



60W Reliable Dual Output Medical Grade

RPD-60 series



User's Manual



ANSI/AAMI ES60601-1 BS EN/EN60601-1
UL62368-1



BS EN/EN62368-1



IEC60601-1
IEC62368-1



TPTC004



Medical



2xMOPP



BF rated

■ Features

- 4"x2" compact size
- Medical safety approved (2 x MOPP) according to ANSI/AAMI ES60601-1 and IEC/BS EN/EN60601-1
- Suitable for BF application with appropriate system consideration
- Cooling by free air convection
- EMI class B for class I configuration
- Extremely low leakage current
- Protections: Short circuit / Overload / Over voltage
- 3 years warranty

■ Applications

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

■ GTIN CODE

MW Search: <https://www.meanwell.com/serviceGTIN.aspx>

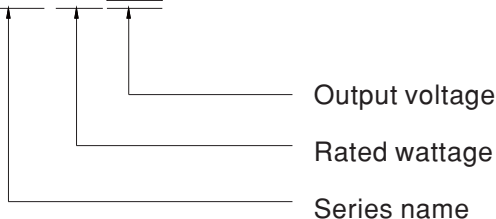
■ Description

RPD-60 is a 60W highly reliable green PCB type medical power supply with a high power density on the 4" by 2" footprint. It accepts 90~264VAC input and offers dual output voltages .

RPD-60 is able to be used for Class I (with FG) system design. The extremely low leakage current is less than 150 μ A. In addition, it conforms to international medical regulations (2*MOPP) and EMC BS EN/EN55011.

