

Features

Regulated Converter

- 1kVDC Isolation
- SMD Package Styles
- Single Regulated Output (Internal Linear Regulator)
- UL94V-0 Package Material
- Optional Continuous Short Circuit Protected
- Fully Encapsulated
- Efficiency to 62 %

Description

The R0.5Z series DC/DC converter has been designed for isolating or converting DC power rails where board space is at a premium. Although no larger than a standard unregulated SMD converter, the R0.5Z series also incorporates an internal linear regulator to deliver a stable output voltage which makes it ideal for powering logic level or supply voltage sensitive circuitry.

Specifications (measured at $T_A = 25^\circ\text{C}$, nominal input voltage, full load and after warm-up)

| Part Number SMD | Input Voltage (VDC) | Output Voltage (VDC) | Output Current (mA) | Efficiency (%) | Max Capacitive Load ⁽¹⁾ |
|-----------------|---------------------|----------------------|---------------------|----------------|------------------------------------|
| R0.5Z-xx05 | 5, 12, 15, 24 | 5 | 100 | 50 | 1000 μF |
| R0.5Z-xx12 | 5, 12, 15, 24 | 12 | 42 | 60 | 470 μF |
| R0.5Z-xx15 | 5, 12, 15, 24 | 15 | 33 | 62 | 470 μF |

xx = Input Voltage

* add Suffix "P" for Continuous Short Circuit Protection, e.g. R0.5Z-0505/P

* add suffix -R for tape & reel packing e.g. R0.5Z-0505-R, R0.5Z.0505/P-R

For more details and dimensions of the tapes and reels see Application Notes

Specifications (Core Operating Area)

| | | |
|--|--|--|
| Input Voltage Range | | $\pm 5\%$ |
| Output Voltage Accuracy | | $\pm 5\%$ |
| Line Voltage Regulation | | 1% max. |
| Load Voltage Regulation (10% to 100% full load) | | 1% max. |
| Output Ripple and Noise (20MHz limited) | | 100mVp-p max. |
| Operating Frequency | | 50kHz min. / 100kHz typ. / 105kHz max. |
| Efficiency at Full Load | | 50% min. / 60% typ. |
| Minimum Load | | 0% |
| No Load Power Consumption | | 127mW min. / 155mW typ. / 320mW max. |
| Isolation Voltage | (tested for 1 second) (rated for 1 minute) | 1000VDC 500VAC / 60Hz |
| Isolation Capacitance | | 25pF min. / 75pF max. |
| Isolation Resistance | | 10 G Ω min. |
| Short Circuit Protection | | 1 Second |
| P-Suffix | | Continuous |
| Operating Temperature Range (natural convection) | | -40°C to +100°C (see Graph) |
| Storage Temperature Range | | -55°C to +125°C |
| Reflow Temperature | ROHS compliant | 245°C (30 sec) max. |
| Vapour Phase Process | | 230°C (90 sec) max. |
| | | (for more details see Application Notes) |
| Relative Humidity | | 95% RH |
| Package Weight | | 1.2g |
| Packing Quantity | | 33 pcs per tube 500 pcs per Reel |
| MTBF (+25°C) | } Detailed Information see Application Notes chapter "MTBF" | using MIL-HDBK 217F |
| (+70°C) | | using MIL-HDBK 217F |
| | | 1632 x 10 ³ hours |
| | | 156 x 10 ³ hours |

ECONOLINE

DC/DC-Converter

with 3 year Warranty

RECOM

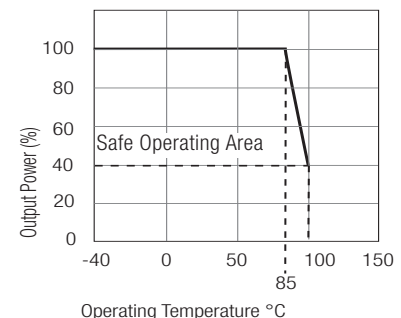
0.5 Watt SMD Isolated Single Output



EN-60950-1 Certified

R0.5Z

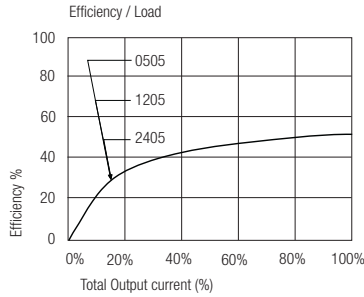
Derating-Graph (Ambient Temperature)



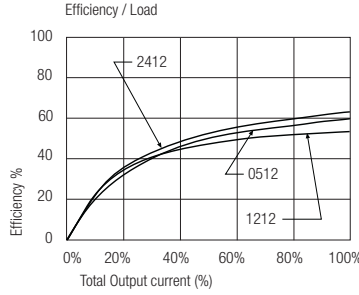
Refer to Application Notes

Typical Characteristics

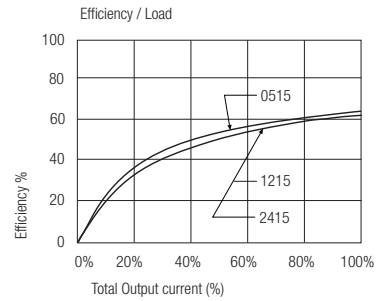
R0.5Z-xx05



R0.5Z-xx12



R0.5Z-xx15



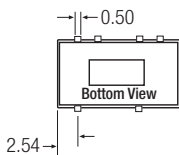
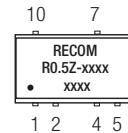
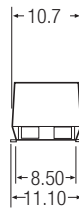
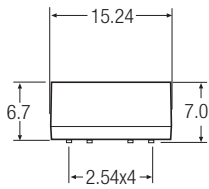
Notes

Note 1 Maximum capacitive load is defined as the capacitive load that will allow start up in under 1 second without damage to the converter

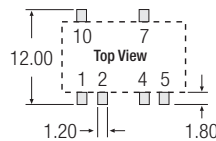
Package Style and Pinning (mm)

R0.5Z

10 PIN Single SMD Package



Recommended Footprint Details



Pin Connections

| Pin # | Function |
|-------|----------|
| 1 | -Vin |
| 2 | +Vin |
| 4 | -Vout |
| 5 | -Vout |
| 7 | +Vout |
| 10 | NC |

NC= No Connection

XX.X ± 0.5 mm
XX.XX ± 0.25 mm