



# SMF35P1R – SMF63P1R Series

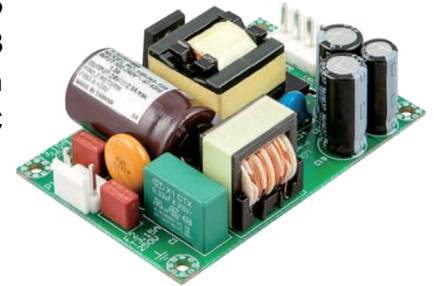
35 – 60 Watt AC - DC Open Frame Medical Power Supply  
ES/EN/IEC 60601-1 3.1 Ed., EN/IEC 60601-1-2 4<sup>th</sup> Ed. EMC

Date: 3/2/18

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The SMF35P1R – SMF63P1R Series switch mode power supply offers 35 Watts to 60 Watts output power, with an output voltage range of 5 Vdc – 48 Vdc. Case style is an open frame, ultra-compact 2" x 3" inch size with pin header, with ES/EN/IEC 60601-1 3.1 Edition safety approvals, and EN/IEC 60601-1-2 4<sup>th</sup> Edition EMC.

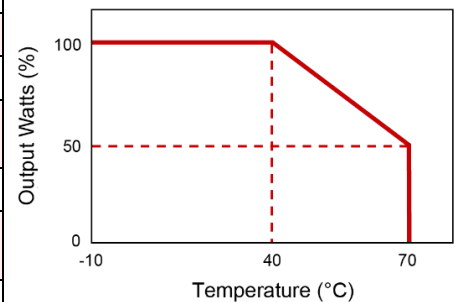


Input Voltage	90 to 264 Vac
Input Frequency	47 to 63 Hz
Input Current (Low Line)	1.3 A Typ. at 100 Vac
Input Current (High Line)	0.7 A Typ. at 240 Vac
Safety Ground Leakage Current	≤ 0.25 mA
Output Voltage & Current	See Table on Page 2
Ripple & Noise (P-P) <sup>1</sup>	100 – 200 mV
Over-Load Protection	110 - 150%, Auto-Recovery
Temperature Coefficient	± 0.04% / °C Max.
Transient Response	50% Load Change at 110 Vac Input: ≤ 4 ms
Efficiency	82 - 90% Typ.
No Load Power Consumption	≤ 0.15 Watts
Line Regulation	± 1% Max. at Full Load
Load Regulation	± 5% Max.
Start-Up Time	≤ 2 s
Hold-Up Time	≥ 12 ms
Withstanding Voltage	Primary to Secondary (Trip current <10 mA): ≤ 4,000 Vac Primary to Ground (Trip current <10 mA): ≤ 1,500 Vac
Insulation Resistance	50 MΩ Min.
Inrush Current	85 A @ 100 Vac Max. at 25 °C Cold Start 170 A @ 240 Vac Max. at 25 °C Cold Start
Mean Time Between Failure	Full Load, 25°C Ambient: 200,000 Hrs Min. (MIL-HDBK-2017F)
Operating Temperature	See Derating Curve
Storage Temperature	-40 to 85 °C
Industry Compliance	Directive 2011/65/EU (RoHS 2)
Weight	90 g Typ.
EMC Requirements	IEC 60601-1-2: 2014 4 <sup>th</sup> Ed., EN 60601-1-2: 2015 4 <sup>th</sup> Ed. IEC/EN 61000-3-2, -3-3, -4-2, -4-3, -4-4, -4-5, -4-6, -4-11
EMI Requirements	Meets Conduction and Radiation Limits of: CISPR-11 Class B, EN 55011 Class B, and FCC Part 18 Class B
Safety Compliance	ES 60601-1:2005 (R2012) & CSA C22.2 No. 60601-1:14 (UR/cUR), IEC 60601-1 Edition 3.1 & EN 60601-1:2006/A1:2013 (TUV T-Mark), CE, CB

## Features:

- 60 Watts Convection Cooled
- Universal Input 100 - 240 Vac
- Over-Load and Short Circuit Protection
- Class I
- Active Power Factor Correction
- 100% Burn-In
- RoHS 2 Compliant
- 2 MOPP Protection
- EN 60601-1-2: 2015 4<sup>th</sup> Ed. EMC
- IEC 60601-1-2: 2014 4<sup>th</sup> Ed. EMC

## Derating Curve



Derate Linearly from 100% at 40°C to 50% at 70°C

## Notes:

- <sup>1</sup> Ripple & Noise are measured with a 0.1 μF ceramic capacitor & 0.47 μF electrolytic capacitor in parallel and a 20 MHz bandwidth-limited scope.



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## Output Voltage and Current Table

Model Number	Output Voltage Range *	Output Current <i>Limited to Output Power †</i>	Maximum Output Power
SMF35P1R1__AR	5 - 6 Vdc	5.83 – 7.00 A	35 W
SMF40P1R1__AR	6 – 8 Vdc	5.00 – 6.66 A	40 W
SMF45P1R1__AR	8 – 11 Vdc	4.09 – 5.62 A	45 W
SMF63P1R1__AR	11 – 13 Vdc	4.61 – 5.45 A	60 W
SMF63P1R1__AR	14 – 16 Vdc	3.75 – 4.28 A	60 W
SMF63P1R1__AR	17 – 21 Vdc	2.85 – 3.52 A	60 W
SMF63P1R1__AR	22 – 27 Vdc	2.22 – 2.72 A	60 W
SMF63P1R1__AR	28 – 33 Vdc	1.81 – 2.14 A	60 W
SMF63P1R1__AR	33 – 40 Vdc	1.50 – 1.81 A	60 W
SMF63P1R1__AR	41 – 48 Vdc	1.25 – 1.46 A	60 W

\* Output Voltages between ranges are also available.

† To find Output Current:

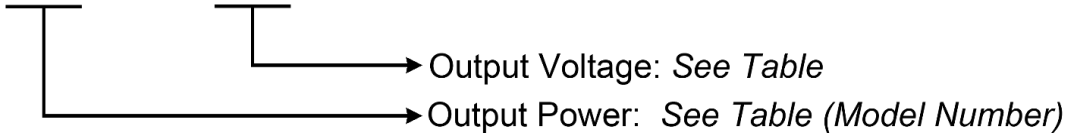
Output Current = Max. Power ÷ Output Voltage

Example: Output Current for 24 Vdc Output

Output Current = 60 W ÷ 24 V

Output Current = 2.5 A

SMF□□P1R1□□AR



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