

Features

Unregulated Converters

Rev.0

- Ultra-compact - only 8.3 x 8.3 x 6.8mm
- 1kVDC and 2kVDC Isolation
- No External Components Required
- Full Industrial Operating Temperature Range
- Toroidal Magnetics
- UL94V-0 Package Material
- Efficiency to 84%

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 isolation is standard and 2kVDC is available as an option.

Selection Guide

Part Number	2kVDC	Input Voltage	Output Voltage	Output Current	Efficiency
		(VDC)	(VDC)	(mA)	(%)
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 "H" for 2kVDC isolation, e.g. RNM-0505S/H

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

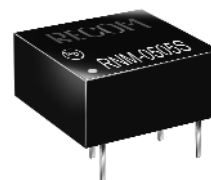
Input Voltage Range		$\pm 10\%$	
Output Voltage Accuracy		$\pm 5\%$	
Line Voltage Regulation		1.2%/1% of V_{in} typ.	
Load Voltage Regulation (10% to 100% full load)	3.3V output type 5V output type 9V, 12V and 15V output types	20% max. 15% max. 10% max.	
Output Ripple and Noise (20MHz limited)		75mVp-p typ. / 100mVp-p max.	
Operating Frequency		50kHz min. / 100kHz typ. / 125kHz max.	
Efficiency at Full Load		70% min.	
No Load Power Consumption		101mW min. / 126mW typ. / 220mW max.	
Maximum Capacitive Load		33 μF	
Isolation Voltage (tested for 1 second)		1000VDC min.	
Rated Working Voltage (long term isolation)		see Application Notes	
Isolation Voltage (tested for 1 second)	H-Suffix	2000VDC min.	
Rated Working Voltage (long term isolation)	H-Suffix	see Application Notes	
Isolation Capacitance		20pF min. / 75pF max.	
Isolation Resistance		10 G Ω min.	
Short Circuit Protection		1 second	
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		1g	
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

ECONOLINE

DC/DC-Converter

RNM Series

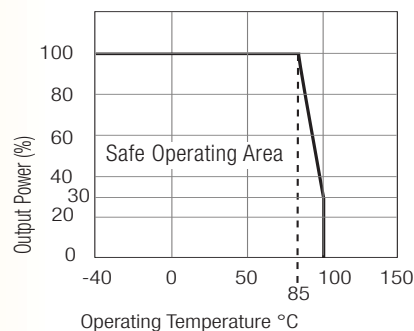
1 Watt DIP6 Micro Size Single Output



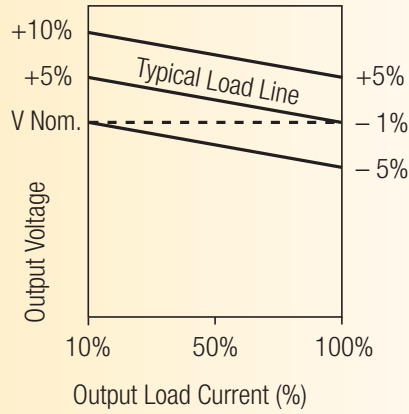
EN-60950-1 certified
UL-60950-1 certification pending

RECOM

Derating-Graph (Ambient Temperature)

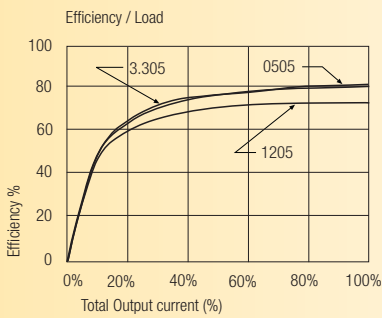


Tolerance Envelope

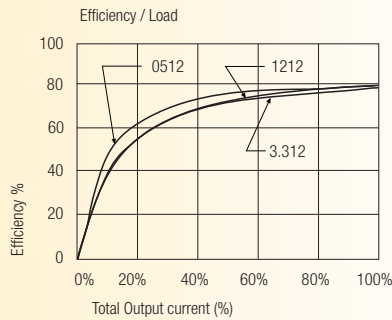


Typical Characteristics

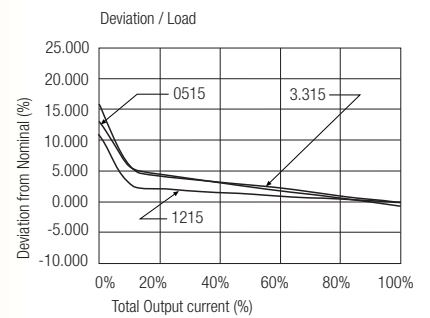
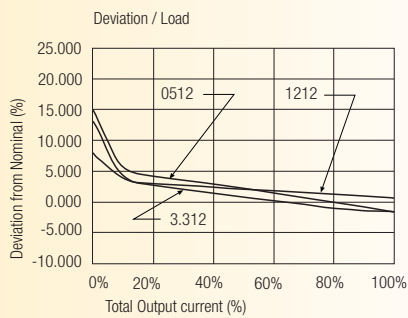
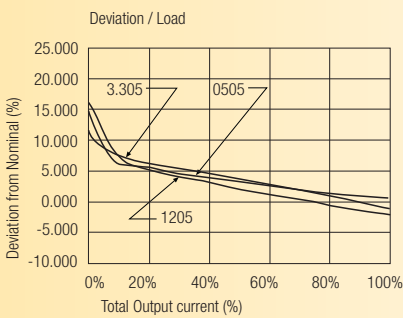
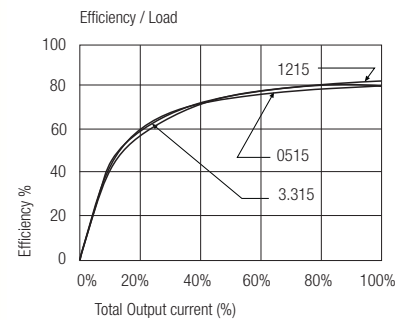
RNM-xx05S



RNM-xx12S

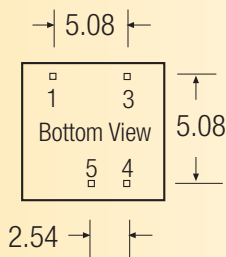
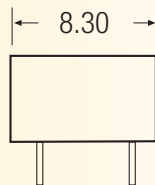
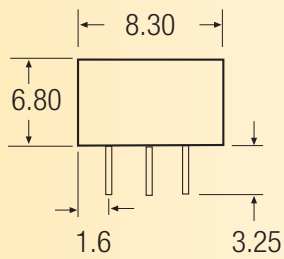


RNM-xx15S



Package Style and Pinning (mm)

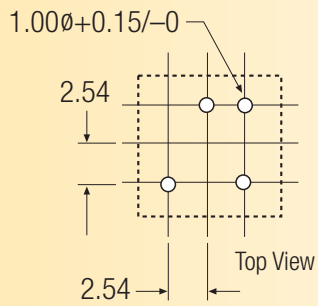
4 PIN DIP Package



RNM Pin Connections

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

XX.XX ± 0.25 mm



Recommended Footprint Details