


FEATURES:

- 20W Class II Medical approved adapter
- Over voltage Protection
- Medical standard IEC 60601-1
- UL 60601-1, EN 60601-1
- Conductive EMI Meets CISPR/FCC Class B

1. Description

The MSOR20 Series is a single output, 20Watt universal input switch mode power supply, designed to meet UL 60601-1 and IEC 60601-1 medical regulations. It is specially designed for external desktop applications.

Model	Output Voltage	Mini. Output Current	Rated Output Current	Peak output Current	Line ^(Note 1) Regulation	Load ^(Note 2) Regulation	Voltage Setting ^(Note 3)	Ripple & Noise ^(Note 4) p-p
MSOR20-5S	+5V	0A	4A	5A	±1%	±6%	±2%	50mV
MSOR20-9S	+9V	0A	2.2A	2.5A	±1%	±3%	±2%	90mV
MSOR20-12S	+12V	0A	1.7A	2A	±1%	±2%	±2%	100mV
MSOR20-13S	+13v	0A	1.5A	1.7A	±1%	±2%	±2%	100mV
MSOR20-15S	+15V	0A	1.3A	1.5A	±1%	±2%	±2%	100mV
MSOR20-22S	+22V	0A	0.9A	1.1A	±1%	±2%	±2%	150mV
MSOR20-24S	+24V	0A	0.8A	1A	±1%	±2%	±2%	150mV

Note: 1) Line regulation is measured at rated load and +/-10% of input voltage change.

2) Load regulation measured by changing the measured output load +/-40% from 60% rated load with other outputs at 60% rated load.

3) The output at 60% rated load and input is nominal 110/220VAC.

4) Measured by a 20MHz bandwidth limited oscilloscope. Each output is connected with a 10µF Electrolytic Capacitor and a 0.1µF Ceramic Capacitor.

2. Input Specification

Parameter	Conditions/Description	Min.	Nom.	Max.	Units
Input Voltage-AC	Continuous input range.	90	115/230	264	VAC
Input Frequency	AC input.	47		63	Hz
Hold Up Time	Nominal AC Input Voltage (230VAC), rated load.		16		ms
Input Current	Nominal AC Input Voltage (115VAC/230VAC), rated load.			0.6	A
Inrush Current	Nominal AC Input Voltage (115VAC/230VAC), one cycle at 25°C.			560	A
Leakage Current	Nominal AC Input voltage (115VAC/230VAC), rated load. Earth: Enclosure:			0.5 0.1	mA

3. Output Specification

Parameter	Conditions/Description	Min.	Nom.	Max.	Units
Efficiency	Rated load, 115VAC. Varies with distribution of loads among output.		75		%
Minimum load			See Description		
Ripple & Noise	Rated load, 20MHz bandwidth and the each output is connected With a 10µF Electrolytic Capacitor and a 0.1µF Ceramic Capacitor.		See Description		

4. Internal Protection

Parameter	Conditions/Description
Short Circuit Protection	Fully protected against output overload and short circuit. Automatic recovery upon removal of overload condition.
Over Voltage Protection	Fully protected against output voltage higher than automatic recovery upon over voltage condition

5. Safety Approvals, EMI and EMS Specification

Parameter	Conditions/Description		
Input Voltage-AC	UL (cUL), UL 60601-1,		Pending
	IEC 60601-1		Approved
	EN 60601-1		Approved
Hi-Pot	Input to output	5808	VDC
EMI	EN 60601-1-2: 1993	B	Class
EMS	IEC 61000-4-2: 1991, 8KV air discharge and 6KV contact discharge	3	Level
	IEC 61000-4-3: 1984, 3V/M	2	
	IEC 61000-4-4: 1988, 2KV line & PE	3	
	IEC 61000-4-5, 2KV	3	

6. Environment Specification

Parameter	Conditions/Description	Min.	Nom.	Max.	Units
Operating Temperature		0		40	°C
Storage Temperature		-20		+85	°C
Relative Humidity	Non-condensing.	10		90	%RH

7. Mechanical Specification

Parameter	Conditions/Description
Dimension	110 x 50 x 30 mm, Tolerance +/- 0.4mm.
Connector	AC input: IEC-320/C8 (2 Pin) DC output plug: 5.5 x 5.1 x 12mm

◆Dimension

