



MPF 050 SERIES

DC/DC CONVERTER



Description

This wide input voltage range DC/DC converter series allows to supply 12 VDC products with 24 VDC to 110VDC electrical installations. These converters are compliant to railway standard RIA 12.

Input Specifications

| Product reference | MPF 050 1 E 01 | MPF 050 1 K 01 |
|----------------------------------|--------------------------------|-------------------------------|
| Nominal input voltage | 24/36/48/52 VDC | 72/96/110 |
| Input voltage range | 15 to 65 VDC | 50 to 137.5 VDC |
| Input transients voltage | 14,4 VDC, 73 VDC during 100 ms | 43 VDC, 154 VDC during 100 ms |
| Reverse input voltage protection | Yes, by reverse diode | Yes, by reverse diode |
| Inrush current limitation | Yes, by resistor+ MOSFET | Yes, by resistor+ MOSFET |

Output Specifications

| Product reference | MPF 050 1E01 & MPF 050 1K01 |
|---|---|
| Nominal output voltage | 12.4 VDC Adjustable to 12 VDC with soldered connection |
| Output voltage ripple p-p (WB 0 to 20 MHz) | 120 mV, (fundamental 40 mV) |
| Nominal output current | 4 A, minimum 0.4A |
| Crossed regulation (load + line) | ± 1% |
| Nominal output power | 50 W |
| Efficiency | > 85% |
| Long term stability during 8 hours (after 1/2 hour operating) | < 0.3% |
| Switching frequency | > 50 kHz, fixed |
| Output current limitation | > 4,8 A |
| Overvoltage protection | Yes, by Transil |
| Permanent short circuit protection | Yes |

Environmental Details

| Product reference | MPF 050 1E01 & MPF 050 1K01 |
|-------------------------------------|-----------------------------|
| Operating temperature range | -25°C to +80°C |
| Derating | Without derating |
| Storage temperature range | -40°C to +85°C |
| Temperature coefficient | < 2.10 ⁻⁴ / °C |
| Relative humidity at 40°C | 95% |
| Cooling | Natural convection |
| Insulation resistance | > 10 MΩ (500 VDC) |
| Dielectric strength | 1 500 VAC (input/output) |
| MTBF (according to "MIL HDBK.217F") | > 228 000 hours |
| Coating | PCB coated with varnish |



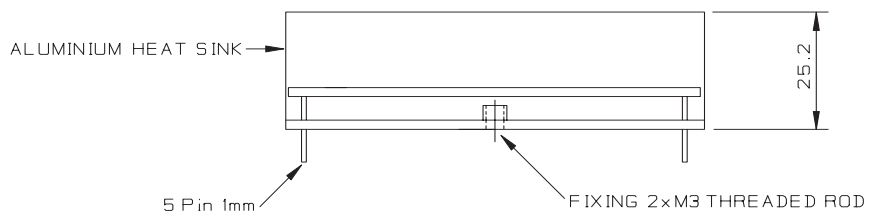
Applicable Norms

| Item | Reference | Level | Compliance |
|--------------------------------|---------------|----------|------------|
| Conducted + radiated emissions | EN 55011 | A | X |
| Radiated immunity. | EN 61 000-4-3 | 20 V/m | X |
| Fast transients immunity | EN 61 000-4-4 | ± 2 kV | X |
| Surge immunity | EN 61 000-4-5 | ± 1,8 kV | X |
| Conducted disturbance immunity | EN 61 000-4-6 | 10 Vrms | X |
| Railway | RIA 12 | | X |

Mechanical Characteristics

| Product reference | MPF 050 1E01 & MPF 050 1K01 |
|-------------------|-----------------------------|
| Box | PCB on aluminium plate |
| Potting | No |
| Dimension | 89,3 x 63,7 x 22,2 mm |
| Fixing | 2 x M3 threaded rods |
| Input connector | Soldered pin |
| Output connector | Soldered pin |

Technical Drawing



NOTES

1. All dimensions in mm
2. Specifications subject to change without notification

