

Features

- 5 x 3 x 1.5 Inches Form factor
- Up to 550 Watts with Forced Air Cooled
- Efficiencies up to 92%
- -40 to 70 degree operating temperature*
- 12V / 0.5A Fan Output
- Thermal Shut-Down feature
- Shall be approved to EN60601-1 3rd Edition
- Meets EN60601-1-2, 4th Edition
- Medical (BF) Safety Approvals
- MTBF : >3M hours as per Telcordia SR-332, issue 3

Electrical Specifications

| | | |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| Input Voltage | 90-264 VAC/390 VDC, Universal (Derate from 100% at 115VAC to 78% at 90VAC) | |
| Input Frequency | 47-63 Hz | |
| Input Current | 115 VAC: 6.0 A max. | 230 VAC: 3.0 A max. |
| No Load Power | < 0.5W @ 115VAC | < 0.7W @ 230VAC |
| Inrush Current | 115 VAC – 25 A, 230 VAC – 45 A, 264 VAC – 75 A | |
| Leakage Current | <200uA @115VAC and <400uA @230VAC | Touch current <100uA |
| Efficiency | 92%(48V), 91%(24V), 90%(12V,15V) typical @ 230VAC full load | |
| Hold-up Time | Full Load > 16 ms typical | Convection Load > 55 ms typical Conduction Load > 30ms typical |
| Power Factor | exceeds 0.95 with Full Load | |
| Output Power | up to 550W (Forced Air Cooled) up to 250W (Conduction Cooled) up to 150W (Convection Cooled) | |
| Output Voltage Adjustability | +/-3% | |
| Line Regulation | +/-0.5% | |
| Load Regulation | +/-1% | |
| Transient Response | 50-100% step load change, at 0.1A/uS slew rate, 50% duty cycle, 50Hz=5% , recovery time < 5 ms | |
| Rise Time | 55 ms typical | |
| Set Point Tolerance | +/-1% | |
| Over Current Protection | >110%, Hiccup mode / Auto Recovery | |
| Over Voltage Protection | 110 to 140%, Hiccup mode / Auto Recovery | |
| Short Circuit Protection | Hiccup mode / Auto Recovery | |
| Switching Frequency | PFC – 70 to 130 KHz ,Resonant – 68 to 80 KHz | |
| Operating Temperature | -40 to +70°C, * -40 to 0°C startup is guaranteed with spec deviation (ref note 6) | |
| Storage Temperature | -40 to +85°C | |
| Relative Humidity | 5% to 95%, noncondensing | |
| Altitude | Operating: 16,000 ft.; Nonoperating: 40,000 ft. | |
| Isolation Voltage | Input to Output – 4000 VAC medical applications. Input to GND - 1500 VAC , Output to GND- 1500VAC for type BF , 500 VAC for type B | |

| Model Number | Voltage | Max. Load (Convection) | Max. Load ⁷ (Conduction) | Max. Load (400 LFM) | Min. Load | Ripple ¹ |
|--------------|---------|------------------------|-------------------------------------|---------------------|-----------|---------------------|
| MWLC550-1012 | 12V | 9.17A | 16.67A | 41.67A | 0.0A | 2% |
| MWLC550-1015 | 15V | 7.33A | 13.33A | 33.33A | 0.0A | 2% |
| MWLC550-1024 | 24V | 6.25A | 10.42A | 22.92A | 0.0A | 1% |
| MWLC550-1030 | 30V | 5.00A | 8.33A | 18.33A | 0.0A | 1% |
| MWLC550-1048 | 48V | 3.13A | 5.21A | 11.46A | 0.0A | 1% |
| MWLC550-1058 | 58V | 2.59A | 4.31A | 9.48A | 0.0A | 1% |

| Connectors | | |
|------------|-------|------------|
| J1 | Pin 1 | AC LINE |
| | Pin 2 | NOT FITTED |
| | Pin 3 | AC NEUTRAL |
| J2 | Pin 1 | V1 +VE |
| | Pin 2 | 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 (Electrolytic capacitor) in parallel with a 0.1 μ F capacitor at rated line voltage and load ranges.
- 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.
- Thermal shutdown feature : The power supply goes in hiccup mode when the temperature of Substrate PCB exceeds 110 °C (+/-10 °C).
- Output ripple can be more than 10% of the output voltage.
- Refer Recommended Conduction Plate & Clearance on Page No. 6



