

Features

Unregulated Converters

- 1kVDC Isolation
- Internal SMD Construction
- UL94V-0 Package Material
- Optional Continuous Short Circuit Protected
- Efficiency to 85%

Selection Guide

| Part Number | Input Voltage (3kV) | Input Voltage (VDC) | Output Voltage (VDC) | Output Current (mA) | Efficiency (%) |
|-------------|---------------------|---------------------|----------------------|---------------------|----------------|
| RTS-xx3.3 | (H) | 5, 9, 12, 15, 24 | 3.3 | 606 | 70-75 |
| RTS-xx05 | (H) | 5, 9, 12, 15, 24 | 5 | 400 | 80-85 |
| RTS-xx09 | (H) | 5, 9, 12, 15, 24 | 9 | 222 | 80-85 |
| RTS-xx12 | (H) | 5, 9, 12, 15, 24 | 12 | 167 | 80-85 |
| RTS-xx15 | (H) | 5, 9, 12, 15, 24 | 15 | 133 | 80-85 |
| RTS-xx24 | (H) | 5, 9, 12, 15, 24 | 24 | 83 | 80-85 |
| RTD-xx05 | (H) | 5, 9, 12, 15, 24 | ±5 | ±200 | 70-75 |
| RTD-xx09 | (H) | 5, 9, 12, 15, 24 | ±9 | ±111 | 75-78 |
| RTD-xx12 | (H) | 5, 9, 12, 15, 24 | ±12 | ±83 | 75-83 |
| RTD-xx15 | (H) | 5, 9, 12, 15, 24 | ±15 | ±66 | 75-85 |
| RTD-xx24 | (H) | 5, 9, 12, 15, 24 | ±24 | ±42 | 78-85 |

xx = Input Voltage

* add Suffix "P" for Continuous Short Circuit Protection, e.g. RTS-0505/P, RTD-0505/P

Description

Compared to standard 2 Watt packages, space savings of 80% and 77% respectively are achieved by these RTS & RTD 2 Watts SMD-Miniature DC/DC Converters. They have been specifically designed for applications where board space is at a premium since these 2 Watt converters have only a slightly larger foot print than conventional 1 Watt converters.

With efficiencies up to 85%, external cooling is not needed, as the full output power is available over the operating temperature range -40°C to +85°C. All converters have an I/O-Isolation of 1kVDC, or optionally 3kV, making them suitable for many applications.

Specifications (Core Operating Area)

| | | | |
|---|--------------------------------|--------------------------------------|--------------------------------------|
| Input Voltage Range | | | ±10% |
| Output Voltage Accuracy | | | ±5% |
| Line Voltage Regulation | | | 1.2%/1% of Vin max. |
| Load Voltage Regulation (10% to 100% full load) | 3.3V output types | | 20% max. |
| | 5V output type | | 15% max. |
| | 9V, 12V, 15V, 24V output types | | 10% max. |
| Output Ripple and Noise (20MHz limited) | | | 150mVp-p max. |
| Operating Frequency | | | 20kHz min. / 50kHz typ. / 85kHz max. |
| Efficiency at Full Load | | | 70% min. / 80% typ. |
| No Load Power Consumption | RTS typ. | 124mW min. / 186mW typ. / 250mW max. | |
| | RTD typ. | 159mW min. / 192mW typ. / 240mW max. | |
| Isolation Voltage | | (tested for 1 second) | 1000VDC min. |
| | H-Suffix | (tested for 1 second) | 3000VDC min. |
| Rated Working Voltage | | (long term isolation) | see Application Notes |
| Isolation Capacitance | | | 40pF min. / 115pF max. |
| Isolation Resistance | | | 10 GΩ min. |
| Short Circuit Protection | | | 1 Second |
| P-Suffix | | | Continuous |
| Operating Temperature Range (free air convection) | | | -40°C to +85°C (see Graph) |
| Storage Temperature Range | | | -55°C to +125°C |

continued on next page

ECONOLINE

DC/DC-Converter

RTS & RTD Series

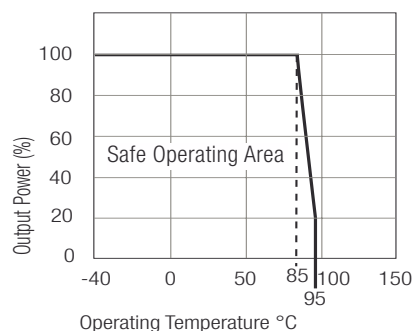
2 Watt SMD Single & Dual Output



EN-60601-1 Certified (Suffix H3)

RECOM

Derating-Graph (Ambient Temperature)

