





# Features

- 3"×2" 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  ${\rm I\hspace{-0.1em}I}$  configuration
- No load power consumption<0.1W
- Extremely low leakage current
- · Protections: Short circuit / Overload / Over voltage
- · Operating altitude up to 4000 meters
- · 3 years warranty

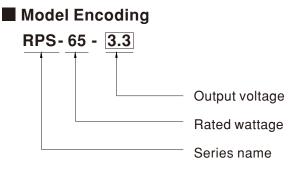
### Description



# Applications

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

RPS-65 is a 65W 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-65 is able to be used for Class II (no FG) system design. The extremely low leakage current is less than 100  $\mu$ A. In addition, it conforms to international medical regulations (2\*MOPP) and EMC BS EN/EN55011, perfectly fitting all kinds of BF rated "patient contact" medical system equipment.



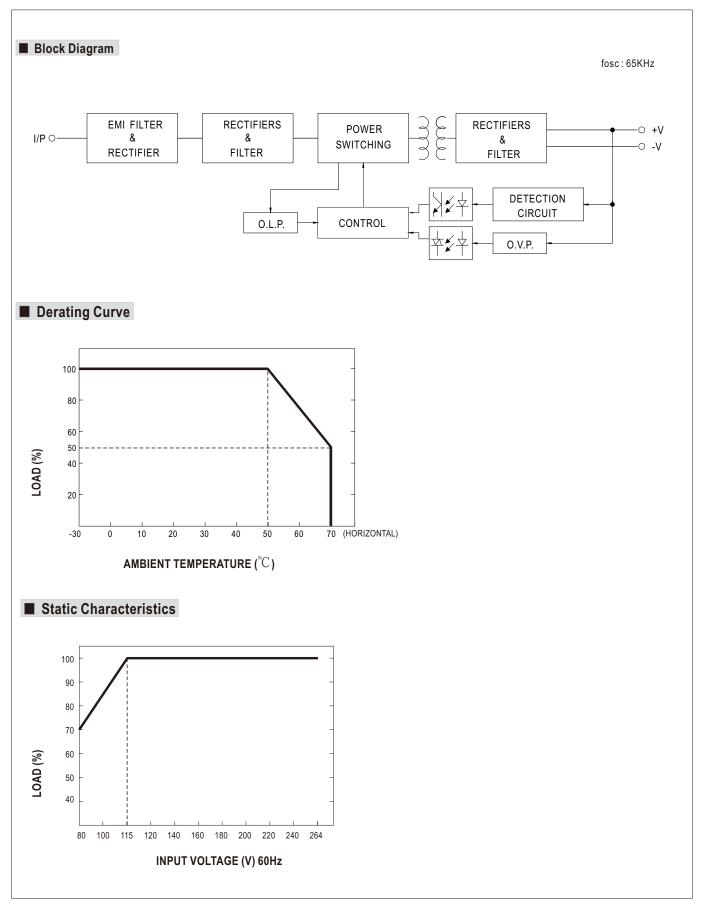


#### SPECIFICATION

REQUENCY RANGE FFICIENCY (Typ.) AC CURRENT (Typ.) NRUSH CURRENT (Typ.)	2.9~3.6V	5V 10A 0~11A 50W 55W 80mVp-p 4.7~5.5V ±2.0% ±0.5% ±2.0% 0VAC 500ms 12ms / 115VAC	7.5V 8A 0~8.8A 60W 66W 80mVp-p 7.12~8.3V ±2.0% ±0.5% ±2.0% ,30ms / 115VAC at	12V 5.42A 0~5.96A 65W 71.5W 120mVp-p 11.4~13.2V ±2.0% ±0.5%	15V 4.34A 0~4.77A 65.1W 71.6W 120mVp-p 13.5~16.5V ±1.0%	24V 2.71A 0~2.98A 65W 71.5W 120mVp-p 22.8~27.6V	48V 1.36A 0~1.49A 65.3W 71.5W 150mVp-p		
CURRENT RANGE CURRENT RANGE CATED POWER PEAK LOAD(10sec.) RIPPLE & NOISE (max.) Note.2 /OLTAGE ADJ.RANGE /OLTAGE ADJ.RANGE /OLTAGE TOLERANCE Note.3 INE REGULATION OAD REGULATION OAD REGULATION OAD REGULATION OUP TIME (Typ.) /OLTAGE RANGE REQUENCY RANGE FFICIENCY (Typ.) NRUSH CURRENT (Typ.) NRUSH CURRENT (Typ.)	0~11A 33W 36.3W 80mVp-p 2.9~3.6V ±2.0% ±0.5% ±2.0% 500ms, 30ms / 23 30ms / 230VAC 80~264VAC 47~63Hz	0~11A 50W 55W 80mVp-p 4.7~5.5V ±2.0% ±0.5% ±2.0% 0VAC 500ms	0~8.8A 60W 66W 80mVp-p 7.12~8.3V ±2.0% ±0.5% ±2.0%	0~5.96A 65W 71.5W 120mVp-p 11.4~13.2V ±2.0%	0 ~ 4.77A 65.1W 71.6W 120mVp-p 13.5~16.5V	0~2.98A 65W 71.5W 120mVp-p	0~1.49A 65.3W 71.5W		
RATED POWER PEAK LOAD(10sec.) RIPPLE & NOISE (max.) Note.2 /OLTAGE ADJ.RANGE /OLTAGE TOLERANCE Note.3 INE REGULATION OAD REGULATION OAD REGULATION BETUP, RISE TIME IOLD UP TIME (Typ.) /OLTAGE RANGE Note.4 REQUENCY RANGE EFFICIENCY (Typ.) NRUSH CURRENT (Typ.)	33W 36.3W 80mVp-p 2.9~3.6V ±2.0% ±0.5% ±2.0% 500ms, 30ms / 23 30ms / 230VAC 80 ~ 264VAC 47 ~ 63Hz	50W 55W 80mVp-p 4.7~5.5V ±2.0% ±0.5% ±2.0% 0VAC 500ms	60W 66W 80mVp-p 7.12~8.3V 土2.0% 土0.5% 土2.0%	65W 71.5W 120mVp-p 11.4~13.2V ±2.0%	65.1W 71.6W 120mVp-p 13.5~16.5V	65W 71.5W 120mVp-p	65.3W 71.5W		
