

Features

- 40 Watt output power
- 2x1" package
- 4:1 input voltage range
- Industry standard pin-out
- 3 KVDC isolation
- Operating temperature range -40°C to +105°C
- High efficiency up to 89.5%
- EN 50155, EN 45545-2 railway standard approval

Isolated DC-DC converter

RS Stock No.: 2853161



RS PRO is the own brand of RS. The RS PRO Seal of Approval is your assurance of professional quality, a guarantee that every part is rigorously tested, inspected, and audited against demanding standards. Making RS PRO the Smart Choice for our customers.

Product Description

The DC-DC converter is specially designed for industry control application, telecom/datacom application, □save space solution, industrial application, railway application.
OP temperature is full load from -40 °C to 65°C and 3000Vdc isolation.
No minimum load required.

General Specifications

Type	40W Isolated DC-DC converter
Regulated/Unregulated	Regulated
Efficiency *1	Typ. 89.5%
Applications	Industry control application, telecom/datacom application, save space solution, industrial application, railway Application

Specifications

Output Voltage	24V dc
Input Voltage	40-160V dc Nom.110V dc
Output Current	1667mA
Input Curren @ no load	10mA
Input Voltage Range	Min. 40V dc/ Max. 160V dc
Input Surge Voltage	Max. 200V dc (1s max.)
Under Voltage Lockout	Typ. 34V dc (0%-100% load)
Start-up Voltage	Max. 40V dc (0%-100% load)
Start-up Time	Max. 50mS (100% load at nominal Vin)
Remote ON/OFF	DC-DC on Open or $3V < V_r < 12V$
	DC-DC off Short or $0V < V_r < 1.2V$
Output Voltage Accuracy	Typ. $\pm 1\%$
Capacitive Load *2	Max. 1300 μ F
Operating Frequency	Typ. 250KHz
Ripple and Noise *3	Max. 150mV pp
MTBF	Min. 779000hours (25°C)
Line Regulation	Typ. $\pm 0.2\%$ (LL-HL at 100% load)
Load Regulation	Typ. $\pm 0.5\%$ (0%-100% load)
Minimum Load	0%
Isolation Voltage	Min. 3000V dc/ 1 min., Input to Output
Isolation Resistance	Min. 1000M Ω
Isolation Capacitance	Typ. 1500pF
Short Circuit Protection	Continuous, automatic recovery

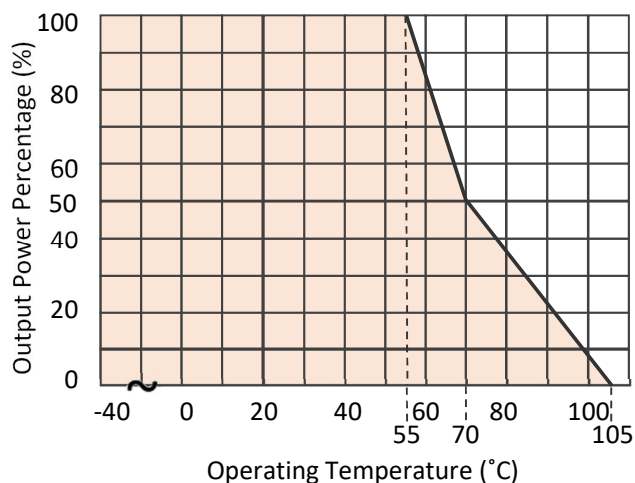
Over Load Protection	Typ. 175%
Over Voltage Protection	Min. 26.9V dc/ Max. 38.4V dc
Over Temperature Protection	Max. 115°C
Safety Approvals	EN62368-1/ IEC62368-1/ EN50155/ EN55032&35
Vibration	EN61373
Certificate	RoHS / REACH / CE

General Specifications

Operating Temperature ⁴	-40 to 105°C
Storage Temperature	-55 to 125°C
Relative Humidity	5 to 95%RH
Temperature Coefficient	0.005 %/°C
Max. Case Temperature	Max. 110°C

