

ANSI/AAMI ES60601-1

EN60601-1

IEC60601-1



■ Features

- 3"x2" compact size
- Medical safety approved (2 x MOPP) according to ANSI/AAMI ES60601-1 and IEC/EN60601-1
- Suitable for BF application with appropriate system consideration
- Cooling by free air convection
- EMI class B for class II configuration
- No load power consumption < 0.1W
- Extremely low leakage current
- Protections: Short circuit / Overload / Over voltage
- Lifetime > 50K hours
- 3 years warranty

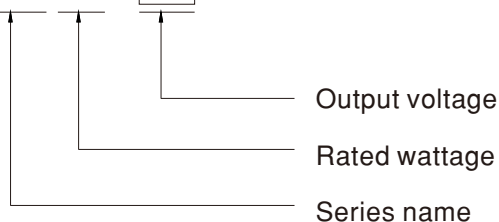
■ Applications

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

■ Description

RPS-45 is a 45W highly reliable green PCB type medical power supply with a high power density on the 3" by 2" footprint. It accepts 80~264VAC input and offers various output voltages between 3.3V and 48V. The working efficiency is up to 91% and the extremely low no load power consumption is down below 0.1W. RPS-45 is able to be used for Class II (no FG) system design. The extremely low leakage current is less than 100 μ A. 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

RPS-45 - 3.3


SPECIFICATION

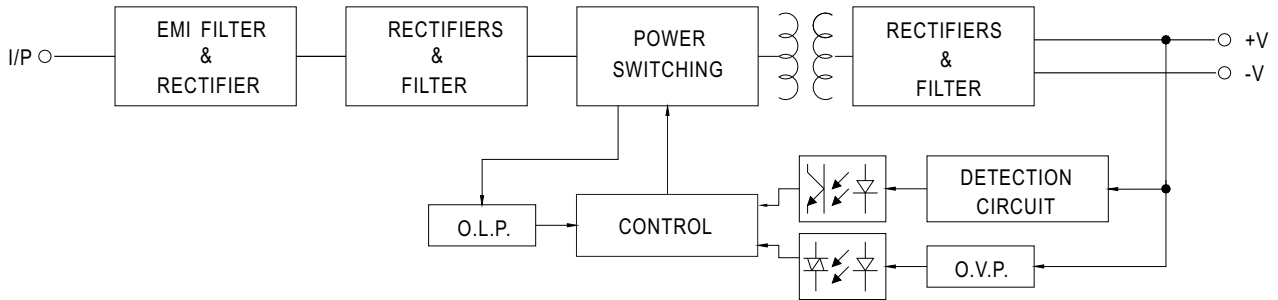
ORDER NO.		RPS-45-3.3	RPS-45-5	RPS-45-7.5	RPS-45-12	RPS-45-15	RPS-45-24	RPS-45-48
OUTPUT	DC VOLTAGE	3.3V	5V	7.5V	12V	15V	24V	48V
	RATED CURRENT	8A	8A	5.4A	3.8A	3A	1.9A	0.94A
	CURRENT RANGE	0 ~ 8.8A	0 ~ 8.8A	0 ~ 5.95A	0 ~ 4.18A	0 ~ 3.3A	0 ~ 2.1A	0 ~ 1.03A
	RATED POWER	26.4W	40W	40.5W	45.6W	45W	45.6W	45.1W
	PEAK LOAD(10sec.) <small>Note.2</small>	29W	44W	44.6W	50.2W	49.5W	50.2W	49.4W
	RIPPLE & NOISE (max.) <small>Note.3</small>	60mVp-p	60mVp-p	80mVp-p	100mVp-p	100mVp-p	120mVp-p	120mVp-p
	VOLTAGE ADJ. RANGE	3.1~3.6V	4.7~5.5V	7.12~8.3V	11.4~13.2V	13.5~16.5V	22.8~27.6V	45.6~52.8V
	VOLTAGE TOLERANCE <small>Note.4</small>	±2.0%	±2.0%	±2.0%	±2.0%	±1.0%	±1.0%	±1.0%
	LINE REGULATION	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%
	LOAD REGULATION	±2.0%	±2.0%	±2.0%	±2.0%	±1.0%	±1.0%	±1.0%
	SETUP, RISE TIME	500ms, 30ms / 230VAC 500ms, 30ms / 115VAC at full load						
	HOLD UP TIME (Typ.)	30ms / 230VAC 16ms / 115VAC at full load						
INPUT	VOLTAGE RANGE <small>Note.5</small>	80 ~ 264VAC						
	FREQUENCY RANGE	47 ~ 63Hz						
	EFFICIENCY (Typ.)	80.5%	83%	85%	88%	89%	90%	91%
	AC CURRENT (Typ.)	1.2A / 115VAC 1A / 230VAC						
	INRUSH CURRENT (Typ.)	COLD STAR 30A/115VAC 60A/230VAC						
	LEAKAGE CURRENT(max.) <small>Note.6</small>	Touch current< 100μA/264VAC						
PROTECTION	OVERLOAD	115 ~ 150% rated output power Protection type : Hiccup mode, recovers automatically after fault condition is removed						
	OVER VOLTAGE	3.8~5V	5.7~6.8V	8.6~11.3V	13.8~16.2V	17.2~20.3V	28.4~32.4V	55.2~64.8V
		Protection type : Shut down o/p voltage, re-power on to recover						
ENVIRONMENT	WORKING TEMP.	-30 ~ +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% / °C (0 ~ 50℃)						
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes						
	OPERATING ALTITUDE <small>Note.7</small>	4000 meters						
SAFETY & EMC (Note. 8)	SAFETY STANDARDS	IEC60601-1, TUV EN60601-1, UL ANSI/AAMI ES60601-1 (3.1 version), CAN/CSA-C22.2 No. 60601-1:14 - Edition 3 approved; Design refer to EN60335-1						
	ISOLATION LEVEL	Primary-Secondary: 2xMOPP						
	WITHSTAND VOLTAGE	I/P-O/P: 4KVAC						
	ISOLATION RESISTANCE	I/P-O/P: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 4, 2KV/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	726.2Khrs min. MIL-HDBK-217(25℃)					
	DIMENSION (L*W*H)	76.2*50.8*24mm or 3" * 2" *0.945" inch						
	PACKING	0.11Kg; 120pcs/14.2Kg/0.97CUFT						