PEAK LOAD(10sec.) RIPPLE & NOISE (max.) Note.2 /OLTAGE ADJ.RANGE /OLTAGE TOLERANCE Note.3 INE REGULATION OAD REGULATION SETUP, RISE TIME IOLD UP TIME (Typ.) /OLTAGE RANGE Note.4 REQUENCY RANGE EFFICIENCY (Typ.) NRUSH CURRENT (Typ.)	36.3W 80mVp-p 2.9~3.6V ±2.0% ±0.5% ±2.0% 500ms, 30ms / 23 30ms / 230VAC 80 ~ 264VAC 47 ~ 63Hz	55W 80mVp-p 4.7~5.5V ±2.0% ±0.5% ±2.0% 0VAC 500ms	66W 80mVp-p 7.12~8.3V ±2.0% ±0.5% ±2.0%	71.5W 120mVp-p 11.4~13.2V ±2.0%	71.6W 120mVp-p 13.5~16.5V	71.5W 120mVp-p	71.5W		
RIPPLE & NOISE (max.) Note.2 /OLTAGE ADJ.RANGE /OLTAGE TOLERANCE Note.3 INE REGULATION OAD REGULATION SETUP, RISE TIME HOLD UP TIME (Typ.) /OLTAGE RANGE Note.4 REQUENCY RANGE EFFICIENCY (Typ.) NC CURRENT (Typ.) NRUSH CURRENT (Typ.)	80mVp-p 2.9~3.6V ±2.0% ±0.5% ±2.0% 500ms, 30ms / 23 30ms / 230VAC 80 ~ 264VAC 47 ~ 63Hz	80mVp-p 4.7~5.5V ±2.0% ±0.5% ±2.0% 0VAC 500ms	80mVp-p 7.12~8.3V ±2.0% ±0.5% ±2.0%	120mVp-p 11.4~13.2V 土2.0%	120mVp-p 13.5~16.5V	120mVp-p			
RIPPLE & NOISE (max.) Note.2 /OLTAGE ADJ.RANGE /OLTAGE TOLERANCE Note.3 INE REGULATION OAD REGULATION SETUP, RISE TIME HOLD UP TIME (Typ.) /OLTAGE RANGE Note.4 REQUENCY RANGE EFFICIENCY (Typ.) NC CURRENT (Typ.) NRUSH CURRENT (Typ.)	2.9~3.6V ±2.0% ±0.5% ±2.0% 500ms, 30ms / 23 30ms / 230VAC 80 ~ 264VAC 47 ~ 63Hz	4.7~5.5V ±2.0% ±0.5% ±2.0% 0VAC 500ms	7.12~8.3V ±2.0% ±0.5% ±2.0%	11.4~13.2V ±2.0%	13.5~16.5V		150mVp-p		
/OLTAGE ADJ.RANGE /OLTAGE TOLERANCE Note.3 INE REGULATION OAD REGULATION SETUP, RISE TIME IOLD UP TIME (Typ.) /OLTAGE RANGE Note.4 REQUENCY RANGE EFFICIENCY (Typ.) AC CURRENT (Typ.) NRUSH CURRENT (Typ.)	2.9~3.6V ±2.0% ±0.5% ±2.0% 500ms, 30ms / 23 30ms / 230VAC 80 ~ 264VAC 47 ~ 63Hz	$\pm 2.0\%$ $\pm 0.5\%$ $\pm 2.0\%$ OVAC 500ms	7.12~8.3V ±2.0% ±0.5% ±2.0%	±2.0%		22.8~27.6V			
VOLTAGE TOLERANCE Note.3 INE REGULATION OAD REGULATION SETUP, RISE TIME IOLD UP TIME (Typ.) VOLTAGE RANGE Note.4 REQUENCY RANGE SEFICIENCY (Typ.) NC CURRENT (Typ.) NRUSH CURRENT (Typ.)	±2.0% ±0.5% ±2.0% 500ms, 30ms / 23 30ms / 230VAC 80 ~ 264VAC 47 ~ 63Hz	$\pm 2.0\%$ $\pm 0.5\%$ $\pm 2.0\%$ OVAC 500ms	±2.0%       ±0.5%       ±2.0%		±1.0%		45.6~52.8		
INE REGULATION OAD REGULATION SETUP, RISE TIME IOLD UP TIME (Typ.) /OLTAGE RANGE REQUENCY RANGE SEFICIENCY (Typ.) INC CURRENT (Typ.) NRUSH CURRENT (Typ.)	±0.5% ±2.0% 500ms, 30ms / 23 30ms / 230VAC 80 ~ 264VAC 47 ~ 63Hz	$\pm 0.5\%$ $\pm 2.0\%$ 0VAC 500ms	土0.5% 土2.0%			±1.0%	±1.0%		
OAD REGULATION ETUP, RISE TIME IOLD UP TIME (Typ.) /OLTAGE RANGE /REQUENCY RANGE EFFICIENCY (Typ.) NC CURRENT (Typ.) NRUSH CURRENT (Typ.)	±2.0% 500ms, 30ms / 23 30ms / 230VAC 80 ~ 264VAC 47 ~ 63Hz	±2.0% 0VAC 500ms	±2.0%		土0.5%	土0.5%	±0.5%		
ETUP, RISE TIME IOLD UP TIME (Typ.) /OLTAGE RANGE REQUENCY RANGE EFFICIENCY (Typ.) AC CURRENT (Typ.) NRUSH CURRENT (Typ.)	500ms, 30ms / 23 30ms / 230VAC 80 ~ 264VAC 47 ~ 63Hz	0VAC 500ms		±2.0%	±1.0%	±1.0%	±1.0%		
