

Features

Regulated Converters

- Controllable Output
- 1kVDC Isolation
- No Heatsink Required
- UL94V-0 Package Material
- Toroidal Magnetics
- No External Components
- Fully Encapsulated
- Efficiency to 70%

ECONOLINE

DC/DC-Converter

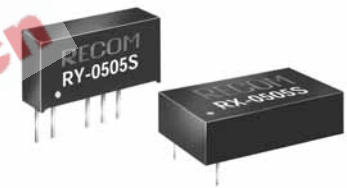
RY & RX Series

Selection Guide

| Part Number | Input Voltage (VDC) | Output Voltage (VDC) | Output Current (mA) | Efficiency (%) |
|----------------------|---------------------|----------------------|---------------------|----------------|
| SIP 7 DIP 14 | | | | |
| RY-xx05S RX-xx05S | 5, 9, 12, 15, 24 | 5 | 180 | 58-60 |
| RY-xx09S RX-xx09S | 5, 9, 12, 15, 24 | 9 | 111 | 56-62 |
| RY-xx12S RX-xx12S | 5, 9, 12, 15, 24 | 12 | 84 | 60-66 |
| RY-xx15S RX-xx15S | 5, 9, 12, 15, 24 | 15 | 66 | 60-66 |
| RY-xx24S RX-xx24S | 5, 9, 12, 15, 24 | 24 | 42 | 60-68 |
| RY-xx05D RX-xx05D | 5, 9, 12, 15, 24 | ±5 | ±100 | 50-58 |
| RY-xx09D RX-xx09D | 5, 9, 12, 15, 24 | ±9 | ±55 | 52-60 |
| RY-xx12D RX-xx12D | 5, 9, 12, 15, 24 | ±12 | ±42 | 58-68 |
| RY-xx15D RX-xx15D | 5, 9, 12, 15, 24 | ±15 | ±33 | 62-68 |
| RY-xx24D RX-xx24D | 5, 9, 12, 15, 24 | ±24 | ±21 | 64-70 |

xx = Input Voltage

1 Watt SIP7 & DIP14 Single & Dual Output

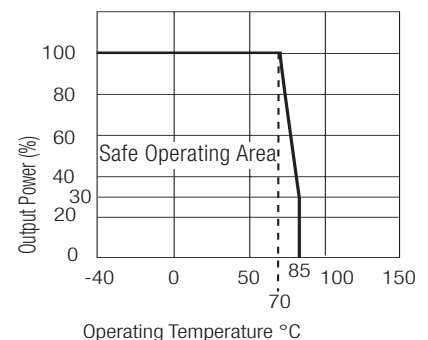


RECOM

Specifications (Core Operating Area)

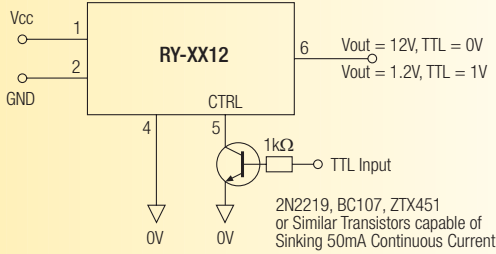
| | | | |
|---|---|--------------------------------------|-----------------------------|
| Input Voltage Range | | ±5% | |
| Output Voltage Accuracy | | ±5% | |
| Line Voltage Regulation | | ±1% max. | |
| Load Voltage Regulation (10% to 100% full load) | | ±1% max. | |
| Output Ripple and Noise (20MHz limited) | | 100mVp-p max. | |
| Operating Frequency | | 30kHz min. / 50kHz typ. / 88kHz max. | |
| Efficiency at Full Load | | 54% min. / 60% typ. | |
| No Load Power Consumption | Single output types | 171mW min. / 232mW typ. / 390mW max. | |
| | Dual output types | 188mW min. / 264mW typ. / 350mW max. | |
| Isolation Voltage | (tested for 1 second) | 1.000VDC min. | |
| Rated Working Voltage | (long term isolation) | see Application Notes | |
| Isolation Capacitance | Single output types | 30pF min. / 150pF max. | |
| | Dual output types | 40pF min. / 72pF max. | |
| Isolation Resistance | | 10 GΩ min. | |
| Short Circuit Protection | | 1 Second | |
| Operating Temperature Range (free air convection) | | -40°C to +70°C (see Graph) | |
| Storage Temperature Range | | -55°C to +125°C | |
| Relative Humidity | MSL Level 1 | 95% RH | |
| Package Weight | RY Single & Dual output types | 2.8g | |
| | RX Single output types | 2.9g | |
| | RX Dual output types | 2.7g | |
| MTBF (+25°C) | } Detailed Information see Application Notes chapter "MTBF" | using MIL-HDBK 217F | 924 x 10 ³ hours |
| (+70°C) | | using MIL-HDBK 217F | 135 x 10 ³ hours |

