Features

Regulated Converter

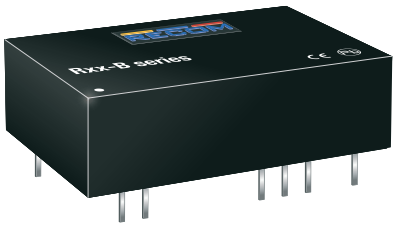
- High output voltage DIP24 converter
- Adjustable output voltage up to 200VDC
- Cascadable for output voltages up to 400VDC
- 3kVDC input/output isolation
- Remote voltage programming by external voltage or resistance
- Continuous short circuit protection
- Ambient temperature up to +85°C

RECOM
DC/DC Converter

Rxx-B

5 Watt DIP24 Single Output

3 YEAR warranty



Description

The Rxx-B series are 5W regulated high output voltage isolated DC/DC converters in a DIP24 package. Three adjustable output voltages of 87V (41-120V), 103V (50-135V) or 159V (92-200V) are offered, with nominal input voltage options of 5V, 12V, 15V or 24V. The modules can be cascaded for higher output voltages up to 400VDC. The output is isolated from the input with 3kVDC isolation and the modules can be operated over a -40°C to +85°C ambient temperature range. The Rxx-B series is safety certified with IEC/EN60950-1 certifications (the R24-100B has additionally UL/IEC/EN62368 with CB Report). A three year warranty is offered.

Selection Guide

Part Number	Input Voltage Range [VDC]	nom. Output Voltage [VDC]	Output Voltage Range [VDC]	Output Power max. (1) [W]	Efficiency typ. (2) [%]	Max. Capacitive Load (3) [µF]
R05-100B	4.5 - 6	87	+41...+120	3	77	20
R12-100B	10 - 14	103	+50...+135	5	82	30
R15-100B	14 - 17	103	+59...+130	5	82	30
R24-100B	21 - 27	105	+56...+135	5	84	30
R12-150B	10 - 14	159	+92...+200	5	82	40
R15-150B	14 - 17	159	+92...+200	5	82	40
R24-150B	21 - 27	159	+92...+200	5	84	40

EN60950-1 certified
IEC60950-1 certified

Notes:

Note1: Refer to ***„Power Limit“*** graph

Note2: Efficiency is tested at nominal input and full load at +25°C ambient

Note3: Max. Cap Load is tested at nominal input and full resistive load.
If the load is mainly capacitive, it should have a minimum resistive load of 10mA

Model Numbering

R__ - __B

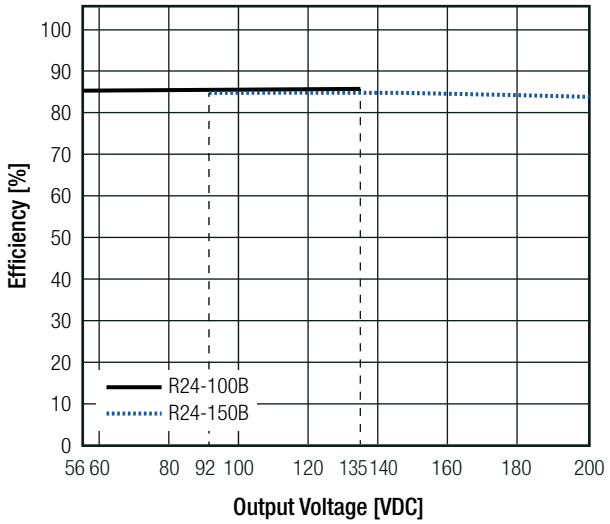
nom. Input Voltage — Output Voltage

Specifications (measured @ Ta= 25°C, nom. Vin and full load)