■ Model Encoding

RPD- 60 A





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SPECIFICATION

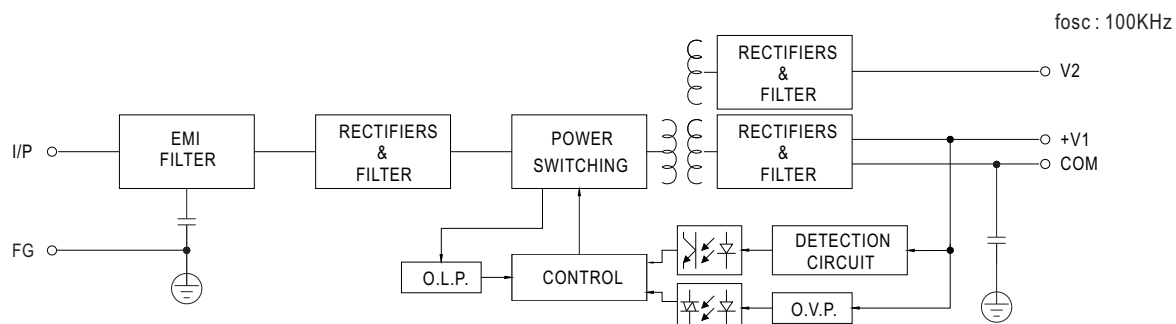
MODEL		RPD-60A		RPD-60B		
OUTPUT	OUTPUT NUMBER	CH1	CH2	CH1	CH2	
	DC VOLTAGE	5V	12V	5V	24V	
	RATED CURRENT	5A	2A	3.5A	1.5A	
	CURRENT RANGE	0.5 ~ 5.5A	0.1 ~ 2.2A	0.5 ~ 3.85A	0.1 ~ 1.65A	
	RATED POWER	49W		53.5W		
	PEAK LOAD(10sec.) Note.2	53.9W		58.85W		
	RIPPLE & NOISE (max.) Note.3	80mVp-p	80mVp-p	80mVp-p	100mVp-p	
	VOLTAGE TOLERANCE Note.4	+3,-2%	± 6.0%	+3,-2%	+8,-4%	
	LINE REGULATION	± 0.5%	± 1.0%	± 0.5%	± 1.0%	
	LOAD REGULATION	± 1.5%	± 2.0%	± 1.5%	± 2.0%	
	SETUP, RISE TIME	300ms, 15ms/230VAC 300ms, 15ms/115VAC at full load				
	HOLD UP TIME (Typ.)	70ms/230VAC 14ms/115VAC at full load				
INPUT	VOLTAGE RANGE	90 ~ 264VAC 127 ~ 370VDC				
	FREQUENCY RANGE	47 ~ 63Hz				
	EFFICIENCY (Typ.)	78%		82%		
	AC CURRENT (Typ.)	1.1A/115VAC 0.7 A/230VAC				
	INRUSH CURRENT (Typ.)	COLD START 60A/230VAC 30A/115VAC				
	LEAKAGE CURRENT Note.5	Earth leakage current < 150 μ A/264VAC , Touch current < 100 μ A/264VAC				
PROTECTION	OVERLOAD	115 ~ 150% rated output power Protection type : Hiccup mode, recovers automatically after fault condition is removed				
	OVER VOLTAGE	CH1: 5.75 ~ 6.75V Protection type : Shut down o/p voltage, re-power on to recover				
	WORKING TEMP.	-20 ~ +65 $^{\circ}$ C (Refer to "Derating Curve")				
ENVIRONMENT	WORKING HUMIDITY	20 ~ 90% RH non-condensing				
	STORAGE TEMP., HUMIDITY	-40 ~ +85 $^{\circ}$ C , 10 ~ 95% RH non-condensing				
	TEMP. COEFFICIENT	± 0.03%/ $^{\circ}$ C (0 ~ 45 $^{\circ}$ C)				
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes				
	OPERATING ALTITUDE Note.6	3000 meters				
SAFETY & EMC (Note 9)	SAFETY STANDARDS	IEC 60601-1:2005+A1+A2, TUV BS EN/ EN 60601-1:2006+A1+A12+A2, ANSI/AAMI ES60601-1:2005+A2, CAN/CSA C22.2 No. 60601-1:2014+A2, IEC 62368-1:2014, UL 62368-1, 2nd Ed, CSA C22.2 No. 62368-1-14, 2nd Ed, TUV BS EN/ EN 62368-1:2014+A11, EAC TP TC 004 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 $^{\circ}$ C / 70% RH				
	EMC EMISSION	Parameter	Standard		Test Level / Note	
		Conducted emission	BS EN/EN55011 (CISPR11)		Class B	
		Radiated emission	BS EN/EN55011 (CISPR11)		Class B	
		Harmonic current	BS EN/EN61000-3-2		Class A	
		Voltage flicker	BS EN/EN61000-3-3		-----	
	EMC IMMUNITY	BS EN/EN55035,BS EN/EN60601-1-2				
		Parameter	Standard		Test Level / Note	
		ESD	BS EN/EN61000-4-2		Level 4, 15KV air ; Level 4, 8KV contact	
		RF field susceptibility	BS EN/EN61000-4-3		Level 3, 10V/m(80MHz~2.7GHz) Table 9, 9~28V/m(385MHz~5.78GHz)	
		EFT bursts	BS EN/EN61000-4-4		Level 3, 2KV	
		Surge susceptibility	BS EN/EN61000-4-5		Level 4, 4KV/Line-FG ; 2KV/Line-Line	
		Conducted susceptibility	BS EN/EN61000-4-6		Level 3, 10V	
		Magnetic field immunity	BS EN/EN61000-4-8		Level 4, 30A/m	
		Voltage dip, interruption	BS EN/EN61000-4-11		100% dip 1 periods, 30% dip 25 periods, 100% interruptions 250 periods	
OTHERS	MTBF	5031.3K hrs min. Telcordia SR-332 (Bellcore) ; 679.5K hrs min. MIL-HDBK-217F (25 $^{\circ}$ C)				
	DIMENSION (L*W*H)	101.6*50.8*29mm or 4" * 2" *1.14" inch				
	PACKING	0.15Kg; 96pcs/15.4Kg/0.89CUFT				
NOTE	1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25 $^{\circ}$ C of ambient temperature. 2. 33% Duty cycle maximum within every 30 seconds. Average output power should not exceed the rated power. 3. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1 μ F & 47 μ F parallel capacitor. 4. Tolerance : includes set up tolerance, line regulation and load regulation. 5. Touch current was measured from primary input to DC output. 6. The ambient temperature derating of 3.5 $^{\circ}$ C/1000m with fanless models and of 5 $^{\circ}$ C/1000m with fan models for operating altitude higher than 2000m(6500ft). 7. Length of set up time is measured at cold first start. Turning ON/OFF the power supply may lead to increase of the set up time. 8. Heat Sink HS1,HS2 can not be shorted. 9. 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 https://www.meanwell.com/Upload/PDF/EMI_statement_en.pdf) ※ Product Liability Disclaimer : For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx					



