

## Features

## Unregulated Converters

- UL/CSA and EN Safety certified
- EN-60601 for Medical Applications
- Isolation 6.4kVDC
- Optional Continuous Short Circuit Protected
- /X2 Option for >9mm Input/Output Clearance
- Suitable for IGBT Applications

### Selection Guide

Part Number SIP 7	Input Voltage (VDC)	Output Voltage (VDC)	Output Current (mA)	Efficiency Std (%)	Max Capacitive Load <sup>(1)</sup>
RxxP3.3S*	5, 9, 12, 15, 24	3.3	303	70	2200µF
RxxP05S*	5, 9, 12, 15, 24	5	200	70-75	1000µF
RxxP09S*	5, 9, 12, 15, 24	9	111	70-75	1000µF
RxxP12S*	5, 9, 12, 15, 24	12	84	70-75	470µF
RxxP15S*	5, 9, 12, 15, 24	15	66	75-80	470µF
RxxP3.3D*	5, 9, 12, 15, 24	±3.3	±151	70	±1000µF
RxxP05D*	5, 9, 12, 15, 24	±5	±100	70-75	±470µF
RxxP09D*	5, 9, 12, 15, 24	±9	±55	70-75	±470µF
RxxP12D*	5, 9, 12, 15, 24	±12	±41	70-75	±220µF
RxxP15D*	5, 9, 12, 15, 24	±15	±33	75-80	±220µF
RxxP1509D*	12, 24	+15/-9	+33/-56	70-80	±220µF
R05P1509D*	5	+15/-9	±42	70-80	+68µF/-220µF

xx = Input Voltage. Other input and output voltage combinations available on request.

\* add Suffix "P" for Continuous Short Circuit Protection, e.g. R05P05S/P, R05P05D/P

\* add Suffix "/X2" for single output with alternative pinout, e.g. R05P05S/X2, R05P05S/P/X2

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

Input Voltage Range			±10%
Output Voltage Accuracy			±5%
Line Voltage Regulation			1.2%/1% of $V_{in}$ typ.
Load Voltage Regulation (10% to 100% full load)	3.3, 5V output types		15% max.
	other output types, RxxP1509D		10% max.
Output Ripple and Noise (20MHz BW)			200mVp-p max.
Operating Frequency			20kHz min. / 50kHz typ. / 85kHz max.
	RxxP1509D		20kHz min. / 60kHz typ.
Efficiency at Full Load			65% min. / 75% typ.
Minimum Load = 0%	Specifications valid for 10% minimum load only		
Isolation Voltages	(tested for 1 second)		6400VDC
	(rated for 1 minute)		3200VAC / 60Hz
Isolation Capacitance			4pF min. / 10pF max.
Isolation Resistance			15 GΩ min.
Short Circuit Protection P-Suffix			1 Second Continuous
Operating Temperature Range (free air convection, without derating)	-40°C to +90°C (see Graph)		
Storage Temperature Range	-55°C to +125°C		
Relative Humidity	95% RH		
Package Weight	4.3g		
Packing Quantity	25 pcs per Tube cont.		

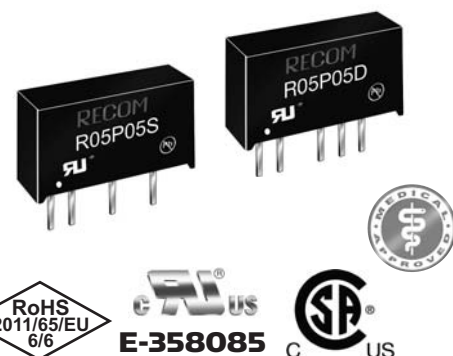
## ECONOLINE

DC/DC-Converter

with 3 year Warranty

# RECOM

## 1 Watt SIP 7 Single & Dual Output



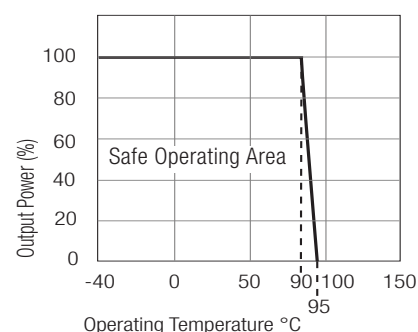
**EN-60950-1 Certified**  
**IEC/EN-60601-1 Certified\***  
**CSA/UL-60950-1 Certified\***  
 \* +15/-9 Version excluded

## RxxPxx

### Description

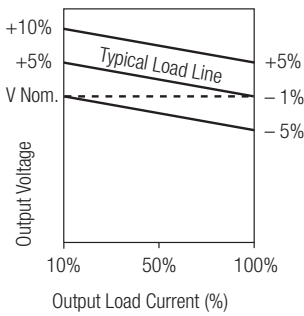
The RxxPxxS\_D Series of DC/DC Converters are certified to UL/CSA-60950 as well as EN60950 and EN60601. This makes them ideal for medical and safety applications where approved isolation is required.