Innovations in Power

Mechanical Specifications

| | |
|----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AC Input Connector (J1) | JST : B3P-VH-B(LF)(SN) or equivalent Mating: VHR-3M or equivalent Pins : SVH-41T-P1.1 or equivalent |
| Earth (J4) | Molex: 19705-4301 Mating: 19003-0001 |
| DC Output Connector (J2) (Screw Terminal) | 6-32 inches Screw Pan HD Mating: Designed to accept Ring Tongue Terminal AMP : 8-31886-1, wherein one 16 AWG(max) wire can be crimped. Note : One Ring Tongue Terminal with 16 AWG is recommended for current up to 11A only. Use multiple tongue terminals with wire for more current |
| Aux (Fan) Output(J3) | AMP :640456-2 Mating: 640440-2 |
| Dimensions | 5 x 3 x 1.5 inches (127 x 76.2x 38.1 mm) |
| Weight | 500 gm approx |

EMC

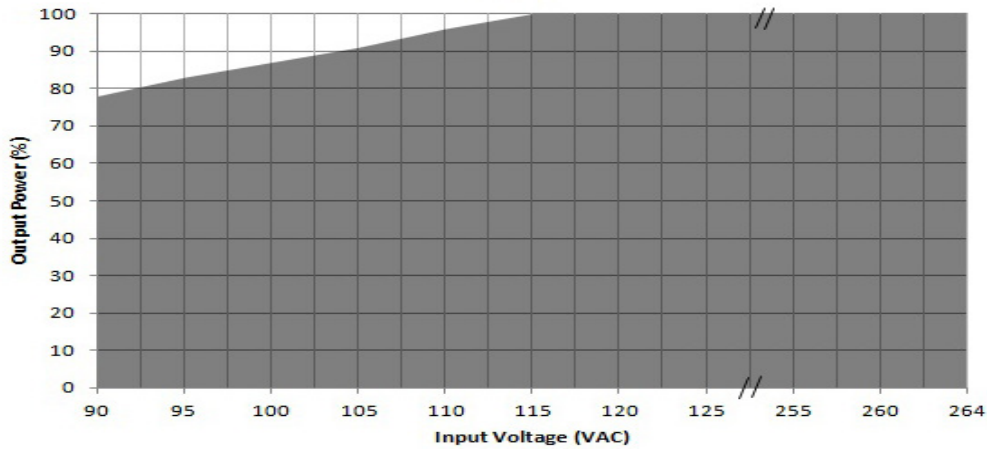
| Parameter | Conditions/Description | Criteria |
|------------------------------------|------------------------------------|---------------------------------------------------------------------------------|
| Conducted Emissions | EN 55011-B,CISPR22-B, FCC PART15-B | Pass |
| Radiated Emissions | EN 55011 A | Pass Level B with external core (King core K5B RC 25x12x15-M in input cable) |
| Input Current Harmonics | EN 61000-3-2 | Class D |
| Voltage Fluctuation and Flicker | EN 61000-3-3 | Pass |
| ESD Immunity | EN 61000-4-2 | Level 4, Criterion A |
| Radiated Field Immunity | EN 61000-4-3 | Level 3, Criterion A |
| Electrical Fast Transient Immunity | EN 61000-4-4 | Level 3, Criterion A |
| Surge Immunity | EN 61000-4-5 | Level 3, Criterion A |
| Conducted Immunity | EN 61000-4-6 | Level 3, Criterion A |
| Magnetic Field Immunity | EN 61000-4-8 | Level 4, Criterion A |
| Voltage dips, interruptions | EN 61000-4-11 | Criterion B |

