

60 Watts

MCM Series



- Compact Size – High Power Density
- Rugged Design for Defense Applications
- Universal Input
- Wide Operating Temperature
- MIL-STD-461E
- Convection-cooled
- 3 Year Warranty

Specification

Input

| | |
|-----------------------|---|
| Input Voltage | • 90-264 VAC (120-370 VDC) |
| Input Frequency | • 47-63 Hz |
| Input Current | • 0.4 A max at 230 VAC |
| Inrush Current | • 40 A max at 230 VAC, cold start 25 °C |
| Power Factor | • EN61000-3-2, class A |
| Input Protection | • Internal T3.15 A/250 V fuse in line and neutral |
| Earth Leakage Current | • 2 mA max at 230 VAC, 60 Hz |

Output

| | |
|--------------------------|---|
| Output Voltage | • See table |
| Initial Set Accuracy | • $\pm 1.0\%$, set at 60% load |
| Minimum Load | • No minimum load required |
| Start Up Delay | • 2 s max |
| Start Up Rise Time | • 50 ms |
| Hold Up Time | • 16/75 ms minimum at 115/230 VAC |
| Line Regulation | • $\pm 0.5\%$ |
| Load Regulation | • 3% |
| Over/Undershoot | • None at turn on/off |
| Transient Response | • 4% max. deviation, recovery to within 1% in 500 μ s for a 25% load change |
| Ripple & Noise | • 1% pk-pk, 20 MHz bandwidth with 1 μ F capacitor connected across measurement points |
| Overvoltage Protection | • 115-135% Vnom, recycle input to reset |
| Overload Protection | • 110-150%, on primary power limit, auto recovery |
| Short Circuit Protection | • Trip and restart (hiccup mode) |
| Temperature Coefficient | • 0.05%/°C |
| Peak Load | • 120% for 100 ms (see note 2) |

General

| | |
|---------------------|--|
| Efficiency | • Up to 83% at nominal line, 100% load |
| Isolation | • 4000 VAC Input to Output 1500 VAC Input to Ground 500 VAC Output to Ground |
| Switching Frequency | • 70 kHz typical |
| Power Density | • 2.6 W/In ³ |
| MTBF | • 250 kHrs to MIL-HDBK-217F at 25 °C, GB |

Environmental

| | |
|-----------------------|---|
| Operating Temperature | • -40 °C to +70 °C, derate linearly from 100% load at +50 °C to 50% load at +70 °C. Start up at -30 °C. |
| Cooling | • Convection-cooled |
| Operating Humidity | • 95% RH, non-condensing |
| Storage Temperature | • -40 °C to + 85 °C |
| Operating Altitude | • 3000 m |
| Shock | • 30 g pk, half sine, 6 axes |
| Vibration | • 2 g rms, 5 Hz to 500 Hz, 3 axes |

EMC & Safety

| | |
|----------------------|--|
| Emissions | • MIL-STD-461E, CE102, RE102 EN60601-1-2, EN61204-3, FCC 20780, EN55022, level B conducted EN55022 Level A radiated |
| Military Immunity | • MIL-STD-461E Fixed Wing External (2 MHz to 18 GHz) and Helicopters, CS101, 114, 115, 116 & RS103 |
| Harmonic Currents | • EN61000-3-2, class A |
| Voltage Flicker | • EN61000-3-3 |
| ESD Immunity | • EN61000-4-2, level 3 Perf Criteria A |
| Radiated Immunity | • EN61000-4-3, 10 V/m Perf Criteria A |
| EFT/Burst | • EN61000-4-4, level 3 Perf Criteria A |
| Surge | • EN61000-4-5, installation class 3, Perf Criteria A |
| Conducted Immunity | • EN61000-4-6, 10 V Perf Criteria A |
| Dips & Interruptions | • EN61000-4-11, 30% 10 ms, 60% 100 ms, 100% 5000 ms, Perf Criteria A, B, B |
| Safety | • Compliant to EN60950-1, UL60950-1, CSA 22.2 601.1, EN60601-1, UL60601-1 |

