150W Reliable Dual Output Medical Grade RPD-160 series

ANSI/AAMI ES60601-1 EN60601-1 IEC60601-1

ECO Medical 2xMOPP BF rated

Features

- 5"×3" compact size
- Medical safety approved (2 x MOPP) according to ANSI/AAMI ES60601-1 and IEC/EN 60601-1
- Suitable for BF application with appropriate system consideration
- 100W convection, 150W force air
- EMI Class B for Class Ⅰ configuration
- No load power consumption<0.75W by PS-ON control (G model)
- Extremely low leakage current
- 5Vdc standby output, Power Good, Power Fail
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Lifetime > 85K hours
- 3 years warranty

Applications

- Oral irrigator
- Hemodialysis machine
- Medical monitors
- Sleep apnea devices
- Pumps machine

Description

RPD(G)-160 is a 150W highly reliable PCB type medical power supply with a high power density on the 5" by 3" footprint. It accepts 90~264VAC input and offers dual output voltages. RPD-160 is able to be used for class Ⅰ (with FG) system design. The extremely low leakage current is less than 150 μA. In addition, it conforms to international medical regulations (2*MOPP) and EMC EN55011, perfectly fitting all kinds of BF rated "patient contact" medical system equipment.

Model Encoding

RPD G - 160 B

- B: Output voltage
- 160: Rated wattage
- G: Green model, with $5V_{sb}$ and no load < 0.75W
- RPD: Series name

