

Features

Unregulated Converters

- Ultra-compact - only 8.3 x 8.3 x 6.8mm
- 1kVDC or 2kVDC Isolation
- No External Components Required
- Optional Continuous Short Circuit Protected
- Fully Encapsulated
- UL and EN Certified, CB Report
- Efficiency to 84%

ECONOLINE

DC/DC-Converter

with 3 year Warranty

RECOM

Description

The RNM series DC/DC converters are ultra-compact isolated single output converters for applications where board space is at a premium. Despite their small size, the converters are fully featured with a full industrial operating temperature range of -40°C to +85°C without derating (+100°C with derating), 1kVDC or 2kVDC isolation and optional short circuit protection. The converters are also UL-60950 and EN-60950 certified and have a CB Report.

Selection Guide

Part Number	Input Voltage (2kV)	Output Voltage (VDC)	Output Current (mA)	Efficiency (%)	Max. Capacitive Load ⁽¹⁾
RNM-xx3.3S	(H)	3.3, 5, 12, 15	3.3	303	75 2200µF
RNM-xx05S	(H)	3.3, 5, 12, 15	5	200	70-78 1000µF
RNM-xx09S	(H)	3.3, 5, 12, 15	9	111	70-78 1000µF
RNM-xx12S	(H)	3.3, 5, 12, 15	12	83	76-78 470µF
RNM-xx15S	(H)	3.3, 5, 12, 15	15	66	78-84 470µF

x = Input Voltage (other input and output voltage combinations available on request)

* add Suffix "P" for Continuous Short Circuit Protection, e.g. RNM-0505S/P, RNM-0505S/HP

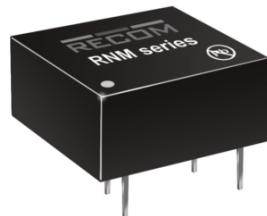
Specifications (measured at T_A = 25°C, nominal input voltage, full load and after warm-up)

Input Voltage Range		±10%
Output Voltage Accuracy		±5%
Line Voltage Regulation		1.2%/1% of Vin typ.
Load Voltage Regulation (10% to 100% full load)	3.3V output type 5V output type 9V, 12V and 15V output types	20% max. 15% max. 10% max.
Output Ripple and Noise (20MHz limited)		100mVp-p max.
Operating Frequency		50kHz min. / 100kHz typ. / 105kHz max.
Efficiency at Full Load		70% min.
Minimum Load = 0%		Specifications valid for 10% minimum load only.
Isolation Voltage (tested for 1 second)		1000VDC
	(rated for 1 minute**)	500VAC / 60Hz
Isolation Voltage H-Suffix	(tested for 1 second)	2000VDC
Rated Working Voltage H-Suffix	(rated for 1 minute**)	1000VAC / 60Hz
Isolation Capacitance		20pF min. / 75pF max.
Isolation Resistance		10 GΩ min.
Short Circuit Protection		1 Second
P-Suffix		Continuous
Operating Temperature Range (free air convection)		-40°C to +85°C (see Graph)
Storage Temperature Range		-55°C to +125°C
Relative Humidity		95% RH
Package Weight		1.1g
Packing Quantity		60 pcs per Tube

continued on next page

**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.

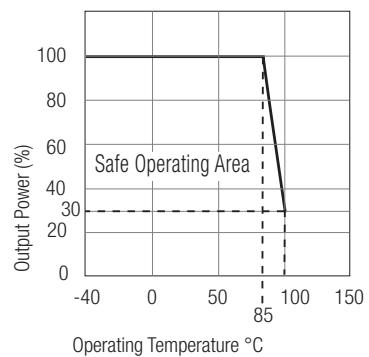
1 Watt DIP6 Single Output



**UL-60950-1 Certified
EN-60950-1 Certified**

RNM

Derating-Graph (Ambient Temperature)



Refer to Application Notes

ECONOLINE

DC/DC-Converter

RNM

Series

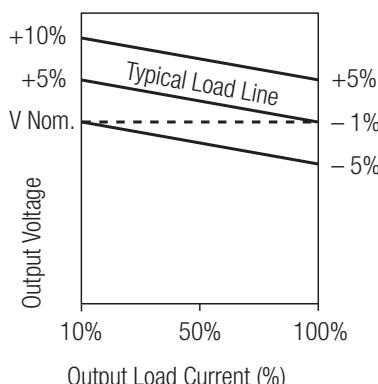
Specifications (cont.)

