

Features

Unregulated Converters

- Qualified with 65kV/ μ s @ Vcommon mode =1KV
- IEC/EN61010 for test, measurement and lab use
- IEC/EN60601 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

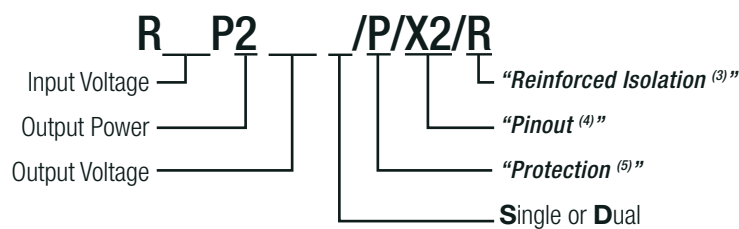


Notes:

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

Note2: Max. Capacitive Load is defined as the capacitive load that will allow start up in under 1 second without damage to the converter

Model Numbering



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

UL/CSA60950-1 certified
IEC/EN60950-1 certified
UL/ES/CSA60601-1 certified
IEC/EN60601-1 certified
IEC/EN61010-1 certified
CB report

Ordering Examples:

R05P23.3S/R8/P = 5V Input, 3.3V Output, Single Output, 8kVDC/1s isolation, Continuous Short Circuit Protection
R24P205S/R6.4/P/X2 = 24V Input, 5V Output, Single Output, 6.4kVDC/1s isolation, Continuous SCP, Alternative Pinout
R12P205D/R8/X2 = $\pm$ 5V Input, $\pm$ 5V Output, Dual Output, 8kVDC/1s isolation, Alternative Pinout



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

www.recom-power.com/bier

Specifications (measured at Ta= 25°C, nominal input voltage, full load)

BASIC CHARACTERISTICS

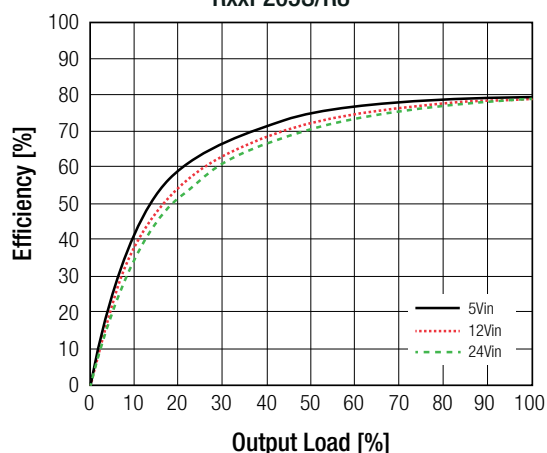
Parameter	Condition	Min.	Typ.	Max.
Input Voltage Range			±10%	
Minimum Load		0%		
Internal Operating Frequency		20kHz	50kHz	85kHz
Output Ripple and Noise ⁽⁶⁾	20MHz BW			200mVp-p

Notes:

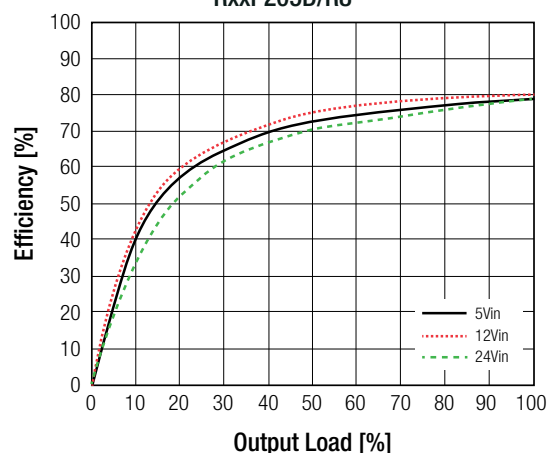
Note6: Measurements are made with a 0.1µF MLCC across output (low ESR)

Efficiency vs. Load

RxxP205S/R6.4 and
RxxP205S/R8



RxxP205D/R6.4 and
RxxP205D/R8



REGULATIONS

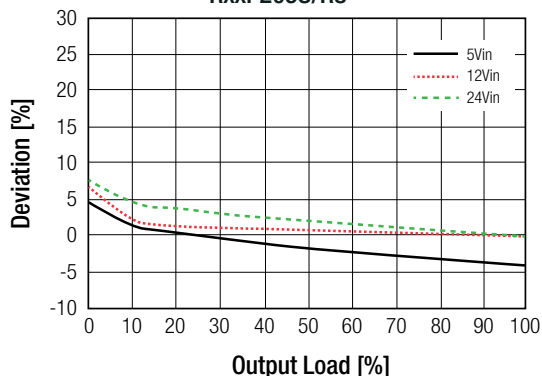
Parameter	Condition		Value
Output Accuracy			±5.0% max.
Line Regulation	low line to high line, full load		1.2%/1% of Vin typ.
Load Regulation ⁽⁷⁾	10% to 100% load	3.3Vout, 5Vout	15.0% typ.
		9Vout, 12Vout, 15Vout	10.0% typ.