NOTE

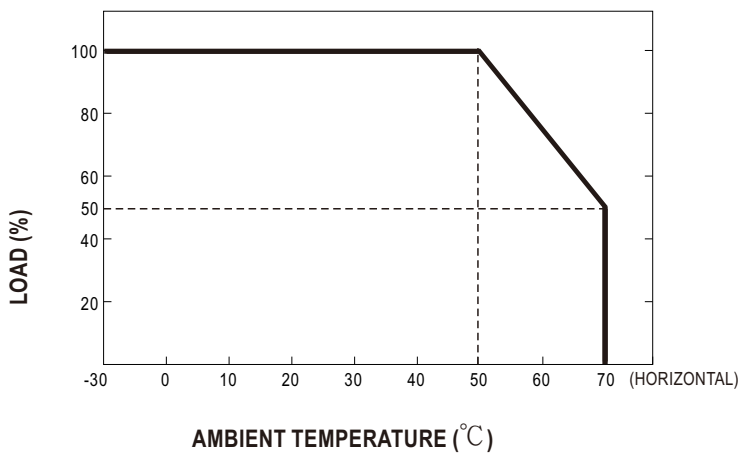
- All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.
- 33% Duty cycle maximum within every 30 seconds. Average output power should not exceed the rated power.
- Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1μf & 47μf parallel capacitor.
- Tolerance : includes set up tolerance, line regulation and load regulation.
- Derating may be needed under low input voltages. Please check the derating curve for more details.
- Touch current was measured from primary input to DC output.
- The ambient temperature derating of 5°C/1000m is needed for operating altitude greater than 2000m (6500ft).
- 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