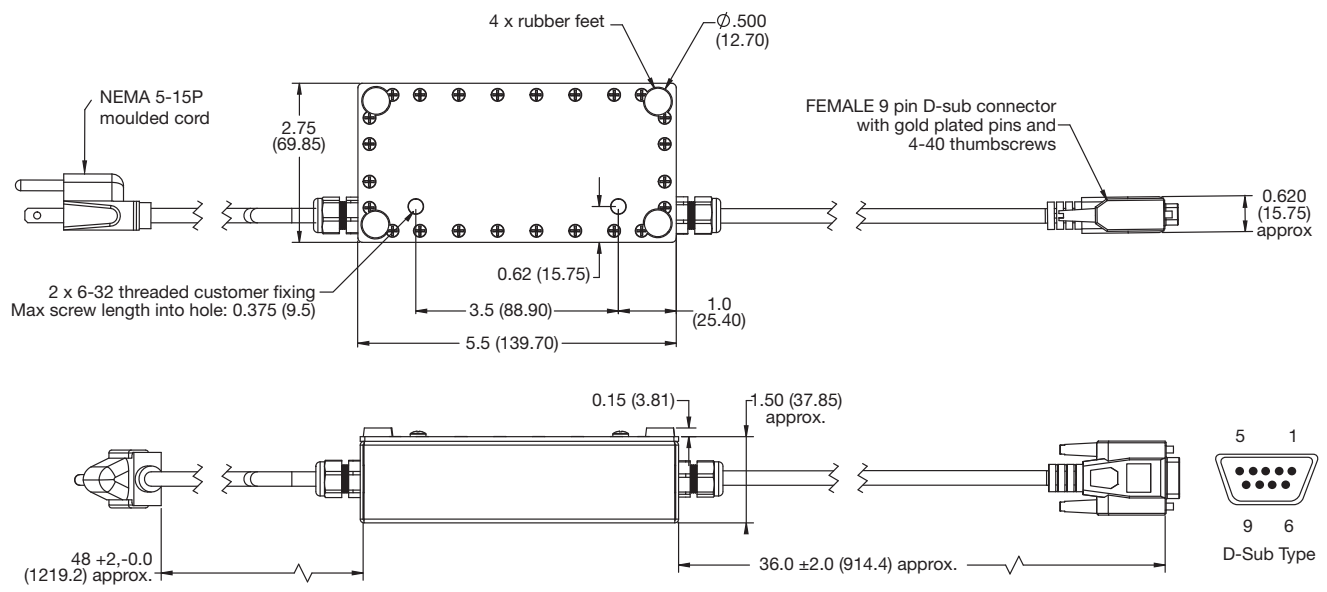
Models and Ratings

| Input Voltage | Output Voltage | Output Current | Efficiency (typ.) | Model Number ^(2,3) |
|---------------|----------------|----------------|-------------------|-------------------------------|
| 90-264 V | 12 VDC | 5.0 A | 80% | MCM60US12-D9 |
| | 15 VDC | 4.0 A | 80% | MCM60US15-D9 |
| | 18 VDC | 3.3 A | 81% | MCM60US18-D9 |
| | 24 VDC | 2.5 A | 83% | MCM60US24-D9 |
| | 28 VDC | 2.1 A | 83% | MCM60US28-D9 |

Notes

1. For other output voltages 12 V to 48 V, consult sales.
2. A 120% peak load can be taken for up to 100 ms with a 25% duty cycle. Average load not to exceed 60 W.
3. Mechanical drawing shows the '-D9' 9 Pin Output D-Sub connector. For other connectors, contact sales.
4. US AC mains lead is standard. For other mains leads, contact sales.

Mechanical Details



| Output Pin Connections | | | |
|------------------------|------------|-----|------------|
| Pin | D-Sub Type | Pin | D-Sub Type |
| 1 | Earth | 6 | N/C |
| 2 | N/C | 7 | N/C |
| 3 | N/C | 8 | Return |
| 4 | +Output | 9 | Return |
| 5 | +Output | | |

Notes

1. All dimensions are in inches (mm).
2. Tolerance X.XX = +/-0.02 (0.50); X.XXX = +/-0.015 (0.38) except input/output cables.
3. Weight: 2.5 lbs (1.13 kg)
4. Finish: Black epoxy paint.

Derating Curve

