

## Features

## Regulated Converters

- Controllable Output
- 1kVDC Isolation
- No Heatsink Required
- UL94V-0 Package Material
- Optional Continuous Short Circuit Protected
- 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	(VDC)	(mA)	(%)	
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

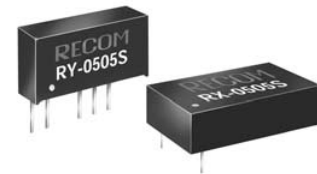
xx = Input Voltage

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

### Specifications (Core Operating Area)

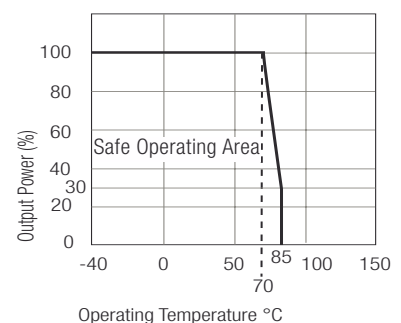
Input Voltage Range			±5%
Output Voltage Accuracy			±5%
Line Voltage Regulation			±1% max.
Load Voltage Regulation (10% to 100% full load)			±1% max.
Output Ripple and Noise (20MHz limited)			100mVp-p max.
Operating Frequency			30kHz min. / 50kHz typ. / 88kHz max.
Efficiency at Full Load			54% min. / 60% typ.
No Load Power Consumption	Single	171mW min. / 232mW typ. / 390mW max.	
	Dual	188mW min. / 264mW typ. / 350mW max.	
Isolation Voltage	(tested for 1 second)	1000VDC 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
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	RX Single & Dual output types	2.8g	
	RX Single output types	2.9g	
	RX Dual output types	2.7g	
MTBF (+25°C)	using MIL-HDBK 217F	RX types	924 x 10 <sup>3</sup> hours
Detailed Information see Application Notes chapter "MTBF"		RX types	944 x 10 <sup>3</sup> hours
(+70°C)	using MIL-HDBK 217F	RX types	135 x 10 <sup>3</sup> hours
		RX types	130 x 10 <sup>3</sup> hours