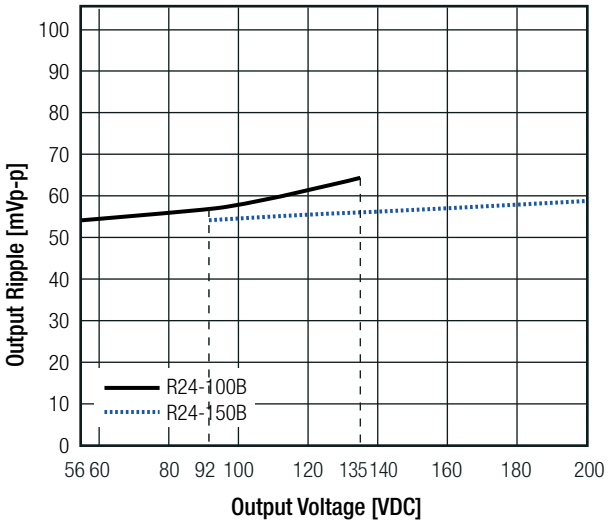
BASIC CHARACTERISTICS

Parameter	Condition	Min.	Typ.	Max.
Input Voltage Range	nom. Vin= 5VDC nom. Vin= 12VDC nom. Vin= 15VDC nom. Vin= 24VDC	4.5VDC 10VDC 14VDC 21VDC	5VDC 12VDC 15VDC 24VDC	6VDC 14VDC 17VDC 27VDC
Output Current	refer to ***„Power Limit“***			50mA
Output Power	5V all others			3W 5W
Output Voltage Adjust	External Voltage	0VDC		4VDC
	External Resistor	0kΩ		5kΩ
Internal Voltage Reference	refer to page I-4 to I-5		regulated 5VDC with 1kΩ series resistor	
Internal Operating Frequency			200kHz	
Output Ripple and Noise	20MHz BW		60mVp-p	100mVp-p

Efficiency vs. Ouput Voltage

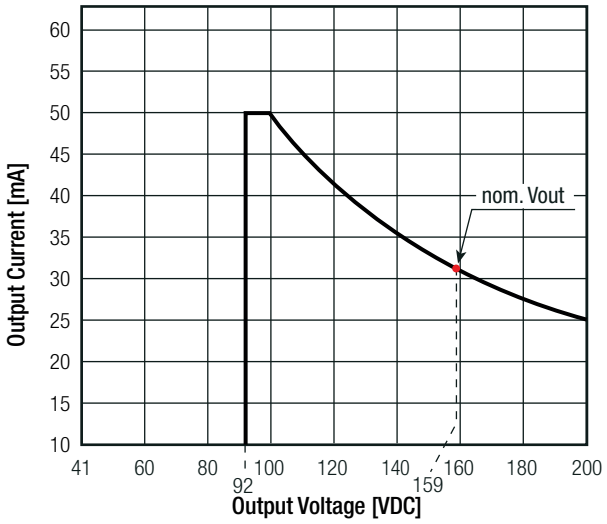


Output Ripple vs. Output Voltage



Power Limit

R12-150B; R15-150B; R24-150



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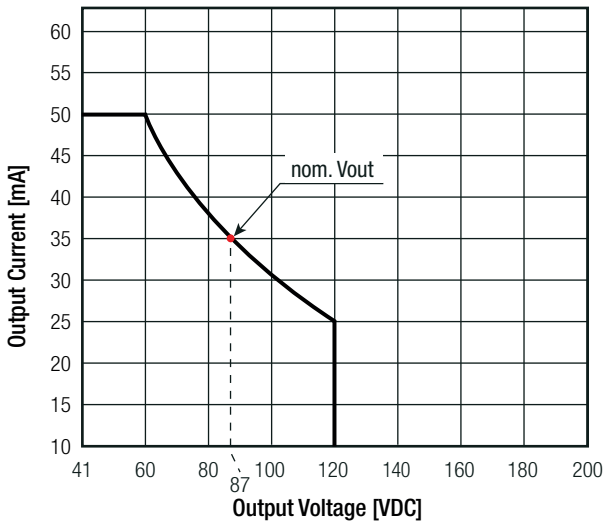
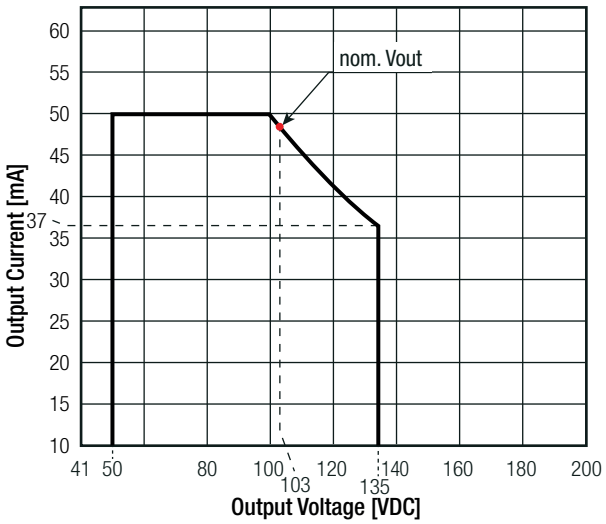
Specifications (measured @ Ta= 25°C, nom. Vin and full load)

