

## Features

### Regulated Converters

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

#### 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 to control the converter with an external enable signal.

#### Selection Guide

| Part Number<br>SIP 7 | Input Voltage (VDC) | Output Voltage (VDC) | Output Current (mA) | Efficiency (%) | Max Capacitive Load <sup>(1)</sup> |
|----------------------|---------------------|----------------------|---------------------|----------------|------------------------------------|
| 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 $T_A = 25^\circ\text{C}$ , 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                                      | 10% <sup>(2)</sup>                                          |                                                 |
| 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)<br>(rated for 1 minute**)             | 1000VDC<br>500VAC / 60Hz                        |
| Isolation Capacitance                             | Single output types<br>Dual output types                    | 30pF min. / 150pF max.<br>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 924 x 10 <sup>3</sup> hours |
| (+70°C)                                           |                                                             | using MIL-HDBK 217F 135 x 10 <sup>3</sup> hours |
| Certifications                                    |                                                             |                                                 |
| EN General Safety                                 | Report: SPCLVD1109103                                       | EN60950-1:2006 + A12:2011                       |

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## ECONOLINE

### DC/DC-Converter

with 3 year Warranty

RECOM

1 Watt

SIP7

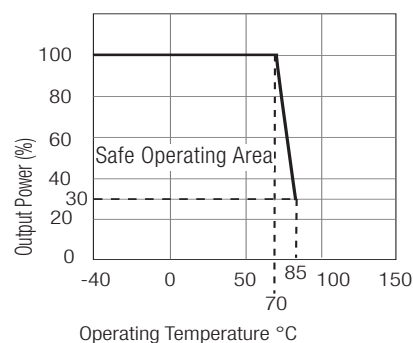
Single & Dual Output



EN-60950-1 Certified

RY

### Derating-Graph (Ambient Temperature)



\*\*Any data referred to in this datasheet are of indicative nature and based on our practical experience only. For further details, please refer to our Application Notes.

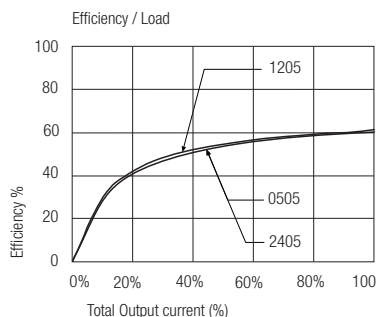
### Specifications (measured at $T_A = 25^\circ\text{C}$ , nominal input voltage, full load and after warm-up)

#### Notes

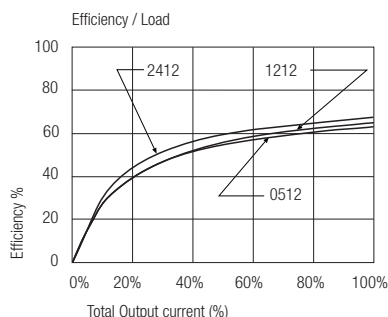
- Note 1: Maximum capacitive load is defined as the capacitive load that will allow start up in under 1 second without damage to the converter
- Note 2: The RY series requires a minimum of 10% load on the output to maintain specified regulation. Operating under no-load conditions will not damage these devices; however, they may not meet all listed specifications.

### Typical Characteristics

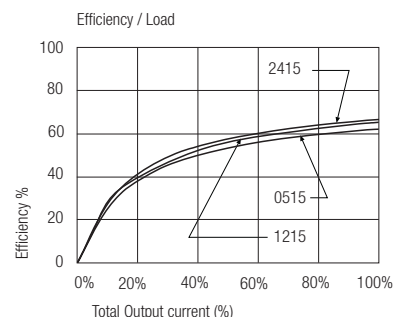
#### RY-xx05S



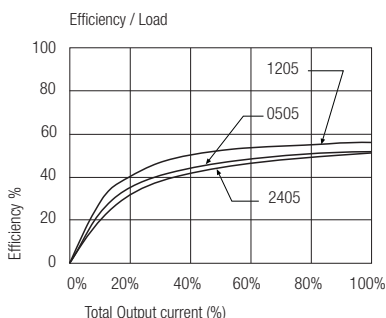
#### RY-xx12S



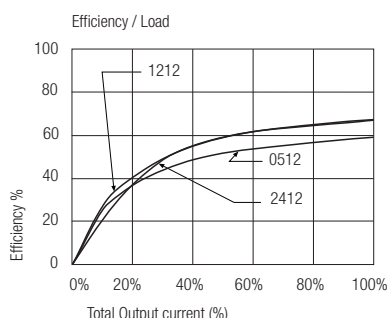
#### RY-xx15S



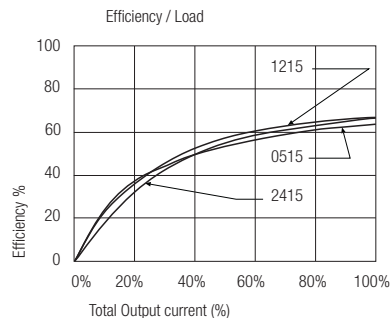
#### RY-xx05D



#### RY-xx12D

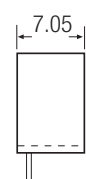
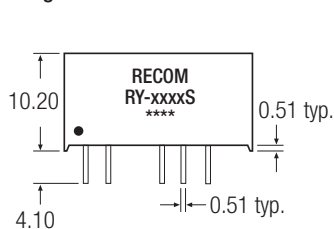


#### RY-xx15D

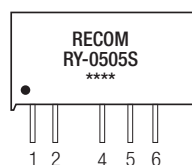


### Package Style and Pinning (mm)

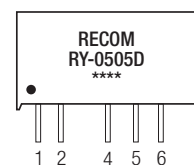
#### SIP7 Package



#### Single Output



#### Dual Output

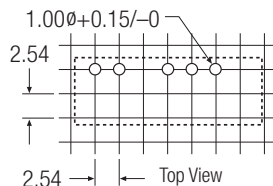
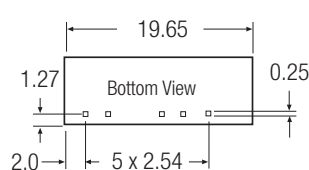


#### Pin Connections

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

XX.X  $\pm 0.5$  mm  
XX.XX  $\pm 0.25$  mm

#### Recommended Footprint Details





Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

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