

## Features

## Unregulated Converters

- Micro Size SIP 6 Package
- Industry Standard Pinout
- 3kVDC Isolation
- Optional Continuous Short Circuit Protected
- Efficiency to 85%

### Selection Guide

| Part Number              | Input Voltage (VDC)        | Output Voltage (VDC) | Output Current (mA) | Efficiency (%) |
|--------------------------|----------------------------|----------------------|---------------------|----------------|
| SIP 6 Micro Size Package | (VDC)                      | (VDC)                | (mA)                | (%)            |
| RBM-xx1.8S               | 1.8, 3.3, 5, 9, 12, 15, 24 | 1.8                  | 555                 | 70             |
| RBM-xx3.3S               | 1.8, 3.3, 5, 9, 12, 15, 24 | 3.3                  | 303                 | 75             |
| RBM-xx05S                | 1.8, 3.3, 5, 9, 12, 15, 24 | 5                    | 200                 | 70-78          |
| RBM-xx09S                | 1.8, 3.3, 5, 9, 12, 15, 24 | 9                    | 111                 | 76-79          |
| RBM-xx12S                | 1.8, 3.3, 5, 9, 12, 15, 24 | 12                   | 83                  | 78-80          |
| RBM-xx15S                | 1.8, 3.3, 5, 9, 12, 15, 24 | 15                   | 66                  | 80-84          |
| RBM-xx24S                | 1.8, 3.3, 5, 9, 12, 15, 24 | 24                   | 42                  | 74-85          |
| RBM-xx1.8D               | 1.8, 3.3, 5, 9, 12, 15, 24 | ±1.8                 | ±278                | 70             |
| RBM-xx3.3D               | 1.8, 3.3, 5, 9, 12, 15, 24 | ±3.3                 | ±152                | 70             |
| RBM-xx05D                | 1.8, 3.3, 5, 9, 12, 15, 24 | ±5                   | ±100                | 74-78          |
| RBM-xx09D                | 1.8, 3.3, 5, 9, 12, 15, 24 | ±9                   | ±56                 | 76-79          |
| RBM-xx12D                | 1.8, 3.3, 5, 9, 12, 15, 24 | ±12                  | ±41                 | 80-82          |
| RBM-xx15D                | 1.8, 3.3, 5, 9, 12, 15, 24 | ±15                  | ±33                 | 80-84          |
| RBM-xx24D                | 1.8, 3.3, 5, 9, 12, 15, 24 | ±24                  | ±21                 | 80-84          |

xx = Input Voltage

\* add Suffix "P" for Continuous Short Circuit Protection, e.g. RBM-0505S/P, RBM-0505D/P

### Description

The RBM Micro Size DC/DC-Converter complements Recom's industrial range of converters. This range is widely used for pcb distributed power systems and combines small package size, high efficiency, 3kVDC isolation and low output ripple.

The extended operating temperature range covering -40°C to +85°C is a standard feature. The full rated power can be taken from a single pin of this dual output converter, provided this does not exceed 1 Watt.

### Specifications (Core Operating Area)

|                                                   |                                        |                                      |
|---------------------------------------------------|----------------------------------------|--------------------------------------|
| Input Voltage Range                               | ±10%                                   |                                      |
| Output Voltage Accuracy                           | ±5%                                    |                                      |
| Line Voltage Regulation                           | 1.2%/1% of Vin typ.                    |                                      |
| Load Voltage Regulation (10% to 100% full load)   | 1.8V, 3.3V output types                | 20% max.                             |
|                                                   | 5V output type                         | 15% max.                             |
|                                                   | 9V, 12V, 15V, 24V 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. / 80% typ.                    |                                      |
| No Load Power Consumption                         | Single                                 | 101mW min. / 126mW typ. / 220mW max. |
|                                                   | Dual                                   | 87mW min. / 130mW typ. / 230mW max.  |
| Isolation Voltage                                 | (tested for 1 second)                  | 3000VDC min.                         |
| Rated Working Voltage                             | (long term isolation)                  | see Application Notes                |
| Isolation Capacitance                             | 20pF min. / 65pF max.                  |                                      |
| Isolation Resistance                              | 15 GΩ min.                             |                                      |
| Short Circuit Protection                          | 1 Second                               |                                      |
| P-Suffix                                          | Continuous                             |                                      |
| Operating Temperature Range (free air convection) | -40°C to +85°C (see Graph)             |                                      |

