

Features

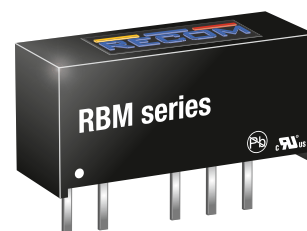
Unregulated Converters

- Micro size SIP 6 package
- Industry standard pinout
- Power sharing on dual output version
- 3kVDC/1s basic isolation
- Optional continuous short circuit protection
- Efficiency up to 84%

RECOM
DC/DC Converter

RBM

1 Watt
SIP6 Micro
Size, Single and
Dual Output



C_{UL} US
E358085



Description

The RBM Micro Size DC/DC-Converter complements Recom's industrial range of converters. This range is widely used for PCB distributed power systems and combines small package size, high efficiency, 3kVDC isolation and low output ripple. The extended operating temperature range covering -40°C to +85°C is a standard feature. The full rated power can be taken from a single pin of this dual output converter, provided this does not exceed 1 Watt.

Selection Guide

Part Number	nom. Input Voltage [VDC]	Output Voltage [VDC]	Output Current [mA]	Efficiency typ. ⁽¹⁾ [%]	max. Capacitive Load ⁽²⁾ [μF]
RBM-xx05S ⁽³⁾	5, 12	5	200	70-78	1000
RBM-xx12S ⁽³⁾	5, 12	12	84	78-80	470
RBM-xx15S ⁽³⁾	5, 12	15	66	80-84	470
RBM-xx05D ⁽³⁾	5, 12	±5	±100	74-78	±470
RBM-xx12D ⁽³⁾	5, 12	±12	±41	80-82	±220
RBM-xx15D ⁽³⁾	5, 12	±15	±33	80-84	±220

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 and is defined as the capacitive load that will allow start up in under 1s without damage to the converter

Model Numbering



Notes:

Note3: standard part is without continuous short circuit protection
add suffix „P“ for continuous short circuit protection

Ordering Examples:

RBM-1205S: 12VDC Input Voltage, 5VDC Output Voltage, Single Output

RBM-0515D/P: 5VDC Input Voltage, ±15VDC Output Voltage, Dual Output with continuous short circuit protection

UL60950-1 certified
CAN/CSA-C22.2 No 60950-1 certified
EN60950-1 certified
IEC60950-1 certified
CB Report

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

BASIC CHARACTERISTICS

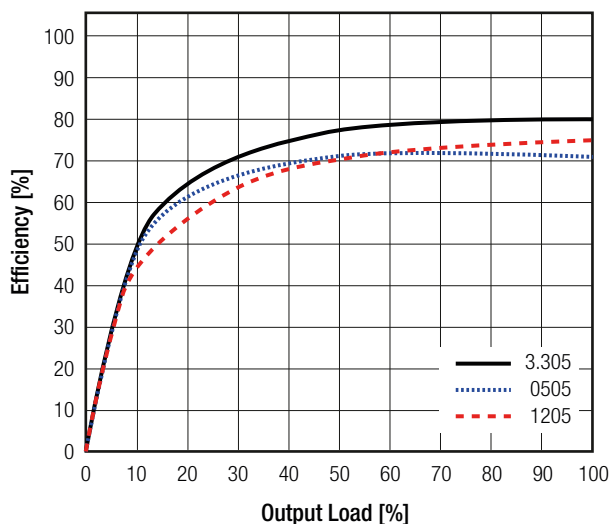
Parameter	Condition	Min.	Typ.	Max.
Input Voltage Range			±10%	
Minimum Load ⁽⁴⁾		0%		
Internal Operating Frequency		50kHz	100kHz	105kHz
Output Ripple and Noise	20MHz BW			100mVp-p

Notes:

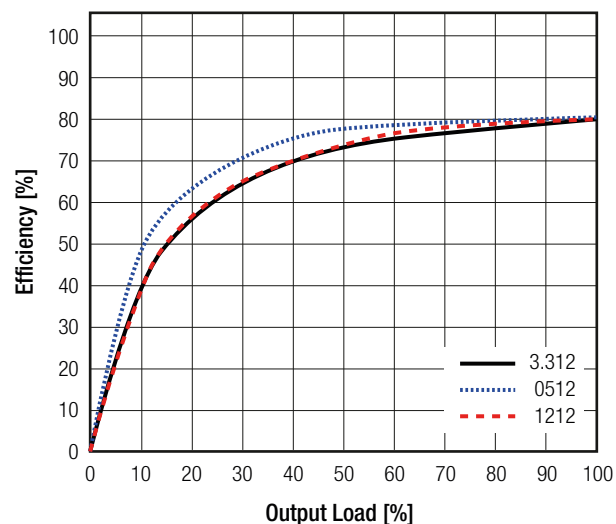
Note4: Operation below 10% load will not harm the converter, but specifications may not be met