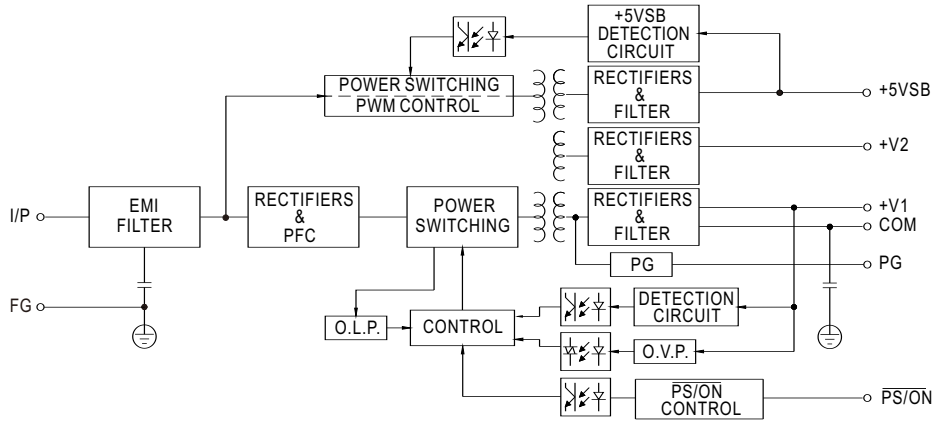
SPECIFICATION

MODEL		RPD-160B		
OUTPUT	OUTPUT NUMBER	CH1	CH2	
	DC VOLTAGE	5V	24V	
	RATED CURRENT (20.5CFM)	12A	3.6A	
	CURRENT RANGE (convection)	1 ~ 6A	0.2 ~ 2.8A	
	CURRENT RANGE (20.5CFM)	1 ~ 12A	0.2 ~ 3.6A	
	RATED POWER (convection) Note.2	100.2W		
	RATED POWER (20.5CFM) Note.3	150.4W		
	RIPPLE & NOISE (max.) Note.4	80mVp-p	120mVp-p	
	VOLTAGE ADJ. RANGE	CH1: 5 ~ 5.5V		
	VOLTAGE TOLERANCE Note.6	±2.5%	±6.0%	
	LINE REGULATION	±0.5%	±1.0%	
	LOAD REGULATION	±1.5%	±3.0%	
	SETUP, RISE TIME	1800ms, 30ms/230VAC 3500ms, 30ms/115VAC at full load		
	HOLD UP TIME (Typ.)	20ms/230VAC 20ms/115VAC at full load		
INPUT	VOLTAGE RANGE Note.7	90 ~ 264VAC 127 ~ 370VDC		
	FREQUENCY RANGE	47 ~ 63Hz		
	POWER FACTOR (Typ.)	PF>0.93/230VAC PF>0.98/115VAC at full load		
	EFFICIENCY (Typ.)	85%		
	AC CURRENT (Typ.)	1.7A/115VAC 0.9A/230VAC		
	INRUSH CURRENT (Typ.)	COLD START 35A/115VAC 70A/230VAC		
	LEAKAGE CURRENT Note.8	Earth leakage current < 150 μA/264VAC , Touch current < 100 μA/264VAC		
PROTECTION	OVERLOAD	105 ~ 135% rated output power		
		Protection type : Hiccup mode, recovers automatically after fault condition is removed		
	OVER VOLTAGE	Ch1: 5.8 ~ 6.8V		
		Protection type : Shut down o/p voltage, re-power on to recover		
	OVER TEMPERATURE	TSW1: Shut down o/p voltage, recovers automatically after temperature goes down		
		TSW2: Shut down o/p voltage, re-power on to recover		
FUNCTION	5V STANDBY (G model)	5VSB : 5V@0.6A without fan, 0.8A with fan 20.5CFM ; tolerance ± 2%, ripple : 50mVp-p(max.)		
	PS-ON INPUT SIGNAL (G model)	Power on: PS-ON = "Hi" or " > 2 ~ 5V" ; Power off: PS-ON = "Low" or " < 0 ~ 0.5V"		
	POWER GOOD / POWER FAIL	500ms>PG>10ms PF>1ms		
ENVIRONMENT	WORKING TEMP.	-20 ~ +70℃ (Refer to "Derating Curve")		
	WORKING HUMIDITY	20 ~ 90% RH non-condensing		
	STORAGE TEMP., HUMIDITY	-40 ~ +85℃, 10 ~ 95% RH non-condensing		
	TEMP. COEFFICIENT	±0.03%/℃ (0 ~ 50℃)		
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes		
	OPERATING ALTITUDE Note.9	3000 meters		
SAFETY & EMC (Note 10)	SAFETY STANDARDS	IEC60601-1, UL ANSI/AAMI ES60601-1, CAN/CSA-C22.2 No. 60601-1:14 - Edition 3 approved,TUV EN60601-1 approved		
	ISOLATION LEVEL	Primary-Secondary: 2xMOPP, Primary-Earth:1xMOPP, Secondary-Earth:1xMOPP		
	WITHSTAND VOLTAGE	I/P-O/P:4KVAC I/P-FG:2KVAC O/P-FG:1.5KVAC		
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:100M Ohms / 500VDC / 25℃/ 70% RH		
	EMC EMISSION	**Parameter**	**Standard**	**Test Level / Note**
		Conducted emission	EN55011 (CISPR11)	Class B
		Radiated emission	EN55011 (CISPR11)	Class B
		Harmonic current	EN61000-3-2	Class A
		Voltage flicker	EN61000-3-3	-----
	EMC IMMUNITY	EN60601-1-2		
		Parameter	**Standard**	**Test Level / Note**
		ESD	EN61000-4-2	Level 4, 15KV air ; Level 4, 8KV contact
		RF field susceptibility	EN61000-4-3	Level 3, 10V/m(80MHz~2.7GHz) Table 9, 9~28V/m(385MHz~5.78GHz)
		EFT bursts	EN61000-4-4	Level 3, 2KV
		Surge susceptibility	EN61000-4-5	Level 3, 2KV/Line-FG ; 1KV/Line-Line
		Conducted susceptibility	EN61000-4-6	Level 3, 10V
		Magnetic field immunity	EN61000-4-8	Level 4, 30A/m
		Voltage dip, interruption	EN61000-4-11	100% dip 1 periods, 30% dip 25 periods, 100% interruptions 250 periods
OTHERS	MTBF	196.3K hrs min. MIL-HDBK-217F (25℃)		
	DIMENSION (L*W*H)	127*76.2*34.6mm or 5" 3" 1.36" inch		
	PACKING	0.33Kg; 36pcs/12.9Kg/0.79CUFT		