continued on next page

**ECONOLINE**

DC/DC-Converter

## RBM Series

## 1 Watt SIP 6 Micro Size, Single & Dual Output

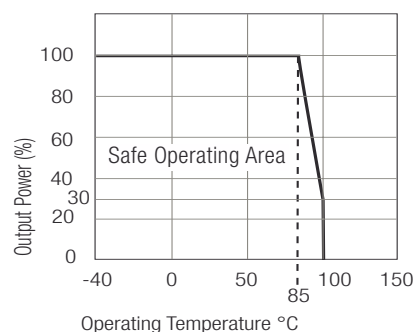


**EN-60950-1 Certified**

**EN-60601-1 Certified**



## Derating-Graph (Ambient Temperature)

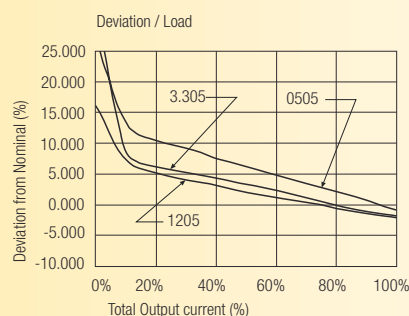
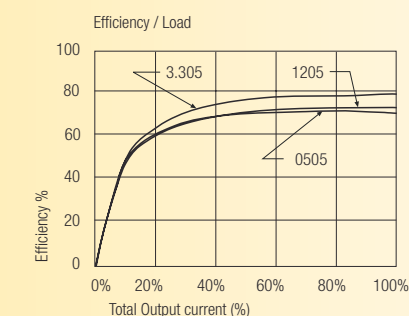


## Specifications (Core Operating Area)

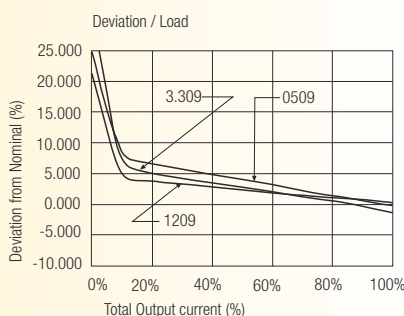
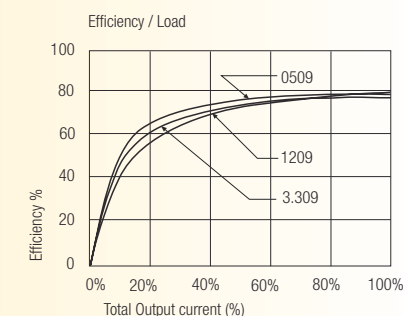
|                           |                                                              |                     |                              |
|---------------------------|--------------------------------------------------------------|---------------------|------------------------------|
| Storage Temperature Range | -55°C to +125°C                                              |                     |                              |
| Relative Humidity         | 95% RH                                                       |                     |                              |
| Package Weight            | 1.3g                                                         |                     |                              |
| MTBF (+25°C)              | Detailed Information see<br>Application Notes chapter "MTBF" | using MIL-HDBK 217F | 1005 x 10 <sup>3</sup> hours |
| (+85°C)                   |                                                              | using MIL-HDBK 217F | 195 x 10 <sup>3</sup> hours  |

## Typical Characteristics

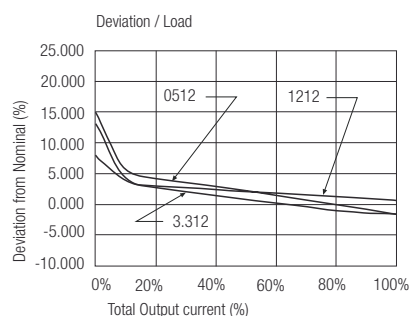
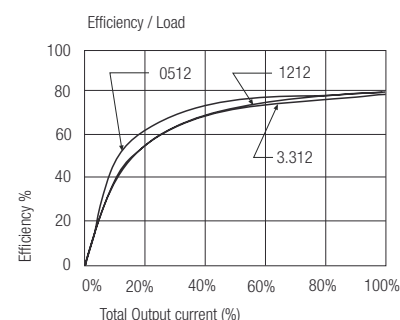
### RBM-xx05S



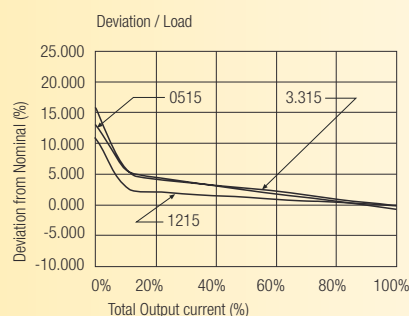
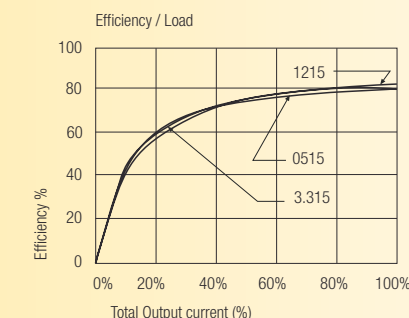
### RBM-xx09S



