

RM Series

ECONOLINE DC/DC-Converter · 0.25 Watt · SIP4 · Single Output

Unregulated Converter

Features

- Single Output Rail
- Industry Standard Pinout
- 1kVDC or 2kVDC Isolation
- High Efficiency for Low Power Applications
- UL94V-0 Package Material
- Optional Continuous Short Circuit Protected
- Fully Encapsulated
- Custom versions available
- Efficiency to 76%



Description

The RM series DC/DC converter has been designed for isolating or converting DC power rails with very light loads. Efficiencies are typically 10% higher than a comparable 0.5W or 1W converters run at the same low load.

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

Input Voltage Range: $\pm 10\%$

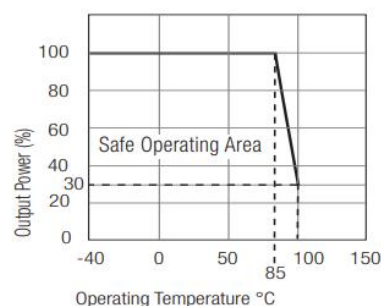
Output Voltage Accuracy: $\pm 5\%$

Line Voltage Regulation: 1.2%/1% of V_{in} typ.

Load Voltage Regulation: 3.3V output types: 20% max. (10% to 100% full load); 5V output type: 15% max.; 12V, 15V, 24V output types: 10% max.

Output Ripple and Noise (20MHz limited): 50mVp-p max.

Derating-Graph (Ambient Temperature)



Operating Frequency: 50kHz min. / 90kHz typ. / 105kHz max.

Efficiency at Full Load: 65% min. / 75% typ. (Minimum Load = 0%. Specifications valid for 10% minimum load only.)

Isolation Voltage (tested for 1 second): 1000VDC

Isolation Voltage (rated for 1 minute):** 500VAC / 60Hz

Isolation Voltage, H-Suffix (tested for 1 second): 2000VDC

Isolation Voltage, H-Suffix (rated for 1 minute):** 1400VAC / 60Hz

Isolation Capacitance: 25pF min. / 82pF 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: RM types: 1.4g; RL types: 1.8g

Packing Quantity: 42 pcs per Tube

MTBF (+25°C) using MIL-HDBK 217F: 1327 x 10³ hours

MTBF (+85°C) using MIL-HDBK 217F: 302 x 10³ hours

Derating-Graph: (Ambient Temperature)

Detailed Information see Application Notes chapter "MTBF"

Selection Guide

Part Number	Input Voltage (VDC)	Output Voltage (VDC)	Output Current (mA)	Efficiency (%)	Max. Capacitive Load
RM-xx3.3S (H)	3.3, 5, 12, 15, 24	3.3	76	65-70	1000μF
RM-xx05S (H)	3.3, 5, 12, 15, 24	5	50	66-72	470μF
RM-xx09S (H)	3.3, 5, 12, 15, 24	9	28	70-72	470μF
RM-xx12S (H)	3.3, 5, 12, 15, 24	12	21	70-72	150μF
RM-xx15S (H)	3.3, 5, 12, 15, 24	15	17	70-76	150μF

SIP 4 (2kV)

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

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

Certifications

Certification	Detail
EN-60950-1	Certified
UL-60950-1	Certified
IEC/EN-60601-1	Certified* (* /H suffix)

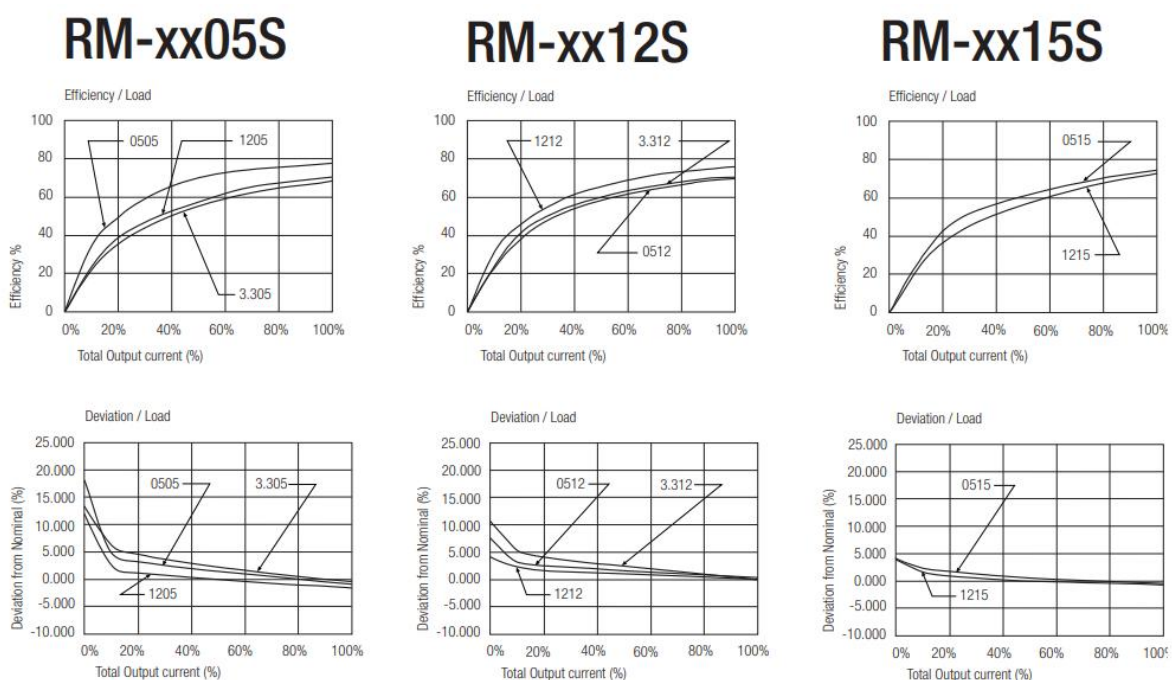
RoHS 2011/65/EU

E358085

**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.

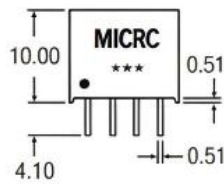
Typical Characteristics

Derating-Graph (Ambient Temperature): see original datasheet figures (Efficiency vs. Load, Output Power vs. Ambient Temperature, etc.) for RM-xx05S, RM-xx12S, RM-xx15S.

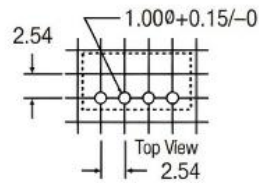
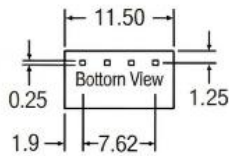


Package Style and Pinning (mm)

4 PIN SIP Package



Recommended Footprint Details



RM Pin Connections

Pin #	Single
1	-Vin
2	+Vin
3	-Vout
4	+Vout
XXX ± 0.5 mm	
XX.XX ± 0.25 mm	

4 PIN SIP Package · Recommended Footprint Details: $XX.X \pm 0.5$ mm; $XX.XX \pm 0.25$ mm

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.

The product information and specifications are subject to change without prior notice. All products are designed for non-safety critical commercial and industrial applications. The Buyer agrees to implement safeguards that anticipate the consequences of any failures that might cause harm, loss of life and/or damage property.