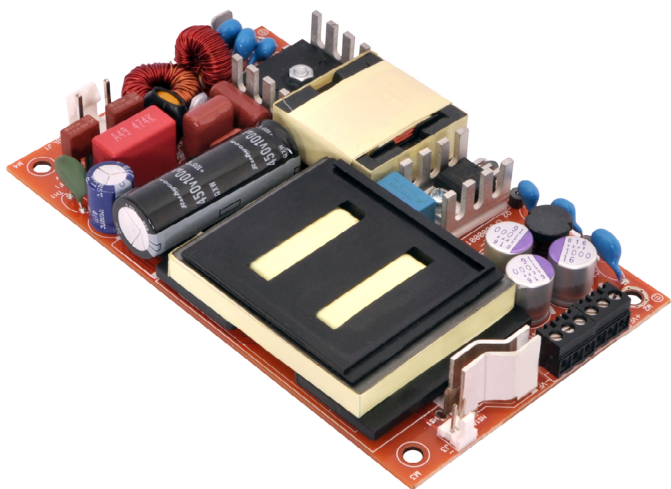


# 275 Watt Medical



## Features

- 5 x 3 x 0.75 Inches Form factor
- 275 Watts with Forced Air Cooling
- Approval to EN60601 3rd Edition
- Efficiencies upto 92%
- -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                      | 80-264 VAC/390 VDC, Universal (Derate from 100% at 100V AC to 72% for Forced Cooling and 69% for Convection Cooling at 80V AC)   |                      |
| Input Frequency                    | 47-63 Hz   |                      |
| Input Current                      | 115 VAC: 2.6 A max.  | 230 VAC: 1.3 A max.  |
| No Load Power                      | <0.5W typical for MULP275-1XXX and <0.85W typical for MULP275-1XXX-PGPF  |                      |
| 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                         | 92%(48V,58V), 90%(24V,30V), 88%(12V,15V)   |                      |
| Hold-up Time                       | at 275W:8 ms ; 160W: 16 ms   |                      |
| Power Factor                       | excess 0.95 with Full Load   |                      |
| Output Power                       | 275W with 13 CFM, upto 160W Convection   |                      |
| Line Regulation                    | +/-0.5%  |                      |
| Load Regulation                    | +/-1%  |                      |
| 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 <sup>7</sup> | -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.<br>Input to GND - 1500 VAC (Not Applicable For Class II Option)<br>Output to GND- 1500VAC for type BF , 500 VAC for type B (Not Applicable For Class II Option) |                      |
| Cooling                            | 275W with 13 CFM forced air cooling <sup>6</sup> (refer Mechanical Drawing)<br>upto 160 W with natural convection cooling <sup>6</sup> (refer Derating Curve)  |                      |