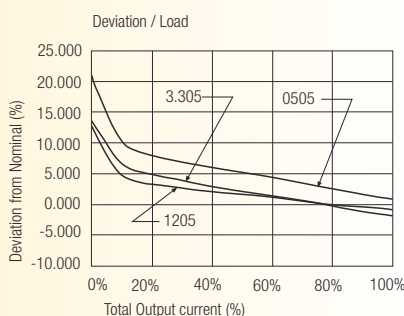
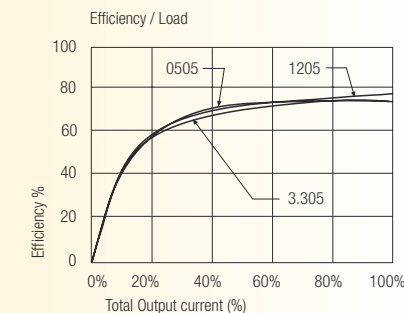
### RBM-xx12S



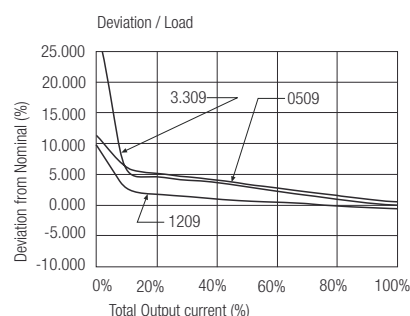
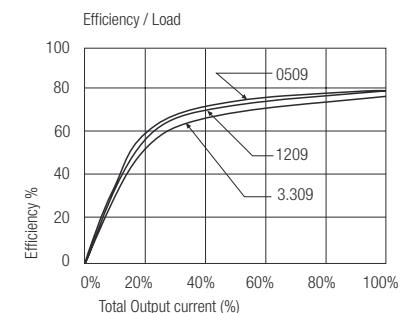
### RBM-xx15S



### RBM-xx05D

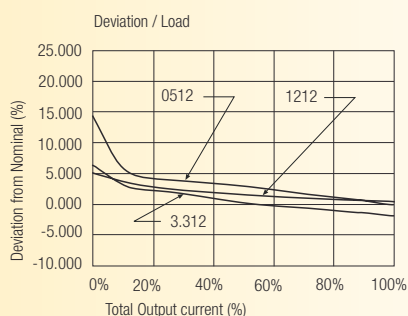
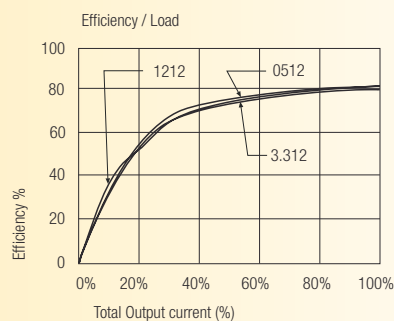


### RBM-xx09D

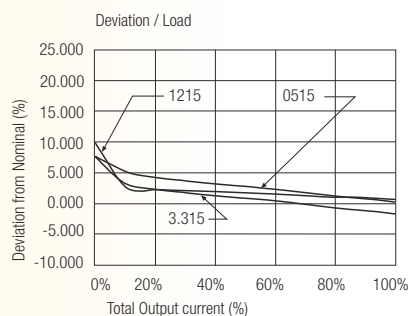
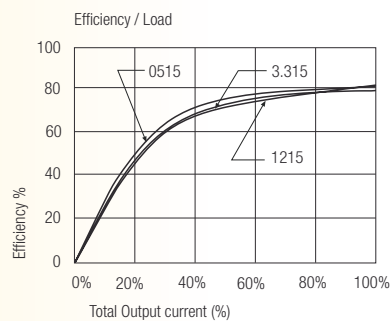


**Typical Characteristics**

**RBM-xx12D**

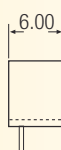
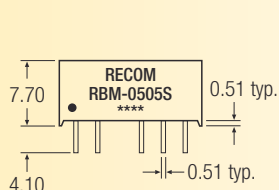


**RBM-xx15D**

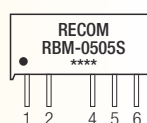


**Package Style and Pinning (mm)**

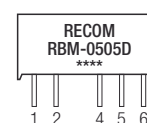
**6 PIN SIP Micro Size Package**



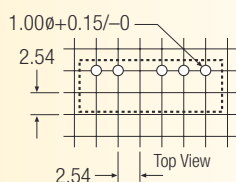
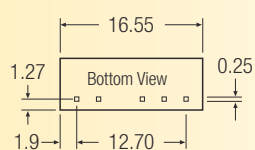
**Single Output**



**Dual Output**



**Recommended Footprint Details**



**Pin Connections**

| Pin # | Single | Dual  |
|-------|--------|-------|
| 1     | +Vin   | +Vin  |
| 2     | -Vin   | -Vin  |
| 4     | NC     | -Vout |
| 5     | -Vout  | Com   |
| 6     | +Vout  | +Vout |

NC = No Connection

XX.X ± 0.5 mm

XX.XX ± 0.25 mm