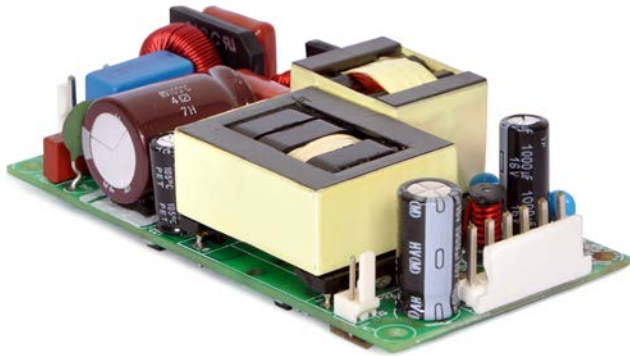


225 Watt Medical



Features

- 4 x 2 x 1 Inches Form factor
- 225 Watts with Forced Air Cooling
- Approval to EN60601 3rd Edition
- Efficiencies upto 94%
- -40 to 70 degree operating temperature*
- Dual fusing
- 12V / 0.5A Fan Output, Thermal Shut-Down feature
- 3.37m Hours, Telcordia -SR332-issue 3 MTBF
- Standby Power < 0.5W
- Medical (BF) Safety Approvals

Electrical Specifications

| | | |
|------------------------------------|--|----------------------|
| Input Voltage | 85-264 VAC/390 VDC, Universal (Derate from 100% at 100V AC to 95% at 85V AC) | |
| Input Frequency | 47-63 Hz | |
| Input Current | 115 VAC: 2.2 A max. | 230 VAC: 1.1 A max. |
| No Load Power | less than 0.5W typical | |
| Inrush Current | 115 VAC – 25 A, 230 VAC – 45 A, 264 VAC – 75 A | |
| Leakage Current | 300 uA Typical, (N.A. For Class II Option) | Touch current <100uA |
| Efficiency | 94%(48V), 93%(24V,30V), 92%(12V,15V) | |
| Hold-up Time | at 225W:10 ms ; 110W: 16 ms | |
| Power Factor | exceeds 0.95 with Full Load | |
| Output Power | 225W with 13 CFM, upto 120W Convection | |
| Line Regulation | +/-0.5% | |
| Load Regulation | +/-0.5% | |
| Transient Response | 25% step load change, at 0.1A/uS slew rate, 50% duty cycle, 50Hz=4% , recovery time < 5 ms | |
| Rise Time | 55ms typical | |
| Set Point Tolerance | +/-1% | |
| Over Current Protection | >110% | |
| Over Voltage Protection | 110 to 140% | |
| Short Circuit Protection | Hiccup mode | |
| Switching Frequency | PFC – 70 to 130 KHz ,PWM – 50-80 KHz | |
| Operating Temperature ⁷ | -40 to +70°C | |
| Storage Temperature | -40 to +85°C | |
| Relative Humidity | 5% to 95%, noncondensing | |
| Altitude | Operating: 16,000 ft.; Nonoperating: 40,000 ft. | |
| MTBF | 3.37m Hours, Telcordia -SR332-issue 3 | |
| Isolation Voltage | Input to Output – 4000 VAC medical applications. Input to GND - 1500 VAC (Not Applicable For Class II Option) Output to GND- 1500VAC for type BF , 500 VAC for type B (Not Applicable For Class II Option) | |
| Cooling | 225W with 13 CFM forced air cooling ⁶ (refer Mechanical Drawing) upto 120W with natural convection cooling ⁶ (refer Derating Curve) | |

| Model Number | Description | Voltage | Max. Load (Convection) (112.5W) | Max.Load (Convection) (120W) | Max. Load (13 CFM) | Min. Load | Ripple ¹ |
|-------------------------------------|----------------------|---------|---------------------------------------|------------------------------------|-----------------------|-----------|---------------------|
| FSP225-1K20M1 | with Screw Terminal | 12 V | 9.37A | 10.0A | 18.75A | 0.0 A | 1% |
| FSP225-1K21M1 | with Molex Connector | 12 V | 9.37A | 10.0A | 18.75A | 0.0 A | 1% |
| FSP225-1K30M1 | with Screw Terminal | 15 V | 7.5A | 8.0A | 15A | 0.0 A | 1% |
| FSP225-1K31M1 | with Molex Connector | 15 V | 7.5A | 8.0A | 15A | 0.0 A | 1% |
| FSP225-1K40M1 | with Screw Terminal | 24 V | 4.68A | 5.0A | 9.37A | 0.0 A | 1% |
| FSP225-1K41M1 | with Molex Connector | 24 V | 4.68A | 5.0A | 9.37A | 0.0 A | 1% |
| FSP225-1K80M1 | with Screw Terminal | 48 V | 2.34A | 2.5A | 4.68A | 0.0 A | 1% |
| FSP225-1K81M1 | with Molex Connector | 48 V | 2.34A | 2.5A | 4.68A | 0.0 A | 1% |
| FSP225-1K50M1 | with Screw Terminal | 30 V | 3.75A | 4.0A | 7.5A | 0.0 A | 1% |
| FSP225-1K51M1 | with Molex Connector | 30 V | 3.75A | 4.0A | 7.5A | 0.0 A | 1% |
| FSP225-1K70M1 | with Screw Terminal | 58 V | 1.94A | 2.07A | 3.88A | 0.0 A | 1% |
| FSP225-1K71M1 | with Molex Connector | 58 V | 1.94A | 2.07A | 3.88A | 0.0 A | 1% |
| FSP225-CK metal cover kit accessory | | | | | | | |

