

Features

Unregulated Converters

- SMD case style
- Tape and reel packaging
- UL60950-1 certified
- High operating temperature range from -40°C to +100°C at full load
- Efficiency up to 76%
- 2kVDC/1s isolation

RECOM
DC/DC Converter

R1SE/H2

1 Watt
SMD
Single Output



Description

The R1SE/H2 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 still meet the full industrial operating temperature range of -40° to +100°C. All converters are 100% tested in production and carry our 3-year warranty.

Selection Guide

Part Number	Input Voltage [VDC]	Output Voltage [VDC]	Output Current [mA]	Efficiency typ. ⁽¹⁾ [%]	max. Capacitive Load ⁽²⁾ [μF]
R1SE-3.305/H2-R	3.3	5	200	75	1000
R1SE-0505/H2-R	5	5	200	75	1000
R1SE-0512/H2-R	5	12	84	76	330
R1SE-0515/H2-R	5	15	66	76	220
R1SE-1205/H2-R	12	5	200	73	1000
R1SE-1505/H2-R	15	5	200	74	1000

Notes:

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

Note2: Max. capacitive load is defined as the capacitive load that will allow start up in under 1 second without damage to the converter

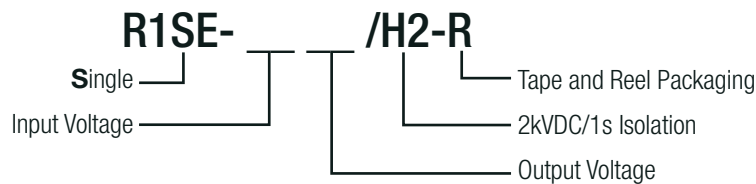


UL
E358085



UL60950-1 certified
CAN/CSA-C22.2 No. 60950-1-07 certified
EN55032 compliant

Model Numbering



Ordering Examples:

R1SE-0505/H2-R: Single Output, 5VDC Input, 5VDC Output, 2kVDC/1s isolation and tape and reel packaging

Specifications (measured at $T_a = 25^\circ\text{C}$, nominal input voltage and rated current unless otherwise specified)

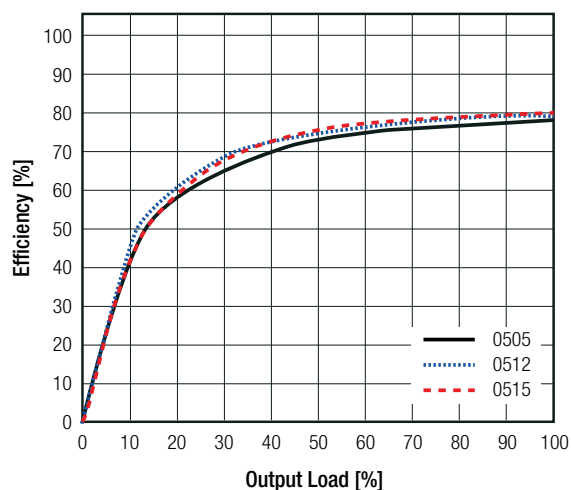
BASIC CHARACTERISTICS

Parameter	Condition	Min.	Typ.	Max.
Input Voltage Range			$\pm 10\%$	
Internal Operating Frequency		20kHz	60kHz	100kHz
Output Ripple and Noise ⁽³⁾	20MHz BW		50mVp-p	100mVp-p

Notes:

Note3: Measurements are made with a 100nF MLCC across output (low ESR)

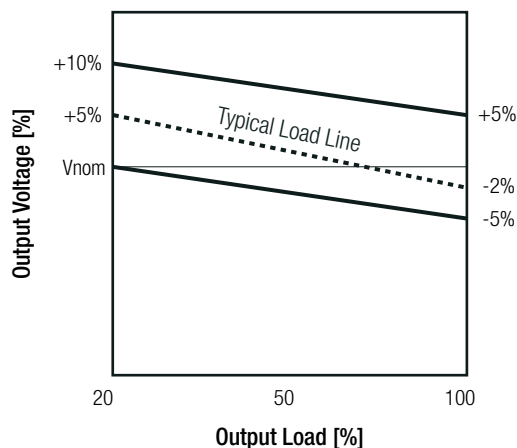
Efficiency vs. Load



REGULATIONS

Parameter	Condition	Value
Output Accuracy		-2.0% typ. / $\pm 5.0\%$ max.
Line Regulation	low line to high line, full load	$\pm 1.0\%$ typ. / $\pm 1.5\%$ max.
Load Regulation	20% to 100% load	6.0% typ. / 10.0% max.