Efficiency vs. Load

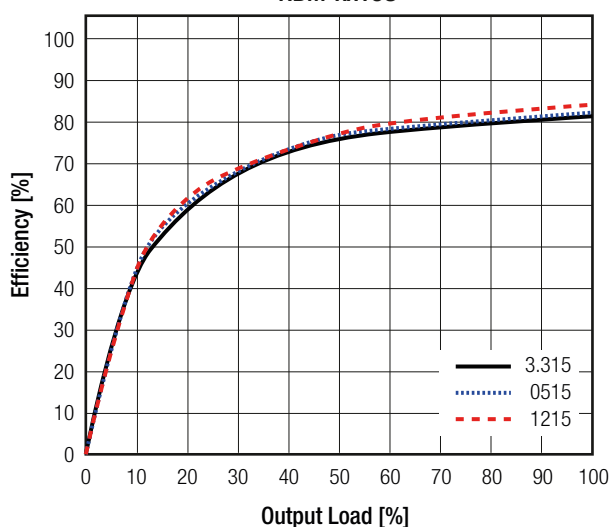
RBM-xx05S



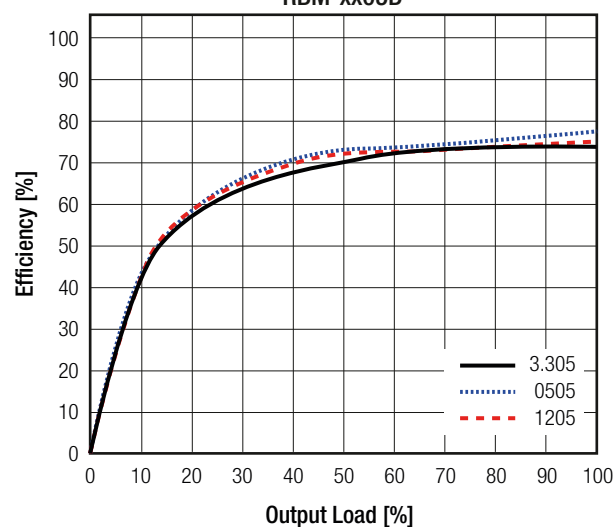
RBM-xx12S



RBM-xx15S

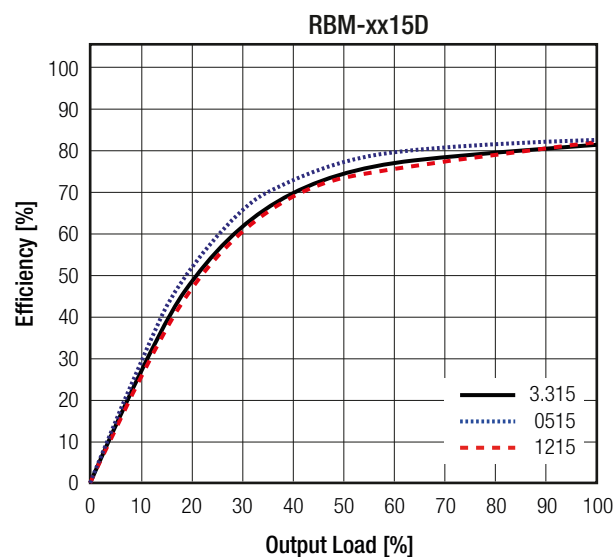
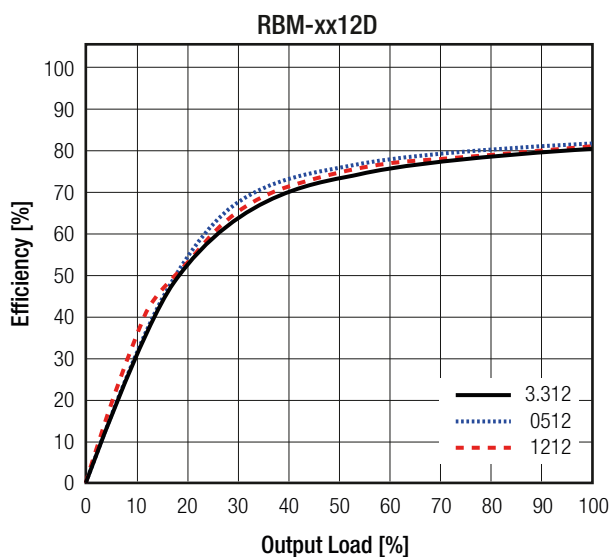


