



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

- All dimensions in mm
- Specifications subject to change without notification

