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

1 Watt SMD Single Output



RoHS 2011/65/EU 6/6

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

RAM

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

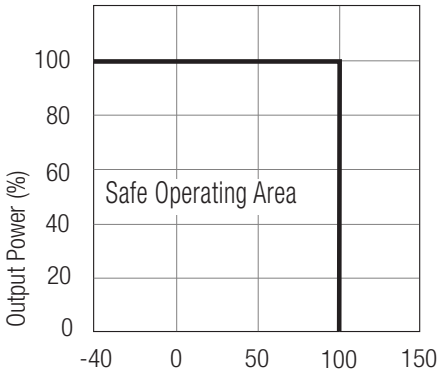
Specifications (measured at T_A = 25°C, nominal input voltage and rated output current unless otherwise specified

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 minute)	3000 VDC
		(tested for 1 second)	3750 VDC
Isolation Voltage	H-Suffix	(tested for 1 minute)	4000 VDC
	H-Suffix	(tested for 1 second)	5000 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.
Vapour 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	4780 x 10^3 hours
MTBF (+85°C) } *Application Notes chapter "MTBF"*		using MIL-HDBK 217F	1310 x 10^3 hours
Certifications			
EN Medical Safety	Report: MDD1112018 + RM1112018		IEC/EN 60601-1 3rd Edition
	Medical Report + ISO14971 Risk Assessment		
EN General Safety			EN60950-1, 2nd Edition

Notes

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

Derating-Graph
(Ambient Temperature)

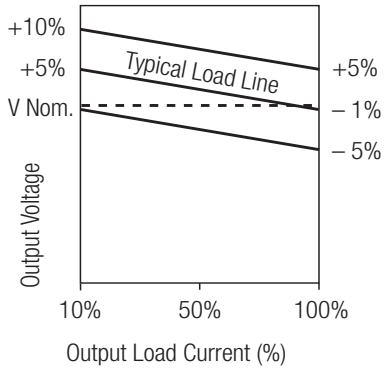


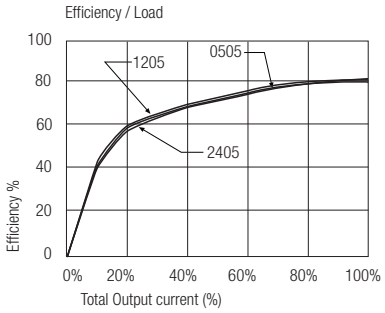
Refer to Application Notes

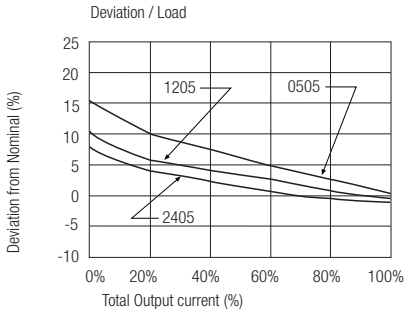
Typical Characteristics

Tolerance Envelope

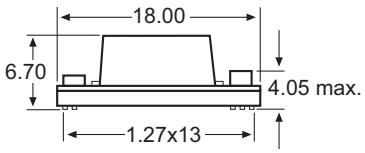
RAM-xx05S

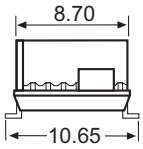


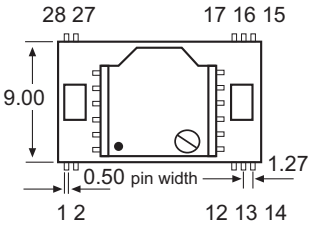


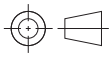


Package Style and Pinning







3rd angle projection 

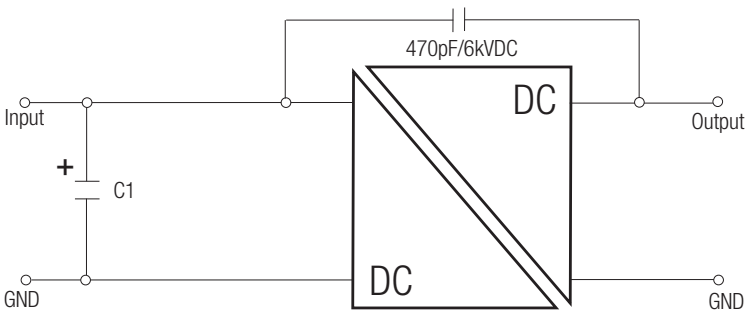
Pin Connections

Pin #	Function
1	+Vin
2	-Vin
12	-Vout
13	+Vout
14~17	NC
27,28	NC

NC = No Connection

Unit: mm
Tolerance: ± 0.25 mm

EMC Filtering - Suggestion for EN55022 Class B



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

RAM