Notes:

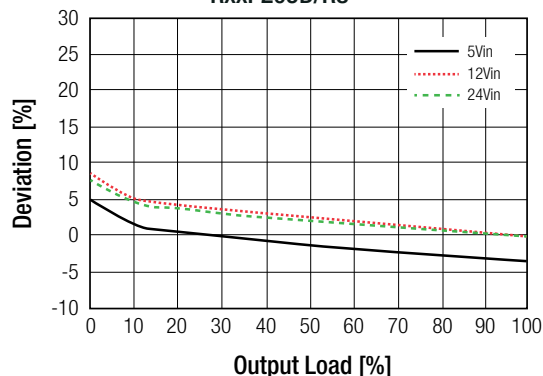
Note7: Operation below 10% load won't harm the converter, but specifications may not be met

Deviation vs. Load

RxxP205S/R6.4 and
RxxP205S/R8



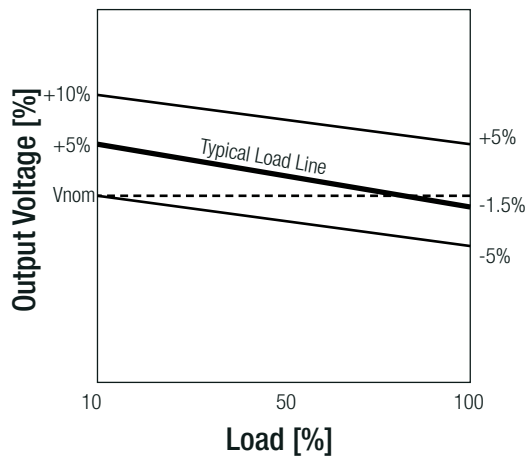
RxxP205D/R6.4 and
RxxP205D/R8



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Specifications (measured at Ta= 25°C, nominal input voltage, full load)

Tolerance Envelope



PROTECTIONS

Parameter	Type			Value
Short Circuit Protection (SCP)	without Suffix "/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
		rated for 1 minute	"/R6.4" "/R8"	3.2kVAC/60Hz 4kVAC/60Hz
Isolation Resistance				15GΩ min.
Isolation Capacitance				1.5pF min./10.0pF max.
Leakage Current				<0.01μA max.
Insulation Grade				reinforced
Means of Protection	34Vrms			2MOPP
Internal	clearance/creepage			>4.8mm
External	clearance/creepage			>4.8mm

Notes:

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

ENVIRONMENTAL

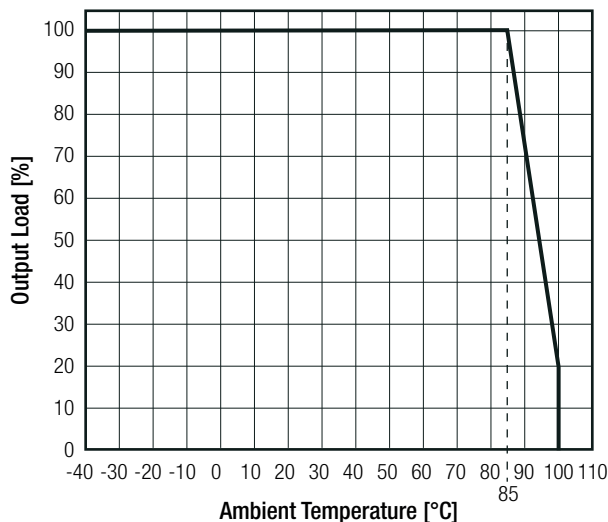
Parameter	Condition		Value
Operating Temperature Range	without derating @ natural convection 0.1m/s (see graph)		-40°C to +85°C
Maximum Case Temperature			+105°C
Operating Altitude			3000m
Operating Humidity	non-condensing		95% RH max.
Pollution Degree			PD2
MTBF	according to MIL-HDBK-217F, G.B.	+25°C	23429 x 10 ³ hours
		+85°C	9818 x 10 ³ hours

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Specifications (measured at Ta= 25°C, nominal input voltage, full load)