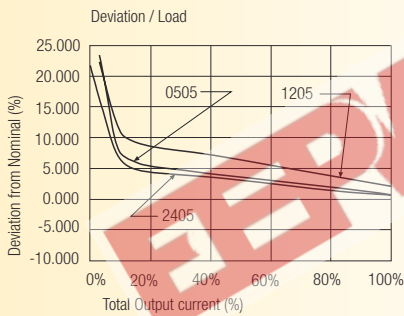
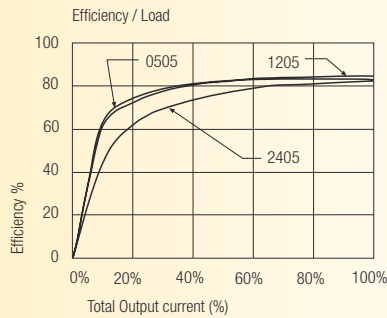


Specifications (Core Operating Area)

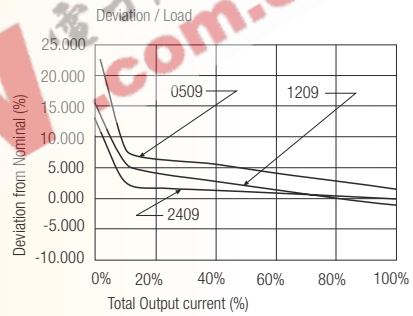
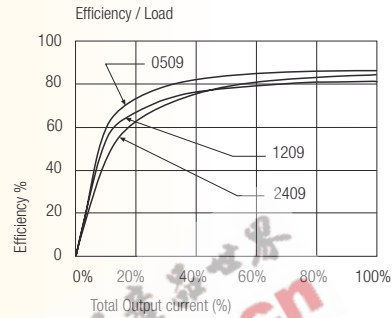
| | | |
|--------------------|--|-----------------------------|
| Reflow Temperature | ROHS compliant (for more details see Application Notes) | 245°C (30 sec) max. |
| Relative Humidity | | 95% RH |
| Package Weight | RTS types | 2.1g |
| | RTD types | 2.5g |
| MTBF (+25°C) | Detailed Information see Application Notes chapter "MTBF" | using MIL-HDBK 217F |
| | | 886 x 10 ³ hours |
| (+85°C) | using MIL-HDBK 217F | 128 x 10 ³ hours |

Typical Characteristics

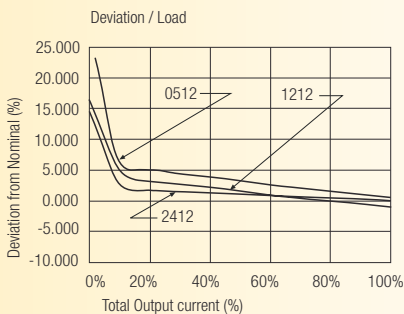
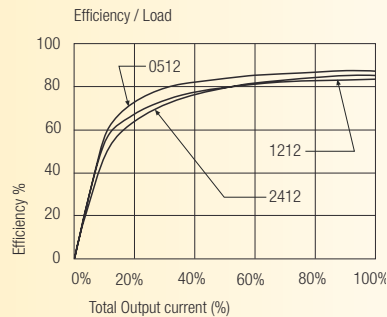
RTS-xx05



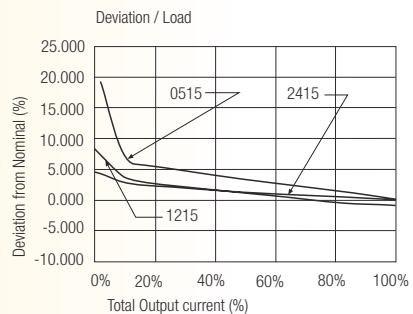
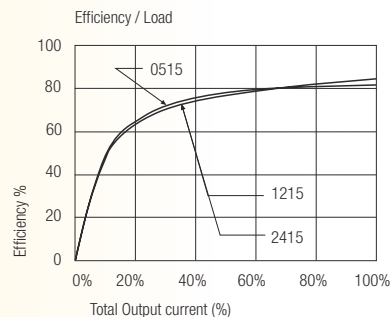
RTS-xx09