Safety

| | |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CE Mark | Complies with LVD Directive |
| Approval Agency | Nemko, UL, C-UL |
| Safety Standard(s) | UL /CSA : ANSI/AAMI ES60601-1 (2005 + C1:09 + A2:10) AMD1:2012; CORR1:2009; AMD2:2010, (/ CAN/CSA-C22.2 No. 60601-1 (2008)CAN/CSA C22.2 No. 60601-1:14 IEC : IEC 60601-1: 2005 + CORR. 1:2006 + CORR. 2:2007 + AM1:2012(or IEC 60601-1: 2012 reprint) EN : EN 60601-1:2006;A1 |
| Safety File Number(s) | UL Certificate No : E173812 CB Test Certificate No : NO93054 Nemko Certificate No : P16221240 |

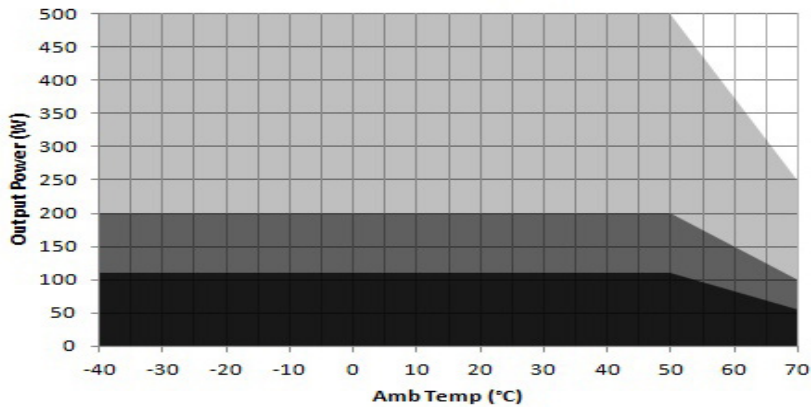
Derating Curve

Power De-rating : w.r.t. Input For all mounting options a to f



De-rate linearly from 100% at 115VAC to 78% at 90VAC

Power De-rating : 12V, 15V For all mounting options a to f

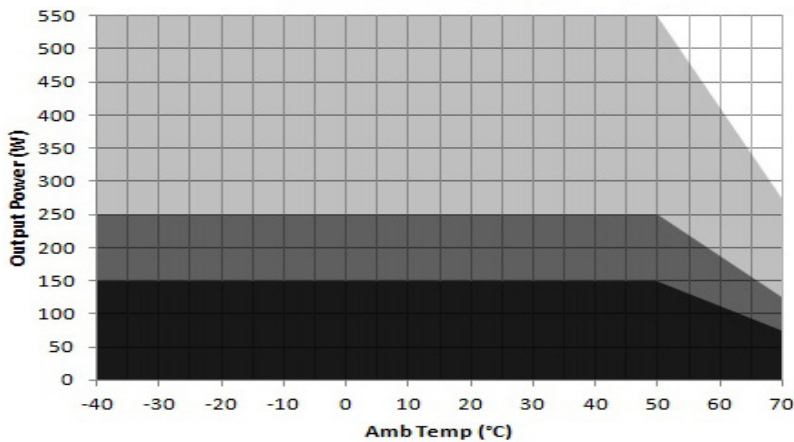


