

# Features

## Unregulated Converters

- Pot-Core Transformer - separated windings
- High 5.2kVDC Isolation in compact size
- Optional Continuous Short Circuit Protected
- Pin Compatible with RH and RK Series
- Approved for Medical and IGBT Applications
- UL and EN Certified
- Efficiency to 82 %

### Description

The RP series has very high isolation of 5.2 kVDC in a compact size. The converters are EN-60601-1 certified, making them suitable for medical as well as IGBT driver applications.

The /X2 version has rearranged pins to permit an input output separation of more than 9mm.

### Selection Guide

Part Number SIP 7	Input Voltage (VDC)	Output Voltage (VDC)	Output Current (mA)	Efficiency (%)	Max Capacitive Load <sup>(1)</sup>
RP-xx3.3S*	5, 9, 12, 15, 24	3.3	303	70	2200µF
RP-xx05S*	5, 9, 12, 15, 24	5	200	70-72	1000µF
RP-xx09S*	5, 9, 12, 15, 24	9	111	75	1000µF
RP-xx12S*	5, 9, 12, 15, 24	12	84	75-78	470µF
RP-xx15S*	5, 9, 12, 15, 24	15	66	80	470µF
RP-xx24S*	5, 9, 12, 15, 24	24	42	80	220µF
RP-xx3.3D*	5, 9, 12, 15, 24	±3.3	±152	70	±1000µF
RP-xx05D*	5, 9, 12, 15, 24	±5	±100	74-76	±470µF
RP-xx09D*	5, 9, 12, 15, 24	±9	±56	75	±470µF
RP-xx12D*	5, 9, 12, 15, 24	±12	±42	79-82	±220µF
RP-xx15D*	5, 9, 12, 15, 24	±15	±33	80-82	±220µF
RP-xx24D*	5, 9, 12, 15, 24	±24	±21	80	±100µF
RP-xx1509D	5, 12, 24	+15/-9	±42	70-85	±220µF

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

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

\* add Suffix "/X2" for single output with alternative pinning e.g. RP-0505S/X2, RP-0505S/P/X2

### Specifications (measured at T<sub>A</sub> = 25°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 Vin typ.	
Load Voltage Regulation	3.3V output types	20% max.
(10% to 100% full load)	5V output type	15% max.
	9V, 12V, 15V, 24V output types, RP-xx1509D	10% max.
Output Ripple and Noise (20MHz limited)	100mVp-p max.	
Operating Frequency	50kHz min. / 100kHz typ. / 120kHz max.	
	RP-xx1509D	50kHz min / 94kHz typ.
Efficiency at Full Load	70% min. / 80% typ.	
Minimum Load = 0%	Specifications valid for 10% minimum load only.	
Isolation Voltage	(tested for 1 second)	5200VDC
	(rated for 1 minute**)	2600VAC / 60Hz
Isolation Capacitance	4pF min. / 10pF max.	
Isolation Resistance	20 GΩ min.	
Short Circuit Protection	1 Second	
P-Suffix	Continuous	
Operating Temperature Range (free air convection, without derating)	-40°C to +90°C (see Graph)	