Power Limit

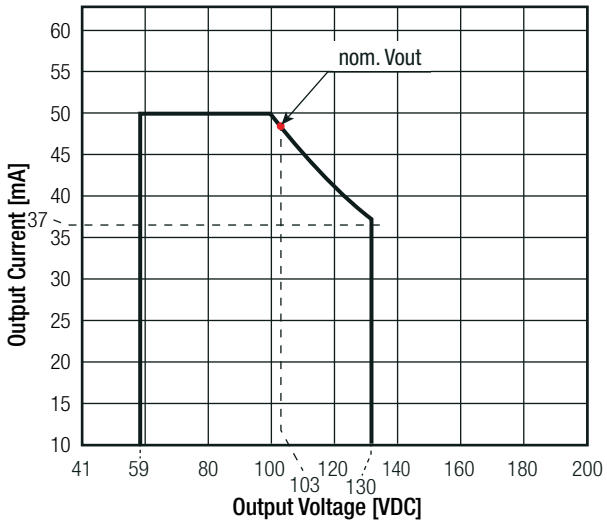
R05-100B



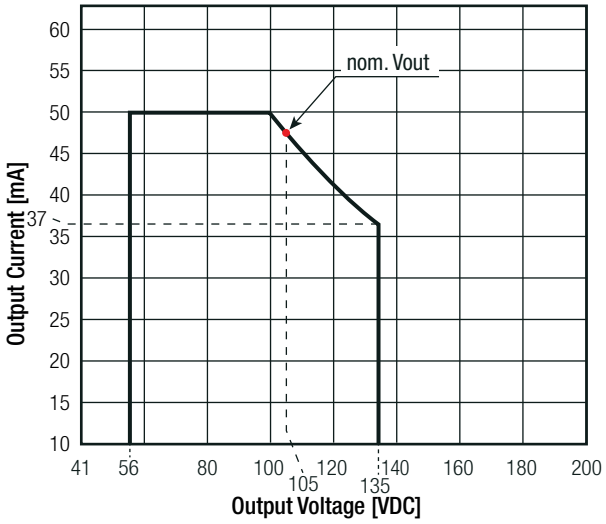
R12-100B



R15-100B



R24-100B



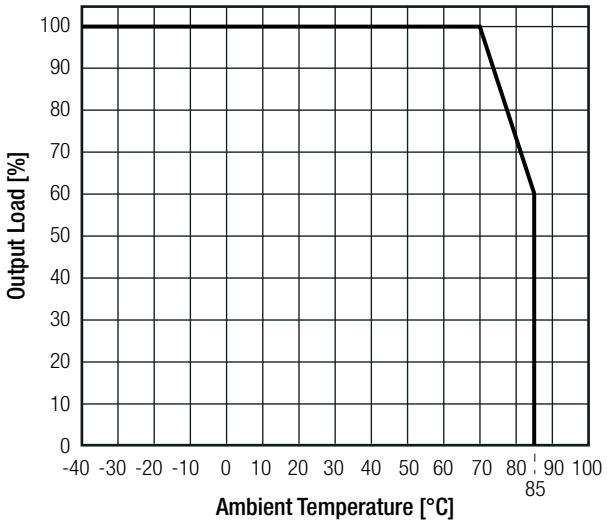
REGULATIONS		
Parameter	**Condition**	**Value**
Output Accuracy		±5.0% max.
Line Regulation	low line to high line	±0.5% max.
Load Regulation	20% to 100% load	0.5% max.

PROTECTIONS		
Parameter	**Condition**	**Value**
Short Circuit Protection (SCP)		continuous, automatic restart
Isolation Voltage	tested for 1 second	3kVDC min.
Isolation Resistance		1GΩ min.
Isolation Capacitance		20pF typ.