## Derating-Graph (Ambient Temperature)



Refer to Application Notes

## Tolerance Envelope



## Specifications (continued)

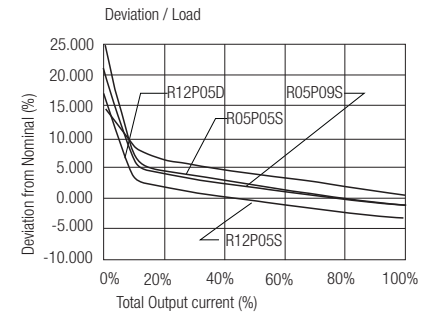
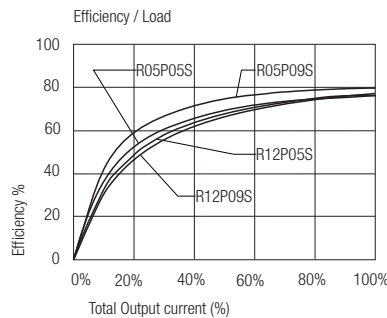
MTBF (+25°C)	} Detailed Information see Application Notes chapter "MTBF"	using MIL-HDBK 217F	2974 x 10 <sup>3</sup> hours
(+85°C)		using MIL-HDBK 217F	728 x 10 <sup>3</sup> hours
Certifications	UL/cUL General Safety	Report: E358085	UL 60950-1 2nd Ed.
	EN General Safety	Report: SPCLVD1109103	EN60950-1:2006 + A12: 2011
	EN Medical Safety	Report: SPCMDD1205098-4	IEC/EN60601-1:2006, 3rd Edition

## Notes

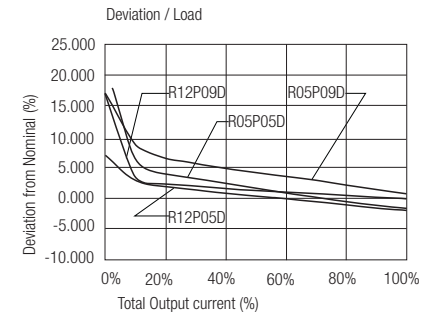
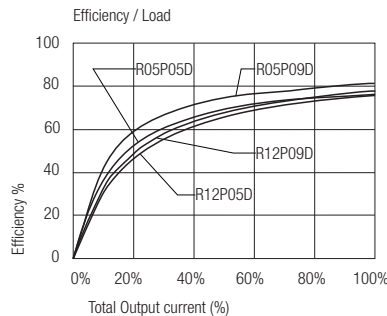
Note 1 Maximum capacitive load is defined as the capacitive load that will allow start up in under 1 second without damage to the converter.

## Typical Characteristics

### RxxP05/09S

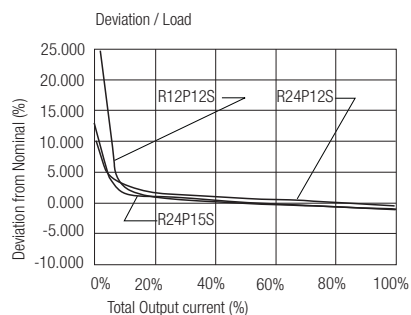
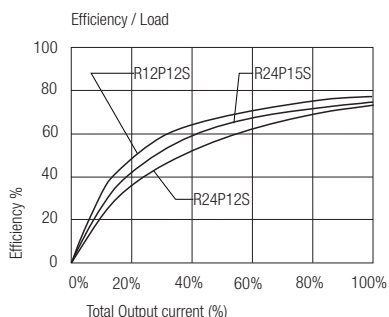


