Features

Unregulated Converters

- Fully RoHS 6/6 Conform
- Full Power at 100°C Ambient Temperature
- 1kVDC Isolation
- Suitable for Fully Automated Assembly (including Vapour Phase Soldering)
- Optional Continuous Short Circuit Protection

Selection Guide

Part Number SMD	Input Voltage (VDC)	Output Voltage (VDC)	Output Current (mA)	Efficiency (%)	Capacitive Load (max.)
R1DA**-xx3.33.3	3.3, 5, 9,12, 15, 24	3.3/3.3	150/150	75	470µF/470µF
R1DA**-xx0505	3.3, 5, 9,12, 15, 24	5/5	100/100	72-78	470µF/470µF
R1DA**-xx0909	3.3, 5, 9,12, 15, 24	9/9	56/56	74-78	220µF/220µF
R1DA**-xx1212	3.3, 5, 9,12, 15, 24	12/12	42/42	75-80	68µF/68µF
R1DA**-xx1515	3.3, 5, 9,12, 15, 24	15/15	33/33	75-82	68µF/68µF

xx = Input Voltage (other input and output voltage combinations available on request)

* add Suffix "P" for Continuous Short Circuit Protection, e.g. R1DA-050505/P

* add suffix -R for tape & reel packing e.g. R1DA-050505-R. For more details see Application Notes.

Specifications (measured at T_A = 25°C, nominal input voltage, full load and after warm-up)

Input Voltage Range		±10%
Output Voltage Accuracy		-1% typ., ±5% max.
Line Voltage Regulation (low line to high line at max. load)	All Variants	1% typ.
Load Voltage Regulation (10% to 100% full load)	3.3V output types 5V output type 9V output type 12V, 15V output types	15% typ., 20% max. 12% typ., 15% max. 7% typ., 10% max. 6% typ., 10% max.
Output Ripple and Noise (20MHz BW limited)		50mVp-p typ, 100mVp-p max.
Operating Frequency		20kHz min. / 50kHz typ. / 90kHz max.
Efficiency at Full Load		See Selection Guide
Minimum Load = 0%		Specifications valid for 10% minimum load only
Isolation Voltage Input/Output Isolation Voltage Output/Output	(tested for 1 second) (rated for 1 minute)	1000VDC 500VAC / 60Hz
Isolation Capacitance		75pF max.
Isolation Resistance	V_{ISO}=500V	10 GΩ min.
Short Circuit Protection P-Suffix		1 Second Continuous
Operating Temperature Range (free air convection)		-40°C to +100°C (see Graph)
Storage Temperature Range		-50°C to +125°C
Reflow Temperature Vapour Phase Process	ROHS compliant (for more details see Application Notes)	245°C (30 sec), Peak 255°C (5 sec) max. 230°C (90 sec) max.
Relative Humidity		95% RH
Humidity Susceptibility Test		1000 hrs / 90% humidity / +85°C ambient
Package weight		1.2g
Packing Quantity		33 pcs per tube / 500pcs per reel
MTBF (+25°C) (+85°C) — *Detailed Information see Application Notes chapter "MTBF"*	using MIL-HDBK 217F using MIL-HDBK 217F	1045 x 10^3 hours 183 x 10^3 hours

ECONOLINE
DC/DC-Converter

RECOM

1 Watt SMD Dual Independent Outputs

RoHS 2002/95/EC 6/6

EN-60950-1-Certified

R1DA

Description

The R1DA converters are of the enclosed open frame type, i.e. they are not potted.

The converters are typically used in general purpose and industrial low power isolation and voltage matching applications where an SMD converter is required.

The converter series feature an extended ambient temperature operating range of -40°C ~ +100°C without derating and optional continuous short circuit protection.

In addition to single, dual and independent outputs, two isolation options and three different case formats, the converters are also available prepacked as tape and reel for use with automatic insertion machines.

Refer to Application Notes

Specifications - continued

Certifications		
EN General Safety	Report: 10010807-2009	EN-60950-1, 2nd Edition
Conducted Emissions		EN55022 Class B with Filter
Radiated Emisions		EN55022 Class B with Filter

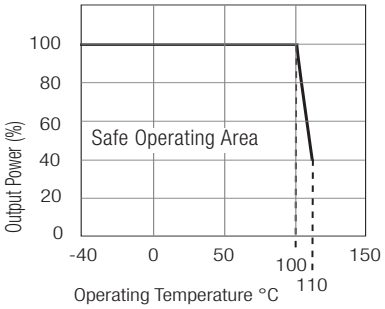
Notes

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.