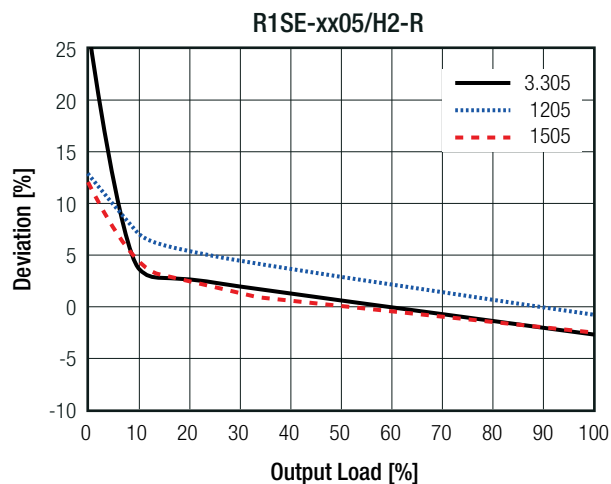
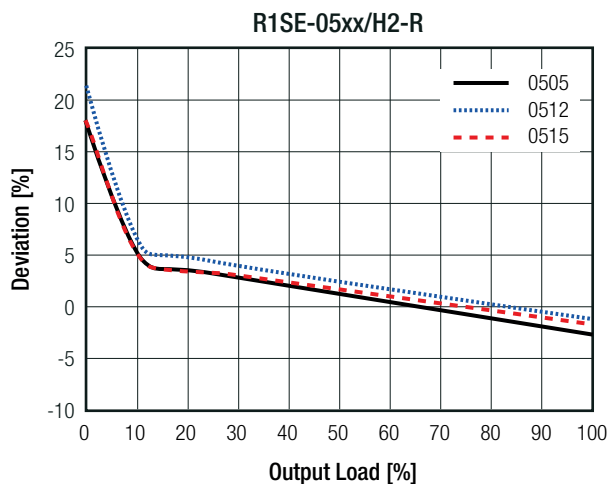
Tolerance Envelope



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Specifications (measured at $T_a = 25^\circ\text{C}$, nominal input voltage and rated current unless otherwise specified)

Deviation vs. Load



PROTECTIONS

Parameter	Type		Value
Isolation Voltage	I/P to O/P	tested for 1 second	2kVDC
Isolation Resistance	Viso = 500V		10GΩ min.
Isolation Capacitance			75pF max.

Notes:

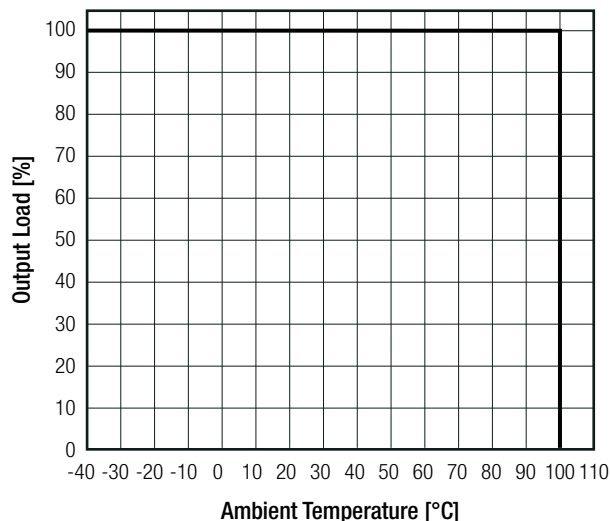
Note4: Refer to local safety regulations if input over-current protection is also required. Recommended fuse: slow blow type

