

Features

Unregulated Converters

- UL/CSA and EN/IEC safety certified
- EN/IEC61010 for test, measurement and lab use
- EN/IEC60601 for medical applications
- Reinforced isolation 6.4kVDC or 8kVDC
- Optional continuous short circuit protection
- Very low isolation capacitance
- /X2 Option for >9mm Input/Output clearance

RECOM
DC/DC Converter

RxxP2xx/R

2 Watt
SIP 7
Single and Dual
Output



UL
E314885

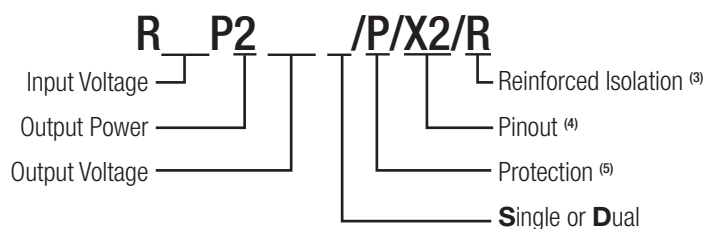


Notes:

Note1: Efficiency is tested at nominal input and full load at +25°C ambient

Note2: Max Cap Load is tested at nominal input and full resistive load

Model Numbering



Ordering Examples:

R05P23.3S/P = 5V Input, 3.3V Output, Single Output, Continuous Short Circuit Protection

R24P205S/P/X2 = 24V Input, 5V Output, Single Output, Continuous Short Circuit Protection, Alternative Pinout

R12P205D/X2/R6.4 = ±12V Input, ±5V Output, Dual Output, Alternative Pinout, 6.4kVDC/1second isolation

Notes:

Note3: add suffix „/R6.4“ for 6.4kVDC/1second isolation or „/R8“ for 8kVDC/1second isolation

Note4: add suffix „/X2“ for single output with alternative pinout

Note5: add suffix „P“ for continuous short circuit protection

EN/IEC60950-1 certified
EN/IEC60601-1 certified
UL/CSA 60950-1 certified
ES/CSA60601-1 certified
EN/IEC61010-1 certified
IEC-60601-1 CB report



www.recom-power.com/eval-ref-boards

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

BASIC CHARACTERISTICS

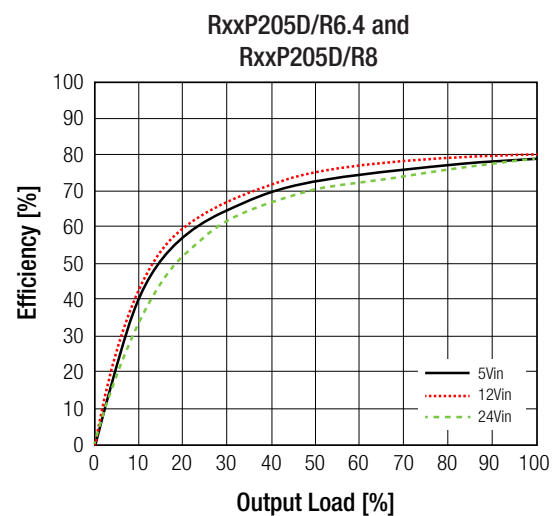
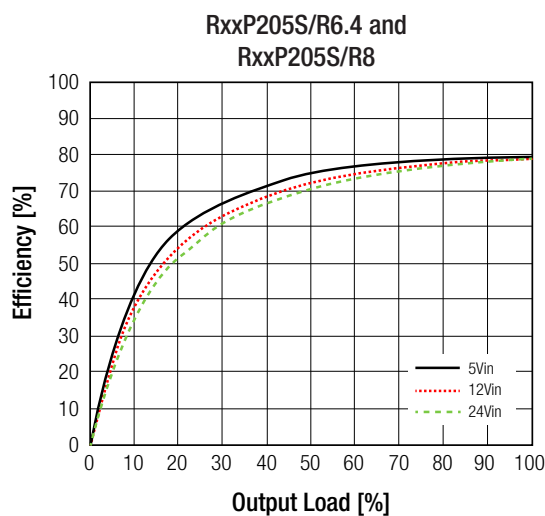
Parameter	Condition	Min.	Typ.	Max.
Input Voltage Range			±10%	
Minimum Load ⁽⁶⁾		0%		
Internal Operating Frequency		20kHz	50kHz	85kHz
Output Ripple and Noise ⁽⁷⁾	20MHz BW			200mVp-p

Notes:

Note6: Operation below 10% load won't harm the converter, but specifications may not be met

Note7: Measurements are made with a 0.1µF MLCC across output (low ESR)