| Model Number                         | Description          | Voltage | Max. Load<br>(Convection)<br>(152W)<br>@50°C | Max. Load<br>(Convection)<br>(160W)<br>@40°C | Max. Load<br>(13 CFM) | Min. Load | Ripple <sup>1</sup> | Signals    |
|--------------------------------------|----------------------|---------|--|--|-----------------------|-----------|---------------------|------------|
| MULP275-1012                         | with Screw Terminal  | 12 V    | 12.50A                                       | 13.33A                                       | 22.92A                | 0.0 A     | 2%                  | N.A        |
| MULP275-1312                         | with Molex Connector | 12 V    | 12.50A                                       | 13.33A                                       | 22.92A                | 0.0 A     | 2%                  | N.A        |
| MULP275-1015                         | with Screw Terminal  | 15 V    | 10.00A                                       | 10.66A                                       | 18.33A                | 0.0 A     | 2%                  | N.A        |
| MULP275-1315                         | with Molex Connector | 15 V    | 10.00A                                       | 10.66A                                       | 18.33A                | 0.0 A     | 2%                  | N.A        |
| MULP275-1024                         | with Screw Terminal  | 24 V    | 6.25A  | 6.67A  | 11.46A                | 0.0 A     | 1%                  | N.A        |
| MULP275-1324                         | with Molex Connector | 24 V    | 6.25A  | 6.67A  | 11.46A                | 0.0 A     | 1%                  | N.A        |
| MULP275-1030                         | with Screw Terminal  | 30 V    | 5.00A  | 5.33A  | 9.17A                 | 0.0 A     | 1%                  | N.A        |
| MULP275-1330                         | with Molex Connector | 30 V    | 5.00A  | 5.33A  | 9.17A                 | 0.0 A     | 1%                  | N.A        |
| MULP275-1048                         | with Screw Terminal  | 48 V    | 3.12A  | 3.33A  | 5.73A                 | 0.0 A     | 1%                  | N.A        |
| MULP275-1348                         | with Molex Connector | 48 V    | 3.12A  | 3.33A  | 5.73A                 | 0.0 A     | 1%                  | N.A        |
| MULP275-1058                         | with Screw Terminal  | 58 V    | 2.58A  | 2.76A  | 4.74A                 | 0.0 A     | 1%                  | N.A        |
| MULP275-1358                         | with Molex Connector | 58 V    | 2.58A  | 2.76A  | 4.74A                 | 0.0 A     | 1%                  | N.A        |
| ULP275-CK metal cover kit accessory  |                      |         |  |  |                       |           |                     |            |
| MULP275-0012                         | with Screw Terminal  | 12 V    | 12.50A                                       | 13.33A                                       | 22.92A                | 0.0 A     | 2%                  | PG & AC PF |
| MULP275-0312                         | with Molex Connector | 12 V    | 12.50A                                       | 13.33A                                       | 22.92A                | 0.0 A     | 2%                  | PG & AC PF |
| MULP275-0015                         | with Screw Terminal  | 15 V    | 10.00A                                       | 10.66A                                       | 18.33A                | 0.0 A     | 2%                  | PG & AC PF |
| MULP275-0315                         | with Molex Connector | 15 V    | 10.00A                                       | 10.66A                                       | 18.33A                | 0.0 A     | 2%                  | PG & AC PF |
| MULP275-0024                         | with Screw Terminal  | 24 V    | 6.25A  | 6.67A  | 11.46A                | 0.0 A     | 1%                  | PG & AC PF |
| MULP275-0324                         | with Molex Connector | 24 V    | 6.25A  | 6.67A  | 11.46A                | 0.0 A     | 1%                  | PG & AC PF |
| MULP275-0030                         | with Screw Terminal  | 30 V    | 5.00A  | 5.33A  | 9.17A                 | 0.0 A     | 1%                  | PG & AC PF |
| MULP275-0330                         | with Molex Connector | 30 V    | 5.00A  | 5.33A  | 9.17A                 | 0.0 A     | 1%                  | PG & AC PF |
| MULP275-0048                         | with Screw Terminal  | 48 V    | 3.12A  | 3.33A  | 5.73A                 | 0.0 A     | 1%                  | PG & AC PF |
| MULP275-0348                         | with Molex Connector | 48 V    | 3.12A  | 3.33A  | 5.73A                 | 0.0 A     | 1%                  | PG & AC PF |
| MULP275-0058                         | with Screw Terminal  | 58 V    | 2.58A  | 2.76A  | 4.74A                 | 0.0 A     | 1%                  | PG & AC PF |
| MULP275-0358                         | with Molex Connector | 58 V    | 2.58A  | 2.76A  | 4.74A                 | 0.0 A     | 1%                  | PG & AC PF |
| ULP275-CKP 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    |
| J4<br>(For PGPF Option Only) | Pin 1     | Vs         |
|                              | Pin 2     | PGPF       |
|                              | Pin 3     | GND        |



