

Features

Regulated Converters

- On/Off Pin
- 1kVDC Isolation
- UL94V-0 Package Material
- Optional Continuous Short Circuit Protected
- Internal linear regulator
- Efficiency to 70 %
- Adjustable Output Voltage

Description

The RY series DC/DC converter is a low cost general purpose isolated converter with a built-in linear regulator to give a regulated, load-independent output. It is available with single or dual outputs. A useful feature is the CTRL pin on the single output version which allows the converter to be adjusted or controlled by an external enable signal.

Selection Guide

| Part Number SIP 7 | Input Voltage (VDC) | Output Voltage (VDC) | Output Current (mA) | Efficiency (%) | Max Capacitive Load ⁽¹⁾ |
|----------------------|---------------------|----------------------|---------------------|----------------|------------------------------------|
| RY-xx05S | 5, 9, 12, 15, 24 | 5 | 200 | 58-60 | 1200µF |
| RY-xx09S | 5, 9, 12, 15, 24 | 9 | 111 | 56-62 | 1200µF |
| RY-xx12S | 5, 9, 12, 15, 24 | 12 | 84 | 60-66 | 680µF |
| RY-xx15S | 5, 9, 12, 15, 24 | 15 | 66 | 60-66 | 680µF |
| RY-xx24S | 5, 9, 12, 15, 24 | 24 | 42 | 60-68 | 220µF |
| RY-xx05D | 5, 9, 12, 15, 24 | ±5 | ±100 | 50-58 | ±470µF |
| RY-xx09D | 5, 9, 12, 15, 24 | ±9 | ±55 | 52-60 | ±470µF |
| RY-xx12D | 5, 9, 12, 15, 24 | ±12 | ±42 | 58-68 | ±330µF |
| RY-xx15D | 5, 9, 12, 15, 24 | ±15 | ±33 | 62-68 | ±330µF |
| RY-xx24D | 5, 9, 12, 15, 24 | ±24 | ±21 | 64-70 | ±100µF |

xx = Input Voltage. Other input and output voltage combinations available on request.

* add Suffix "P" for Continuous Short Circuit Protection, e.g. RY-0505S/P, RY-0505D/P

Specifications (measured at T_A = 25°C, nominal input voltage, full load and after warm-up)

| | | |
|---|--|---|
| Input Voltage Range | | ±5% |
| Output Voltage Accuracy | | ±5% |
| Line Voltage Regulation | | ±1% max. |
| Load Voltage Regulation (10% to 100% full load) | | ±1% max. |
| Minimum Load | | 0% |
| Output Ripple and Noise (20MHz limited) | | 100mVp-p max. |
| Operating Frequency | | 30kHz min. / 50kHz typ. / 88kHz max. |
| Efficiency at Full Load | | 54% min. / 60% typ. |
| Isolation Voltage | (tested for 1 second) (rated for 1 minute) | 1000VDC 1500VAC / 60Hz |
| Isolation Capacitance | Single output types Dual output types | 30pF min. / 150pF max. 40pF min. / 72pF max. |
| Isolation Resistance | | 10 GΩ min. |
| Short Circuit Protection | | 1 Second |
| P-Suffix | | Continuous |
| Operating Temperature Range (free air convection) | | -40°C to +70°C (see Graph) |
| Storage Temperature Range | | -55°C to +125°C |
| Relative Humidity | | 95% RH |
| Package Weight | RY Single & Dual output types | 2.8g |
| Packing Quantity | | 25 pcs per Tube |
| MTBF (+25°C) | } Detailed Information see Application Notes chapter "MTBF" | using MIL-HDBK 217F |
| (+70°C) | | using MIL-HDBK 217F |
| | | 924 x 10 ³ hours |
| | | 135 x 10 ³ hours |

ECONOLINE

DC/DC-Converter

with 3 year Warranty

RECOM

1 Watt

SIP7

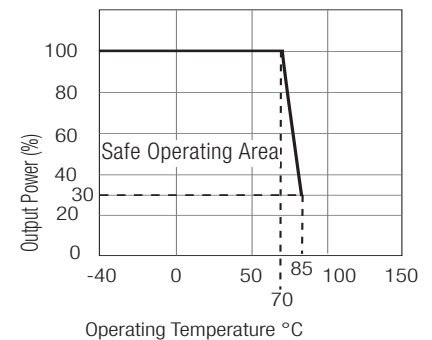
Single & Dual Output



EN-60950-1 Certified

RY

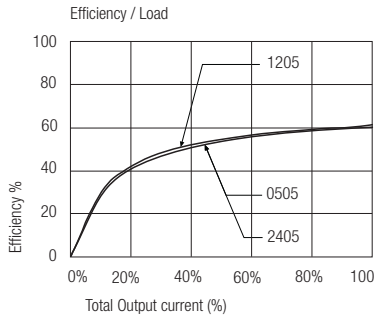
Derating-Graph (Ambient Temperature)