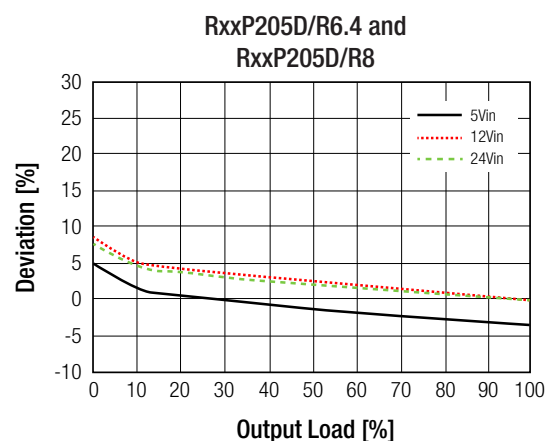
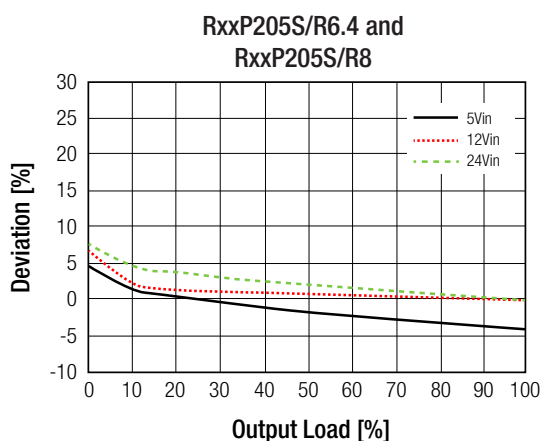
Efficiency vs. Load



REGULATIONS

Parameter	Condition		Value
Output Accuracy			±5.0% max.
Line Regulation	low line to high line, full load		±1.0% typ. / ±1.2% max.
Load Regulation	10% to 100% load	3.3V, 5V 9V, 12V, 15V	±15.0% typ. ±10.0% typ.

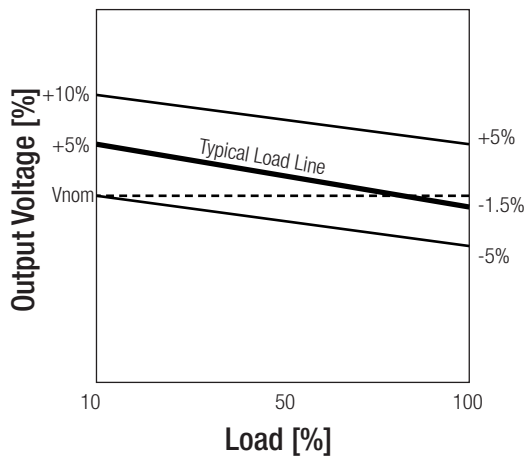
Deviation vs. Load



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

Tolerance Envelope



PROTECTIONS

Parameter	Type		Value
Short Circuit Protection (SCP)	without Suffiy "P" With Suffix "P"		1 second continuous
Isolation Voltage ⁽⁸⁾	I/P to O/P tested for 1 second	/R6.4 /R8	6.4kVDC 8kVDC
	I/P to O/P rated for 1 minute	/R6.4 /R8	3200VAC/60Hz 4000VAC/60Hz
Isolation Resistance			15GΩ min.
Isolation Capacitance			1.5pF min./10.0pF max.
Insulation Grade			reinforced
Means of Protection	34Vrms		2MOPP
Internal	clearance/creepage		5.5mm
External	clearance/creepage		4.95mm

Notes:

Note8: For repeat Hi-Pot testing, reduce the time and/or the test voltage

ENVIRONMENTAL

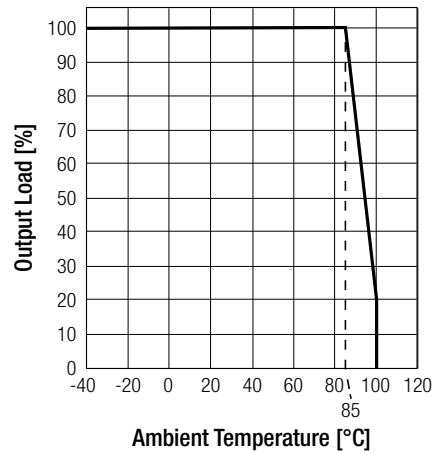
Parameter	Condition	Value
Operating Temperature Range	without derating @ natural convection 0.1m/s (see graph)	-40°C to +85°C
Maximum Case Temperature		+105°C
Operating Humidity	non-condensing	95% RH max.
Pollution Degree		PD2
MTBF	according to MIL-HDBK-217F, G.B. +25°C +85°C	1154 x 10 ³ hours 168 x 10 ³ hours

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

Derating Graph

(@ Chamber and natural convection 0.1m/s)