IOLD UP TIME (Typ.) /OLTAGE RANGE Note.4 REQUENCY RANGE FFICIENCY (Typ.) NC CURRENT (Typ.) NRUSH CURRENT (Typ.)	30ms / 230VAC 80 ~ 264VAC 47 ~ 63Hz				_ 1.0 %				
VOLTAGE RANGE Note.4 REQUENCY RANGE FFICIENCY (Typ.) AC CURRENT (Typ.) NRUSH CURRENT (Typ.)	80 ~ 264VAC 47 ~ 63Hz	121137 110 170							
REQUENCY RANGE FFICIENCY (Typ.) AC CURRENT (Typ.) NRUSH CURRENT (Typ.)	47 ~ 63Hz								
FFICIENCY (Typ.) AC CURRENT (Typ.) NRUSH CURRENT (Typ.)									
AC CURRENT (Typ.) NRUSH CURRENT (Typ.)	80%	0.40/	050/	0.00/	000/	000/	040/		
NRUSH CURRENT (Typ.)		84%	85%	88%	89%	90%	91%		
	1.5A / 115VAC	1A/230VAC							
EAKACE CUDDENT/may ) Nata E	COLD STAR 30A/115VAC 50A/230VAC								
EARAGE CORRENT(IIIax.) Note.5	5 Touch current< 100µA/264VAC								
VERLOAD	115 ~ 150% rated output power								
			overs automaticall		on is removed				
VER VOLTAGE	3.8~4.5V	5.7~6.8V	8.6~11.3V	13.8~16.2V	17.2~20.3V	27.6~32.4V	55.2~64.8V		
	Protection type : Shut down o/p voltage, re-power on to recover								
VORKING TEMP.	ING TEMP30 ~ +70 °C (Refer to "Derating Curve")								
VORKING HUMIDITY	20% ~ 90% RH non-condensing								
TORAGE TEMP., HUMIDITY									
EMP. COEFFICIENT									
IBRATION	· · · · · · · · · · · · · · · · · · ·	/	od for 60min. each a	long X. Y. Z axes					
PERATING ALTITUDE Note.6									
	IEC60601-1, TUV BS EN/EN60601-1, EAC TP TC 004,UL ANSI / AAMI ES60601-1 (3.1 version), CAN/CSA-C22.2 No. 60601-1:14 - Edition 3 approved; Design refer to BS EN/EN60335-1								
SOLATION RESISTANCE									
		ion							
				. ,					
	Parameter		Standard		Tes	t Level / Note			
	ESD		BS EN/EN	BS EN/EN61000-4-2		Level 4, 15KV air ; Level 4, 8KV contac			
	RE field suscentibility			BS EN/EN61000-4-3		Level 3, 10V/m( 80MHz~2.7GHz )			
						Table 9, 9~28V/m( 385MHz~5.78GHz )			
MC IMMUNITY						,			
			,						
	Magnetic field in	intunity	BS EN/EN	51000-4-0		,	25 periods		
	Voltage dip, inter	ruption	BS EN/EN	61000-4-11					
ITBF	959.1Khrs min. N	IIL-HDBK-217(25°	C)		· · ·				
IMENSION (L*W*H)			,						
ACKING	0.11Kg; 120pcs/1	4.2Kg/0.94CUFT							
2. Ripple & noise are measure	d at 20MHz of bar olerance, line regu der low input volta d from primary inp	ndwidth by using a Ilation and load re ges. Please check ut to DC output.	a 12" twisted pair-w gulation. k the derating curve	ire terminated with e for more details.	n a 0.1µf & 47µf p	·			
	BF ENSION (L*W*H) KING Il parameters NOT speciall Ripple & noise are measure olerance : includes set up t Derating may be needed un ouch current was measure	HSTAND VOLTAGE       I/P-O/P: 4KVAC         LATION RESISTANCE       I/P-O/P:100M Oh         Parameter       Conducted emissio         C EMISSION       Radiated emissio         Harmonic curren       Voltage flicker         BS EN/EN60601-       Parameter         ESD       RF field suscepti         EFT bursts       Surge susceptibi         Conducted denise       Magnetic field im         Voltage dip, inter       SF         959.1Khrs min. M       F6.2*50.8*24mm         KING       0.11Kg; 120pcs/1.         