

## 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	Input Voltage 2kVDC	Input Voltage (VDC)	Output Voltage (VDC)	Output Current (mA)	Efficiency (%)
DIP6		(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			±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)			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			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
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 <sup>3</sup> hours
(+85°C)		using MIL-HDBK 217F	189 x 10 <sup>3</sup> hours

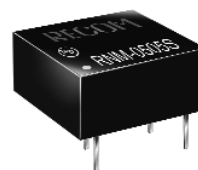
# ECONOLINE

DC/DC-Converter

# RNM Series

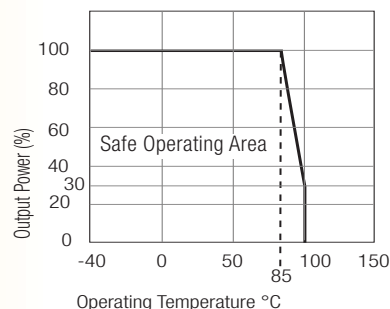
## 1 Watt

## DIP6 Micro Size Single Output

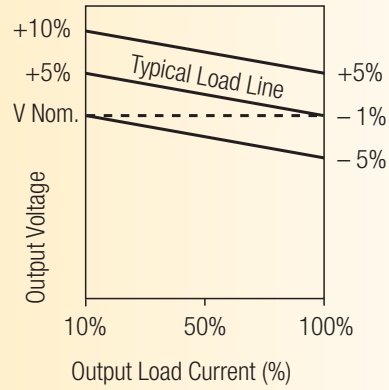


**EN-60950-1 certified**  
**UL-60950-1 certification**  
pending

## Derating-Graph (Ambient Temperature)

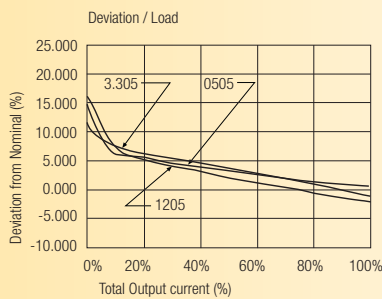
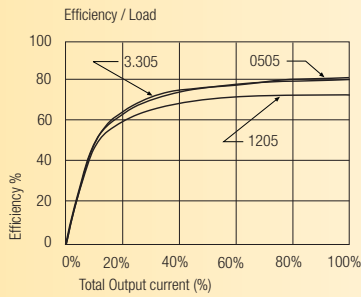


**Tolerance Envelope**

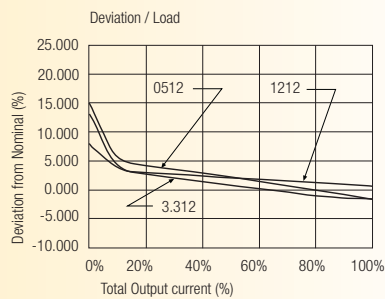
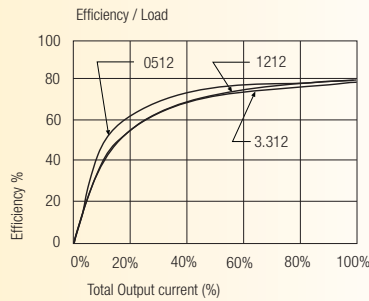


**Typical Characteristics**

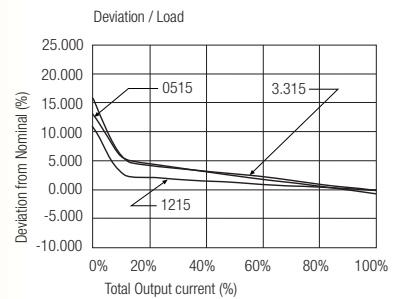
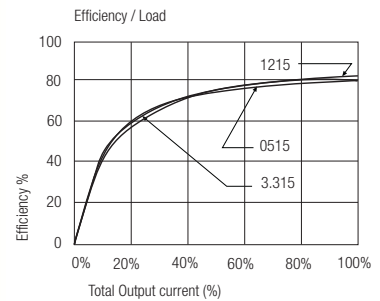
**RNM-xx05S**



**RNM-xx12S**



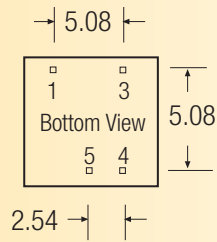
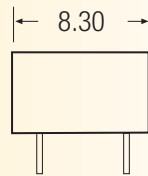
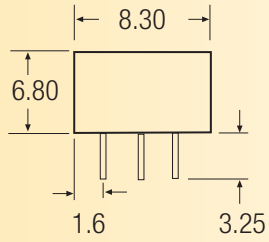
**RNM-xx15S**



### Package Style and Pinning (mm)

#### 4 PIN DIP Package

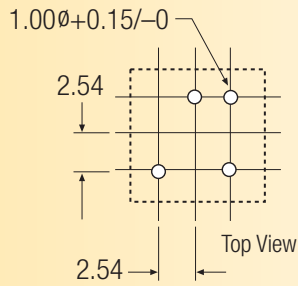
3rd angle projection 



#### RNM Pin Connections

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

XX.XX ± 0.25 mm



#### Recommended Footprint Details