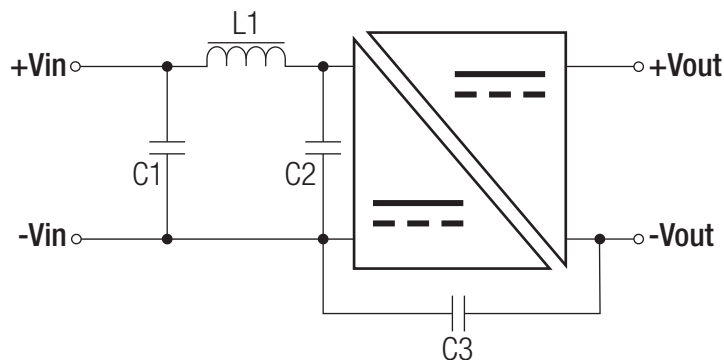


SAFETY AND CERTIFICATIONS

Certificate Type (Safety)	Report / File Number	Standard
Information Technology Equipment, General Requirements for Safety (LVD)	SPCLVD1605077-14	EN60950-1: 2006 + A2:2013 IEC60950-1-2005 , 2nd Edition + A2:2013
Information Technology Equipment, General Requirements for Safety	2236395	ANSI/UL60950-1, 1st Edition CAN/CSA C22.2 No. 60950-1
Medical Electric Equipment, General Requirements for Safety and Essential Performance	E314885-A5-UL	ANSI/AAMI ES60601-1 CAN/CSA-C22.2 No. 60601-1
Medical Electric Equipment, General Requirements for Safety and Essential Performance		IEC/EN 60601-1, 3rd Edition
Safety requirements for electrical equipment for measurement, control and laboratory use	T1301251-313	EN61010:2010 IEC61010:2010, 3rd Edition
RoHS 2+		RoHS (10/10)

EMC Compliance	Condition	Standard / Criterion
Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement	with external filter	EN55022, Class A/B

EMC Filtering Suggestions according to EN55022



Component List Class A

MODEL	C1	L1	C2	C3
RxxP2xx/R6.4	10µF	N/A	N/A	2n2F 8kV Vishay HGZ222MBP
RxxP2xx/R8				2n2F 10kV Vishay HGZ222MBP

Component List Class B

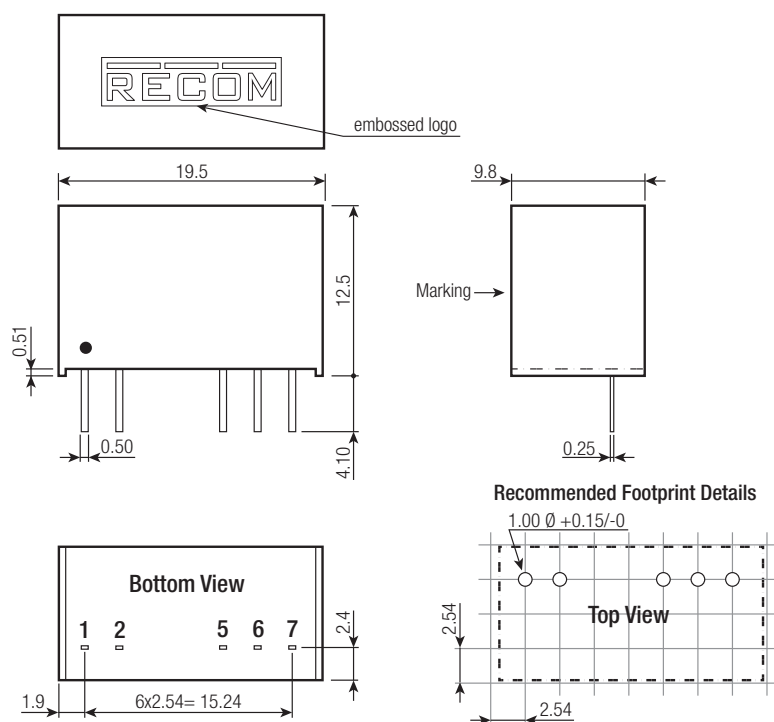
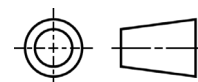
MODEL	C1	L1	C2	C3
RxxP2xx/ R6.4	10µF	470µH WE 7447471471	10µF	2n2F 8kV Vishay HGZ222MBP
RxxP2xx/R8				2n2F 10kV Vishay HGZ222MBP

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

DIMENSION AND PHYSICAL CHARACTERISTICS

Parameter	Type	Value
Material	case potting PCB	non-conductive black plastic, (UL94V-0) silicon rubber compound, (UL94V-0) FR4, (UL94V-0)
Package Dimension (LxWxH)		19.5 x 9.8 x 12.5mm
Package Weight		4.3g typ.

Dimension Drawing (mm)



Pin Connection

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

Tolerance: xx.x= $\pm 0.5\text{mm}$
xx.xx= $\pm 0.25\text{mm}$

PACKAGING INFORMATION

Parameter	Type	Value
Packaging Dimension (LxWxH)	tube	520.0 x 23.3 x 12.0mm
Packaging Quantity	tube	25pcs
Storage Temperature Range		- 55°C to +125°C
Storage Humidity		95% RH max.

The product information and specifications may be subject to changes even without prior written notice. The product has been designed for various applications; its suitability lies in the responsibility of each customer. The products are not authorized for use in safety-critical applications without RECOM's explicit written consent. A safety-critical application is an application where a failure may reasonably be expected to endanger or cause loss of life, inflict bodily harm or damage property. The applicant shall indemnify and hold harmless RECOM, its affiliated companies and its representatives against any damage claims in connection with the unauthorized use of RECOM products in such safety-critical applications.