RTS-xx12

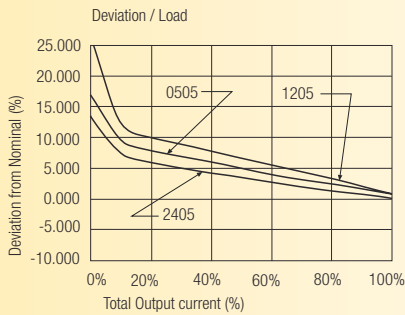
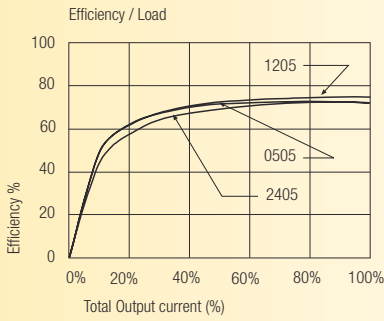


RTS-xx15

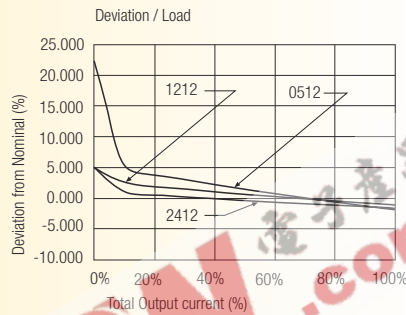
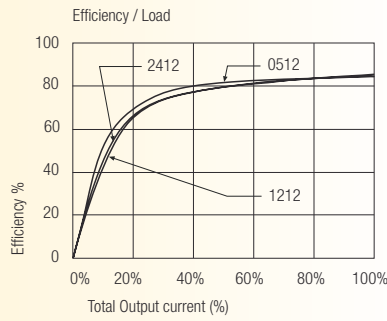


Typical Characteristics

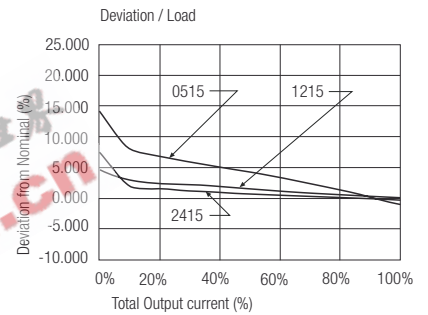
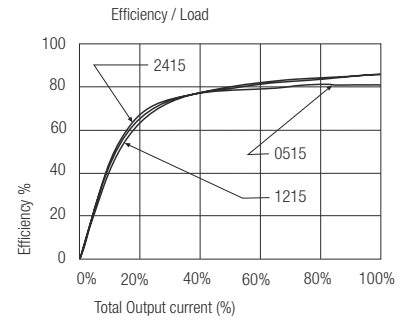
RTD-xx05



RTD-xx12

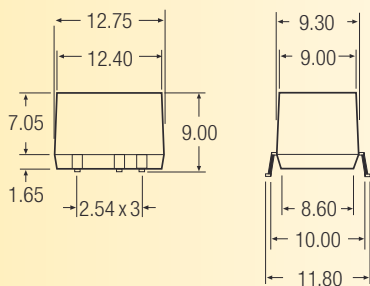


RTD-xx15

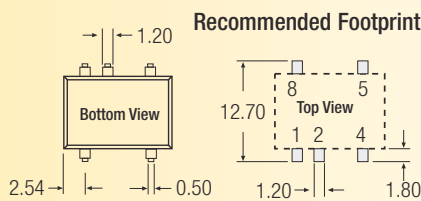
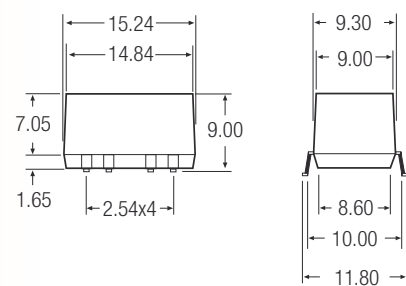


Package Style and Pinning (mm)

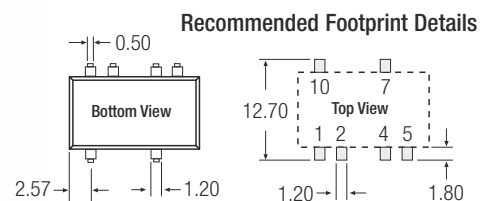
8 PIN Single SMD Package



10 PIN Dual SMD Package



Recommended Footprint Details



Recommended Footprint Details

Pin Connections

| Pin # | Single | Dual |
|-------|--------|--------|
| 1 | -Vin | -Vin |
| 2 | +Vin | +Vin |
| 4 | -Vout | Com |
| 5 | +Vout | -Vout |
| 7 | No Pin | +Vout |
| 8 | NC | No Pin |
| 10 | No Pin | NC |

NC = No Connection
XX.X ± 0.5 mm
XX.XX ± 0.25 mm