Features

Unregulated Converters

- UL/CSA and EN Safety certified
- EN-61010 for Test, Measurement and Lab Use
- EN-60601 for Medical Applications
- Reinforced Isolation 6.4kVDC or 8kVDC
- Optional Continuous Short Circuit Protected
- Unique Reinforced Isolation Transformer System
- /X2 Option for >9mm Input/Output Clearance

Description

The RxxPxxS_D Series of DC/DC Converters are certified to UL/CSA-60950. This makes them ideal for safety applications where approved or reinforced isolation is required. The reinforced versions are also EN61010-1 certified for Lab Equipment Safety.

Selection Guide							
Part Number SIP 7	Reinforced Isolation (kVDC)	Input Voltage (VDC)	Output Voltage (VDC)	Output Current (mA)	Efficiency Std (%)	Max Capacitive Load ⁽¹⁾	
RxxP3.3S*	/R6.4 & /R8	5, 9, 12, 15, 24	3.3	303	70~80	2200µF	
RxxP05S*	/R6.4 & /R8	5, 9, 12, 15, 24	5	200	75-80	1000µF	
RxxP09S*	/R6.4 & /R8	5, 9, 12, 15, 24	9	111	75-82	1000µF	
RxxP12S*	/R6.4 & /R8	5, 9, 12, 15, 24	12	84	75-82	470µF	
RxxP15S*	/R6.4 & /R8	5, 9, 12, 15, 24	15	66	75-83	470µF	
RxxP3.3D*	/R6.4 & /R8	5, 9, 12, 15, 24	±3.3	±151	72-79	±1000μF	
RxxP05D*	/R6.4 & /R8	5, 9, 12, 15, 24	±5	±100	75-82	±470μF	
RxxP09D*	/R6.4 & /R8	5, 9, 12, 15, 24	±9	±55	75-82	±470μF	
RxxP12D*	/R6.4 & /R8	5, 9, 12, 15, 24	±12	±41	75-82	±220μF	
RxxP15D*	/R6.4 & /R8	5, 9, 12, 15, 24	±15	±33	75-83	±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
- * add Suffix "/R6.4" or "/R8" for Reinforced Isolation, e.g. R05P05D/R6.4, R05P05S/P/X2/R8

Specifications (measured at $T_A = 25$ °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	3.3, 5V output types	15% max.		
(10% to 100% full load)	other output types	10% max.		
Output Ripple and Noise (20MHz BW)		200mVp-p max.		
Operating Frequency	min. / 50kHz typ. / 85kHz max.			
Efficiency at Full Load		65% min. / 75% typ.		
Minimum Load = 0%	Specifications va	Specifications valid for 10% minimum load only.		
Reinforced Isolation /R6.4	(tested for 1 second)	6400VDC		
	(rated for 1 minute**)	3200VAC / 60Hz		
Reinforced Isolation /R8	(tested for 1 second)	8000VDC		
	(rated for 1 minute**)	4000VAC / 60Hz		
Isolation Capacitance		4pF min. / 10pF max.		
Isolation Resistance		15 GΩ min.		
Short Circuit Protection		1 Second		
P-Suffix	Continuous			
Operating Temperature Range (free air cor	-40°C to +85°C (see Graph)			
Case Temperature	105°C max.			
Storage Temperature Range		-55°C to +125°C		
Relative Humidity		95% RH		
Package Weight		4.3g		
Packing Quantity		25 pcs per Tube		

continued on next page

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DC/DC-Converter with 3 year Warranty



1 Watt SIP 7 Single & Dual Output









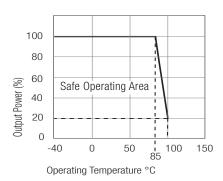


EN-60950-1 Certified EN-60601-1 Certified UL/CSA 60950-1 Certified UL-60601-1 Certified EN-61010-1 Certified IEC-60601-1 CB Report