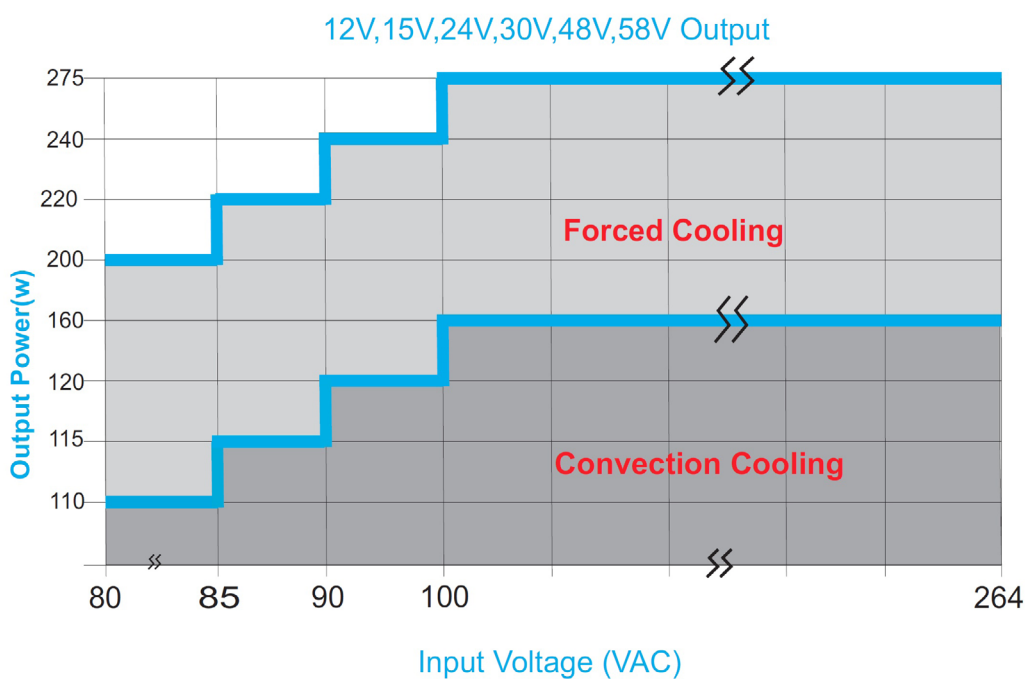
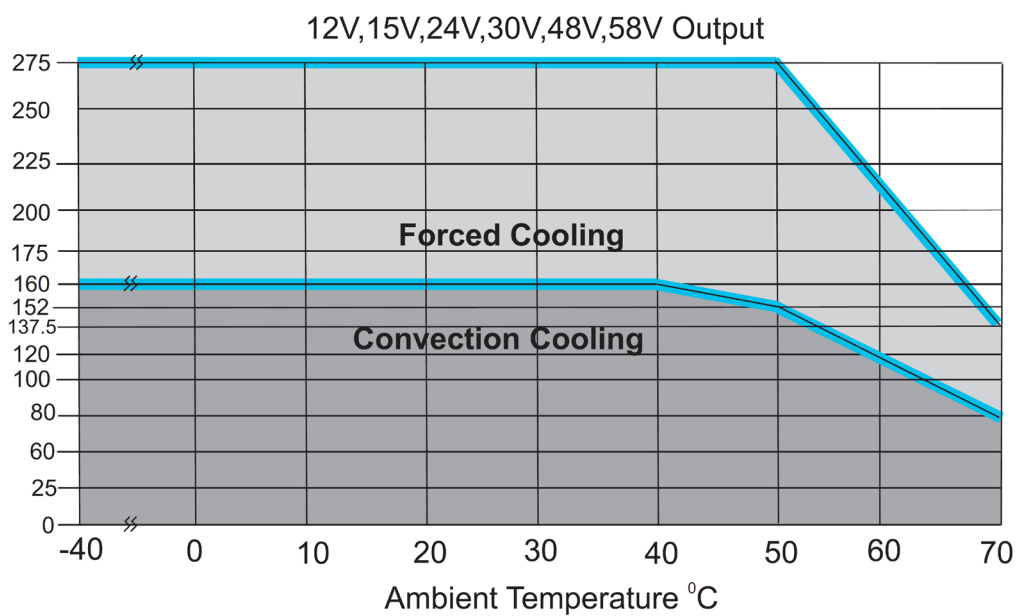
Innovations in Power

## Notes

1. Ripple is peak to peak with 20 MHz bandwidth and 10  $\mu$ F (Tantalum capacitor) in parallel with a 0.1  $\mu$ F capacitor at rated line voltage and load ranges.
2. Class II means without input Earth pin.
3. Combined output power of main output, fan supply shall not exceed max. Power rating.
4. Fan supply output voltage tolerance including set point accuracy, line and load regulation is +/-10% and Ripple and noise is less than 10%.
5. Specifications are for nominal input voltage, 25°C unless otherwise stated.
6. 275W with 13CFM forced air cooling and 160W with natural convection cooling at 100 to 264VAC.
7. -40 to 0°C startup is guaranteed with spec deviation in output ripple and voltage regulation.

