Features

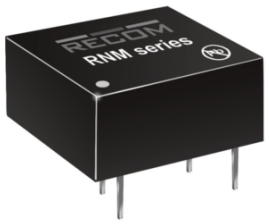
Unregulated Converters

- 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

1 Watt DIP6 Single Output



RoHS 2011/65/EU 6/6

E358085

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

RNM

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 DIP6		Input Voltage (VDC)	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)

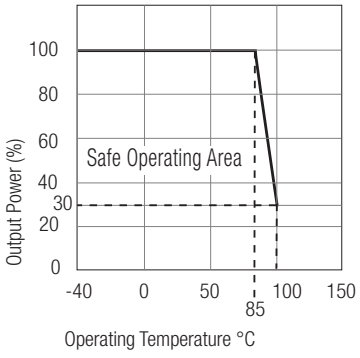
* add Suffix "P" for Continuous Short Circuit Protection, e.g. RNM-0505S/P, RNM-0505S/HP

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		3.3V output type	20% max.
(10% to 100% full load)		5V output type	15% max.
		9V, 12V and 15V output types	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

Derating-Graph
(Ambient Temperature)



**Refer to Application Notes

**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.

Specifications (cont.)

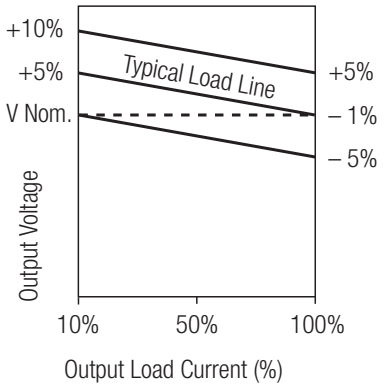
MTBF (+25°C) } *Detailed Information see*	using MIL-HDBK 217F	977 x 10^3 hours
(+85°C) } *Application Notes chapter "MTBF"*	using MIL-HDBK 217F	189 x 10^3 hours

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

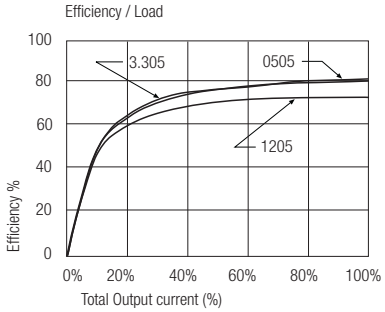
Note 1 Maximum capacitive load is defined as the capacitive load that will allow start up in under 1 second without damage to the converter.

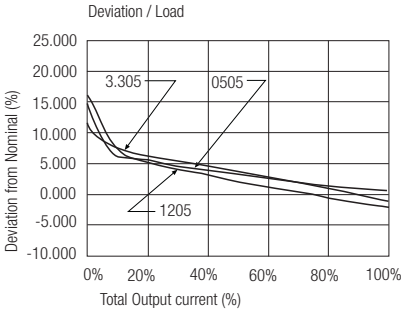
Tolerance Envelope



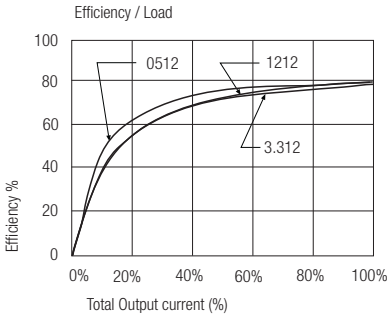
Typical Characteristics

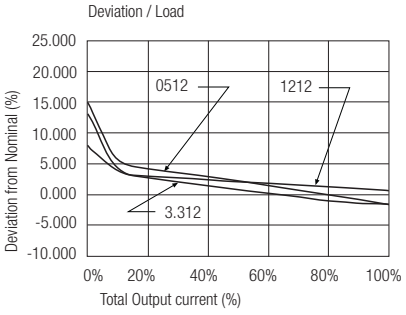
RNM-xx05S



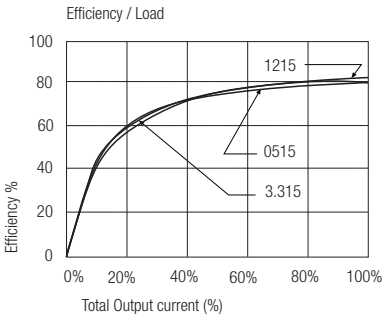


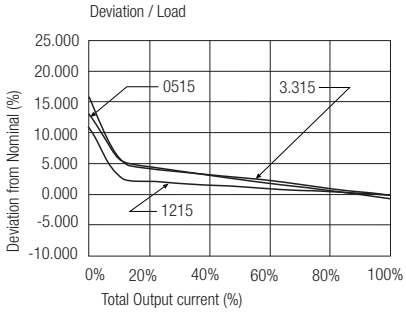
RNM-xx12S





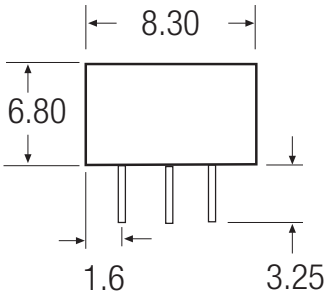
RNM-xx15S

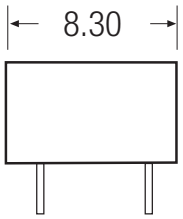




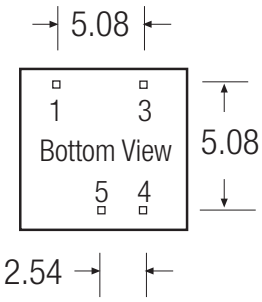
Package Style and Pinning (mm)

4 PIN DIP Package





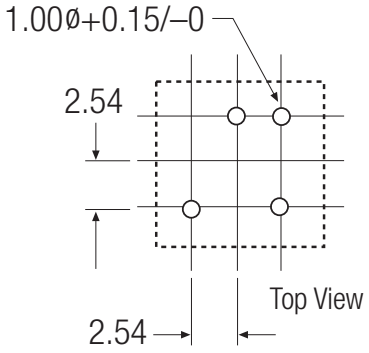




RNM Pin Connections

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

XX.XX ± 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.