

# 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	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)		1000VDC
	(rated for 1 minute**)		500VAC / 60Hz
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
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

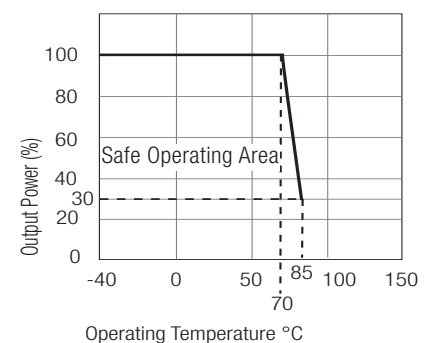
## Single & Dual Output



### 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.

Refer to Application Notes

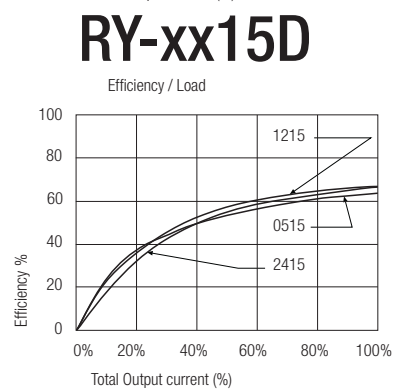
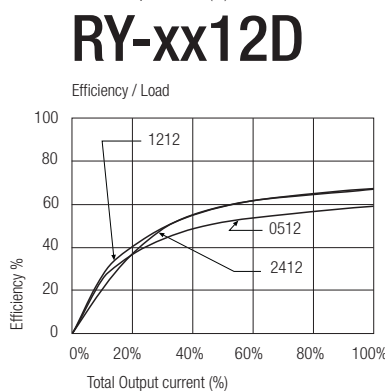
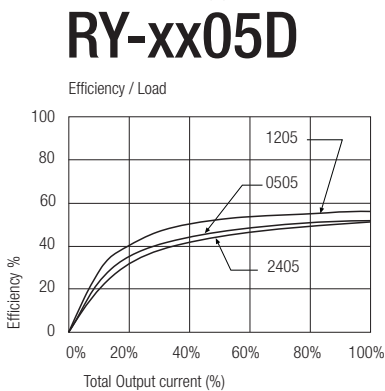
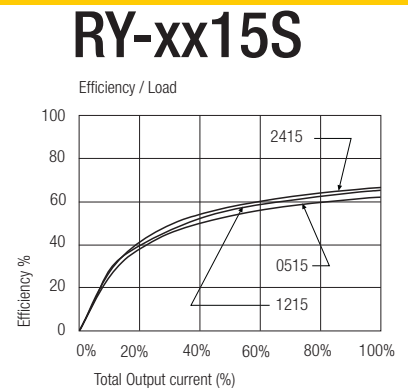
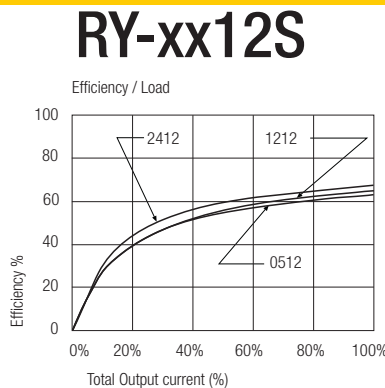
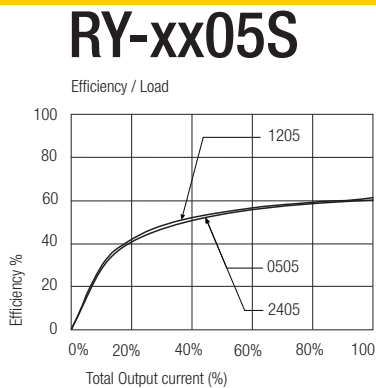
### Specifications (measured at $T_A = 25^\circ\text{C}$ , nominal input voltage, full load and after warm-up)

#### 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

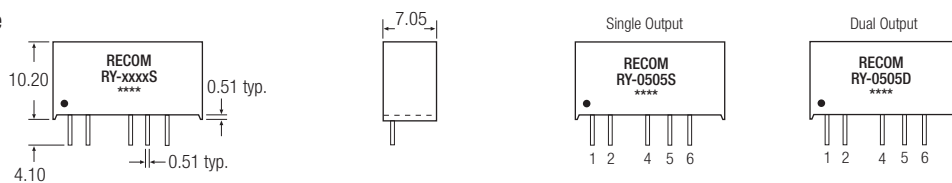
Note 2: The RY series requires a minimum of 10% load on the output to maintain specified regulation. Operating under no-load conditions will not damage these devices; however, they may not meet all listed specifications.

