

## Features

### Unregulated Converters

- 1:1 Input Range
- Efficiency up to 84%
- 2kVDC and 3kVDC Isolation Option
- Approved for Medical Applications
- -40°C to +90°C Operating Temperature Range
- 2W SMD Package

**ECONOLINE**  
DC/DC-Converter

**RECOM**

### Selection Guide

Part Number	Isolation Voltage (kV)	Input Voltage (VDC)	Output Voltage (VDC)	Output Current (mA)	Efficiency (max.)	Capacitive Load (max.) <sup>(1)</sup>
RTM-0505S*	2	5	5	400	79%	2200µF
RTM-1205S*	2	12	5	400	83%	2200µF
RTM-2405S*	2	24	5	400	84%	2200µF

\* add Suffix "/H" for 3kVDC/1sec. Isolation e.g. RTM-0505S/H

\* add Suffix "-R" for tape&reel packing e.g. RTM-1205S-R or RTM-2405S/H-R

### Specifications

 (measured at  $T_A = 25^\circ\text{C}$ , nominal input voltage and rated output current unless otherwise specified)

Input Voltage Range	$\pm 10\%$ max.	
Output Voltage Accuracy	-1% typ., $\pm 5\%$ max.	
Line Voltage Regulation	(low line to high line at max. load)	1.2% typ.
Load Voltage Regulation	(10% to 100% full load)	10% typ., 15% max.
Output Ripple and Noise (20MHz BW limited)	50mVp-p typ., 100mVp-p max.	
Operating Frequency ( $V_{in}$ =nominal input)	20kHz min. / 40kHz typ. / 80kHz max.	
Efficiency at Full Load	see Selection Guide	
Minimum Load = 0%	Specifications valid for 10% minimum load only	
Isolation Voltage	(tested for 1 second)	2000 VDC
	(rated for 1 minute**)	1600VDC
Isolation Voltage	H-Suffix	(tested for 1 second)
	H-Suffix	(rated for 1 minute**)
Isolation Capacitance		30pF typ., 50pF max.
Isolation Resistance	( $V_{iso}=500\text{V}$ )	15G $\Omega$ min.
Short-Circuit Protection		1 second
Operating Temperature Range	with Derating	-40°C to +90°C
Storage Temperature		-55°C to +125°C
Reflow Temperature	RoHS compliant	245°C (30 sec.), Peak 255°C (5sec.) max.
Vapor Phase Process	(for more details see Application Notes)	230°C (90 sec.) max.
Relative Humidity		95% RH
Package Weight		1.4g
Packing Quantity	All Types	27 pcs per Tube
	All Types	500 pcs per Reel
MTBF (+25°C)	Detailed Information see Application Notes chapter "MTBF"	using MIL-HDBK 217F
MTBF (+85°C)		3907 x 10 <sup>3</sup> hours
MTBF (+85°C)		using MIL-HDBK 217F
		313 x 10 <sup>3</sup> hours
Certifications		
EN Medical Safety	Report: MDD1112018 + RM1112018	IEC/EN 60601-1 3rd Edition
	Medical Report + ISO14971 Risk Assessment	
EN General Safety	Report: SPCLVD1112018	EN60950-1, 2nd Edition

Note:

Note1: Maximum capacitive load is defined as the capacitive load that will allow start up in under 1 second without damage to the converter

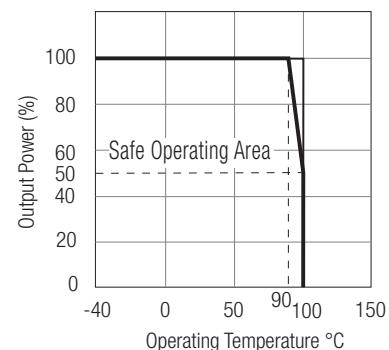
## 2 Watt SMD Single Output



**EN-60601-1 Certified**  
**EN-60950-1 Certified**

**RTM**

## Derating-Graph (Ambient Temperature)



\*\*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.

**Refer to Application Notes**

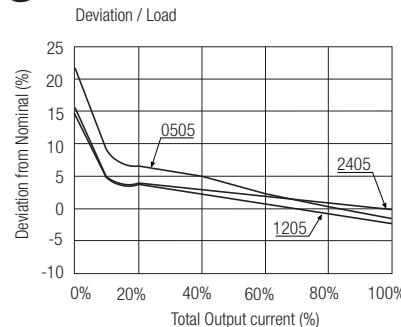
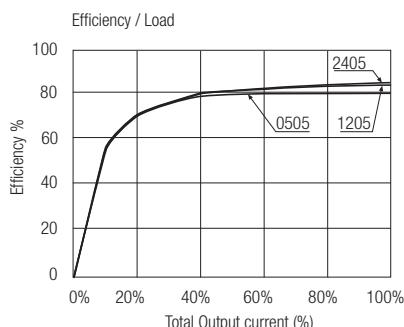
# ECONOLINE

## DC/DC-Converter

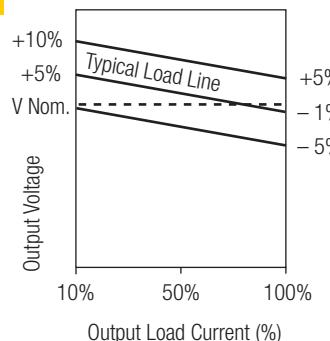
# RTM Series

### Typical Characteristics

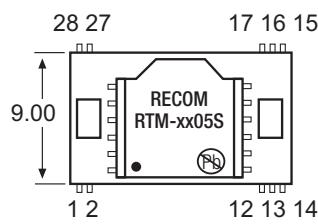
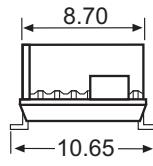
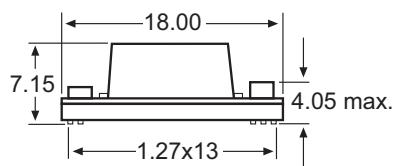
### RTM-xx05S



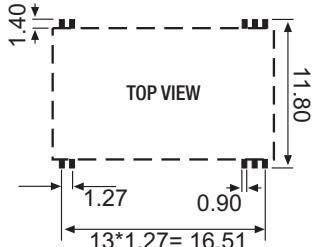
### Tolerance Envelope



### Package Style and Pinning



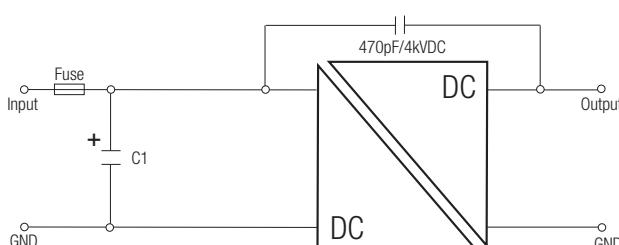
### Recommended Footprint Details



Pin Connections	
Pin #	Function
1	+Vin
2	-Vin
12	-Vout
13	+Vout
14~17	NC
27,28	NC
NC = No Connection	

Unit: mm  
Tolerance:  $\pm 0.25$  mm

### EMC Filtering - Suggestion for EN55022 Class B



Input Voltage	Inductance/ Capacitance (C1)
5V	4.7 $\mu$ F
12V	2.2 $\mu$ F
24V	47 $\mu$ F

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