Derating-Graph (Ambient Temperature)

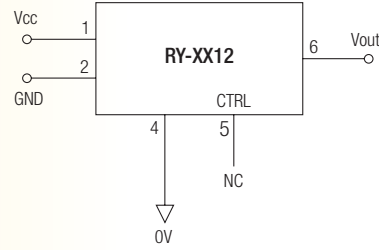


Typical Applications

Flash PROM Programming Voltage Control

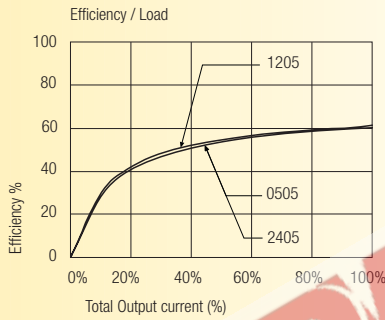


Normal Isolated Regulated Output

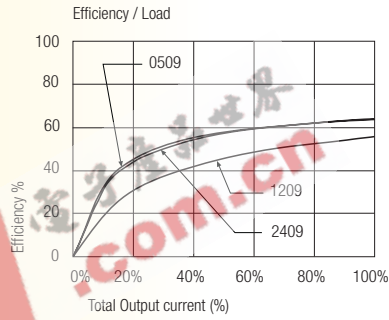


Typical Characteristics

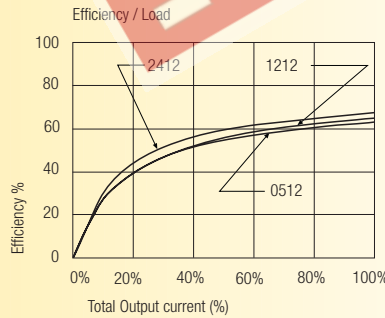
RY/RX-xx05S



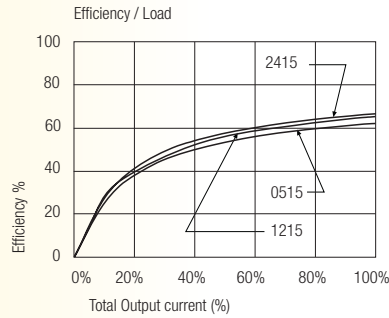
RY/RX-xx09S



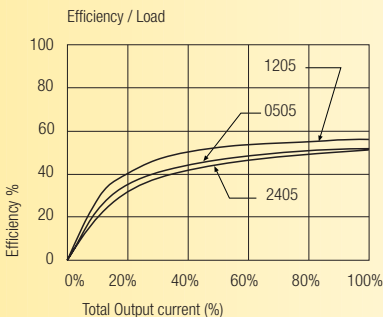
RY/RX-xx12S



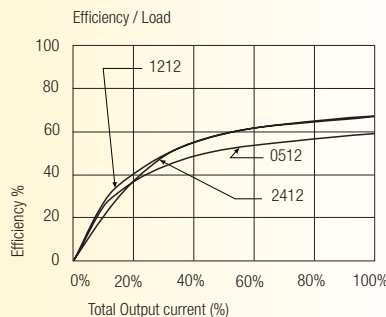
RY/RX-xx15S



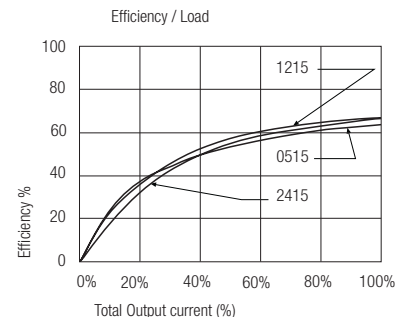
RY/RX-xx05D



RY/RX-xx12D

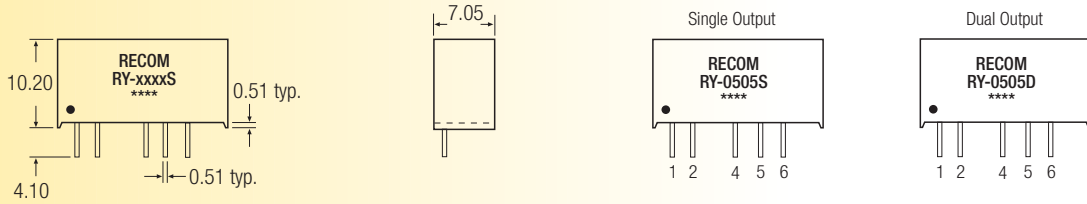


RY/RX-xx15D

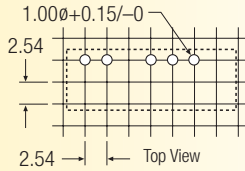
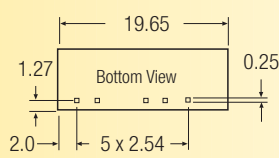


Package Style and Pinning (mm)

7 PIN SIP Package



