

Features :

- 4 x 2 x 1.16 Inches Form Factor
- 200 Watts with Forced Air Cooling & 130 Watts Convection Cooling
- No Load Power < 0.5 W
- - 40°C to + 70°C Operating Temperature
- 12 V / 0.5 A Fan Output, Thermal Shut-Down Feature
- Efficiencies up to 93 %
- Class II Option Available
- Medical (BF) Safety Approvals
- Approved to Household, ITAV and Medical Standards

SPECIFICATIONS:

| MODEL | | OPS2x4-200-12 | OPS2x4-200-15 | OPS2x4-200-24 | OPS2x4-200-48 |
|--------------------|--|---|---------------|---------------|-----------------|
| OUTPUT | NOMINAL DC VOLTAGE | 12 V | 15 V | 24 V | 48 V |
| | RATED CURRENT (CONVECTION) | 10.84 A | 8.67 A | 5.42 A | 2.71 A |
| | RATED CURRENT (FORCED AIR) | 16.67 A | 13.34 A | 8.34 A | 4.17 A |
| | RATED POWER (CONVECTION) | 130 W | 130 W | 130 W | 130 W |
| | RATED POWER (FORCED AIR) | 200 W | 200 W | 200 W | 200 W |
| | RIPPLE & NOISE (Max) | < 1 % of Vout | < 1 % of Vout | < 1 % of Vout | < 1 % of Vout |
| | SET POINT ACCURACY | 12.1 V ± 3 % | 15.1 V ± 3 % | 24.1 V ± 3 % | 48.1 V ± 3 % |
| | LINE REGULATION | ± 0.5 % | | | |
| | LOAD REGULATION | ± 1 % | | | |
| | TURN ON TIME | < 2 sec; at full load | | | |
| | HOLD UP TIME | > 20 msec at convection load & > 10 msec at full load for nominal Vout | | | |
| | RISE TIME | < 100 msec | | | |
| | FAN OUTPUT | 12 V, 0.5 A output is available on 2 pin connector header | | | |
| TRANSIENT RESPONSE | Max excursion 5 % for step load change from 50 % to 100 % at 0.1 A / μsec slew rate, 50 % duty cycle, 50 / 60 Hz. Recovery time < 5 msec | | | | |
| INPUT | VOLTAGE RANGE * | 90 - 264 VAC (127 - 370 VDC) Note: 90 - 305 VAC operation available on demand | | | |
| | FREQUENCY RANGE | 47 - 63 Hz | | | |
| | EFFICIENCY @ 230V AC | Up to 91 % | Up to 91 % | Up to 93 % | Up to 93 % |
| | AC CURRENT | 2.0 A @ 115 VAC; 1.1 A @ 230 VAC | | | |
| | POWER FACTOR | > 0.93 at Full Load over entire input AC voltage range | | | |
| | INRUSH CURRENT | < 60 Amps; Measured at 264 VAC, 25°C Ambient, Cold start | | | |
| | LEAKAGE CURRENT | < 300 uA; 264 VAC input | | | |
| | TOUCH CURRENT | < 100 uA; 264 VAC input | | | |
| | NO LOAD POWER CONSUMPTION | < 0.5 W; 115 VAC input | | | |
| PROTECTION | OVERLOAD | 110 % to 140 % of rated output current; Hiccup mode; Autorecovery type. | | | |
| | OVERVOLTAGE | 13.5 - 15.5 VDC | 17 - 20.5 VDC | 27 - 31 VDC | 53.5 - 62.5 VDC |
| | OUTPUT SHORT CIRCUIT | Latched type; Input AC power to be recycled to recover the power supply Hiccup mode when output is shorted; Autorecovery type. | | | |
| | OVER TEMPERATURE | Power supply shuts down when the temperature of PCB below main transformer reaches typically 120°C; Turns on only after the temperature falls below 90°C typically and AC power is recycled thereafter. | | | |
| ENVIRONMENT | OPERATING TEMP | - 40°C to + 70°C; De-rate linearly above 50°C from 100 % load at 50°C to 50 % load at 70°C. Note: Only start up guaranteed at - 40°C with specification deterioration. | | | |
| | STORAGE TEMP | - 40°C to + 85°C | | | |
| | COOLING | Natural convection cooled or Forced Air cooled (minimum 13 CFM) as per power requirements. | | | |
| | HUMIDITY | 5 to 95 % RH, Non condensing | | | |
| | ALTITUDE | 2000 m | | | |
| VIBRATION | Component: 10 ~ 500 Hz, 2 G 10 min. / 1 cycle, Period for 60 min. each along X, Y, Z axes | | | | |