Specifications (measured @ Ta= 25°C, nom. Vin and full load)

ENVIRONMENTAL			
Parameter	**Condition**		**Value**
Operating Temperature Range	with derating @ free air convection (see graph) full load @ free air convection (see graph)		-40°C to +85°C -40°C to +70°C
Temperature Coefficient			± 0.02%/K
Operating Altitude			2000m
Operating Humidity	non-condensing		95% RH max.
Pollution Degree			PD2
MTBF	according to MIL-HDBK-217F, G.B.	+25°C	1400 x 10^3 hours

Derating Graph
(@ free air convection)



SAFETY AND CERTIFICATIONS		
Certificate Type (Safety)	**Report / File Number**	**Standard**
Information Technology Equipment, General Requirements for Safety	SPCLVD1605077-02	IEC60950-1:2005, 2nd Edition + AM 2:2013 EN60950-1:2006 + AM 2:2013
EAC	RU-AT.49.09571	TP TC 004/2011
RoHS2+		RoHS-2001/65/EU + AM-2015/863

DIMENSION AND PHYSICAL CHARACTERISTICS		
Parameter	**Type**	**Value**
Material	case potting PCB	non conductive black plastic, (UL94 V-0) epoxy, (UL94 V-0) FR4, (UL94 V-0)
Package Dimension (LxWxH)		31.2 x 20.3 x 9.4mm
Package Weight		12g typ.

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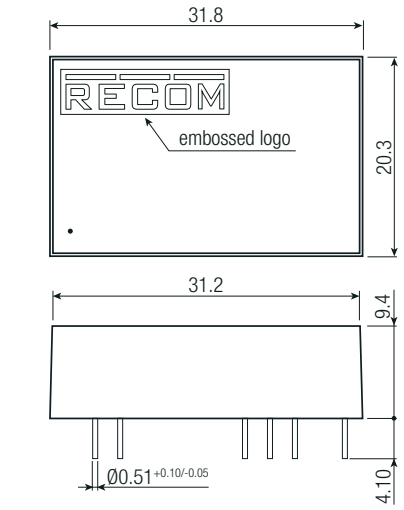
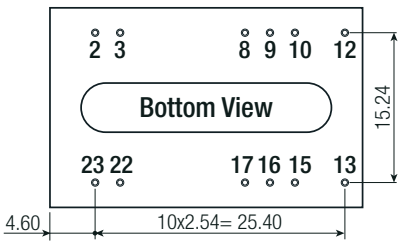
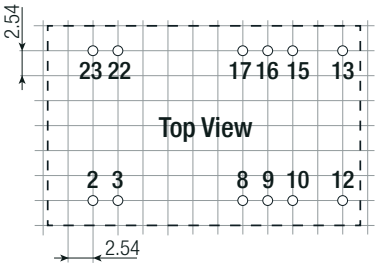
Specifications (measured @ Ta= 25°C, nom. Vin and full load)

Dimension Drawing (mm)





Recommended Footprint Details



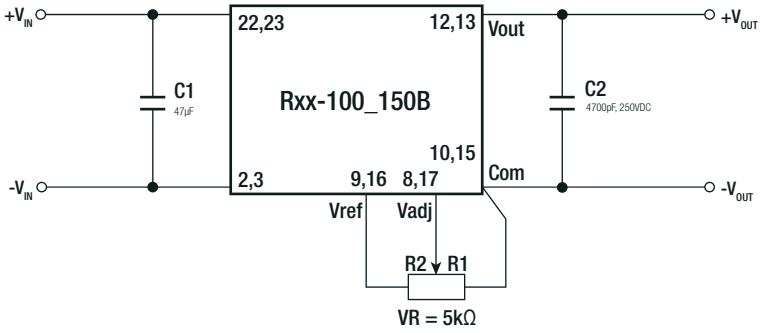
Pin Connections

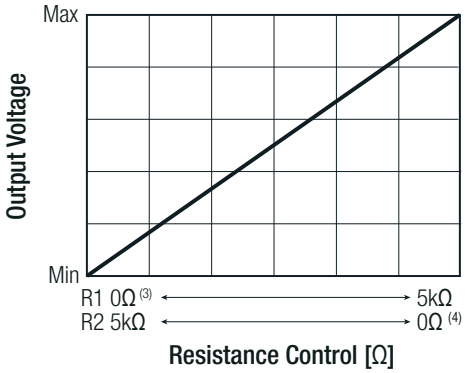
Pin #	Single
2,3	-Vin
8,17	Vadj.
9,16	V ref
10,15	-Vout
12,13	+Vout
22,23	+Vin