### RxxP05/09D

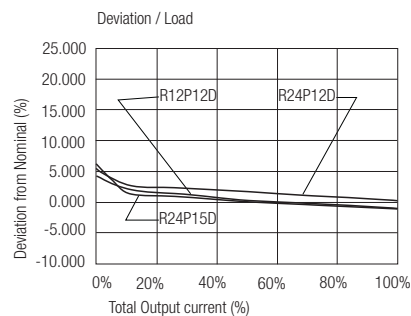
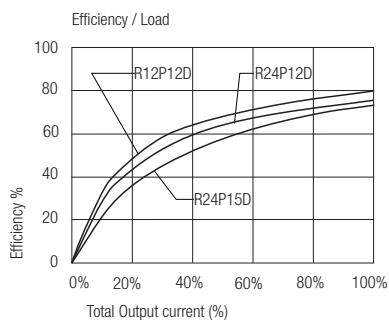


Typical Characteristics

## RxxP12/15S

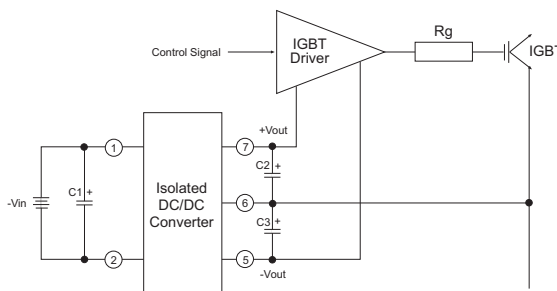


## RxxP12/15D



Application

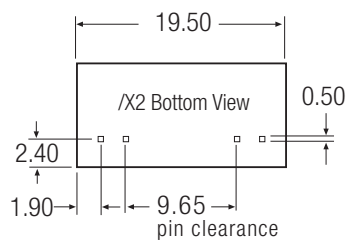
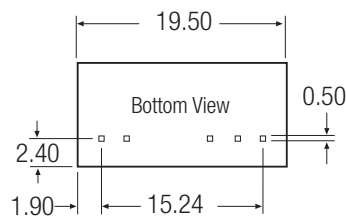
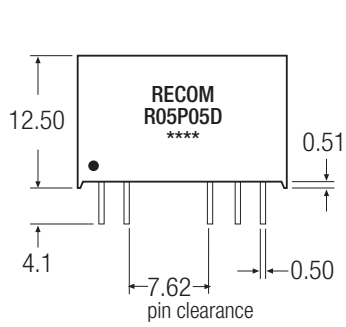
### IGBT Application Circuit



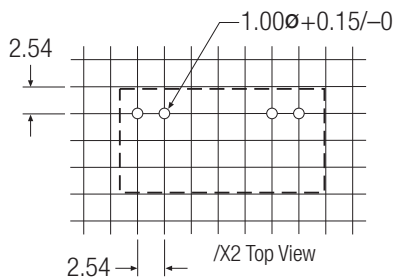
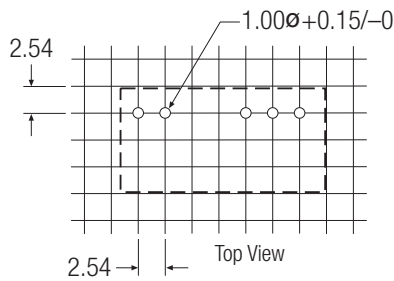
**Package Style and Pinning (mm)**

7 PIN SIP Package

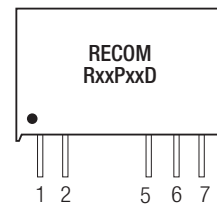
3rd angle projection 



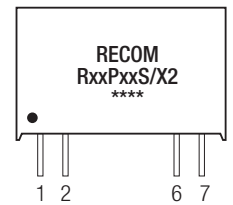
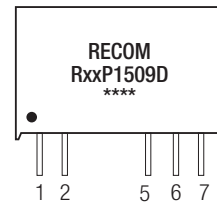
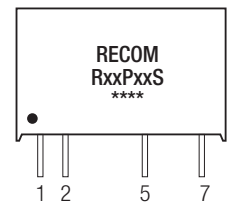
**Recommended Footprint Details**



Dual Output



Single Output



**Pin Connections**

Pin #	Single	Dual	/X2
1	+Vin	+Vin	+Vin
2	-Vin	-Vin	-Vin
5	-Vout	-Vout	No Pin
6	No Pin	Com	-Vout
7	+Vout	+Vout	+Vout

XX.X ± 0.5 mm  
XX.XX ± 0.25 mm