

Features

Unregulated Converters

- Efficiency 80% Full Load/65% with 20% Load
- 1:1 Input Range
- 1kVDC and 2kVDC Isolation Option
- EN & UL Certified
- -40°C to +100°C Operating Temperature Range
- 1W SMD Package

Description

The R1S/E series DC/DC converter has been designed to offer exceptionally high efficiency over a wide load range, low quiescent current and an extended operating temperature range. Uses include battery powered supplies, high efficiency designs or high temperature applications.

Selection Guide

Part Number SMD	Isolation Voltage (kVDC)	Input Voltage (VDC)	Output Voltage (VDC)	Output Current (mA)	Efficiency (typ.)	Capacitive Load (max.)
R1S**-3.305/E*	1	3.3	5	200	80%	2200µF
R1S**-0505/E*	1	5	5	200	80%	2200µF
R1S**-1205/E*	1	12	5	200	80%	2200µF
R1S**-2405/E*	1	24	5	200	80%	2200µF

** without marking denotes 5 pins out of 8 fitted (includes /H option) - e.g. R1S-3.305/EH

** with marking "8" denotes 8 pins out of 8 fitted (/H option not available) - e.g. R1S8-3.305/E

* add Suffix "/H" for 2kVDC Isolation Voltage - e.g. R1S-3.305/EH

* add Suffix "/P" for Continuous Short Protection - e.g. R1S-3.305/EHP, R1S8-3.305/EP

* add Suffix "-R" for tape & reel packing - e.g. R1S-3.305/EHP-R, R1S8-3.305/E-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	3.3V	±10% max.	
	5V, 12V, 24V	±5% max.	
Line Voltage Regulation	3.3V	1.5% typ., 1.0% max.	
(low line to high line at full load)	5V, 12V, 24V	1.2% typ., 1.0% max.	
Load Voltage Regulation	Vout=5V (10% to 100% full load)		7% typ., 15% max.
Output Ripple and Noise (20MHz BW)			50mVp-p typ., 100mVp-p max.
Operating Frequency (Vin=nominal input)			20kHz min. / 90kHz max.
Efficiency			see Selection Guide
Minimum Load = 0%	Specifications valid for 10% minimum load only		
Isolation Voltage	R1S-xx05/E	tested for 1 second	1000 VDC
	R1S-xx05/EH	tested for 1 second	2000 VDC
Isolation Capacitance			75pF max.
Isolation Resistance	(Viso=500V)		10GΩ min.
Short-Circuit Protection			1 second
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	(R1S8 = 1.1g)		1.0g
Packing Quantity			40 pcs per Tube
			500 pcs per Reel
MTBF (+25°C)	using MIL-HDBK 217F		3459 x 10³ hours
MTBF (+100°C)	using MIL-HDBK 217F		756 x 10³ hours

Note: Detailed Information see Application Notes chapter "MTBF"

ECONOLINE

DC/DC-Converter

with 3 year Warranty

RECOM

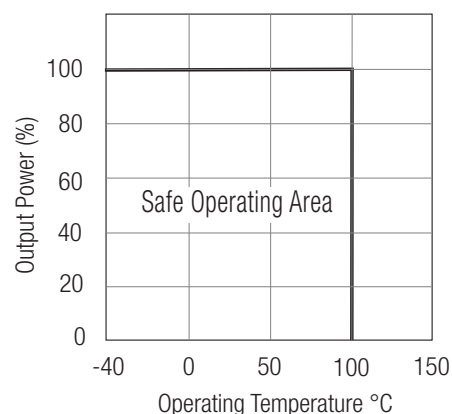
1 Watt SMD Single Output



EN-60950-1 Certified
UL-60950-1 Certified

R1S-xx05/E

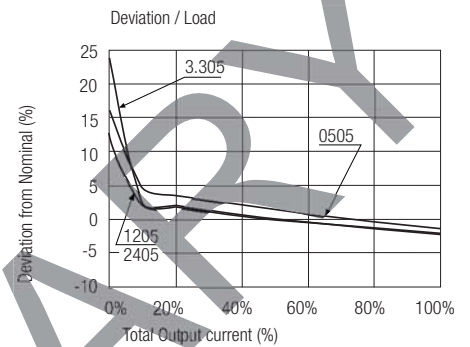
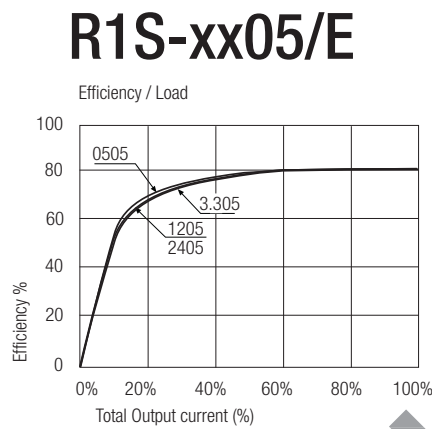
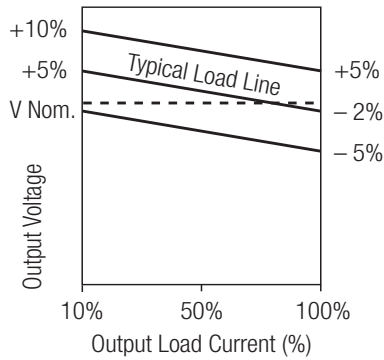
Derating-Graph (Ambient Temperature)



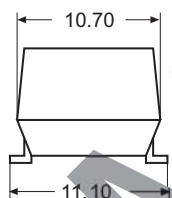
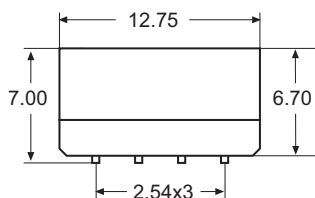
Refer to Application Notes

Typical Characteristics

Tolerance Envelope

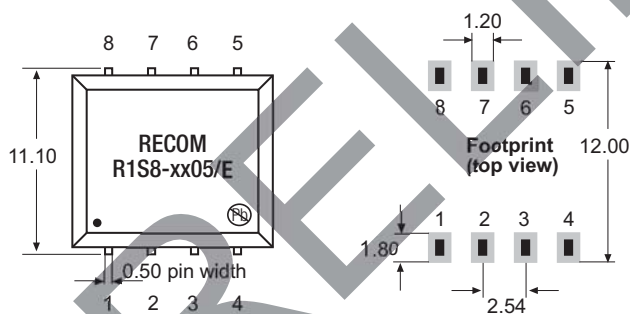


Package Style and Pinning



3rd angle projection

8 Pins:



Pin #	5 Pins	8 Pins
1	-Vin	-Vin
2	+Vin	+Vin
4	-Vout	-Vout
5	+Vout	+Vout
3,6,7	NA	NC
8	NC	NC

NC = No Internal Connection
NA = No Available Connection

Unit: mm
Tolerance: ± 0.25 mm

5 Pins:

