Features

Unregulated Converters

- 1:1 input range
- SMD package
- Efficiency up to 75%
- 1kVDC/1s isolation
- Wide operating temperature range from -40°C to +85°C at full load
- UL/EAC certified

RECOM
DC/DC Converter

R1SE

1 Watt SMD Single Output

3 YEAR warranty

Description

The R1SE series are 1W unregulated DC/DC converters that are lower cost than equivalent converters. The benefits of high volume production and semi-automatic assembly allow for a lower selling price without sacrificing our high quality standards. They are UL certified for safety, offer reasonable efficiency and operating temperature range of -40° to +85°C.

Selection Guide

Part Number	nom. Input Voltage [VDC]	Output Voltage [VDC]	Output Current [mA]	Efficiency typ. (1) [%]	max. Capacitive Load (2) [µF]
R1SE (3)-0505 (4)	5	5	200	75	1000

Notes:

Note1: Efficiency is tested at nominal input and full load at +25°C ambient

Note2: Max Cap Load is tested at nominal input and full resistive load and is defined as the capacitive load that will allow start up in under 1s without damage to the converter

RoHS 2+ compliant 10 from 10 — REACH compliant — c UL us E358085

Model Numbering

R1SE_ - ___ ___ _

- **S**ingle
- Pinning (3)
- Input Voltage
- Output Voltage
- Packaging (4)

Notes:

Note3: without marking denotes 5 pins out of 8 fitted
with marking "8" denotes 8 pins out of 8 fitted

Note4: add suffix „-R" for tape and reel packaging

UL60950-1 certified
CAN/CSA-C22.2 No. 60950-1-07 certified

Ordering Examples:

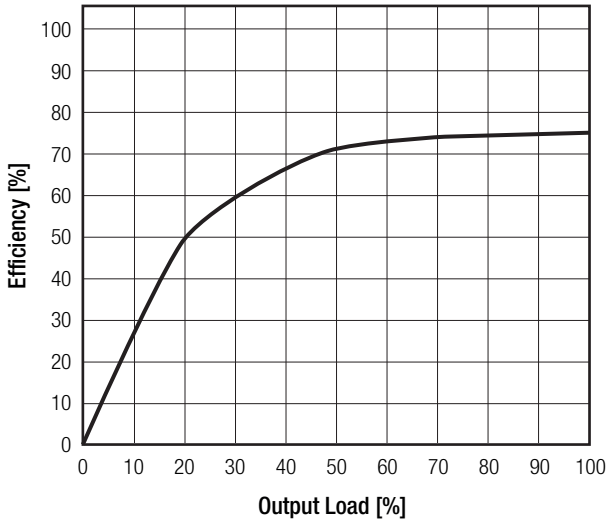
R1SE-0505 = Single Output, 5 pins out of 8 fitted, 5Vin, 5Vout
R1SE-0505-R = Single Output, 5 pins out of 8 fitted, 5Vin, 5Vout Output and tape and reel packaging
R1SE8-0505 = Single Output, 8 pins out of 8 fitted, 5Vin, 5Vout

Specifications (measured @ Ta= 25°C, nom. Vin, full load and after warm-up unless otherwise stated)

BASIC CHARACTERISTICS

Parameter	Condition	Min.	Typ.	Max.
Input Voltage Range			±10%	
Internal Operating Frequency		20kHz		70kHz
Output Ripple and Noise	20MHz BW		68mVp-p	100mVp-p

Efficiency vs. Load



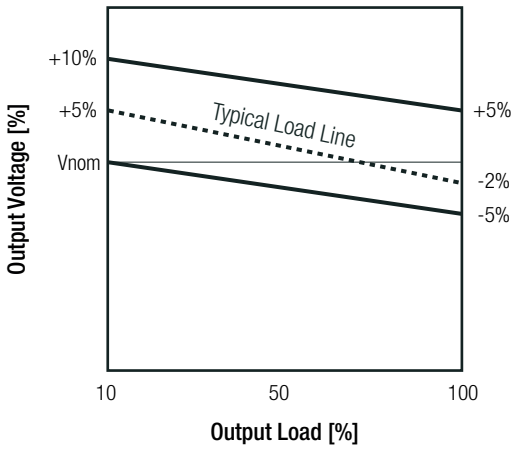
REGULATIONS

Parameter	Condition	Value
Output Accuracy		-2.0% typ. / ±5.0% max.
Line Regulation	low line to high line, full load	±1.2% typ.
Load Regulation [5]	10% to 100% load	10.0% typ. / 15.0% max.