| Connectors | | |
|-----------------|-----------|------------|
| J1 | Pin 1 | AC LINE |
| | Pin 2 | NOT FITTED |
| | Pin 3 | AC NEUTRAL |
| J2 Option 1 & 2 | Pin 1,2,3 | V1 +VE |
| | Pin 4,5,6 | V1 -VE |
| J3 | Pin 1 | FAN +VE |
| | Pin 2 | FAN -VE |

Notes

- Ripple is peak to peak with 20 MHz bandwidth and 10 μ F (Tantalum capacitor) in parallel with a 0.1 μ F capacitor at rated line voltage and load ranges.
- Class II means without input Earth pin.
- Combined output power of main output, fan supply shall not exceed max. Power rating.
- Fan supply output voltage tolerance including set point accuracy, line and load regulation is +/-10% and Ripple and noise is less than 10%.
- Specifications are for nominal input voltage, 25°C unless otherwise stated.
- 225W with 13CFM forced air cooling and 120W with natural convection cooling at 100 to 264VAC.
- 40 to 0°C startup is guaranteed with spec deviation in output ripple and voltage regulation.

Mechanical Specifications

| | |
|---|---|
| AC Input Connector (J1) | Molex: 26-60-4030 Mating: 09-50-3031; Pins: 08-50-0106 |
| DC Output Connector (J2) Option 1 (Screw Terminal) | Molex: 39357 Series or equivalent |
| DC Output Connector (J2) (Molex Connector) | Molex: 26-60-4060 Mating: 09-50-3061; Pins: 08-50-0106 |
| Aux (Fan) Output(J3) | AMP :640456-2 Mating: 640440-2 |
| Dimensions | 4 x 2 x 1 inches (101.60 x 50.8x 25.4 mm) |
| Weight | 200 gm approx |

EMC

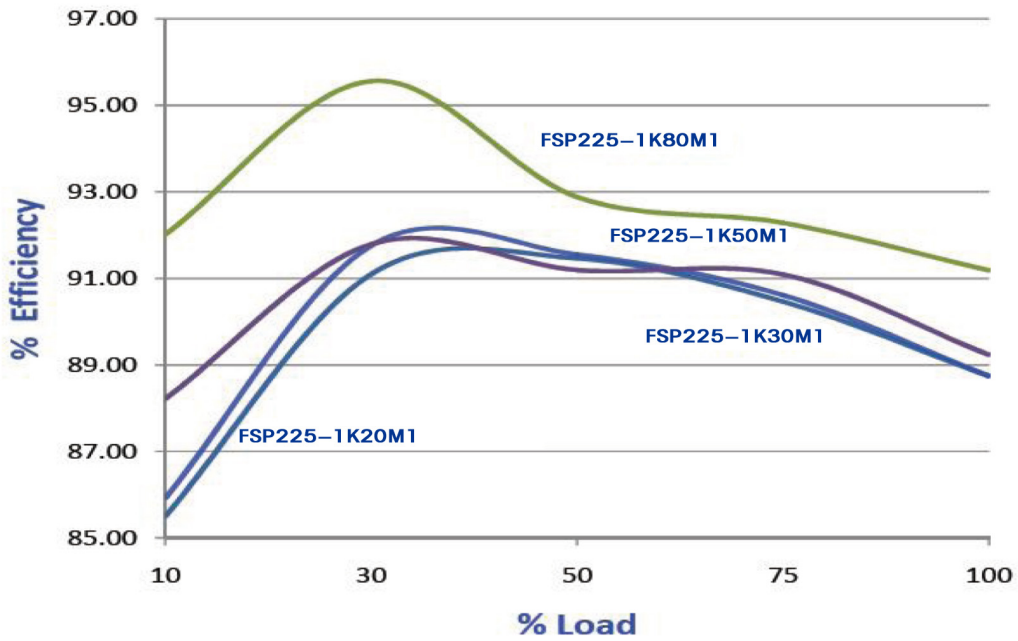
| | |
|-------------------------|---|
| CE Mark | Complies with LVD Directive |
| Conducted Emissions | EN55022-B, CISPR22-B, FCC PART15-B |
| Static Discharge | EN61000-4-2, Level-3 |
| RF Field Susceptibility | EN61000-4-3, Level-3 |
| Fast Transients/Bursts | EN61000-4-4, Level-3 |
| Radiated Emissions | Level A radiated, Level B radiated with external core (King core K5B RC 25x12x15-M in input cable (5 turns)) |
| Surge Susceptibility | EN61000-4-5, Level-3 |
| Harmonic Current | EN61000-3-2, Class D |