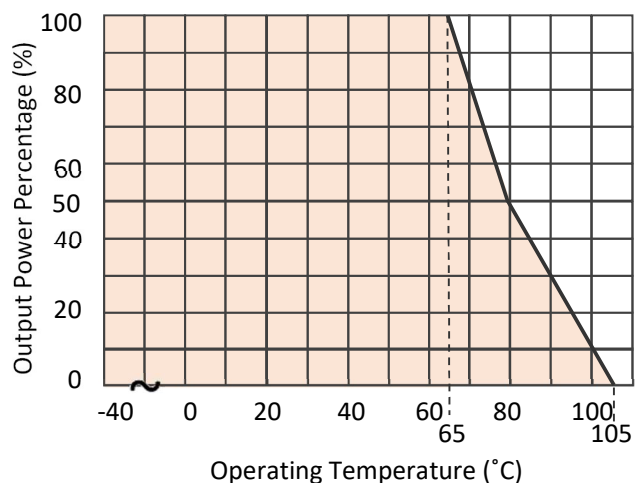
Derating

Without test board



The derating curve was measured at nominal Vin in chamber with nature convection.

With test board



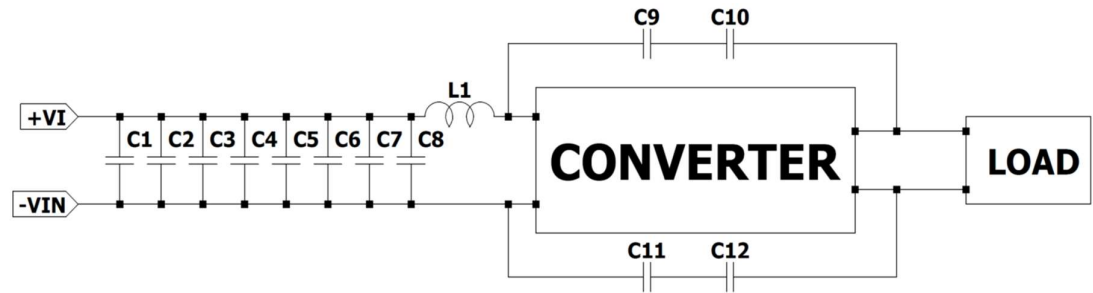
The derating curve was measured with nominal line. Mounted test board (600*950mm , 20z)

External Output Trimming

Vref	R1	R2	R3
2.50V	86.0K Ω	10.0K Ω	76.8K Ω

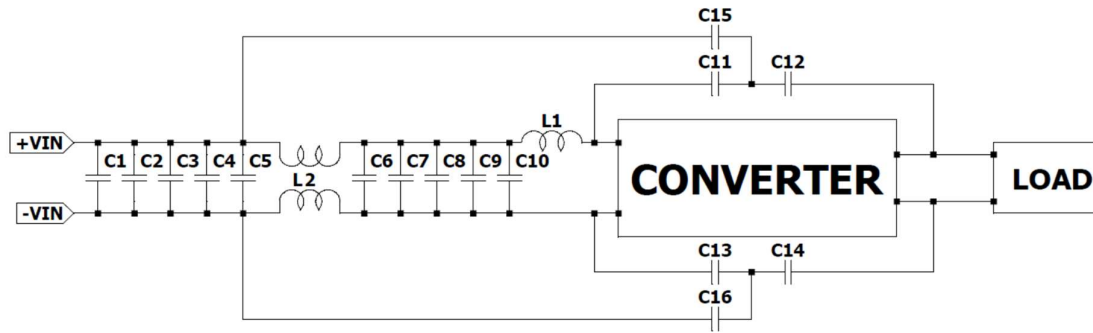
EMC Compliance Circuit

■ EN55032 CLASS A



L1	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12
68 μ H	0.68 μ F	0.68 μ F	0.68 μ F	0.68 μ F	0.68 μ F	0.68 μ F	0.68 μ F	0.68 μ F	4700PF	4700PF	4700PF	4700PF

■ EN55032 CLASS B



L1	L2	C1	C2	C3	C4	C5	C6	C7
68μH	2.2mH	0.68μF	0.68μF	0.68μF	0.68μF	0.68μF	0.68μF	0.68μF
C8	C9	C10	C11	C12	C13	C14	C15	C16
0.68μF	0.68μF	0.68μF	4700PF	4700PF	4700PF	4700PF	33PF	33PF

