

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		Input	Output	Output	Efficiency
Number		Voltage	Voltage	Current	
SIP 7	DIP 14	(VDC)	(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

Specifications (Core Operating Area)

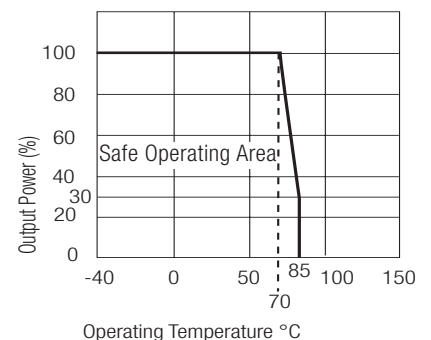
Input Voltage Range			±5%
Output Voltage Accuracy			±5%
Line Voltage Regulation			±1% max.
Load Voltage Regulation (10% to 100% full load)			±1% max.
Output Ripple and Noise (20MHz limited)			100mVp-p max.
Operating Frequency			30kHz min. / 50kHz typ. / 88kHz max.
Efficiency at Full Load			54% min. / 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

1 Watt SIP7 & DIP14 Single & Dual Output



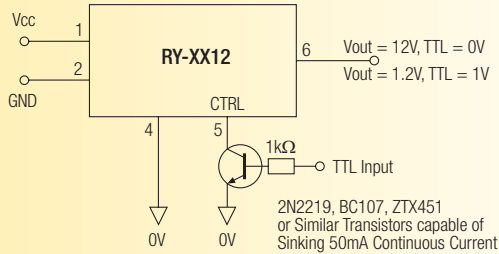
RECOM

Derating-Graph (Ambient Temperature)