Note: *Although power supply will work for the specified DC input voltage range, UL approval is only for the specified AC input voltage range.

| MODEL | | OPS2x4-200-12 | OPS2x4-200-15 | OPS2x4-200-24 | OPS2x4-200-48 |
|----------------------|--------------|--|---------------|---------------|---------------|
| DIELECTRIC WITHSTAND | TEST VOLTAGE | I/P to Earth: 1500 VAC, I/P to O/P: 4000 VAC, O/P to Earth: 1500 VAC | | | |
| | RELIABILITY | MTBF > 330K hrs. as per MIL-HDBK-217F (25°C) | | | |
| MECHANICAL | DIMENSION | Overall: 4" x 2" x 1.16" (L x W x H); Height above PCB: 1" | | | |
| | WEIGHT | < 180 gms | | | |
| | MOUNTING | Open Frame | | | |

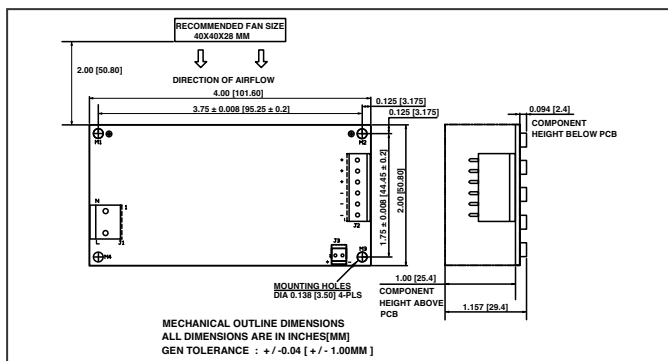
| Means of Protection | | Category |
|----------------------|--|------------------|
| Primary to Secondary | 2 x MOPP (Means of Patient Protection) | IEC 60601-1 Ed 3 |
| Primary to Earth | 1 x MOPP (Means of Patient Protection) | |
| Secondary to Earth | 1 x MOPP (Means of Patient Protection) | |

Connectors details

| Ref Des | Description | Type | Pin number | Function |
|---------|---------------------|---|------------|---------------|
| J1 | Input AC connector | Tyco: 640445-3; Mates with 647402-3; Pin: 3-647409-1 | 1 | AC Neutral |
| | | | 2 | Not connected |
| | | | 3 | AC Line |
| J2 | Output DC connector | Tyco: 640445-6; Mates with 647402-6; Pin: 3-647409-1 | 1, 2, 3 | V1 Negative |
| | | | 4, 5, 6 | V1 Positive |
| J3 | Fan connector | Molex: 22-04-1021; Mates with 22-01-1022; Pin: 08-50-0113 | 1 | V2 Positive |
| | | | 2 | V2 Negative |
| - | Earth* | Mounting holes marked with Earth symbol | - | Earth |

Note: * All the mounting holes marked with Earth symbol must be Earthed.