### Typical Characteristics

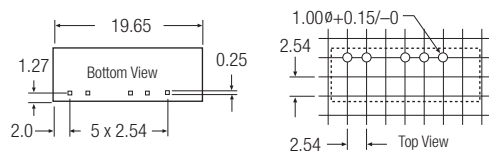


### Package Style and Pinning (mm)

#### SIP7 Package



#### Recommended Footprint Details



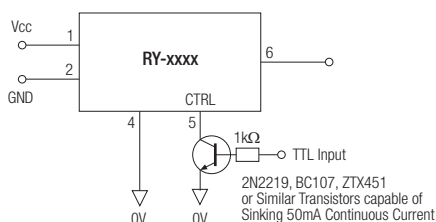
#### Pin Connections

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

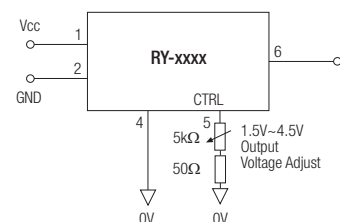
XX.X ± 0.5 mm  
XX.XX ± 0.25 mm

### Typical On/Off Control and Adjustable Output Applications

#### On/Off Control



#### Adjustable Output



# Mouser Electronics

Authorized Distributor

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## RECOM:

[RY-0505D](#) [RY-0505D/P](#) [RY-0505S](#) [RY-0505S/P](#) [RY-0509D](#) [RY-0509D/P](#) [RY-0509S](#) [RY-0509S/P](#) [RY-0512D](#) [RY-0512D/P](#) [RY-0512S](#) [RY-0512S/P](#) [RY-0515D](#) [RY-0515D/P](#) [RY-0515S](#) [RY-0515S/P](#) [RY-0524D](#) [RY-0524D/P](#) [RY-0524S](#) [RY-0524S/P](#) [RY-0905D](#) [RY-0905D/P](#) [RY-0905S](#) [RY-0905S/P](#) [RY-0909D](#) [RY-0909D/P](#) [RY-0909S](#) [RY-0909S/P](#) [RY-0912D](#) [RY-0912D/P](#) [RY-0912S](#) [RY-0912S/P](#) [RY-0915D](#) [RY-0915D/P](#) [RY-0915S](#) [RY-0915S/P](#) [RY-0924D](#) [RY-0924D/P](#) [RY-0924S](#) [RY-0924S/P](#) [RY-1205D](#) [RY-1205D/P](#) [RY-1205S](#) [RY-1205S/P](#) [RY-1209D](#) [RY-1209D/P](#) [RY-1209S](#) [RY-1209S/P](#) [RY-1212D](#) [RY-1212D/P](#) [RY-1212S](#) [RY-1212S/P](#) [RY-1215D](#) [RY-1215D/P](#) [RY-1215S](#) [RY-1215S/P](#) [RY-1224D](#) [RY-1224D/P](#) [RY-1224S](#) [RY-1224S/P](#) [RY-1505D](#) [RY-1505D/P](#) [RY-1505S](#) [RY-1505S/P](#) [RY-1509D](#) [RY-1509D/P](#) [RY-1509S](#) [RY-1509S/P](#) [RY-1512D](#) [RY-1512D/P](#) [RY-1512S](#) [RY-1512S/P](#) [RY-1515D](#) [RY-1515D/P](#) [RY-1515S](#) [RY-1515S/P](#) [RY-1524D](#) [RY-1524D/P](#) [RY-1524S](#) [RY-1524S/P](#) [RY-2405D](#) [RY-2405D/P](#) [RY-2405S](#) [RY-2405S/P](#) [RY-2409D](#) [RY-2409D/P](#) [RY-2409S](#) [RY-2409S/P](#) [RY-2412D](#) [RY-2412D/P](#) [RY-2412S](#) [RY-2412S/P](#) [RY-2415D](#) [RY-2415D/P](#) [RY-2415S](#) [RY-2415S/P](#) [RY-2424D](#) [RY-2424D/P](#) [RY-2424S](#) [RY-2424S/P](#)