## 1 Watt SIP7 & DIP14 Single & Dual Output



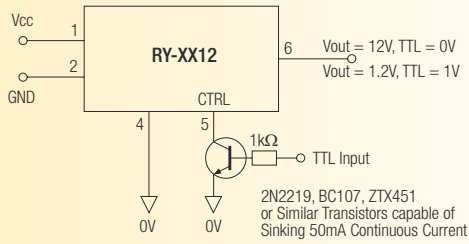
# RECOM

## Derating-Graph (Ambient Temperature)

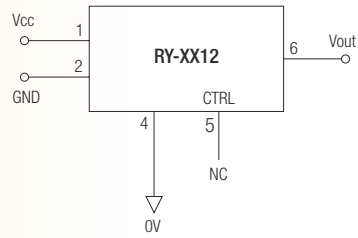


**Typical Applications**

**Flash PROM Programming Voltage Control**

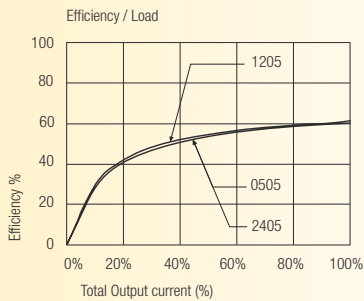


**Normal Isolated Regulated Output**

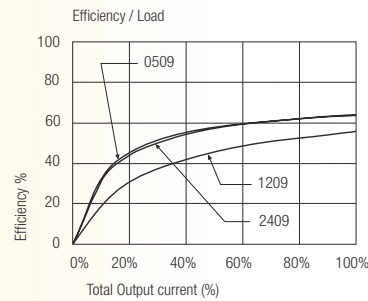


**Typical Characteristics**

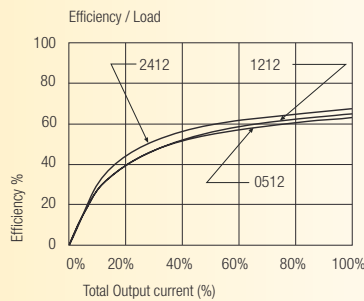
**RY/RX-xx05S**



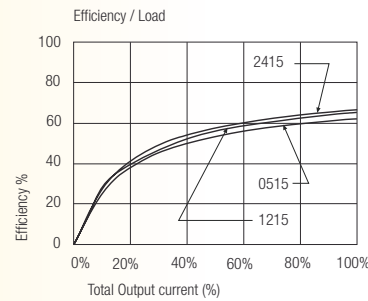
**RY/RX-xx09S**



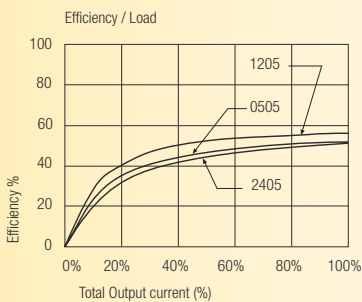
**RY/RX-xx12S**



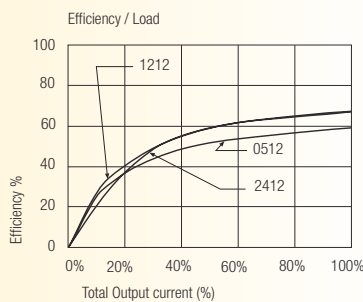
**RY/RX-xx15S**



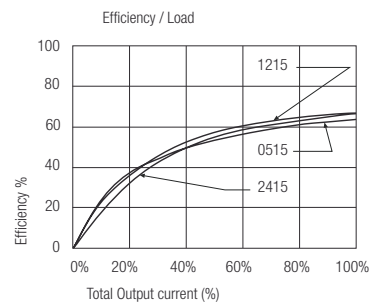
**RY/RX-xx05D**



**RY/RX-xx12D**



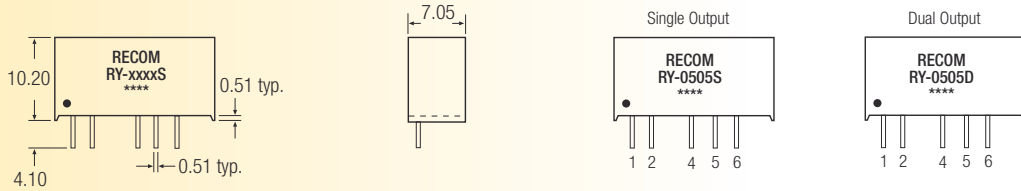
**RY/RX-xx15D**



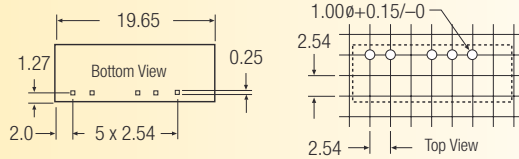
**Package Style and Pinning (mm)**



**7 PIN SIP Package**



**Recommended Footprint Details**

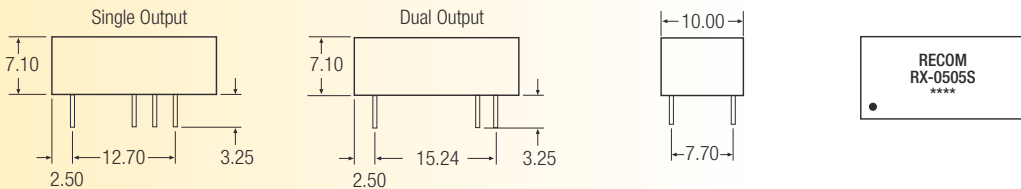


**RX Pin Connections**

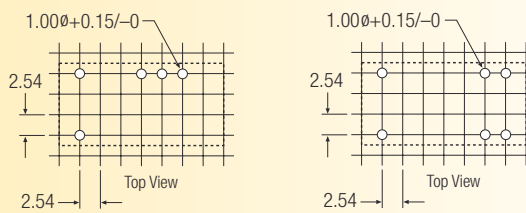
Pin #	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
4	-Vout	-Vout
5	CTRL	Com
6	+Vout	+Vout

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