% load: MPB150 models will operate at -20°C, but will not meet all specifications.	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	Gpk
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	G_{RMS}

Figure 1 - Mechanical Drawing MBP150 (-2012G, -2024G & -2048G Models)



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Mating Connectors

		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

NOTE: Part numbers are MOLEX; equivalents are acceptable.

For more information on these products consult: tech.support@psbel.com

NUCLEAR AND MEDICAL APPLICATIONS - Products are not designed or intended for use as critical components in life support systems, equipment used in hazardous environments, or nuclear control systems.
TECHNICAL REVISIONS - The appearance of products, including safety agency certifications pictured on labels, may change depending on the date manufactured. Specifications are subject to change without notice.

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