Notes:

Note5: Operation below 10% load will not harm the converter, but specifications may not be met

Tolerance Envelope



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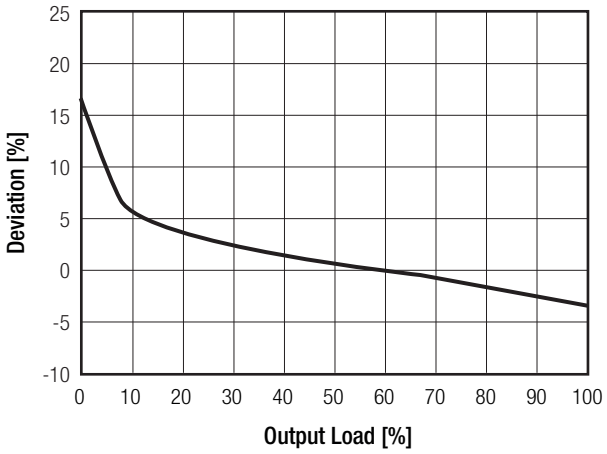
Specifications (measured @ Ta= 25°C, nom. Vin, full load and after warm-up unless otherwise stated)

Deviation vs. Load



PROTECTIONS			
Parameter	**Type**		**Value**
Short Circuit Protection (SCP)	below 100mΩ		1 second
Isolation Voltage (6)	I/P to O/P	tested for 1 second rated for 1 minute	1kVDC 500VAC/60Hz
Isolation Resistance	Viso = 500V		10GΩ min.
Isolation Capacitance			75pF max.
Insulation Grade			functional

Notes:

Note6: For repeat Hi-Pot testing, reduce the time and/or the test voltage

Note7: Refer to local safety regulations if input over-current protection is also required. Recommended fuse: slow blow type

ENVIRONMENTAL			
Parameter	**Condition**		**Value**
Operating Temperature Range	full load @ free air convection		-40°C to +85°C
Operating Altitude			2000m
Operating Humidity	non-condensing		95% RH max.
Pollution Degree			PD2
MTBF	according to MIL-HDBK-217F, G.B.	+25°C +85°C	1022 x 10^3 hours 172 x 10^3 hours

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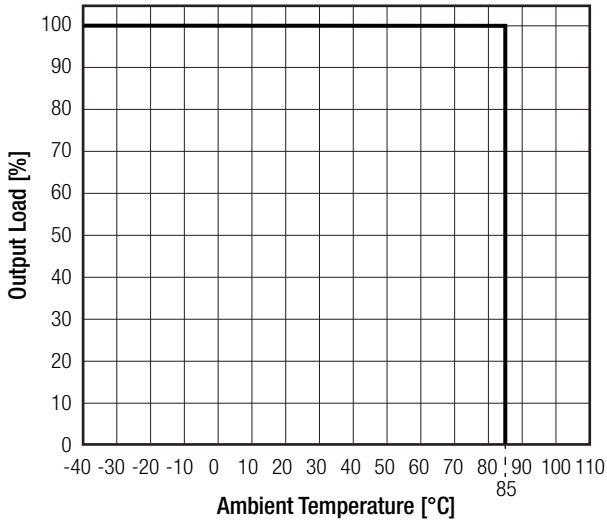
Specifications (measured @ Ta= 25°C, nom. Vin, full load and after warm-up unless otherwise stated)

Derating Graph
(@ free air convection)

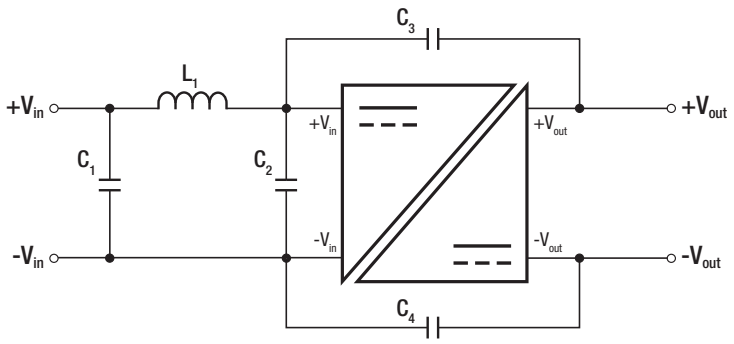


SAFETY AND CERTIFICATIONS

Certificate Type (Safety)	Report / File Number	Standard
Information Technology Equipment, General Requirements for Safety	E358085-A2-UL	UL60950-1, 2nd Edition:2007 CAN/CSA C22.2 No. 60950-1-03, 2nd Edition:2007
RoHS 2		RoHS-2011/65/EU + AM-2015/863