Tolerance: xx.x= ±0.5mm
xx.xx= ±0.25mm

INSTALLATION AND APPLICATION

Output Voltage Adjust





Notes:

Note3: 0Ω means Vadj connected to COM; no connection to Vref
Note4: 0Ω means Vadj connected to Vref; no connection to COM

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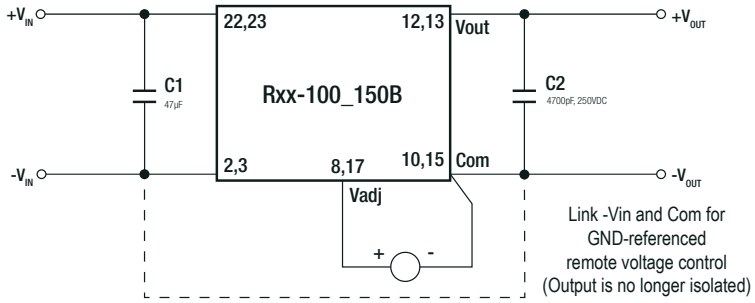
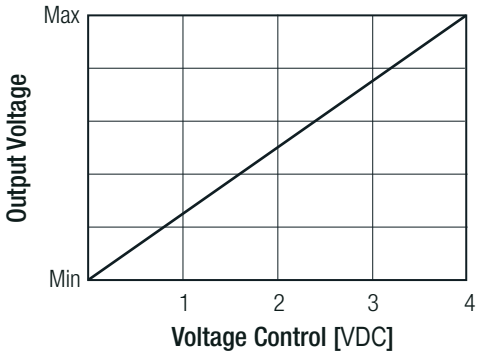
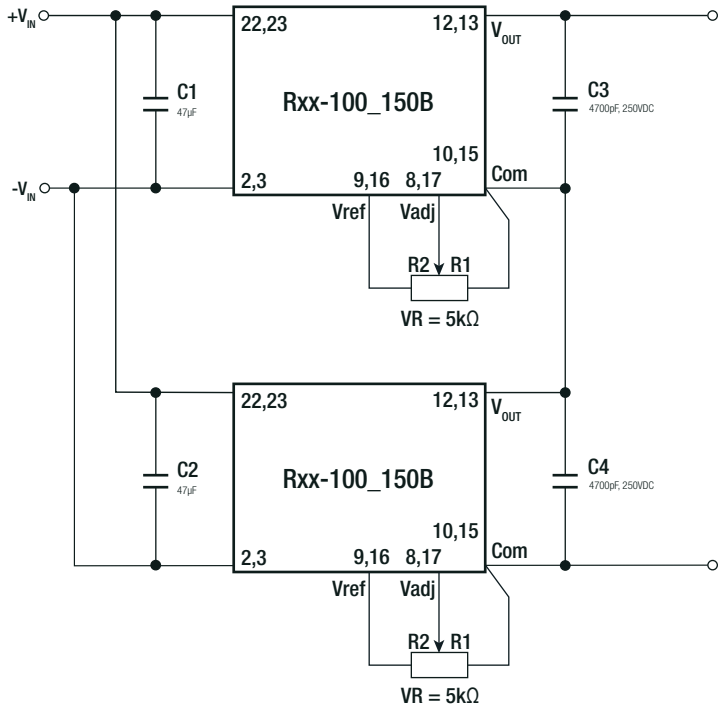
Specifications (measured @ Ta= 25°C, nom. Vin and full load)

For Remote Voltage Control





Cascade Circuit



Cascade Combinations

U1	U2	Vout Range
R05-100B	R05-100B	160-240
Rxx-100B	Rxx-100B	190~260
Rxx-150B	Rxx-100B	230~330
Rxx-150B	Rxx-150B	305~400

xx = 12, 15 or 24

Note: When cascaded, only one Rxx-B may be adjustable, the other must be fixed voltage.

PACKAGING INFORMATION

Parameter	Type	Value
Packaging Dimension (LxWxH)	tube	530.0 x 23.0 x 19.0mm
Packaging Quantity	tube	6pcs
Storage Temperature Range		- 50°C to +125°C
Storage Humidity		95% RH max.