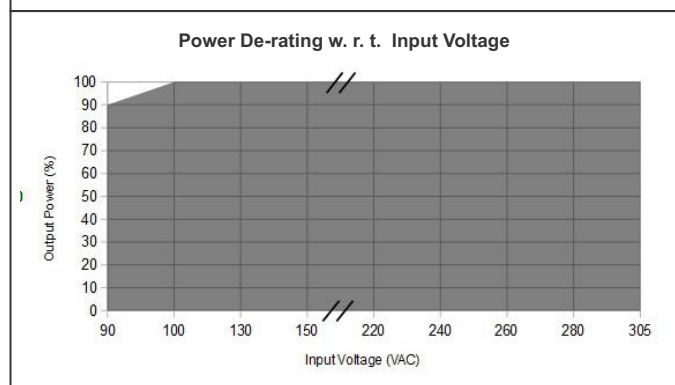
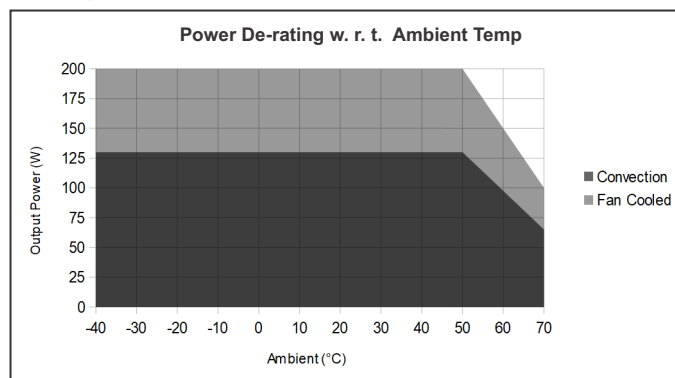
Mechanical dimensions



Note:

1. This open frame power supply should preferably be mounted horizontally on 4 metal stand-offs having diameter not more than 6 mm and height not less than 7 mm.
2. Screws used to fix PCB on stand-offs should not have head diameter more than 6 mm.
3. Washer used should not have diameter more than 6 mm.

De-rating curve



Compliance

| Applicable EMI / EMC Standards | | |
|-----------------------------------|--|--|
| Category | Reference Standards | Testing Level |
| Conducted Emission | CISPR32 | CLASS B |
| Radiated Emission | CISPR32 | CLASS A |
| Electrostatic Discharge | IEC 61000-4-2 | Level 4, Criteria A Level 3, Criteria A |
| Radiated Susceptibility | IEC 61000-4-3 | Level 3, Criteria B |
| Electrical Fast Transient / Burst | IEC 61000-4-4 | Level 3, Criteria A |
| Surge | IEC 61000-4-5 | Level 3, Criteria A |
| Conducted Susceptibility | IEC 61000-4-6 | Level 3, Criteria B |
| Power Frequency Magnetic Field | IEC 61000-4-8 | Level 4, Criteria A |
| Voltage Dips & Interruption | IEC 61000-4-11 | Criteria A & B |
| Safety | Approved to IEC / EN / UL 62368-1; IEC / EN 60601-1; IEC / EN 61558 | |

Ordering information

| Product Code | Description | Certification |
|----------------------|--|---------------|
| OPS2x4-200-12-A-1-CU | Open Frame Power Supply with 4 x 2 x 1.16" Form factor, 12 V / 16.67 A, 200 Watts with Forced Air Cooling & 12 V / 10.84 A, 130 Watts Convection Cooling | |
| OPS2x4-200-15-A-1-CU | Open Frame Power Supply with 4 x 2 x 1.16" Form factor, 15 V / 13.34 A, 200 Watts with Forced Air Cooling & 15 V / 8.67 A, 130 Watts Convection Cooling | |
| OPS2x4-200-24-A-1-CU | Open Frame Power Supply with 4 x 2 x 1.16" Form factor, 24 V / 8.34 A, 200 Watts with Forced Air Cooling & 24 V / 5.42 A, 130 Watts Convection Cooling | |
| OPS2x4-200-48-A-1-CU | Open Frame Power Supply with 4 x 2 x 1.16" Form factor, 48 V / 4.17 A, 200 Watts with Forced Air Cooling & 48 V / 2.71 A, 130 Watts Convection Cooling | |