EMC Compliance	Condition	Standard / Criterion
Electromagnetic compatibility of multimedia equipment - Emission requirements	with external filter (see filter suggestion below)	EN55032, Class B EN55032, Class A

EMC Filter Suggestion according to EN55032



Component List Class A

MODEL	C1	L1	C2	C3 and C4
R1SE-0505	N/A	N/A	6.8µF 50V MLCC	N/A

Component List Class B

MODEL	C1	L1	C3 (safety)	C4 (safety)
R1SE-0505	10µF 100V MLCC	12µH choke RLS-126	330pF	330pF

Notes:

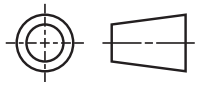
Note8: Filter suggestions are valid for indicated part numbers only. For other part numbers, please contact RECOM tech support for advice

Specifications (measured @ Ta= 25°C, nom. Vin, full load and after warm-up unless otherwise stated)

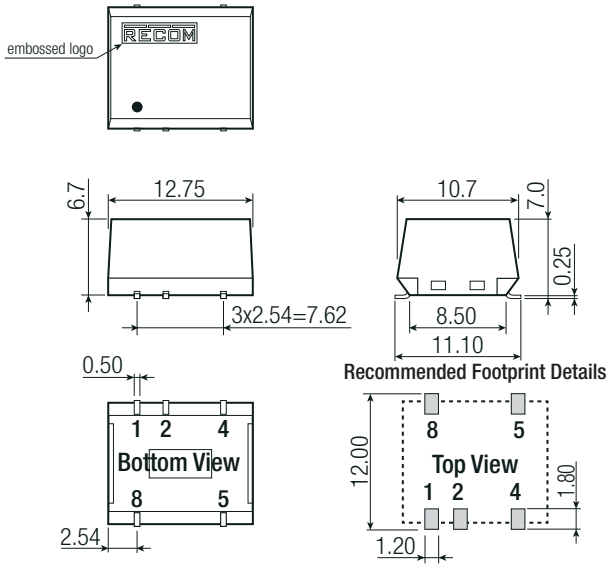
DIMENSION AND PHYSICAL CHARACTERISTICS

Parameter	Type	Value
Material	case	non-conductive black plastic, (UL94 V-0)
Dimension (LxWxH)		12.75 x 10.7 x 7.0mm
Weight		1.0g typ.

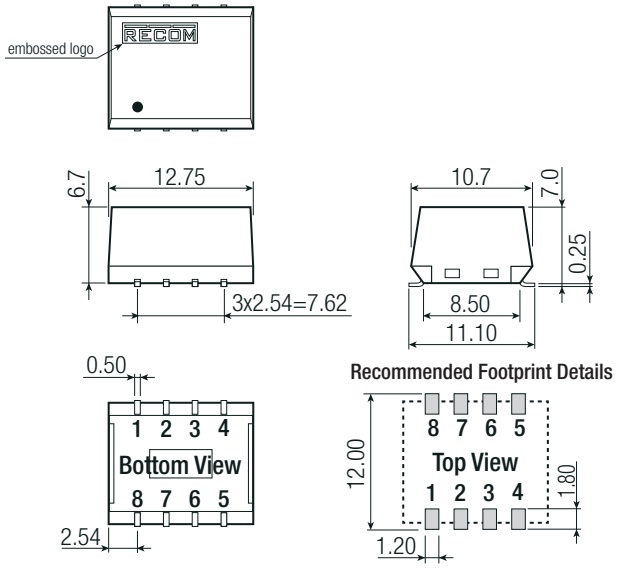
Dimension Drawing (mm)



5 Pin Single SMD Package



8 Pin Single SMD Package



Pinning Information

Pin #	Single
1	-Vin
2	+Vin
4	-Vout
5	+Vout
8	NC

NC = No Connection
Tolerance:
xx.xx= 0.25mm

Pinning Information

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

NC = No Connection
Tolerance:
xx.xx= 0.25mm

PACKAGING INFORMATION

Packaging Dimension (LxWxH)	tube tape and reel (carton)	530.0 x 17.0 x 14.0mm 355.0 x 340.0 x 35.0mm
Packaging Quantity	tube tape and reel	40pcs 500pcs
Tape Width		24.0mm
Storage Temperature Range		-55°C to +125°C
Storage Humidity	non-condensing	95% RH max.