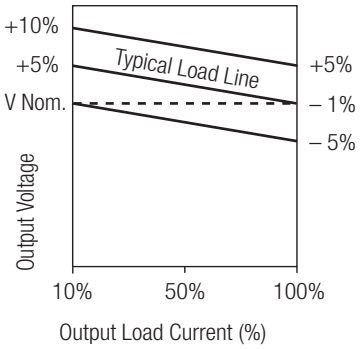
Derating-Graph

(Ambient Temperature)

R1DA-0505

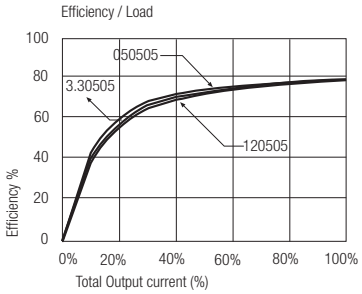


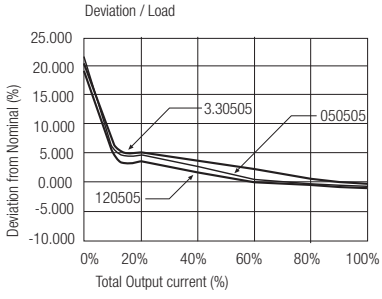
Tolerance Envelope



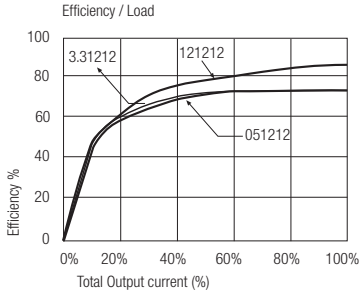
Typical Characteristics

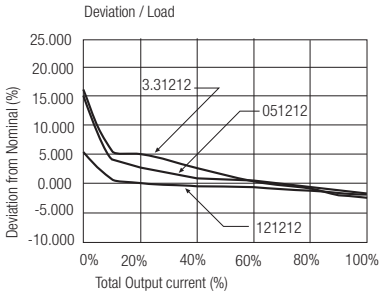
R1DA-xx0505





R1DA-xx1212



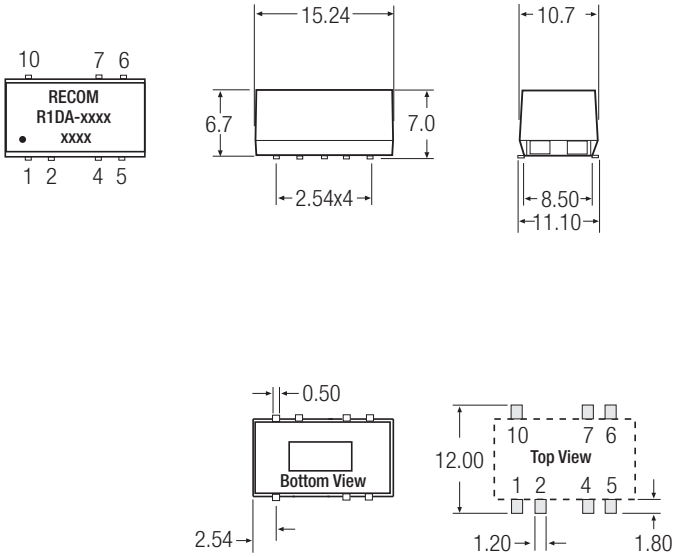


R1DA

Package Style and Pinning (mm)

3rd angle projection

12 PIN Dual SMD Package



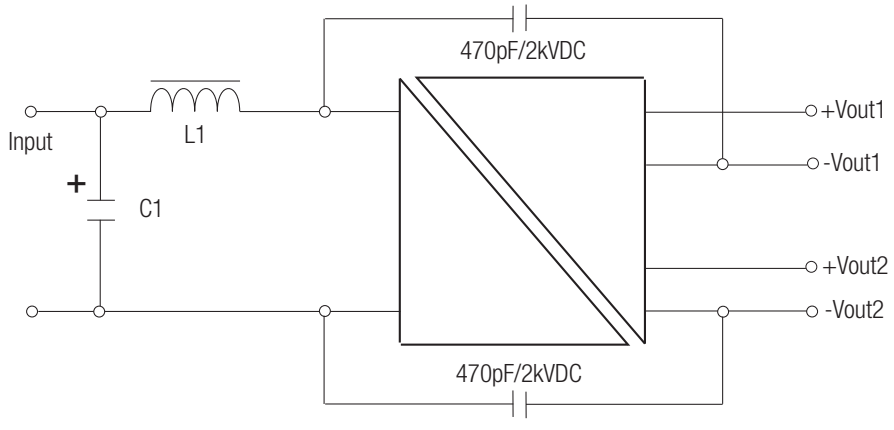
Pin Connections

Pin #	
1	–Vin
2	+Vin
4	–Vout1
5	+Vout1
6	-Vout2
7	-Vout2
10	NC

NC = No Connection

R1DA

EMC Filtering - Suggestion for EN55022 Class B (Conducted and Emitted)



Standard

C1	L1	Vin
2.2µF	4.7µH	3.3V
2.2µF	4.7µH	5V
2.2µF	10µH	9V
2.2µF	10µH	12V
2.2µF	10µH	15V
4.7µF	22µH	24V

/P versions

C1	L1	Vin
4.7µF	10µH	3.3V
4.7µF	10µH	5V
4.7µF	10µH	9V
4.7µF	10µH	12V
4.7µF	22µH	15V

C1 = MLCC
L1 = SMD Inductor