Il parameters NOT specially mentioned are n       Ripple & noise are measured at 20MHz of bar         Operating may be needed under low input volta       fine regular	HSTAND VOLTAGE       I/P-O/P: 4KVAC         LATION RESISTANCE       I/P-O/P:100M Ohms / 500VDC / 25°         Parameter       Conducted emission         C EMISSION       Radiated emission         Harmonic current       Voltage flicker         BS EN/EN60601-1-2       Parameter         ESD       RF field susceptibility         EFT bursts       Surge susceptibility         Conducted dip, interruption       SF         959.1Khrs min. MIL-HDBK-217(25°       PS-2*50.8*24mm or 3" * 2" *0.945" ir         KING       0.11Kg; 120pcs/14.2Kg/0.94CUFT         Il parameters NOT specially mentioned are measured at 230V/       Ziople & noise are measured at 20MHz of bandwidth by using a colerance : includes set up tolerance, line regulation and load re Derating may be needed under low input voltages. Please check couch current was measured from primary input to DC output.	HSTAND VOLTAGE       I/P-O/P: 4KVAC         LATION RESISTANCE       I/P-O/P:100M Ohms / 500VDC / 25°C / 70% RH         Parameter       Standard         C EMISSION       Radiated emission       BS EN/ENG         Harmonic current       BS EN/ENG         Voltage flicker       BS EN/ENG         BS EN/ENG       BS EN/ENG         BS EN/ENG       BS EN/ENG         Voltage flicker       BS EN/ENG         BS EN/ENG       BS EN/ENG         KE field susceptibility       BS EN/ENG         Surge susceptibility       BS EN/ENG         Surge susceptibility       BS EN/ENG         Surge dip, interruption       BS EN/ENG         Voltage dip, interruption       BS EN/ENG         II parameters NOT specially mentioned are meas	HSTAND VOLTAGE       I/P-O/P: 4KVAC         LATION RESISTANCE       I/P-O/P:100M Ohms / 500VDC / 25°C / 70% RH         Parameter       Standard         C EMISSION       Radiated emission       BS EN/EN55011 (CISPR11)         Radiated emission       BS EN/EN55011 (CISPR11)         Harmonic current       BS EN/EN61000-3-2         Voltage flicker       BS EN/EN61000-3-2         Voltage flicker       BS EN/EN61000-3-3         BS EN/EN60601-1-2       Parameter         Parameter       Standard         ESD       BS EN/EN61000-4-2         RF field susceptibility       BS EN/EN61000-4-3         EFT bursts       BS EN/EN61000-4-4         Surge susceptibility       BS EN/EN61000-4-6         Magnetic field immunity       BS EN/EN61000-4-8         