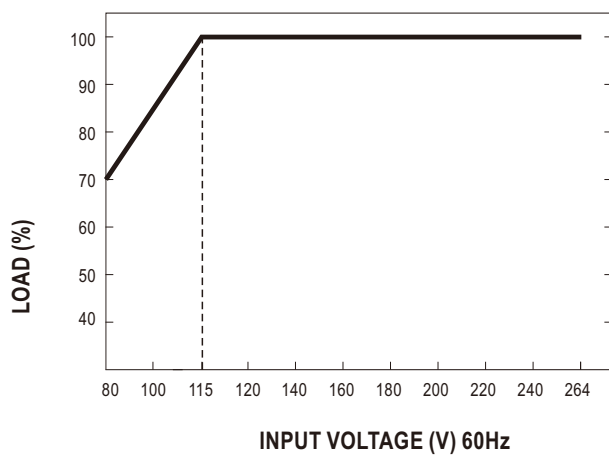
fosc : 65KHz



■ Derating Curve

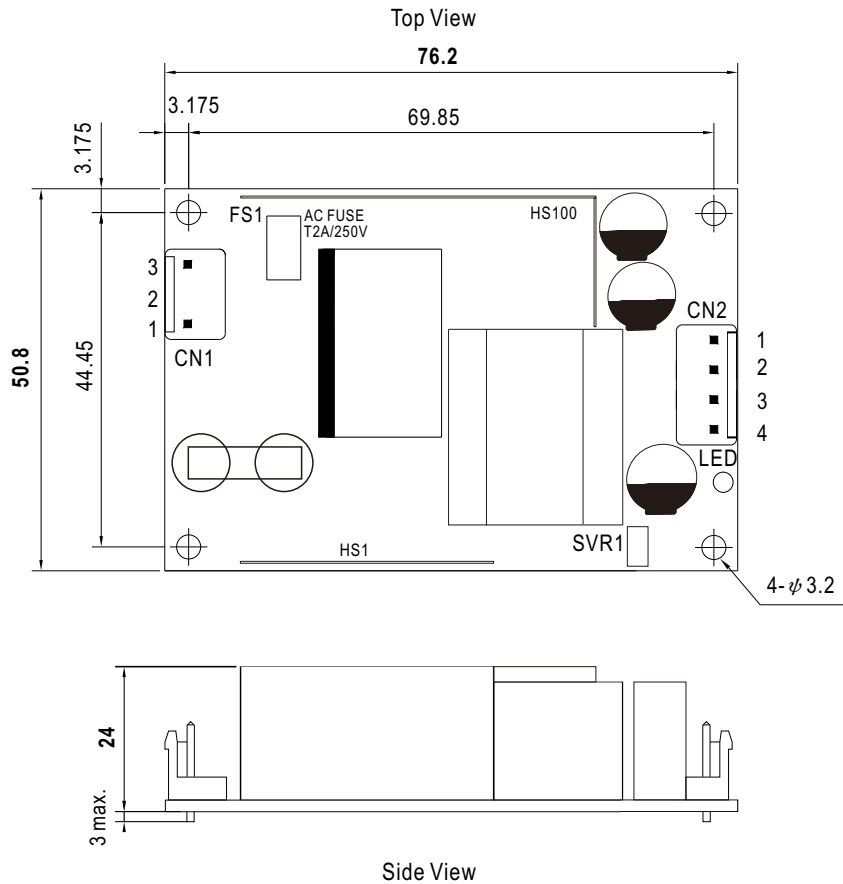


■ Static Characteristics



Mechanical Specification

Case No. Unit: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 B4P-VH or equivalent

Pin No.	Assignment	Mating Housing	Terminal
1	+V	JST VHR or equivalent	JST SVH-21T-P1.1 or equivalent
2	+V		
3	-V		
4	-V		

Installation Manual

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