RBM-xx05D



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

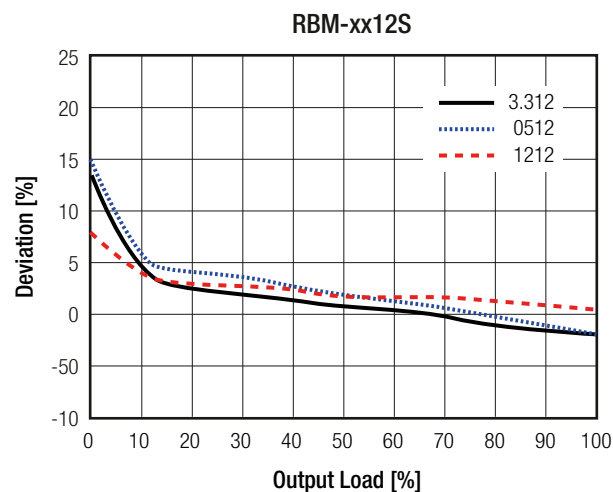
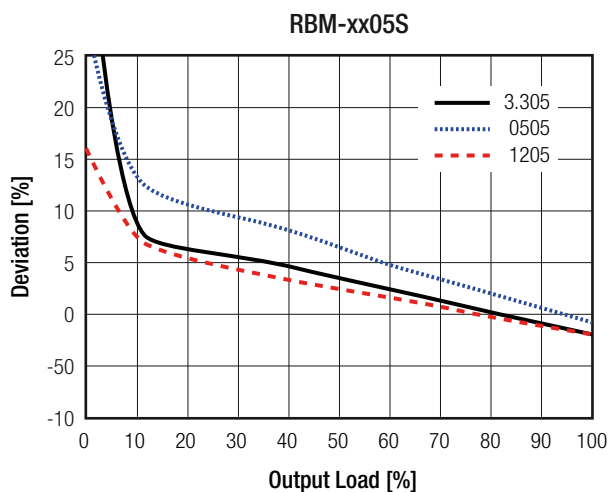
Efficiency vs. Load



REGULATIONS

Parameter	Condition		Value
Output Accuracy			±5.0% max.
Line Regulation	low line to high line		±1.2% of 1.0% Vin typ.
Load Regulation	10% to 100% load	5Vout	15.0% max.
		12, 15Vout	10.0% max.