ENVIRONMENTAL

Parameter	Condition		Value
Operating Temperature Range	full load @ free air convection		-40°C to +100°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	2992 x 10 ³ hours 955 x 10 ³ hours

Derating Graph

(@ free air convection)



Specifications (measured at $T_a = 25^\circ\text{C}$, nominal input voltage and rated current unless otherwise specified)

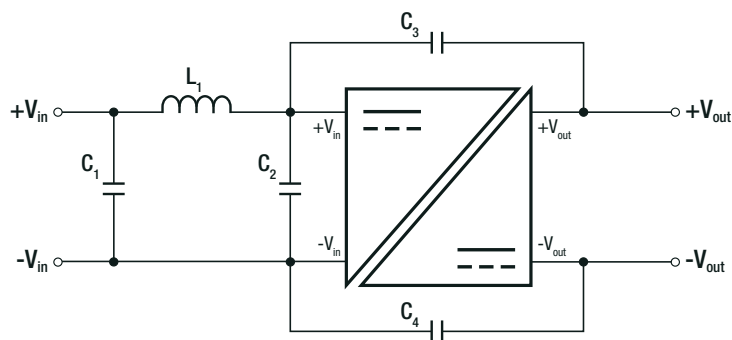
SAFETY AND CERTIFICATIONS

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
EAC	RU-AT.49.09571	TP TC 004/2011
RoHS 2+		RoHS-2011/65/EU + AM-2015/863

EMC Compliance

Condition	Standard / Criterion
Electromagnetic compatibility of multimedia equipment - Emission requirements	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/H2	N/A	N/A	6.8 μF	N/A
R1SE-0512/H2			50V MLCC	
R1SE-1205/H2			10 μF	
R1SE-1505/H2			100V MLCC	

Component List Class B

MODEL	C1	L1	C3 (safety)	C4 (safety)
R1SE-0505/H2	10 μF 100V MLCC	12 μH choke RLS-126	330pF	330pF
R1SE-0512/H2				
R1SE-1205/H2				
R1SE-1505/H2				

Notes:

Note5: Filter suggestions are valid for indicated part numbers only. For other part numbers, please contact RECOM tech support for advice

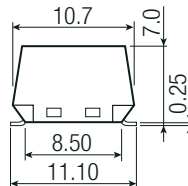
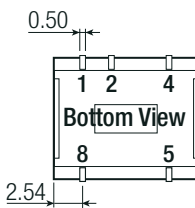
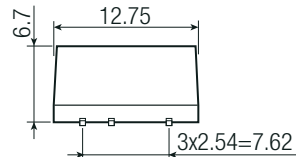
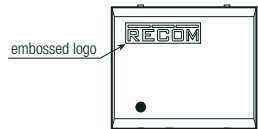
DIMENSION AND PHYSICAL CHARACTERISTICS

Parameter	Type	Value
Material	case	non-conductive black plastic (UL94 V-0)
Dimension (LxWxH)		12.75 x 10.7 x 6.7mm
Weight		1.0g typ.

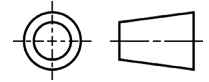
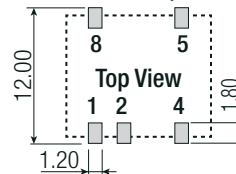
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Specifications (measured at $T_a = 25^\circ\text{C}$, nominal input voltage and rated current unless otherwise specified)

Dimension Drawing (mm) 5 Pin Single SMD Package



Recommended Footprint Details



Pin Connections

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

NC = No Connection

Tolerance:

xx.x = 0.5mm

xx.xx = 0.25mm

PACKAGING INFORMATION

Packaging Dimension (LxWxH)	tape and reel (carton)	355.0 x 342.0 x 36.0mm
Packaging Quantity	tape and reel	500pcs
Tape Width		24.0mm
Storage Temperature Range		-55°C to +125°C
Storage Humidity		95% RH max.

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