MTBF (+25°C)	Detailed Information see Application Notes chapter "MTBF"	using MIL-HDBK 217F	977 x 10 ³ hours
(+85°C)		using MIL-HDBK 217F	189 x 10 ³ hours
Certifications			
CB Test Report	Report: US/13859/UL	IEC 60950-1:2005 2nd Ed.	
UL General Safety	Report: E358085	UL 60950-1 1st Ed.	
EN General Safety	Report: SPCLVD1109103	EN60950-1:2006+A12:2011	

Notes

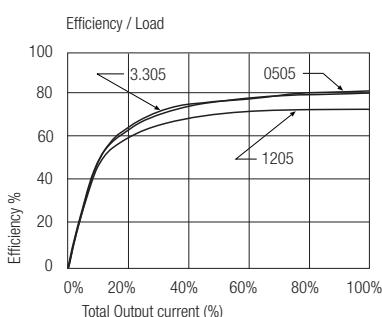
Note 1 Maximum capacitive load is defined as the capacitive load that will allow start up in under 1 second without damage to the converter.

Tolerance Envelope

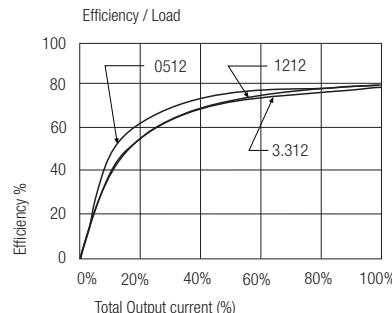


Typical Characteristics

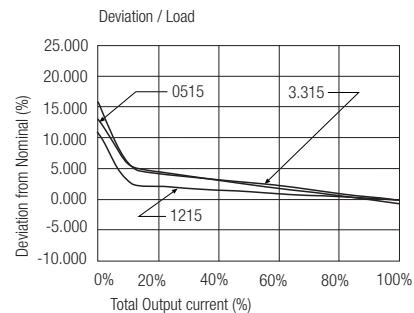
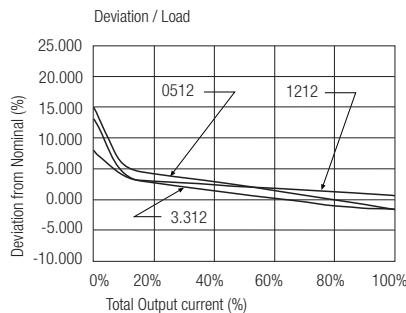
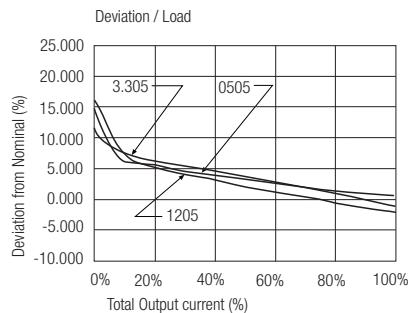
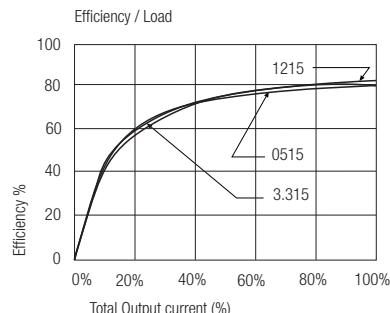
RNM-xx05S



RNM-xx12S

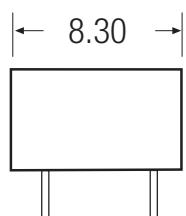
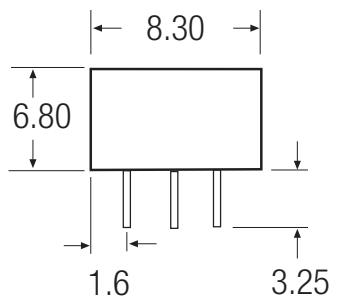


RNM-xx15S



Package Style and Pinning (mm)

4 PIN DIP Package



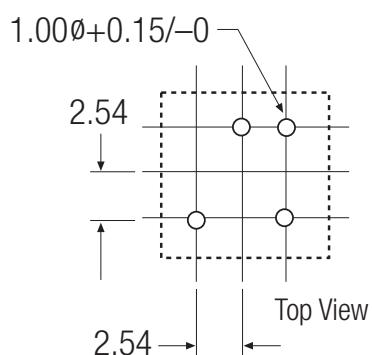
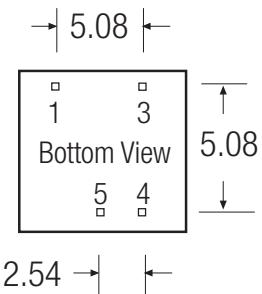
RECOM
RNM-0505S

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RNM Pin Connections

Pin #	Single
1	-Vin
3	+Vin
4	+Vout
5	-Vout

XX.XX \pm 0.25 mm



Recommended Footprint Details

The product information and specifications are subject to change without prior notice. RECOM products are not authorized for use in safety-critical applications (such as life support) without RECOM's explicit written consent. A safety-critical application is defined as an application where a failure of a RECOM product may reasonably be expected to endanger or cause loss of life, inflict bodily harm or damage property. The buyer 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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