

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

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 (VDC)	Output Voltage (VDC)	Output Current (mA)	Efficiency (%)
DIP6	(2kV)				
RNM-xx3.3S	(H)	3.3, 5, 12, 15	3.3	303	75
RNM-xx05S	(H)	3.3, 5, 12, 15	5	200	70-78
RNM-xx09S	(H)	3.3, 5, 12, 15	9	111	70-78
RNM-xx12S	(H)	3.3, 5, 12, 15	12	83	76-78
RNM-xx15S	(H)	3.3, 5, 12, 15	15	66	78-84

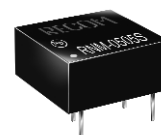
xx = Input Voltage (other input and output voltage combinations available on request)

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

Specifications (measured at $T_A = 25^\circ\text{C}$, nominal input voltage, full load and after warm-up)

Input Voltage Range			±10%
Output Voltage Accuracy			±5%
Line Voltage Regulation			1.2%/1% of V_{in} typ.
Load Voltage Regulation (10% to 100% full load)	3.3V output type		20% max.
	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.
No Load Power Consumption			101mW min. / 126mW typ. / 220mW max.
Maximum Capacitive Load			33µF
Isolation Voltage		(tested for 1 second)	1000VDC min.
Rated Working Voltage		(long term isolation)	see Application Notes
Isolation Voltage	H-Suffix	(tested for 1 second)	2000VDC min.
Rated Working Voltage	H-Suffix	(long term isolation)	see Application Notes
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
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

1 Watt
DIP6
Single Output



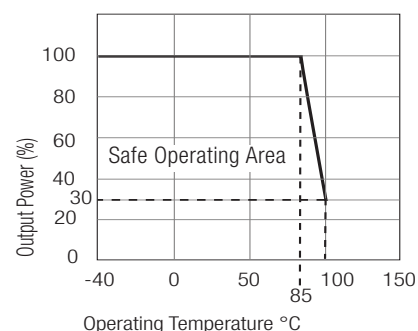
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UL-60950-1 Certified
EN-60950-1 Certified

RNM

Derating-Graph (Ambient Temperature)



Refer to Application Notes

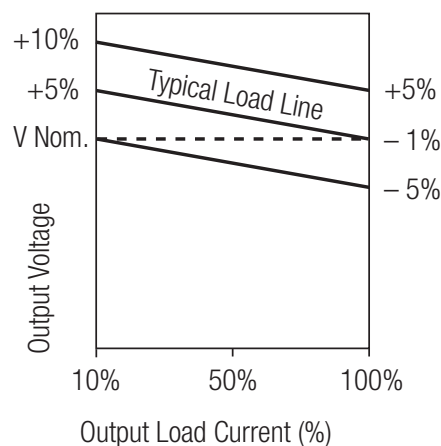
www.recom-electronic.com

Specifications (cont.)

Certifications

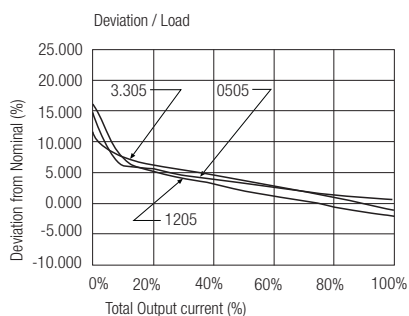
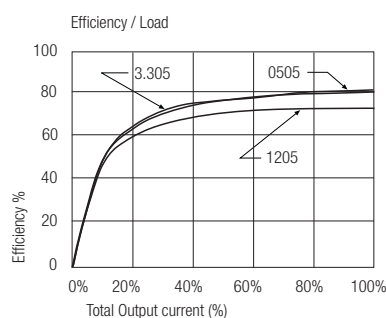
CB Test Report		Report: US/14402/UL
UL General Safety	Report: E322406	UL 60950-1 1st Ed.
EN General Safety	Report: PS080804950	EN60950-1

Tolerance Envelope

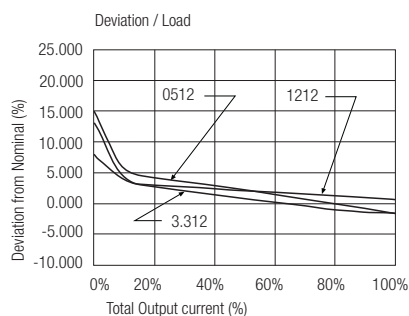
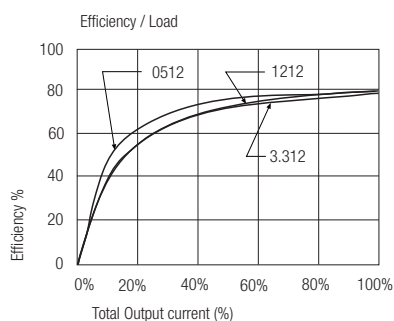


Typical Characteristics

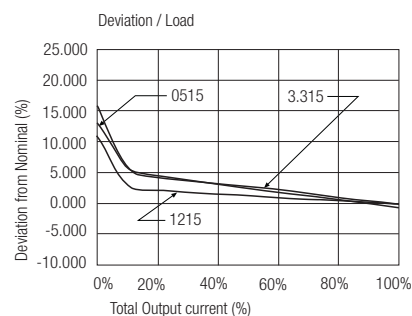
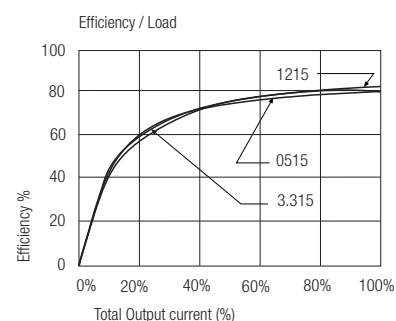
RNM-xx05S



RNM-xx12S



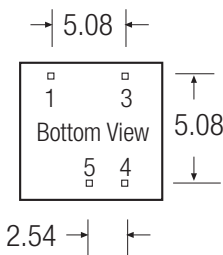
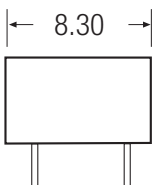
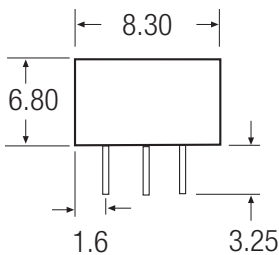
RNM-xx15S



Package Style and Pinning (mm)

4 PIN DIP Package

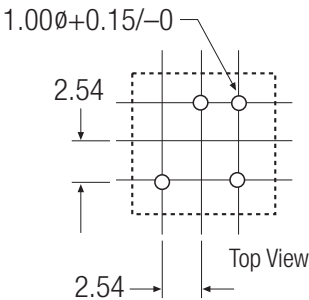
3rd angle
projection



RNM Pin Connections

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

XX.XX ± 0.25 mm



Recommended Footprint Details