

Features

- 40 Watt output power
- 2x1" package
- 4:1 input voltage range
- Industry standard pin-out
- 1.6 KVDC isolation
- Operating temperature range -40°C to +105°C
- High efficiency up to 90%
- EN62368-1/ IEC62368-1/ EN55032 approval

Isolated DC-DC converter

RS Stock No.: 2853142



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 industrial control system, electric power instrumentation, telecommunications, battery management control, railway application. OP temperature is full load from -40 °C to 60°C and 1600Vdc isolation. No minimum load required.

General Specifications

| | |
|-----------------------|---|
| Type | 40W Isolated DC-DC converter |
| Regulated/Unregulated | Regulated |
| Efficiency *1 | Typ. 90% |
| Applications | Industrial control system, electric power instrumentation, telecommunications, battery management control, railway application. |

Specifications

| | |
|----------------------------------|--|
| Output Voltage | ±15 V dc |
| Input Voltage | 9-36V dc Nom.24V dc |
| Output Current | ±1333 mA |
| Input Curren @ no load | 15mA |
| Input Voltage Range | Min. 9V dc/ Max. 36V dc |
| Input Surge Voltage | Max. 50V dc |
| Under Voltage Lockout | Typ. 8V dc (0%-100% load) |
| Start-up Voltage | Max. 9V dc (0%-100% load) |
| Start-up Time | Max. 40mS (100% load at nominal Vin) |
| Remote ON/OFF | DC-DC on Open or 3V < Vr < 12V |
| | DC-DC off Short or 0V < Vr < 1.2V |
| Output Voltage Accuracy | Typ. ±1% |
| Capacitive Load *2 | Max. ±1600µF |
| Operating Frequency | Typ. 250KHz (100% load at nominal Vin) |
| Ripple and Noise *3 | Max. 125mV pp |
| Transient Response Recovery Time | Typ. 500 µ s (75%-100% load step change) |
| MTBF *4 | Min. 779000hours (25°C) |
| Line Regulation | Typ. ±0.5% (LL-HL at 100% load) |
| Load Regulation | Typ. ±1% (0%-100% load) |
| Cross Regulation | Typ. ±5% (25%-100% load) |
| Minimum Load | 0% |
| Voltage Adjustability | ±10% |
| Isolation Voltage | Min. 1600V dc/ 1 min., Input to Output |

Isolated DC-DC converter



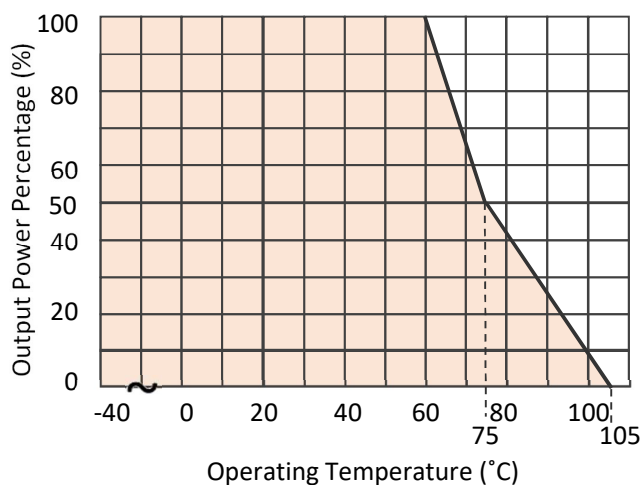
| | |
|-----------------------------|--------------------------------|
| Isolation Resistance | Min. 1000M Ω |
| Isolation Capacitance | Typ. 1500pF |
| Short Circuit Protection | Continuous, automatic recovery |
| Over Load Protection | Typ. 175% |
| Over Voltage Protection | Min. 112/ Max. 160 % of Vout |
| Over Temperature Protection | Typ. 115°C |
| Safety Approvals | EN62368-1/ IEC62368-1/ EN55032 |
| Vibration | MIL-STD-202G |
| 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 |

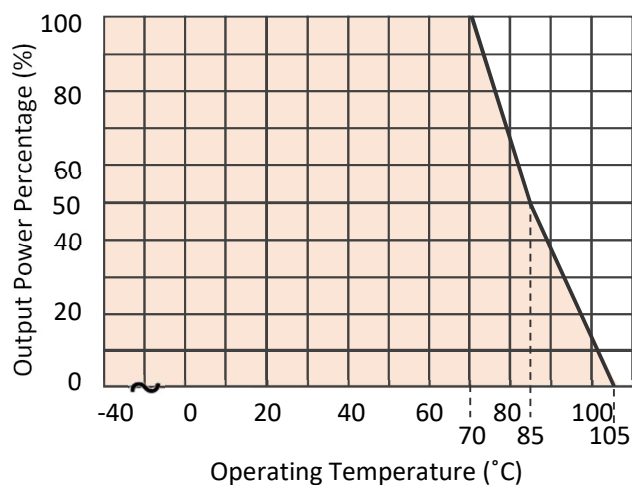
Derating

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 (90 x 80 mm and each power pin with 43 x 40 mm, 20Z double layer)