Convection load: 110W up to 50 °C
De-rate above 50 °C @ 2.5% per °C

Conduction load: 200W up to 50 °C
De-rate above 50 °C @ 2.5% per °C

Forced air cooled load : 500W up to 50°C
De-rate above 50 °C @ 2.5% per °C

Power De-rating : 24V, 30V, 48V, 58V For all mounting options a to f



Convection load: 150W up to 50 °C
De-rate above 50 °C @ 2.5% per °C

Conduction load: 250W up to 50 °C
De-rate above 50 °C @ 2.5% per °C

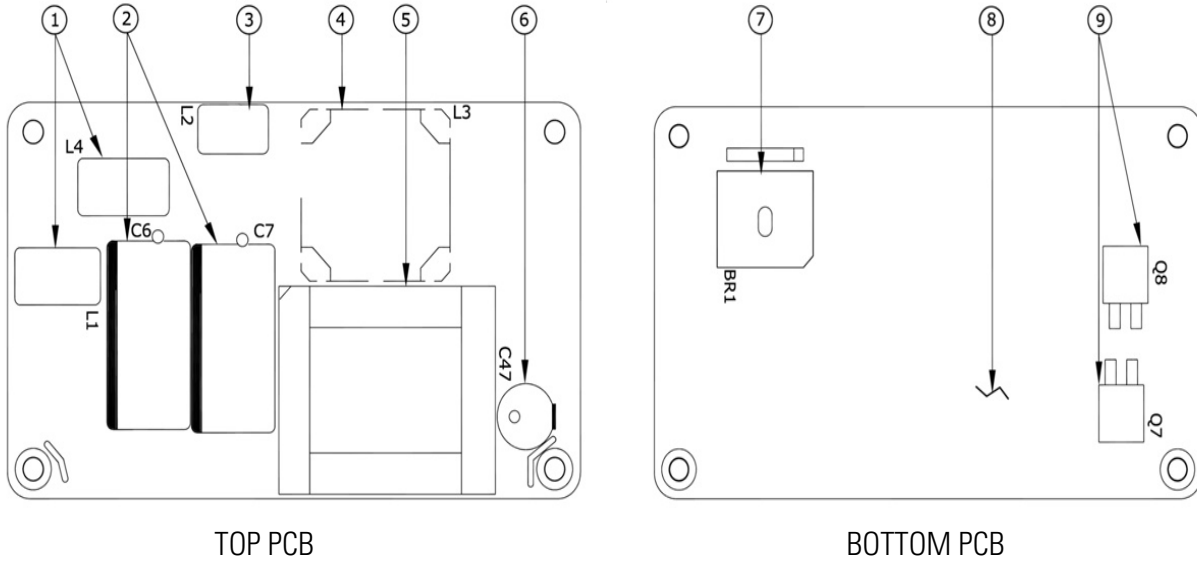
Forced air cooled load : 550W up to 50°C
De-rate above 50 °C @ 2.5% per °C



Innovations in Power

Maximum Operating Temperature

For reliable and safe operation, please make sure the maximum component temperatures given in table below is not exceeded.

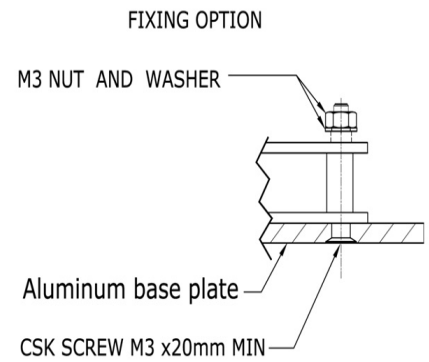
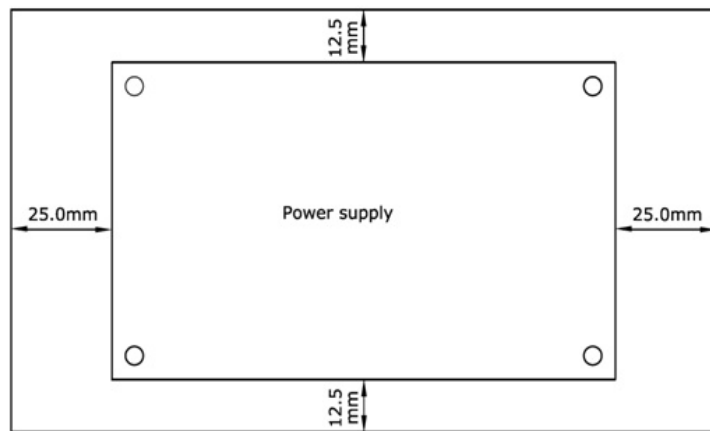
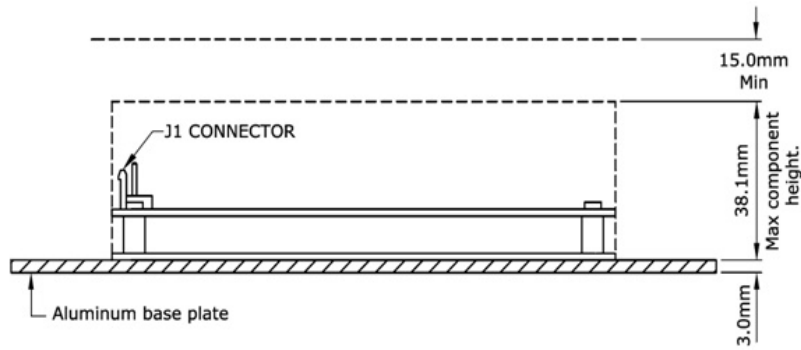