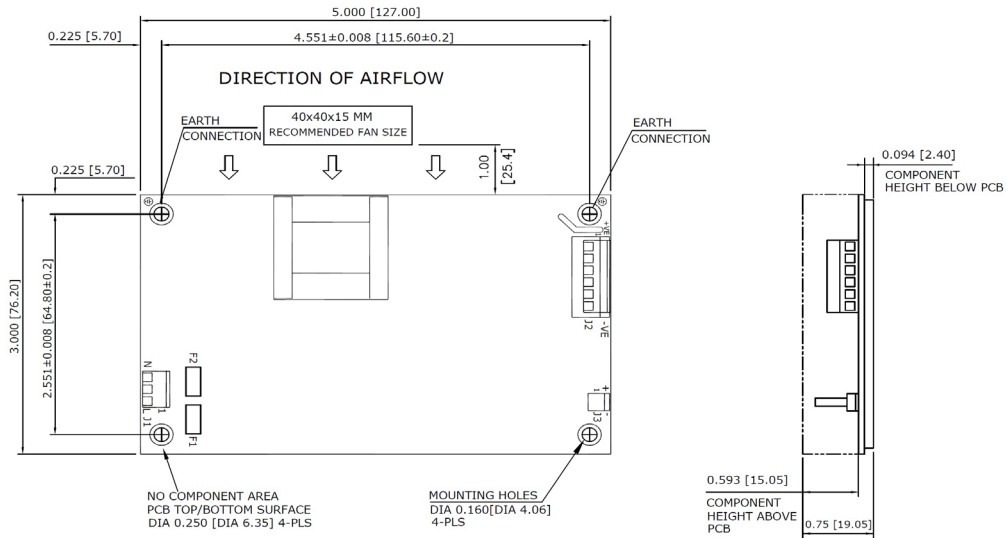
| Mechanical Specifications                              |  |
|--|--|
| AC Input Connector (J1)                                | Molex: 26-60-4030<br>Mating: 09-50-3031; Pins: 08-50-0106  |
| DC Output Connector (J2) Option 1<br>(Screw Terminal)  | Molex: 39357 Series or equivalent  |
| DC Output Connector (J2) Option 2<br>(Molex Connector) | Molex: 26-60-4060<br>Mating: 09-50-3061; Pins: 08-50-0106  |
| Aux (Fan) Output(J3)                                   | AMP :640456-2<br>Mating: 640440-2  |
| Signal Ouput (J4)                                      | AMP :640456-3<br>Mating: 640440-3  |
| Dimensions   | 5 x 3 x 0.75 inches<br>(127 x 76.2x 19.05 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-4   |
| RF Field Susceptibility                                | EN61000-4-3, Level-3   |
| Fast Transients/Bursts                                 | EN61000-4-4, Level-3   |
| Radiated Emissions                                     | Level A radiated,<br>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: E173812,VOL D1, Nemko: Certificate No: P16221541, CB Test Certificate No : N094798<br>Class-II : UL: E173812,VOL D1, Nemko: Certificate No: P16221548, CB Test Certificate No: N094849 |