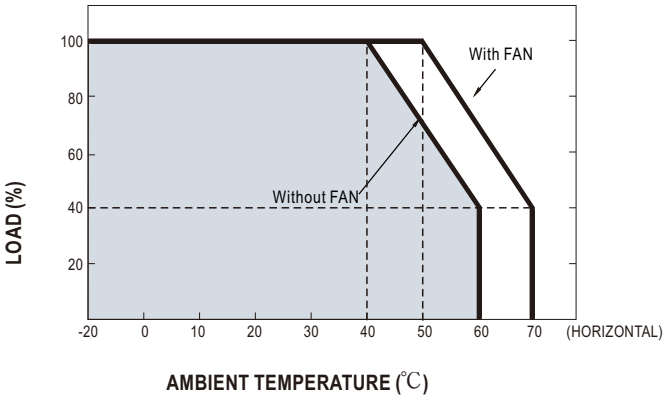
NOTE

1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25℃ of ambient temperature.
2. The rated power includes 5Vsb @ 0.6A.
3. The rated power includes 5Vsb @ 0.8A.
4. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1μf & 47μf parallel capacitor.
5. HS1,HS2 & HS3 can not be shorted.
6. Tolerance : includes set up tolerance, line regulation and load regulation.
7. Derating may be needed under low input voltages. Please check the derating curve for more details.
8. Touch current was measured from primary input to DC output.
9. The ambient temperature derating of 5℃/1000m is needed for operating altitude greater than 3000m (6500ft).
10. The power supply is considered a component which will be installed into a final equipment. All the EMC tests are been executed by mounting the unit on a 360mm*360mm metal plate with 1mm of thickness. The final equipment must be re-confirmed that it still meets EMC directives. For guidance on how to perform these EMC tests, please refer to "EMI testing of component power supplies." (as available on http://www.meanwell.com)

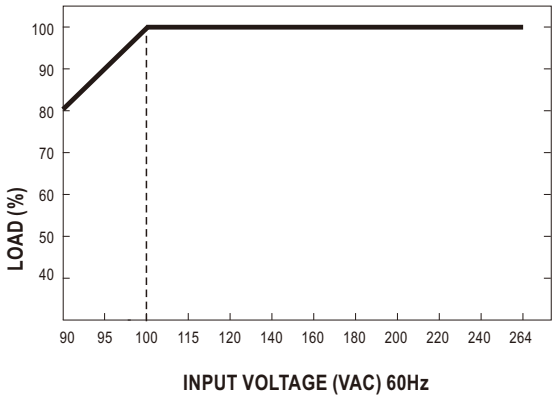
■ Block Diagram



■ Derating Curve



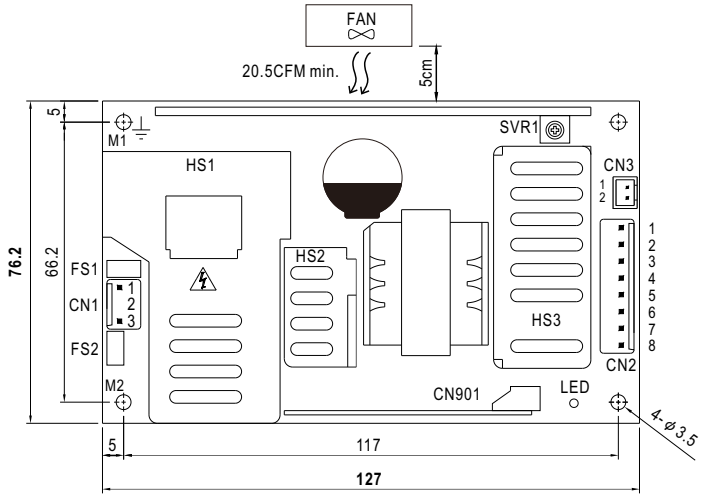
■ Output Derating VS Input Voltage

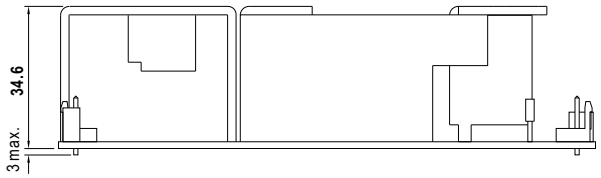


■ Mechanical Specification

Top View

Unit:mm





Side View

AC Input Connector (CN1) : JST B3P-VH or equivalent

Pin No.	Assignment	Mating Housing	Terminal
1	AC/L	JST VHR or equivalent	JST SVH-21T-P1.1 or equivalent
2	No Pin		
3	AC/N		

Power Good Connector(CN3):JST B2B-XH or equivalent

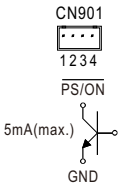
Pin No.	Status	Mating Housing	Terminal
1	PG	JST XHP or equivalent	JST SXH-001T-P0.6 or equivalent
2	GND		

DC Output Connector (CN2) : JST B8P-VH or equivalent

Pin No.	Assignment	Mating Housing	Terminal
1,2,3,4	COM	JST VHR or equivalent	JST SVH-21T-P1.1 or equivalent
5,6	CH1		
7	CH2		
8	NC		

5VSB Connector(CN901) : JST B-XH or equivalent

Pin No.	Assignment	Mating Housing	Terminal
1	$\overline{\text{PS/ON}}$	JST XHP or equivalent	JST SXH-001T or equivalent
2,4	GND		
3	5VSB		



⚠ 1.HS1,HS2,HS3 can not be shorted
2.M1 and M2 are Safety ground and should all be grounded.

■ INSTALLATION MANUAL

Please refer to : http://www.meanwell.com/manual.html

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