| Ident no | Description | Max Temp Allowed (°C) |
|----------|-----------------------|--------------------------------------------------|
| 1 | Common mode chokes | 95 |
| 2 | Input Bulk Capacitors | 90 |
| 3 | Differential choke | 110 |
| 4 | Boost Choke | 110 |
| 5 | Output Transformer | 125 (for 12V & 15V) 110 (for 24V,30V,48V,58V) |
| 6 | Output Capacitor | 90 |
| 7 | Bridge Rectifier | 120 |
| 8 | Aluminium Clad PCB | 105 |
| 9 | Output Rectifiers | 110 |

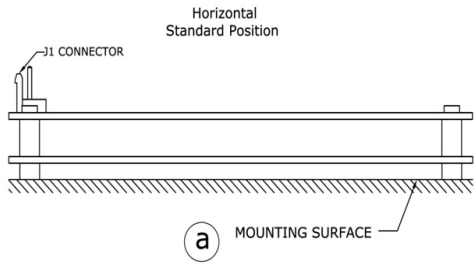
Recommended Conduction Plate & Clearance

Conduction power rating mentioned in the table is with additional aluminium base plate of 3 mm thickness with 177.8mm(7in) length & 101.6mm(4in) width.

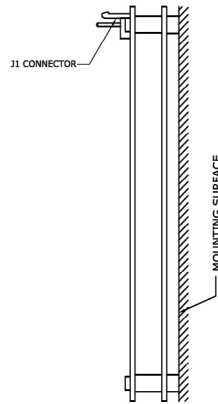
Clearance of minimum 15mm above the component height is recommended for better thermal management.



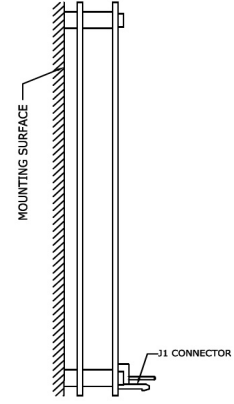
Mounting Option



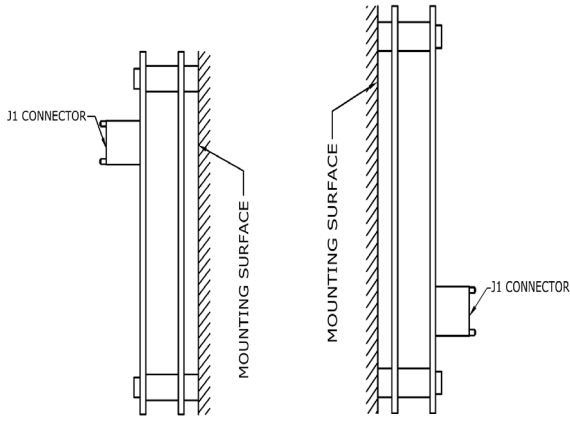
(a)



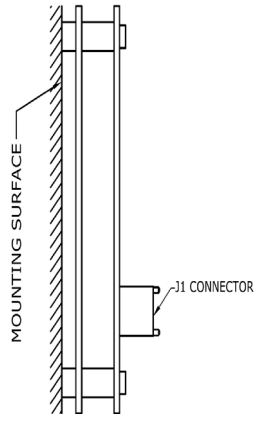
(b)