Recommended Footprint Details

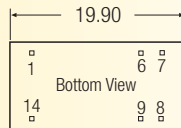
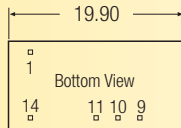
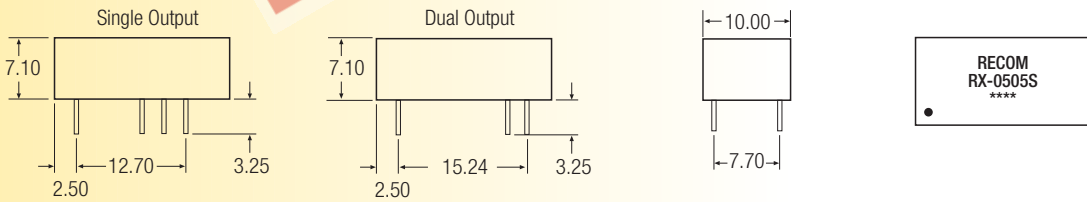


RX Pin Connections

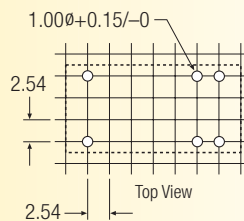
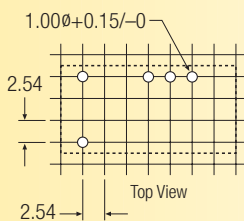
| Pin # | Single | Dual |
|-------|--------|-------|
| 1 | +Vin | +Vin |
| 2 | -Vin | -Vin |
| 4 | -Vout | -Vout |
| 5 | CTRL | Com |
| 6 | +Vout | +Vout |

XX.X ± 0.5 mm
XX.XX ± 0.25 mm

14 PIN DIP Package



Recommended Footprint Details



RX Pin Connections

| Pin # | Single | Dual |
|-------|--------|--------|
| 1 | -Vin | -Vin |
| 6 | No Pin | +Vout |
| 7 | No Pin | Com |
| 8 | No Pin | -Vout |
| 9 | +Vout | Com |
| 10 | CTRL | No Pin |
| 11 | -Vout | No Pin |
| 14 | +Vin | +Vin |

XX.X ± 0.5 mm
XX.XX ± 0.25 mm