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	LVD1605077-14	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
Information Technology Equipment, General Requirements for Safety	2207629	ANSI/UL60950-1, 1st Edition CAN/CSA C22.2 No. 60950-1
Medical Electric Equipment, General Requirements for Safety and Essential Performance	2207629	UL60601-1, 1st Edition CAN/CSA-C22.2 No. 601.1-M90
Medical Electric Equipment, General Requirements for Safety and Essential Performance	E314885-A5-UL	ANSI/AAMI ES60601-1:2005 +A2:10 CAN/CSA-C22.2 No. 60601-1:2008
Medical Electric Equipment, General Requirements for Safety and Essential Performance. (CB Scheme)	E314885-A5-CB-1	IEC60601-1:2005 + C2:2007
Medical Electric Equipment, General Requirements for Safety and Essential Performance	WD-SE-R-180539-A0	EN60601-1:2006 + A12:2014 IEC60601-1:2005 + A1:2012, 3rd Edition
Safety requirements for electrical equipment for measurement, control and laboratory use	T1301251-313	EN61010:2010 IEC61010:2010, 3rd Edition
EAC	RU-AT.37.02367	TP TC 004/2011
RoHS 2		RoHS-2011/65/EU + AM-2015/863

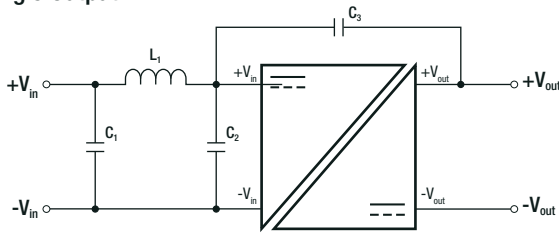
EMC Compliance	Condition	Standard / Criterion
Electromagnetic compatibility of multimedia equipment - Emission requirements	with external filter (refer to "EMC Filtering")	EN55032, Class A and B

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Specifications (measured at Ta= 25°C, nominal input voltage, full load)

EMC Filtering Suggestion according to EN55032 Class A and Class B

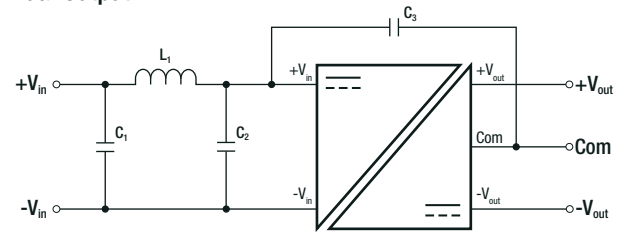
Single Output



Component List Class A

C1	L1	C3
10µF 100V MLCC	3.9µH choke WE 744 045 0039	470pF

Dual Output



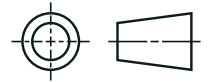
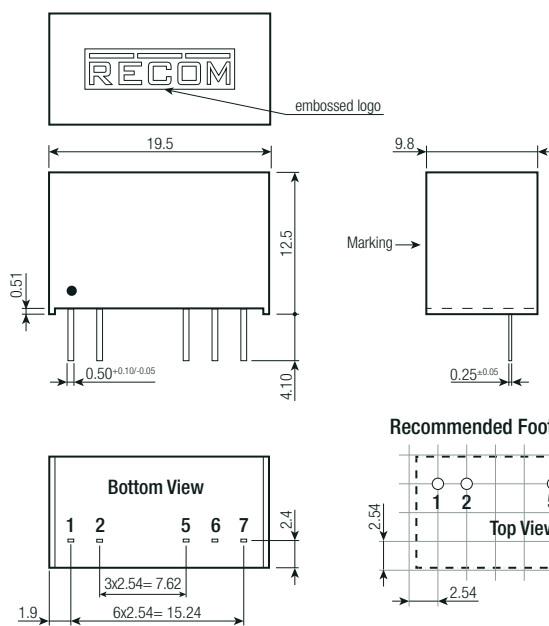
Component List Class B

C1	C2	L1	C3
10µF 100V MLCC	2.2µF 100V MLCC	12µH choke WE 744 045 120	470pF

DIMENSION AND PHYSICAL CHARACTERISTICS

Parameter	Type	Value
Material	case potting PCB	non-conductive black plastic, (UL94 V-0) silicon rubber compound, (UL94 V-0) FR4, (UL94 V-0)
Dimension (LxWxH)		19.5 x 9.8 x 12.5mm
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= ±0.5mm
xx.xx= ±0.25mm

PACKAGING INFORMATION

Parameter	Type	Value
Packaging Dimension (LxWxH)	tube	520.0 x 22.3 x 12.0mm
Packaging Quantity	tube	25pcs
Storage Temperature Range		- 55°C to +125°C
Storage Humidity		95% RH max.

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