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# ECONOLINE

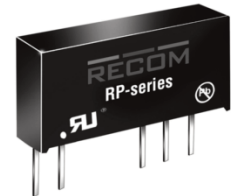
## DC/DC-Converter

with 3 year Warranty

# RECOM

## 1 Watt

## SIP 7 Single & Dual Output

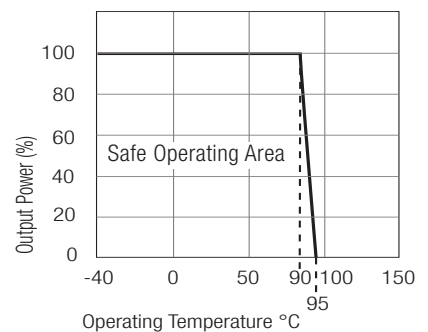


**EN-60950-1 Certified**  
**IEC/EN-60601-1 Certified\***  
**CSA/UL-60950-1 Certified\***  
 \* +15/-9 Version excluded

# RP

## 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)

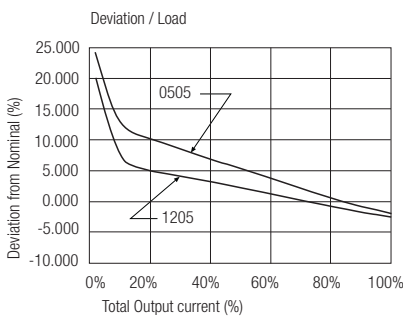
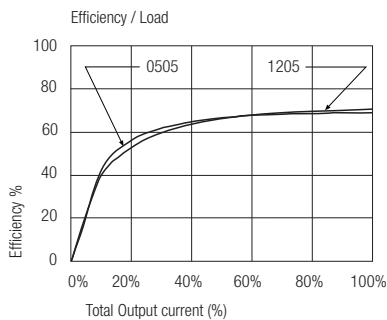
Storage Temperature Range			-55°C to +125°C
Relative Humidity			95% RH
Package Weight			2.4g
Packing Quantity			25 pcs per Tube
MTBF (+25°C)	} Detailed Information see Application Notes chapter "MTBF"	using MIL-HDBK 217F	928 x 10 <sup>3</sup> hours
(+85°C)		using MIL-HDBK 217F	150 x 10 <sup>3</sup> hours
Certifications			
CSA General Safety	Report: E358085		CSA C22.2 No. 60950-1-03
UL General Safety	Report: E358085		UL 60950-1 2nd Ed.
EN General Safety	Report: SPCLVD1109103		EN60950-1:2006 + A12:2011
EN Medical safety	Report: SPCMD1205098-4		IEC/EN60601-1:2006, 3rd Edition

### Notes

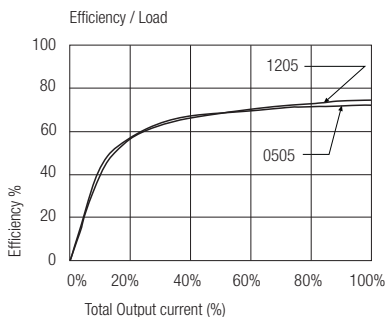
Note 1 Maximum capacitive load is defined as the capacitive load that will allow start up in under 1 second without damage to the converter.

### Typical Characteristics

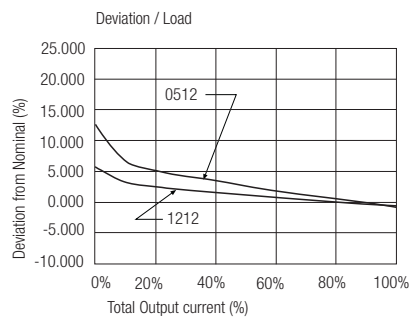
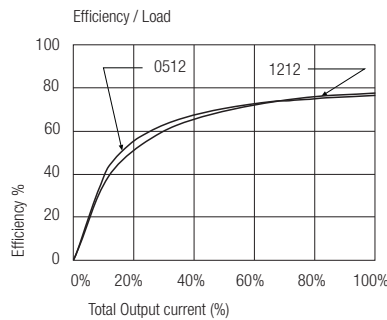
#### RP-xx05S



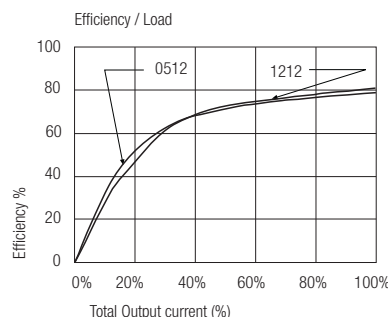
#### RP-xx05D



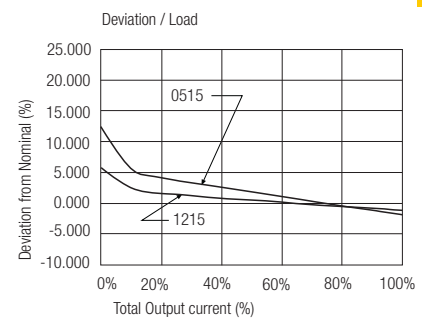
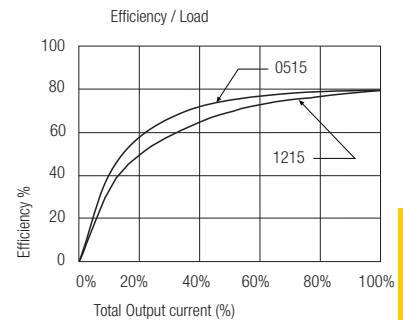
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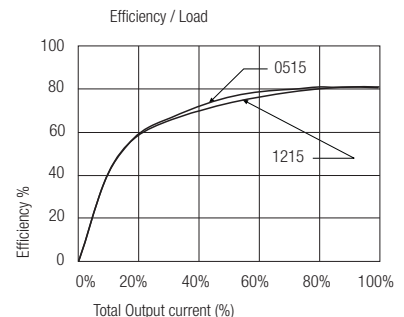
#### RP-xx12D