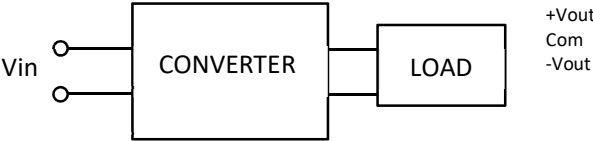
External Output Trimming

| Vref | R1 | R2 | R3 |
|-------|----------------|---------------|----------------|
| 2.50V | 15.1K Ω | 3.0K Ω | 22.0K Ω |

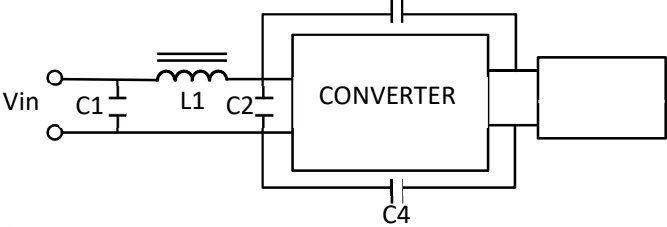
EMC Compliance Circuit

■ EN55032 CLASS A

■ EN55032 CLASS B



| C1 | L1 | C2 | C3 | C4 |
|------------|-------------|------------|--------|--------|
| 10 μ F | 1.5 μ H | 10 μ F | 2200pF | 2200pF |



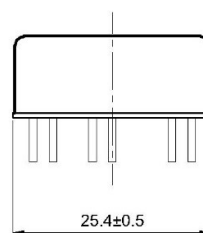
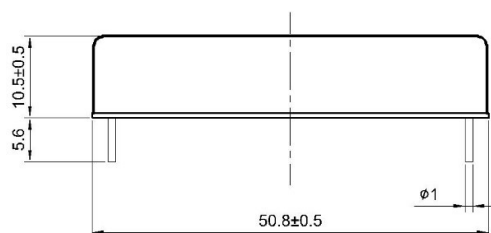
EMC Specifications

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

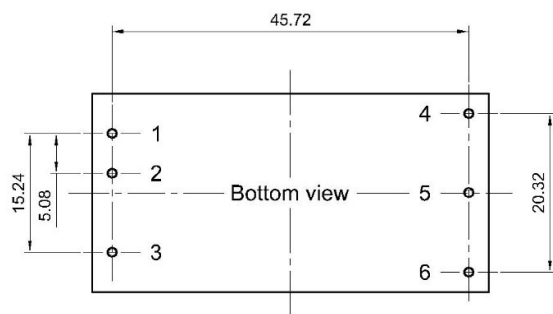
Mechanical Specifications

| | |
|------------------|--------------------------|
| Case Material | Metal case |
| Potting Material | Silicone |
| Dimensions | 50.80 x 25.40 x 10.50 mm |
| Weight | 37.6g |

Dimension & Pinning

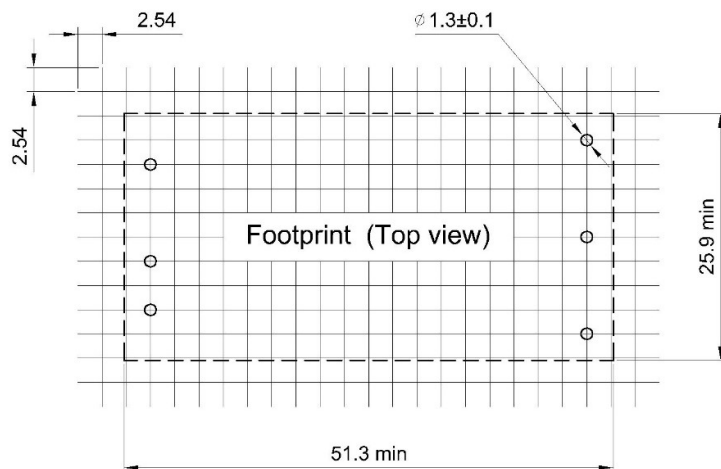


| Pin | Pin-Out |
|-----|---------|
| 1 | +Vin |
| 2 | -Vin |
| 3 | Ctrl |
| 4 | +Vout |
| 5 | COM |
| 6 | -Vout |

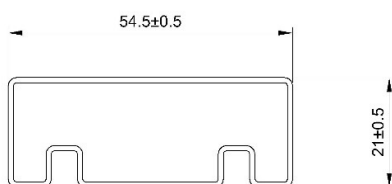


■ Recommend Footprint

Unit : mm
PIN Tol : ± 0.1
Tolerance : ± 0.35



Package



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

1. ^{*1} The efficiency is test by nominal input and full load at 25°C.
2. ^{*2} The capacitive load is test by minimum input and constant resistive load.
3. ^{*3} Ripple& noise: Measured with 20MHz bandwidth and 1μF ceramic capacitor.
4. ^{*4} MTBF is test by MIL-HDBK-217F @Ta=25 °C, Full load, GB.
5. ^{*5} The EMI need external filter circuit for class A/B. (See the application note)
6. ^{*6} External input capacitor required 680μF/100 V.
7. All specifications valid at nominal input voltage, full load and 25°C after warm-up time unless otherwise stated.