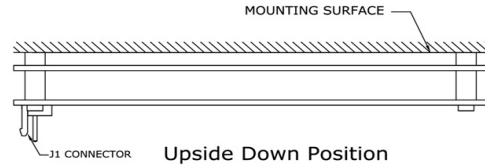
(c)



(d)

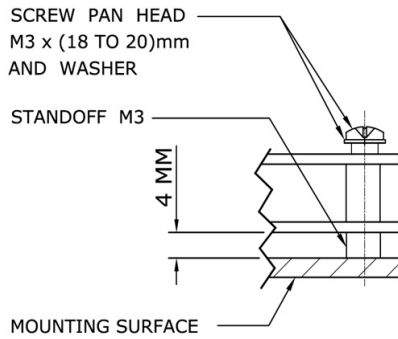


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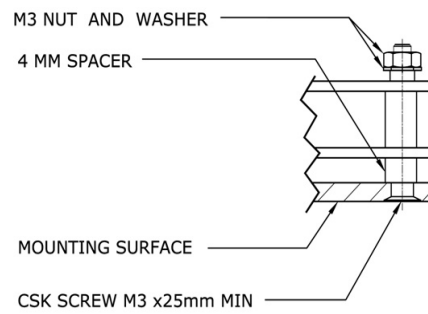


(f)

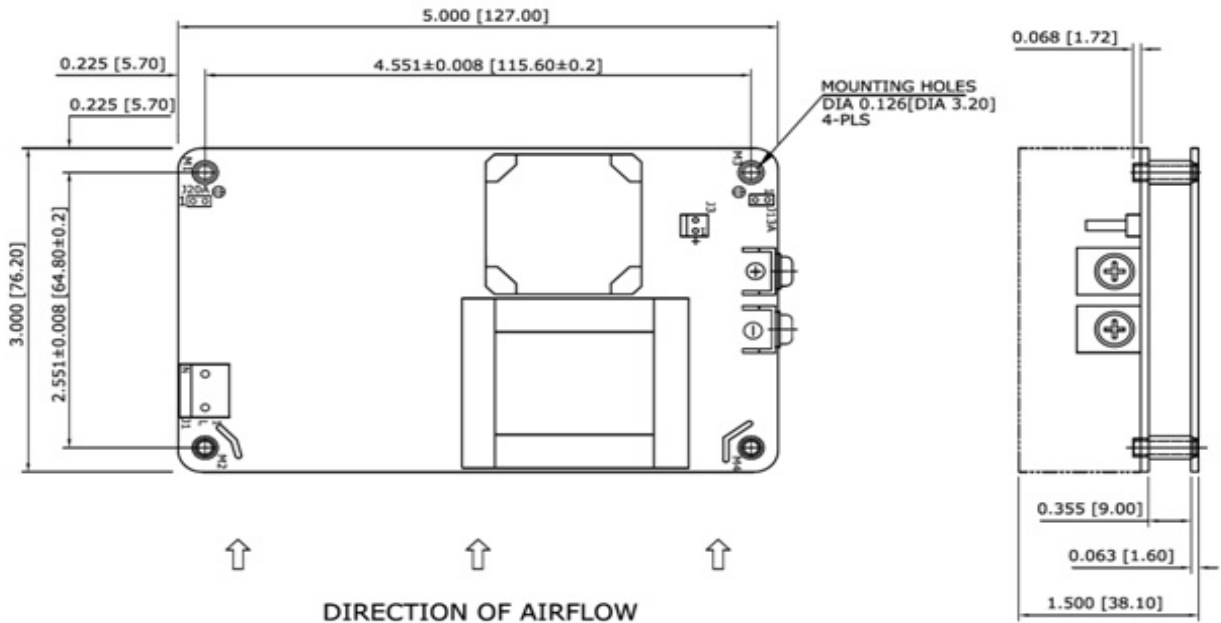
FIXING OPTION - 1



FIXING OPTION - 2



Mechanical Drawing



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