Voltage dip, interruption       BS EN/EN61000-4-8         Voltage dip, interruption       BS EN/EN61000-4-11         BF       959.1Khrs min. MIL-HDBK-217(25°C)         ENSION (L*W*H)       76.2*50.8*24rm or 3" * 2" *0.945" inch         IJ parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambt         Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with clorance : includes set up tolerance, line regulation and load regulation.         Derating may be needed	HSTAND VOLTAGE       I/P-O/P: 4KVAC         LATION RESISTANCE       I/P-O/P: 100M Ohms / 500VDC / 25°C / 70% RH         C EMISSION       Parameter       Standard       Tes         C emission       BS EN/EN55011 (CISPR11)       Classion         Radiated emission       BS EN/EN55011 (CISPR11)       Classion         Voltage flicker       BS EN/EN61000-3-2       Classion         Voltage flicker       BS EN/EN61000-3-3          BS EN/EN60601-1-2       Parameter       Standard       Tes         ESD       BS EN/EN61000-4-2       Lev         RF field susceptibility       BS EN/EN61000-4-3       Tabi         EFT bursts       BS EN/EN61000-4-4       Lev         Surge susceptibility       BS EN/EN61000-4-5       Lev         Voltage dip, interruption       BS EN/EN61000-4-6       Lev         Magnetic field immunity       BS EN/EN61000-4-8       Lev         Voltage dip, interruption       BS EN/EN61000-4-11       1007         1007       1007       1007       1007         SF       959.1Khrs min. MIL-HDBK-217(25°C)       ENSION (L*W*H)       76.2*50.8*24mm or 3** 2**0.945* inch         KING       0.11Kg; 120pcs/14.2Kg/0.94CUFT       Il       Il       Parameters NOT specially mentioned are measured	HSTAND VOLTAGE       I/P-O/P: 4KVAC         LATION RESISTANCE       I/P-O/P:100M Ohms / 500VDC / 25°C / 70% RH         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          BS EN/EN60601-1-2       Parameter       Standard       Test Level / Note         ESD       BS EN/EN61000-4-2       Level 4, 15KV air ; Leve       Evel 5, 10V/m (80MHz         ESD       BS EN/EN61000-4-3       Table 9, 9-28V/m (80MHz       Table 9, 9-28V/m (80MHz         Surge susceptibility       BS EN/EN61000-4-3       Level 3, 10V/m (80MHz         Table 9, 9-28V/m (80MHz       SE EN/EN61000-4-4       Level 3, 2KV         Surge susceptibility       BS EN/EN61000-4-5       Level 4, 2KV/Line-Line         Conducted susceptibility       BS EN/EN61000-4-6       Level 4, 30A/m         Wagnetic field immunity       BS EN/EN61000-4-8       Level 4, 30A/m         Voltage dip, interruption       BS EN/EN61000-4-1       100% interruption 250 pei         String       959.1Khrs min. MIL-HDBK-217(25°C)       76.2°50.8°24mm or 3°* 2°*0.945° inch </td		