Safety

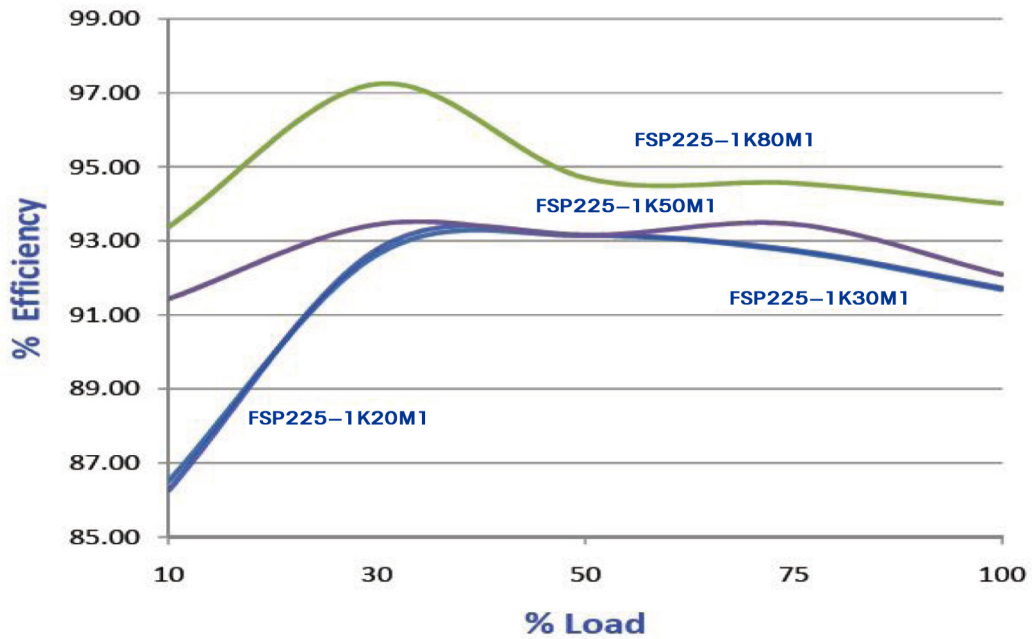
| | |
|-----------------------|---|
| Safety Standard(s) | EN60601-1, IEC 60601-1 (ed.3), ANSI / AAMI ES 60601 - 1, CSA C22.2 No. 60601-1 |
| Approval Agency | Nemko, UL, C-UL |
| Safety File Number(s) | Class-I : UL: Certificate Number 20141230-E173812, Nemko: Certificate No. P14219157, IEC Ref. Certif. No.:NO83948 Class-II : UL: Certificate Number 20141230-E173812, NEMKO: Certificate No. P14219181, IEC Ref. Certif. No. NO84076 |

Efficiency Graph

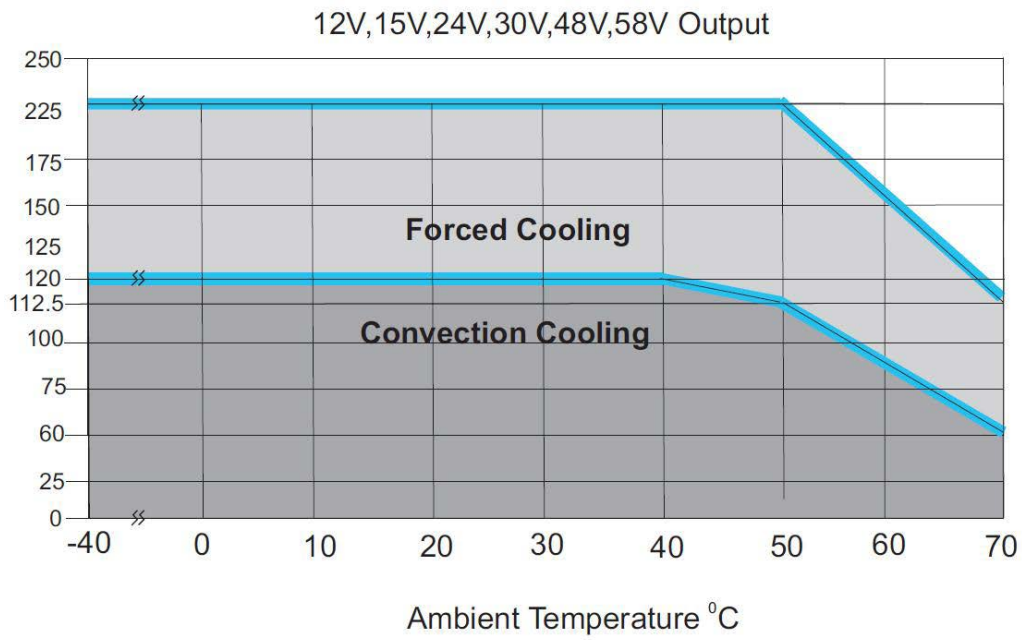
FSP225-1KXM1 efficiency graph at 115V AC



FSP225-1KXM1 efficiency graph at 230V AC



Derating Curve



Mechanical Drawing

Option 1