RxxPxx/R

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

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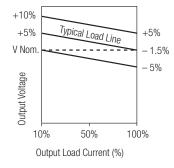
DC/DC-Converter

RxxPxxS_D /Rx Series

Specifications (measured at $T_A = 25$ °C, nominal input voltage, full load and after warm-up))

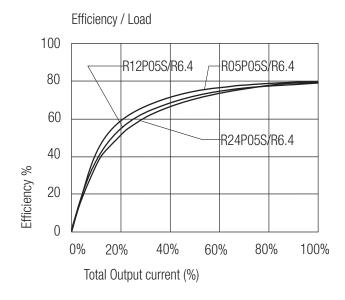
Potting Material			Silicone Rubber Compound (UL94V-0)
MTBF (+25°C) Detailed Informa	tion see	using MIL-HDBK 217F	2974 x 10 ³ hours
(+85°C) Application Note	s chapter "MTBF"	using MIL-HDBK 217F	728 x 10 ³ hours
Reinforced Isolation			
Transformer Clearance	Reinforced Types		5.5 mm min.
PCB Creepage & Clearance	Reinforced Types		4.6 mm min.
Certifications			
Measurement, Control and Laboratory Use Safety		Report: T1301251-313	EN61010-1 : 2010
CSA	General Safety	Report: 2207629	UL 60950-1 1st Ed.
			C22.2 No. 60950-1-03
UL/cL	IL Medical Safety	Report: E314885-A5	UL60601-1 1st Edition
CSA M	Medical Safety	Report: 2207629	CAN/CSA-22.2 No 601.1-M90
EN G	eneral Safety	Report: SPCLVD1310079-1	EN60950-1:2006
CB/EN	N Medical Safety	Report: CA-10169-A1-UL	IEC/EN 60601-1 3rd Edition
Notes ANSI/	AAMI Medical Safety	Report: E314885-A5	ES60601-1 3rd Edition
Note 1 Maximu	m capacitive load is defined as	the capacitive load that will allow start up in under	1 second without damage to the converter.

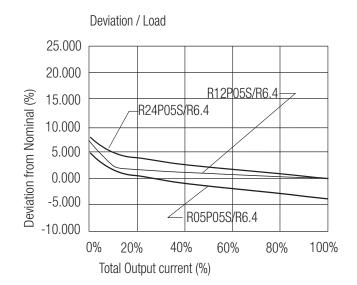
Tolerance Envelope



Typical Characteristics - Reinforced Version

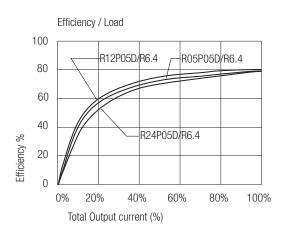
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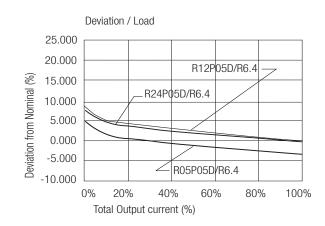




Typical Characteristics - Reinforced Version

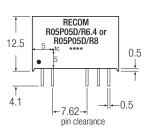
RxxP05D/R6.4 RxxP05D/R8

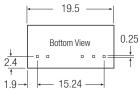


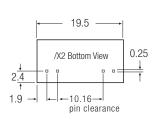


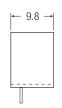
Package Style and Pinning (mm)

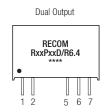
7 PIN SIP Package

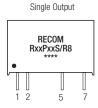


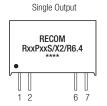




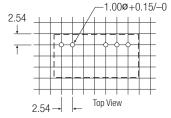


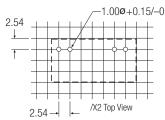






Recommended Footprint Details





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

 $XX.X \pm 0.5 \text{ mm}$ $XX.XX \pm 0.25 \text{ mm}$