## Derating Curve



## Mechanical Drawing

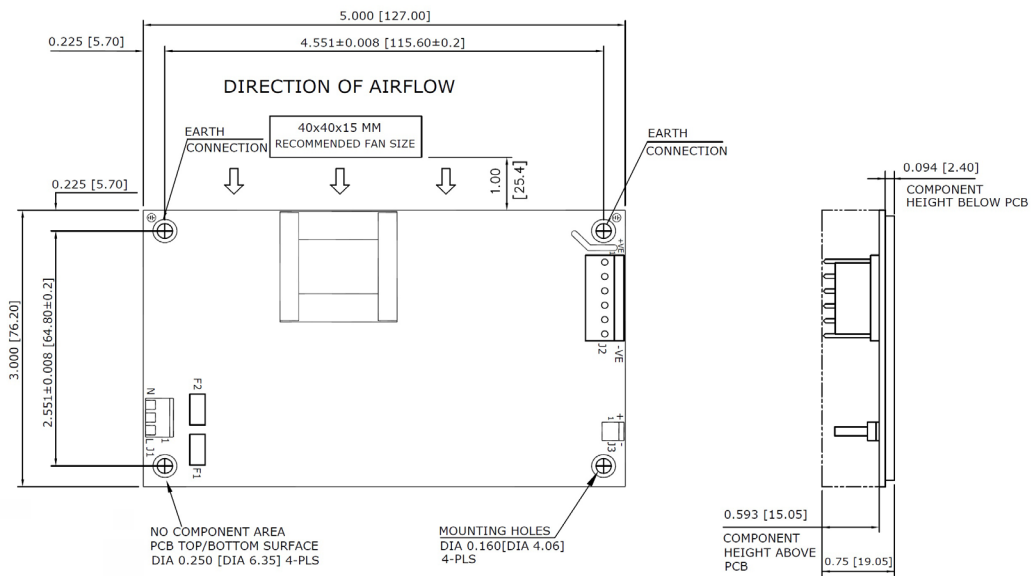
### Option 1 (Without PGPF)



MECHANICAL OUTLINE DIMENSIONS  
ALL DIMENSIONS ARE IN INCHES[MM]  
GEN TOLERANCE : +/-0.04[1.0MM]

## Mechanical Drawing

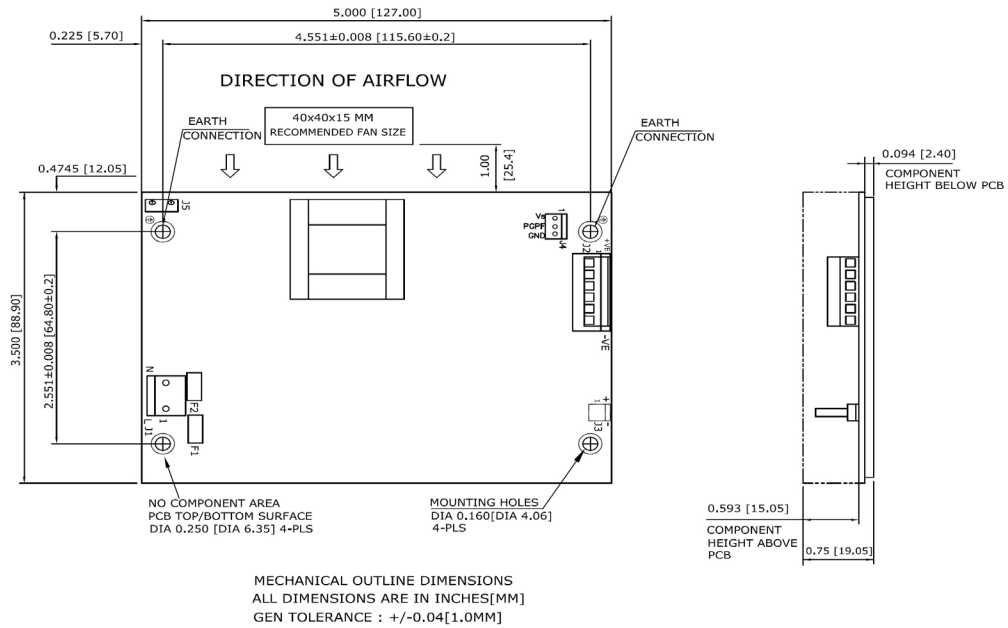
### Option 2 (Without PGPF)



MECHANICAL OUTLINE DIMENSIONS  
ALL DIMENSIONS ARE IN INCHES[MM]  
GEN TOLERANCE : +/-0.04[1.0MM]

## Mechanical Drawing

### Option 3 (With PGPF)



## Mechanical Drawing

### Option 4 (With PGPF)