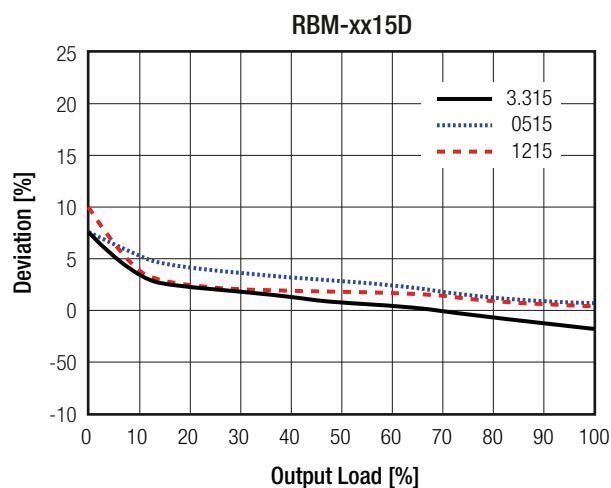
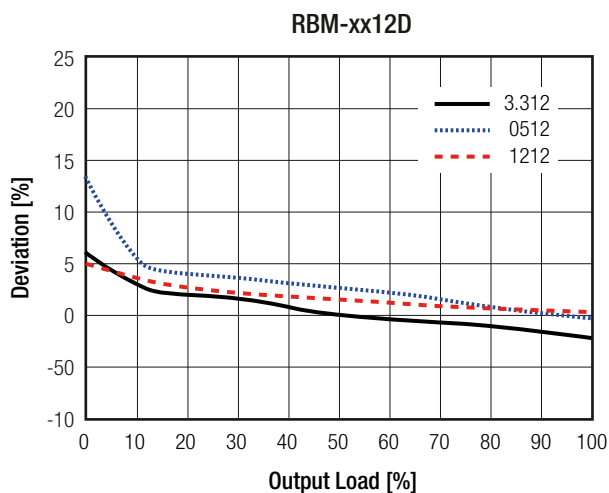
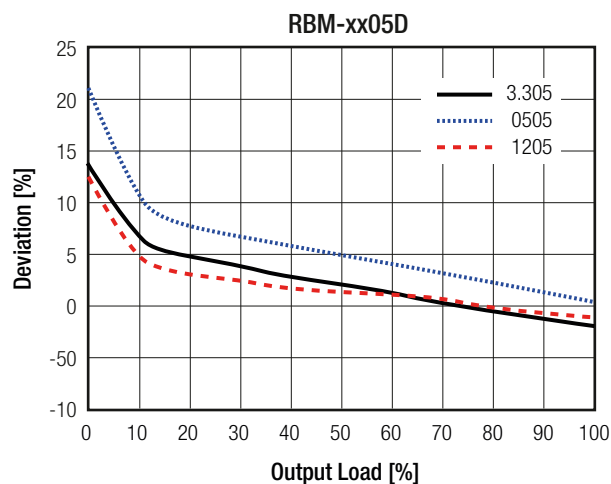
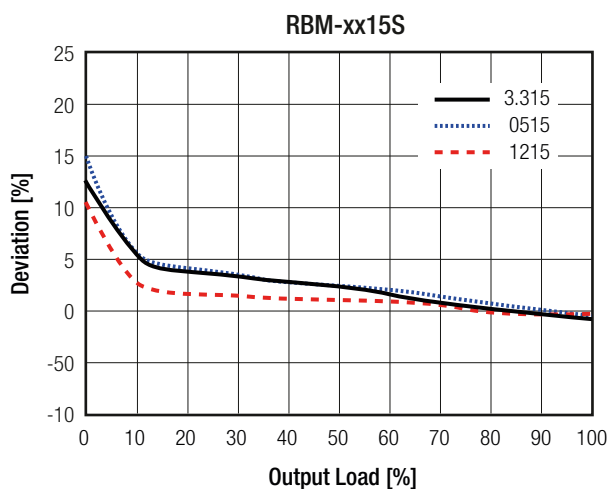
Deviation vs. Load



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

Deviation vs. Load



PROTECTIONS

Parameter	Type		Value
Short Circuit Protection (SCP)	without suffix with suffix "/P"		1 second continuous
Isolation Voltage ⁽⁵⁾	I/P to O/P	tested for 1 second rated for 1 minute	3kVDC 1.5kVAC/60Hz
Isolation Resistance			15GΩ min.
Isolation Capacitance			20pF min. / 65pF max.
Insulation Grade			basic

Notes:

Note5: For repeat Hi-Pot testing, reduce the time and/or the test voltage

Note6: Refer to local wiring regulations if input over-current protection is also required. Recommended fuse: T1A slow blow type

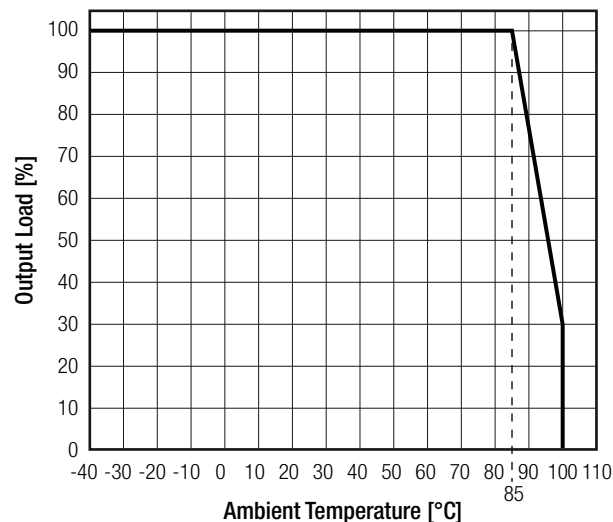
Specifications (measured @ Ta= 25°C, nom. Vin und full load otherwise stated)