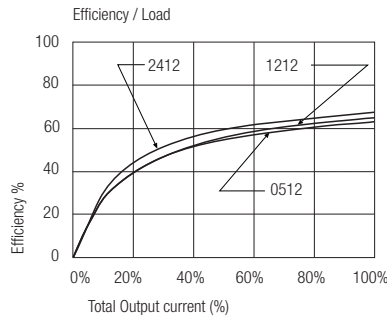
Refer to Application Notes

Typical Characteristics

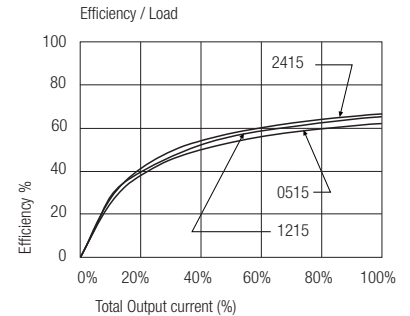
RY-xx05S



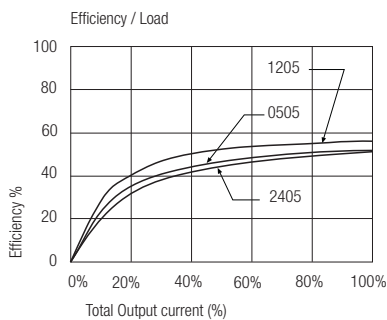
RY-xx12S



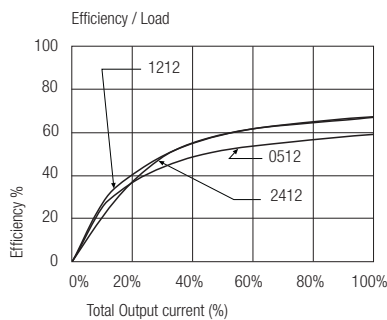
RY-xx15S



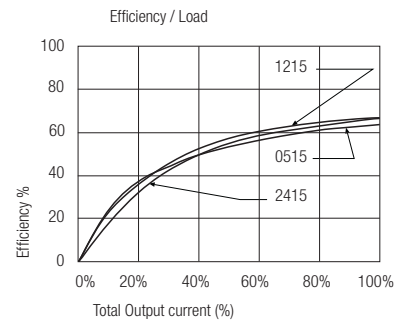
RY-xx05D



RY-xx12D



RY-xx15D



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

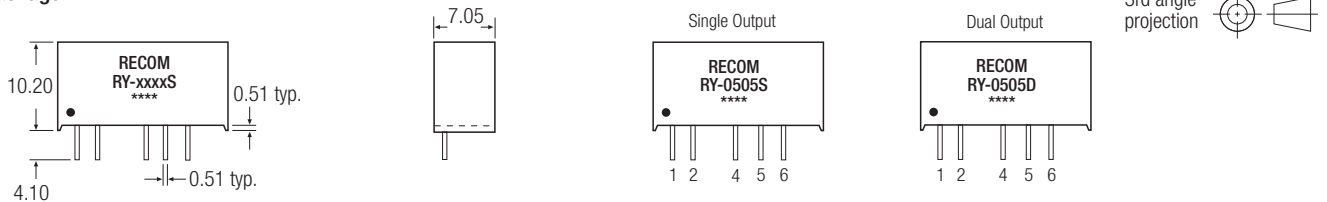
Certifications

EN General Safety Report: SPCLVD1109103 EN60950-1:2006 + A12:2011

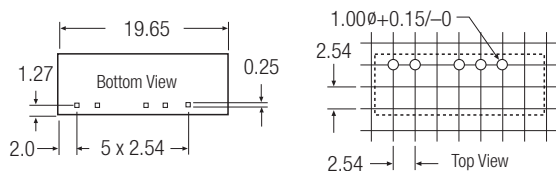
RY

Package Style and Pinning (mm)

SIP7 Package



Recommended Footprint Details



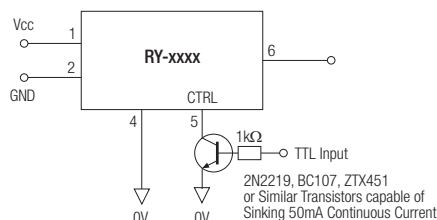
RX Pin Connections

| Pin # | Single | Dual |
|-------|--------|-------|
| 1 | +Vin | +Vin |
| 2 | -Vin | -Vin |
| 4 | -Vout | -Vout |
| 5 | CTRL | Com |
| 6 | +Vout | +Vout |

XX.X ± 0.5 mm
XX.XX ± 0.25 mm

Typical On/Off Control and Adjustable Output Applications

On/Off Control



Adjustable Output