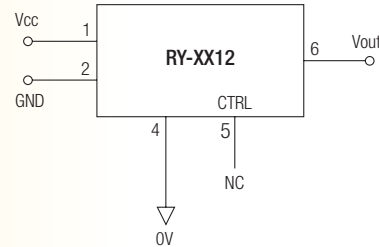


Typical Applications

Flash PROM Programming Voltage Control

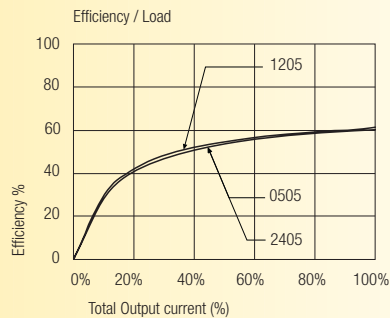


Normal Isolated Regulated Output

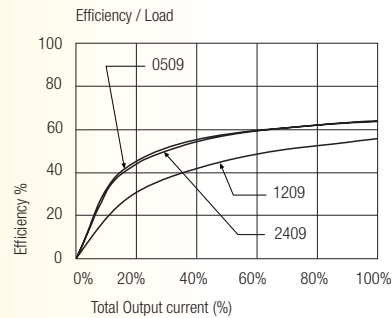


Typical Characteristics

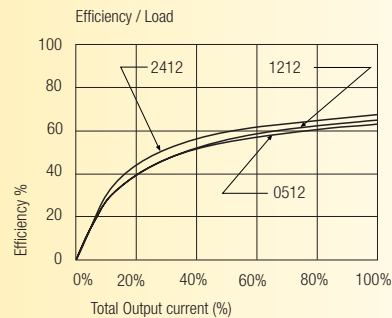
RY/RX-xx05S



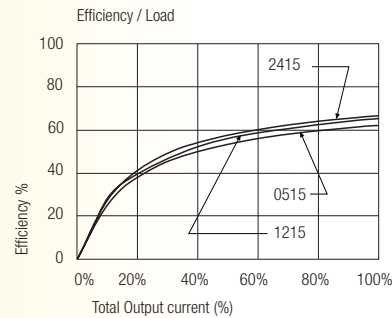
RY/RX-xx09S



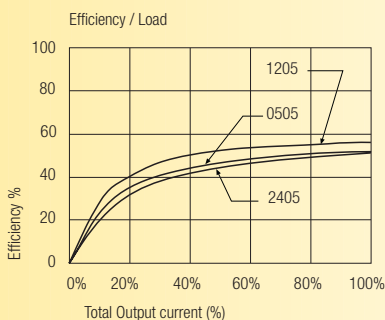
RY/RX-xx12S



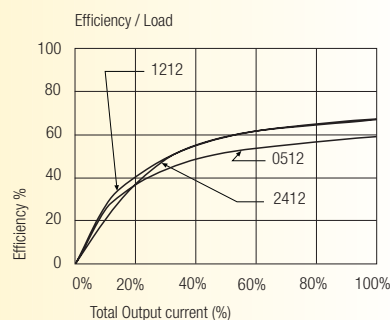
RY/RX-xx15S



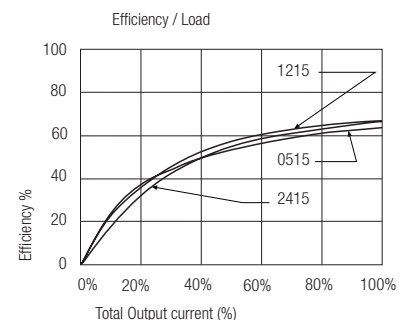
RY/RX-xx05D



RY/RX-xx12D

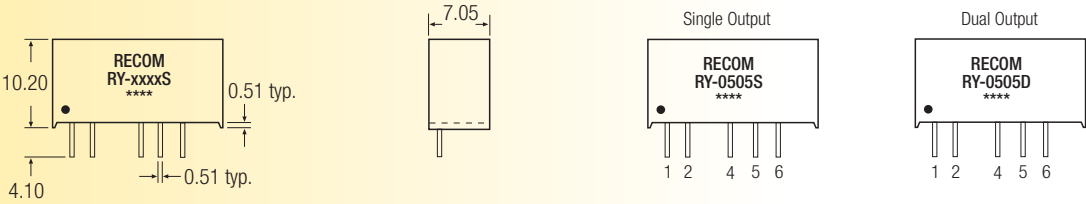


RY/RX-xx15D

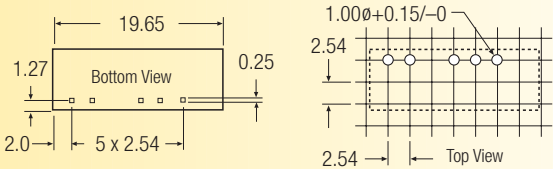


Package Style and Pinning (mm)

7 PIN SIP Package



Recommended Footprint Details

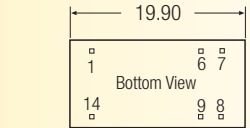
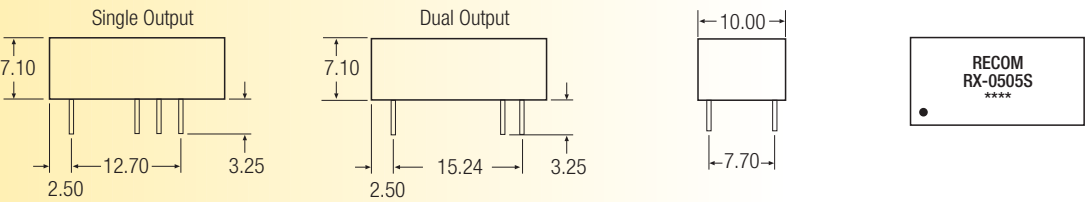


RX Pin Connections

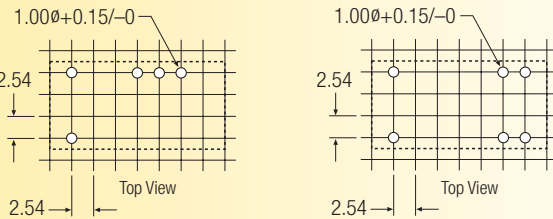
Pin #	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
4	-Vout	-Vout
5	CTRL	Com
6	+Vout	+Vout

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