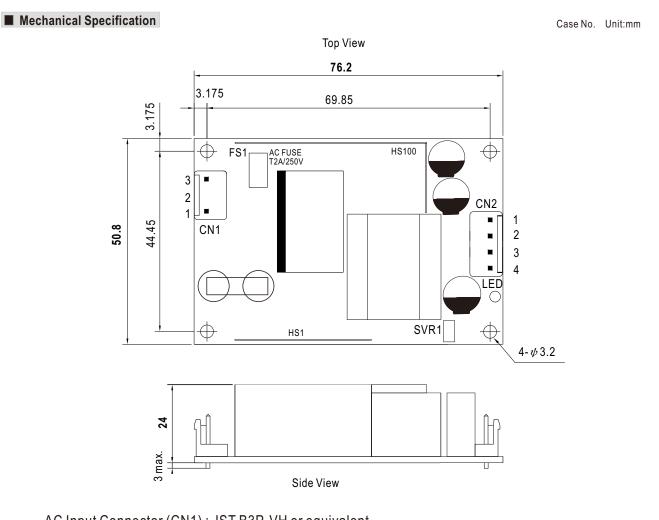


# **RPS-65** series





# **RPS-65** series



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

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

#### DC Output Connector (CN2) : JST B4P-VH or equivalent

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

### Installation Manual

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