

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

Selection Guide

Part Number SMD	Isolation Voltage (kV)	Input Voltage (VDC)	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			±10%
Output Voltage Accuracy			-1% typ., ±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	(tested for 1 second)	5000 VDC
	H-Suffix	(rated for 1 minute**)	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 Application Notes chapter "MTBF"	using MIL-HDBK 217F	4780 x 10³ hours
MTBF (+85°C)		using MIL-HDBK 217F	1310 x 10³ 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.

ECONOLINE
DC/DC-Converter

RECOM

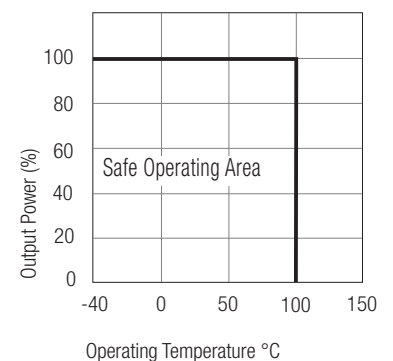
1 Watt SMD Single Output



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

RAM

Derating-Graph (Ambient Temperature)



Refer to Application Notes

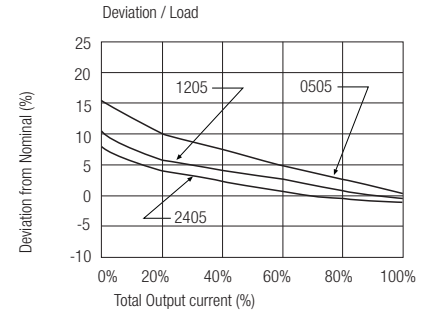
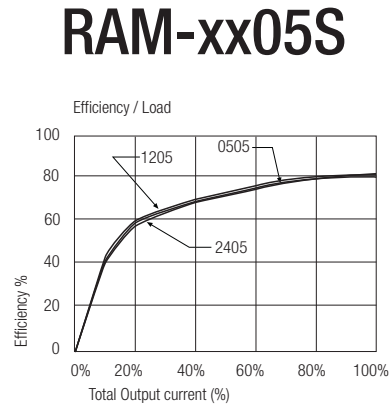
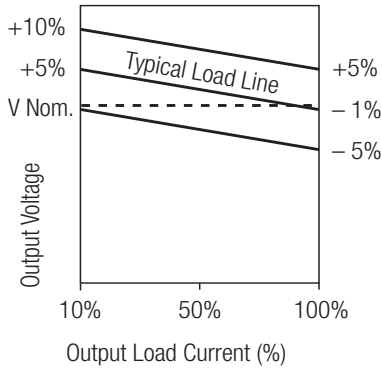
ECONOLINE

DC/DC-Converter

RAM Series

Typical Characteristics

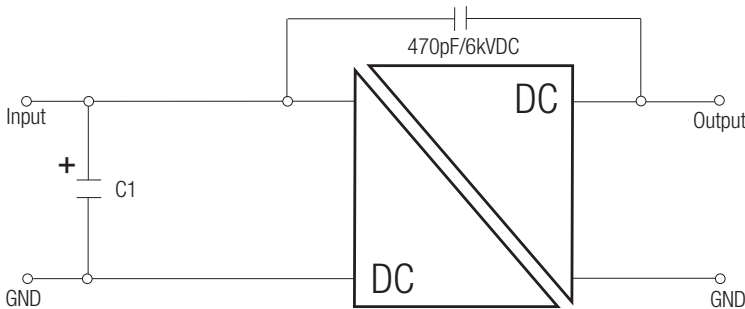
Tolerance Envelope



Notes

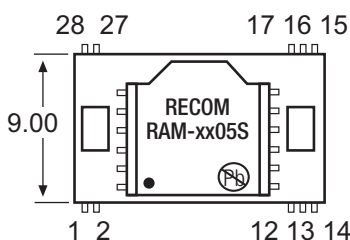
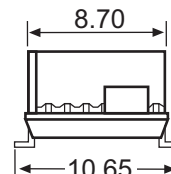
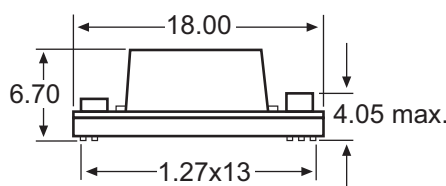
Note 1: Maximum capacitive load is defined as the capacitive load that will allow start up in under 1 second without damage to the converter

EMC Filtering - Suggestion for EN55022 Class B

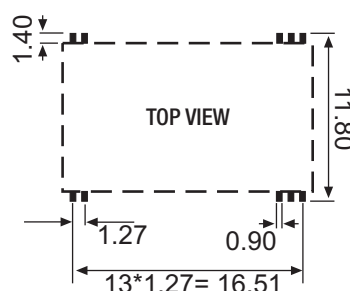


Input Voltage	Inductance/ Capacitance (C1)
5V	10µF
12V	4.7µF
24V	22µF

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

Unit: mm
Tolerance: ± 0.25 mm

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