ENVIRONMENTAL

Parameter	Condition		Value
Operating Temperature Range	full load @ free air convection (see graph)		-40°C to + 85°C
Operating Altitude			2000m
Operating Humidity	non-condensing		95% RH max.
Pollution Degree			PD2
MTBF	according to MIL-HDBK-217F, G.B.	+25°C	19400 x 10 ³ hours
		+85°C	7800 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	E358085-A4-UL	UL60950-1, 2nd Edition:2007 CAN/CSA C22.2 No. 60950-1-03, 2nd Edition:2007
Information Technology Equipment, General Requirements for Safety	1602031	IEC60950-1:2005, 2nd Edition + A2:2013 EN60950-1:2006 + A2:2013
Information Technology Equipment, General Requirements for Safety (CB)	E322406-A4-CB-1	IEC60950-1:2005, 2nd Edition
EAC	RU-AT.49.09571	TP TC 004/2011
RoHS 2+		RoHS-2011/65/EU + AM-2015/863

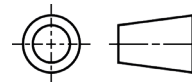
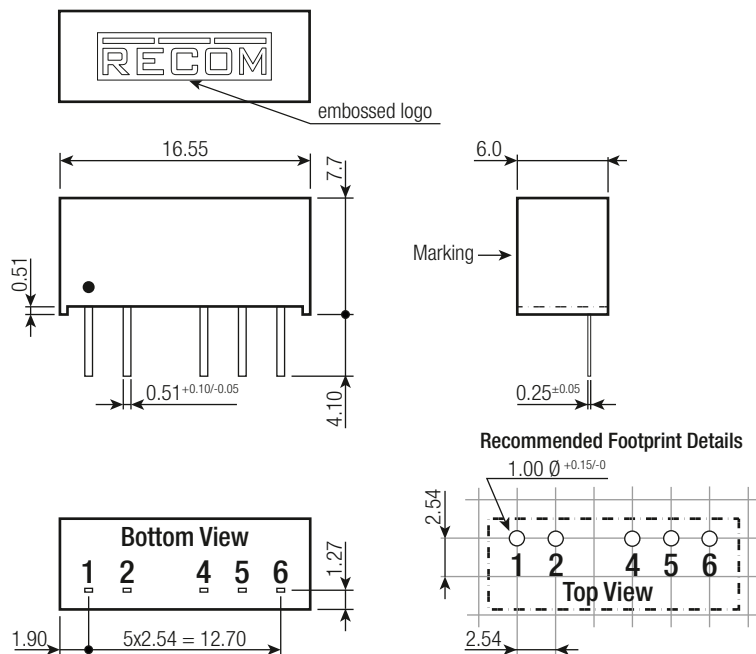
DIMENSION AND PHYSICAL CHARACTERISTICS

Parameter	Type	Value
Material	case potting PCB	non-conductive black plastic (UL94 V-0) epoxy, (UL94 V-0) FR4, (UL94 V-0)
Dimension (LxWxH)		16.55 x 6.0 x 7.7mm
Weight		1.3g typ.

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

Dimension Drawing (mm)



Pinning information

Pin #	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
4	NC	-Vout
5	-Vout	Com
6	+Vout	+Vout

NC = no internal connection

Tolerance: xx.x= ±0.5mm

xx.xx= ±0.25mm

PACKAGING INFORMATION

Parameter	Type	Value
Packaging Dimension (LxWxH)	tube	520.0 x 16.0 x 9.0mm
Packaging Quantity	tube	30pcs
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.

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RECOM:

<u>RBM-0505D</u>	<u>RBM-0505D/P</u>	<u>RBM-0505S/P</u>	<u>RBM-0512D</u>	<u>RBM-0512D/P</u>	<u>RBM-0512S</u>	<u>RBM-0512S/P</u>	<u>RBM-0515D</u>
<u>RBM-0515D/P</u>	<u>RBM-0515S</u>	<u>RBM-0515S/P</u>	<u>RBM-1205D</u>	<u>RBM-1205D/P</u>	<u>RBM-1205S</u>	<u>RBM-1205S/P</u>	<u>RBM-1212D</u>
<u>RBM-1212D/P</u>	<u>RBM-1212S</u>	<u>RBM-1212S/P</u>	<u>RBM-1215D</u>	<u>RBM-1215D/P</u>	<u>RBM-1215S</u>	<u>RBM-1215S/P</u>	<u>RBM-0505S</u>