#### RP-xx15S



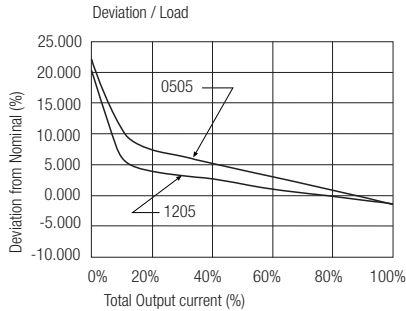
#### RP-xx15D



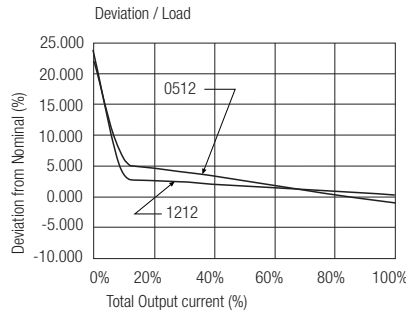
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Typical Characteristics

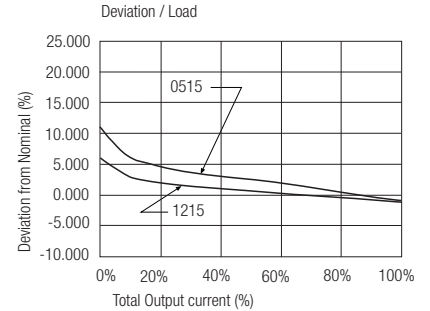
**RP-xx05D**



**RP-xx12D**

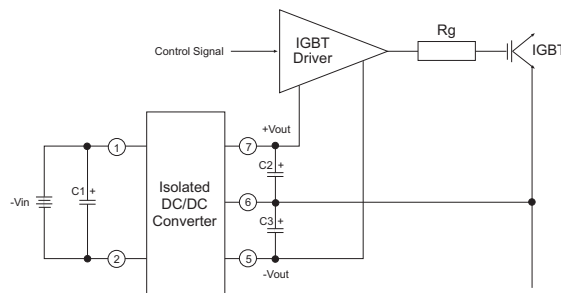


**RP-xx15D**



Application

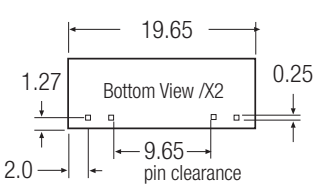
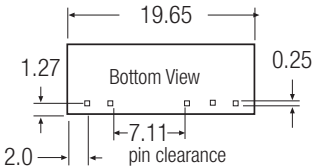
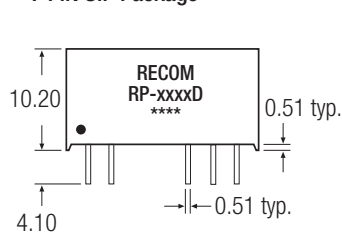
**IGBT Application Circuit**



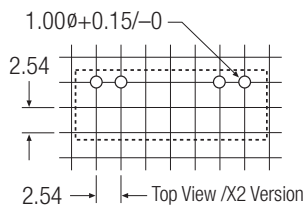
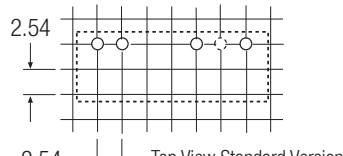
RP

Package Style and Pinning (mm)

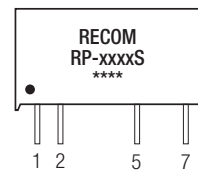
7 PIN SIP Package



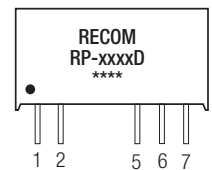
Recommended Footprint Details



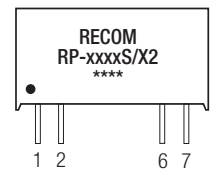
Single Output



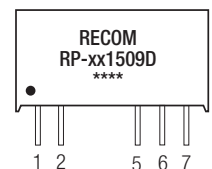
Dual Output



Single Output/X2



Dual 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