

## Features

### Unregulated Converters

- 1:1 Input Range
- Efficiency up to 80%
- 3kVDC and 4kVDC Isolation Option
- Approved for Medical Applications
- -40°C to +100°C Operating Temperature Range
- Continuous Short Circuit Protection

**ECONOLINE**  
DC/DC-Converter

**RECOM**

### Selection Guide

Part Number	Isolation SMD	Input Voltage (kV)	Output Voltage (VDC)	Output Current (mA)	Efficiency (typ.)	Capacitive Load (max.)
RAM-0505S*	3	5	5	200	78%	1000µF
RAM-1205S*	3	12	5	200	80%	1000µF
RAM-2405S*	3	24	5	200	80%	1000µF

\* add Suffix "H" for Isolation 4kVDC/1min. e.g. RAM-0505S/H

\* add Suffix "R" for tape&reel packing e.g. RAM-1205S-R or RAM-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	$\pm 10\%$	
Output Voltage Accuracy	-1% typ., $\pm 5\%$ max.	
Line Voltage Regulation	(low line to high line at max. load)	1.2% typ., 1.5% max.
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 (Vin=nominal input)	20kHz min. / 50kHz typ. / 90kHz max.	
Efficiency	see Selection Guide	
Minimum Load = 0%	Specifications valid for 10% minimum load only	
Isolation Voltage	(tested for 1 second)	3750 VDC
	(rated for 1 minute**)	3000 VDC
Isolation Voltage	H-Suffix	5000 VDC
	H-Suffix	4000 VDC
Isolation Capacitance	4pF typ., 10pF max.	
Isolation Resistance	(Viso=500V)	15GΩ min.
Short-Circuit Protection		continuous
Operating Temperature Range		-40°C to +100°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		1.3g
Packing Quantity	All Types	27 pcs per Tube
	All Types	500 pcs per Reel
MTBF (+25°C)	Detailed Information see	using MIL-HDBK 217F
MTBF (+85°C)	Application Notes chapter "MTBF"	4780 x 10 <sup>3</sup> hours
		using MIL-HDBK 217F
		1310 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

\*\*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.

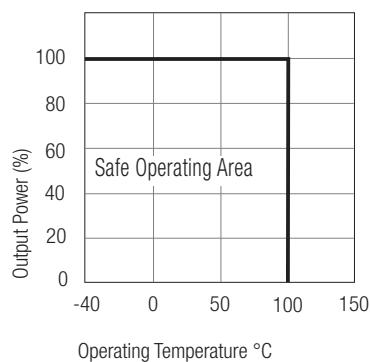
## 1 Watt SMD Single Output



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

**RAM**

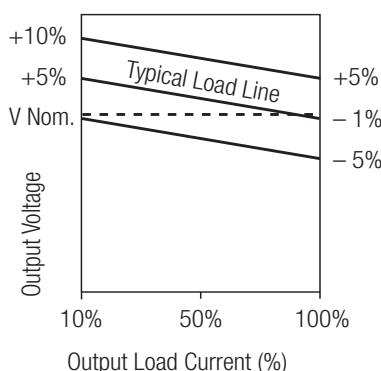
## Derating-Graph (Ambient Temperature)



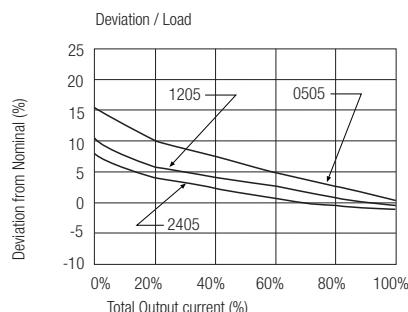
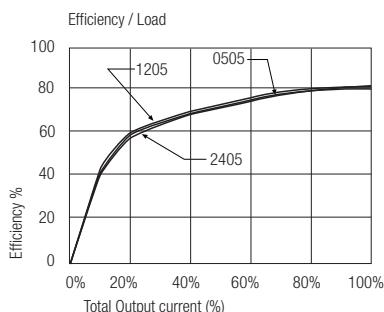
**Refer to Application Notes**

Typical Characteristics

Tolerance Envelope



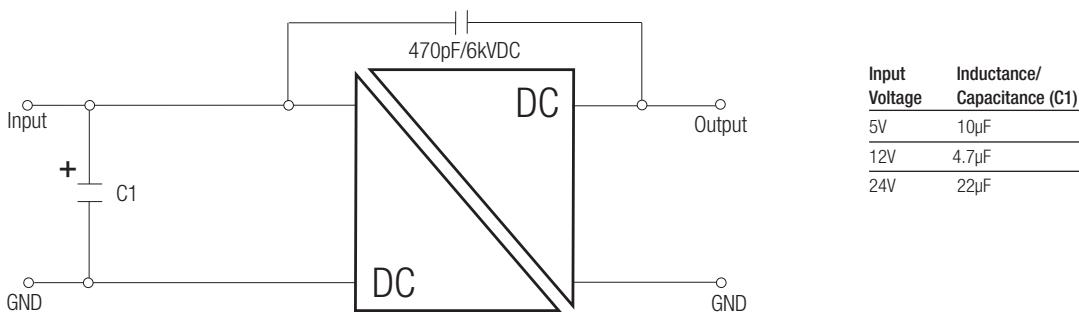
**RAM-xx05S**



Notes

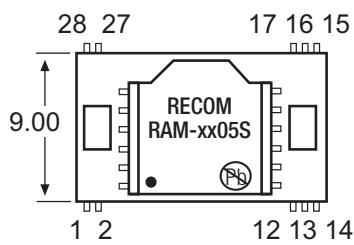
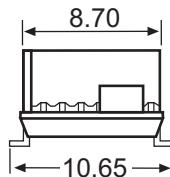
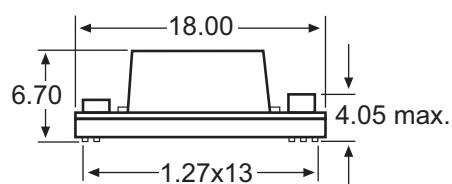
Note 1: Maximum capacitive load is defined as the capacitive load that will allow start up in under 1 second without damage to the converter

EMC Filtering - Suggestion for EN55022 Class B

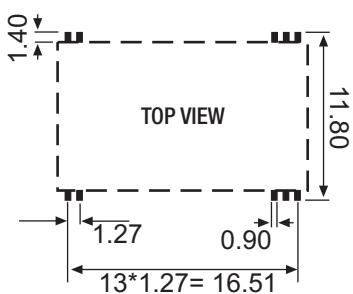


RAM

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