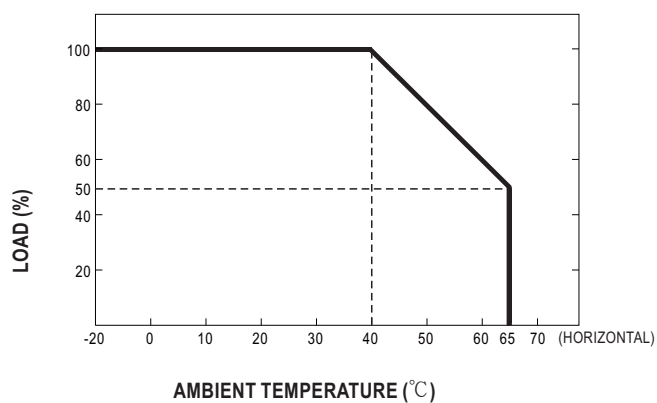
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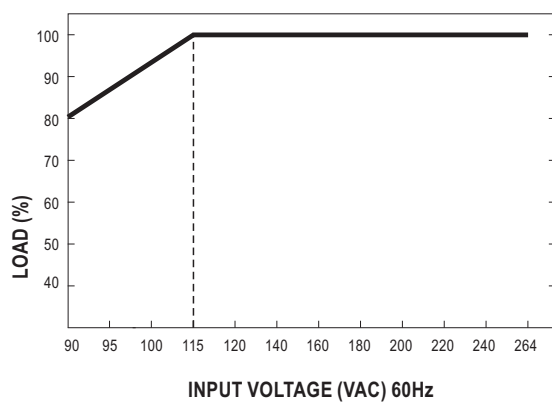
■ Block Diagram



■ Derating Curve

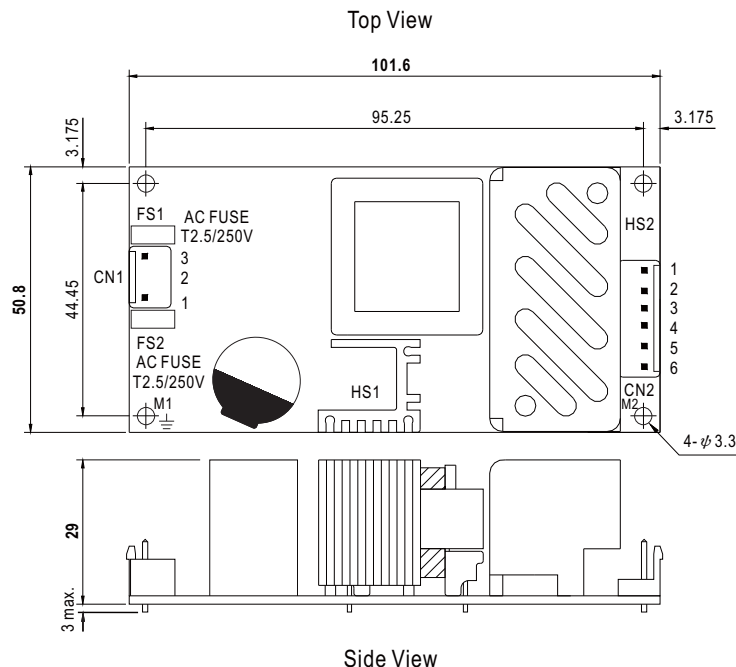


■ Output Derating VS Input Voltage





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RPD-60 series**Mechanical Specification**(Unit: mm , tolerance ± 1 mm)

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

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

DC Output Connector (CN2) : JST B6P-VH or equivalent

Pin No.	Assignment	Mating Housing	Terminal
1,2	V1	JST VHR or equivalent	JST SVH-21T-P1.1 or equivalent
3,4	COM		
5	V2		
6	NC		

⏏ : Grounding Required



- 1.HS1,HS2 cannot be shorted.
- 2.M1 is safety ground. For better EMC performance,
Please secure an electrical connection between
M1,M2 and chassis grounding.

Installation ManualPlease refer to : <http://www.meanwell.com/manual.html>