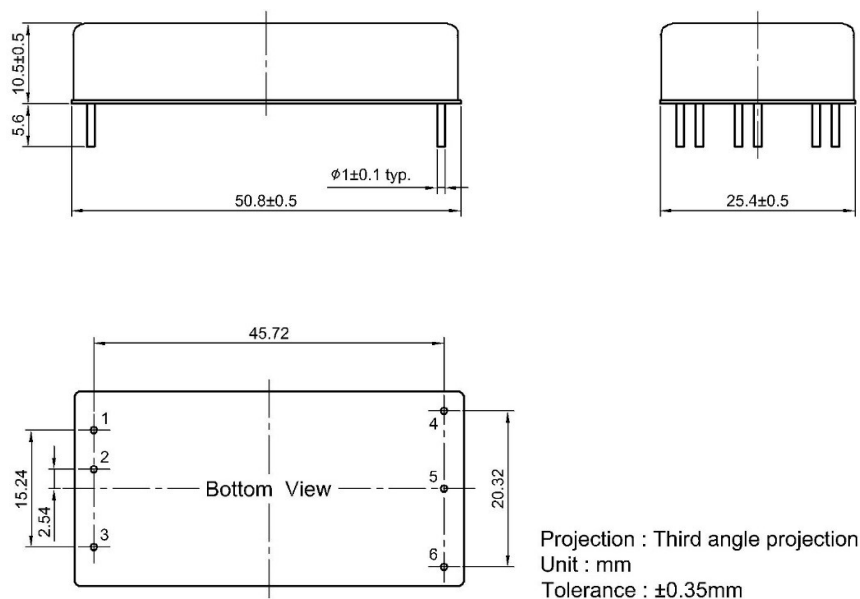
EMC Specifications

EMI ^{*5}	CLASS A/ B EN 55032, EN55011
ESD	Criteria A EN 61000-4-2, Air±8kV; Contact±6kV
RS	Criteria A EN 61000-4-3, 10V/m
EFT ^{*6}	Criteria A EN 61000-4-4, ±2kV
Surge ^{*6}	Criteria A EN 61000-4-5, ±2kV
CS	Criteria A EN 61000-4-6, 10V/rms
PFMF	Criteria A EN 61000-4-8, 10A/m

Mechanical Specifications

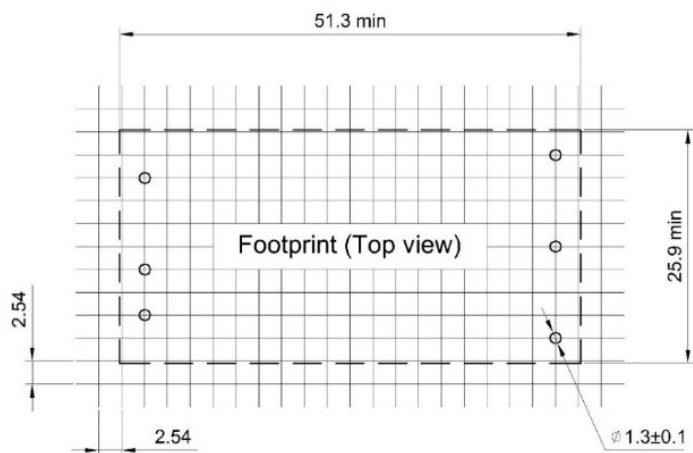
Case Material	Metal case
Potting Material	Silicone
Dimensions	50.80 x 25.40 x 10.50 mm
Weight	45g
Cooling	Natural convection

Dimension & Pinning

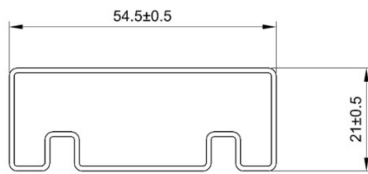


Pin	Pin-Out
1	+Vin
2	-Vin
3	Ctrl
4	+Vout
5	-Vout
6	Trim

Recommend Footprint



Package



UNIT:mm
1 Tube = 18 pcs
Length:520±2mm

1. ^{*1} The efficiency is test by nominal input and max. full load @25°C.
2. ^{*2} The capacitive load is test by minimum input and constant resistive load.
3. ^{*3} Ripple& noise: 20MHZ BW at Vin range 15%~100% load with a 10μF X7R MLCC.
4. ^{*4} Derating measured with nominal line. Mounted test board (90 x 80 mm and each power pin with 43 x 40 mm, 2Oz double layer)
5. ^{*5} EMI class A/ B with external filter.
6. ^{*6} External input capacitor required 100uF/200V for Surge and Fast transient testing.
7. All specifications valid at nominal input voltage, full load and 25°C after warm-up time unless otherwise stated.