Features

Unregulated Converters

- Fully RoHS 10/10 conform
- Full power at 100°C ambient temperature
- 1kVDC or 3kVDC isolation option
- Suitable for fully automated assembly (including vapor phase soldering)
- Optional continuous short circuit protection

RECOM
DC/DC Converter

R0.25S & R0.25D(A)

0.25 Watt SMD Single, Dual and Independent Outputs

3 YEAR Warranty

RoHS compliant 10 from 10 | REACH compliant | c UL us E358085 | EAC | IECEE CB SCHEME

UL60950-1 certified
CAN/CSA-C22.2 No. 60950-1-07 certified
IEC/EN60950-1 certified
EN55032 compliant
CB report

Description

The R0.25S and R0.25D 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 ower isolation and voltage matching applications where an SMD converter is required. The converter series feature an extended ambient temperature operating range of -40°C to +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.

Selection Guide

Part Number	nom. Input Voltage [VDC]	Output Voltage [VDC]	Output Current [mA]	max. Capacitive Load[2] [µF]
R0.25S [3]-xx3.3 [4,5]	3.3, 5, 12, 15, 24	3.3	76	1000
R0.25S [3]-xx05 [4,5]	3.3, 5, 12, 15, 24	5	50	470
R0.25S [3]-xx09 [4,5]	3.3, 5, 12, 15, 24	9	28	470
R0.25S [3]-xx12 [4,5]	3.3, 5, 12, 15, 24	12	21	150
R0.25S [3]-xx15 [4,5]	3.3, 5, 12, 15, 24	15	17	68
R0.25S [3]-xx24 [4,5]	3.3, 5, 12, 15, 24	24	10.4	68
R0.25D [3]-xx3.3 [4,5]	3.3, 5, 12, 15, 24	±3.3	±38	470
R0.25D [3]-xx05 [4,5]	3.3, 5, 12, 15, 24	±5	±25	220
R0.25D [3]-xx09 [4,5]	3.3, 5, 12, 15, 24	±9	±14	68
R0.25D [3]-xx12 [4,5]	3.3, 5, 12, 15, 24	±12	±10.4	68
R0.25D [3]-xx15 [4,5]	3.3, 5, 12, 15, 24	±15	±8.3	68
R0.25D [3]-xx24 [4,5]	3.3, 5, 12, 15, 24	±24	±5.2	33
R0.25DA [3]-xx0505 [4,5]	3.3, 5, 12, 15, 24	5/5	25/25	220/220
R0.25DA [3]-xx1212 [4,5]	3.3, 5, 12, 15, 24	12/12	10/10	68/68

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

Model Numbering

R0.25S - /

Single, **D**ual or Independent **DA**

"Pinning [3]"

nom. Input Voltage

Output Voltage

"Packaging [5]"

"Protection and Isolation Option [4]"

Notes:

Note3: R0.25S: without marking denotes 5 pins out of 8 fitted (includes /H option)
with marking "8" denotes 8 pins out of 8 fitted (/H option not available)
with marking "12" denotes 10 pins out of 12 fitted (includes /H option)
R0.25D: without marking denotes "6" pins out of 10 fitted (includes /H option)
R0.25D(A): with marking "10" denotes 10(7) pins out of 10 fitted (/H option not available)
R0.25D: with marking "12" denotes 10 pins out of 12 fitted (includes /H option)

Note4: standard part is without continuous short circuit protection
add suffix „/P" for continuous short circuit protection
add suffix „/H" for 3kVDC isolation (not available for R0.25S8, R0.25D10 and R0.25DA10)
or add suffix „/HP" for 3kVDC isolation and continuous short circuit protection

Note5: add suffix „-R" for tape and reel packaging (compatible with all other suffixes)

R0.25S & R0.25D(A) Series

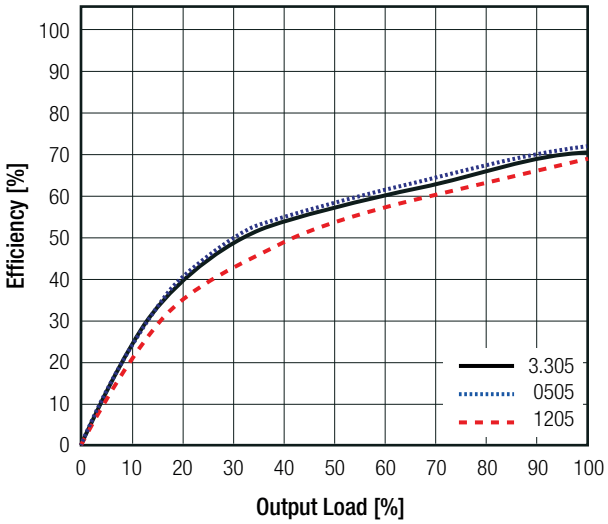
Specifications (measured @ Ta= 25°C, nom. Vin, full load and after warm-up unless otherwise stated)

BASIC CHARACTERISTICS

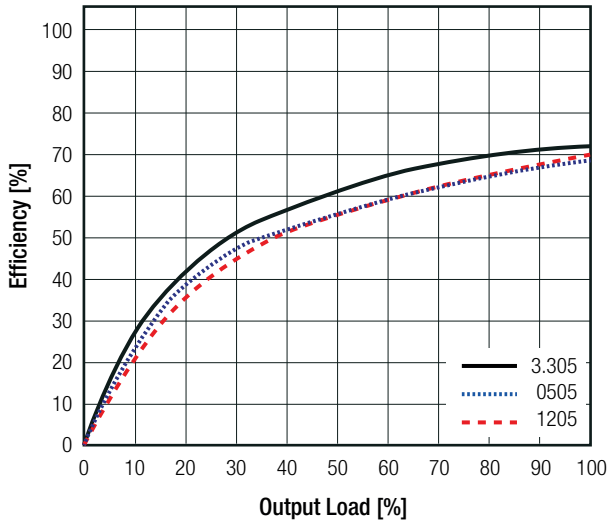
Parameter	Condition	Min.	Typ.	Max.
Input Voltage Range			±10%	
Efficiency		60%		70%
Minimum Load		0%		
Internal Operating Frequency		20kHz	50kHz	90kHz
Output Ripple and Noise	20MHz BW			100mVp-p

Efficiency vs. Load

R0.25S-xx05



R0.25D-xx05



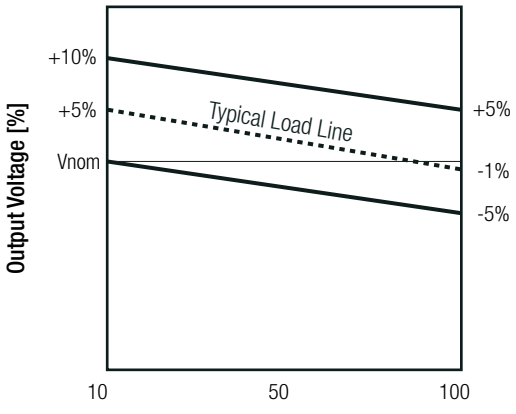
REGULATIONS

Parameter	Condition		Value
Output Accuracy			±5.0% typ. / ±7.0% max.
Line Regulation	low line to high line, full load		2.0% max.
Load Regulation [6]	10% to 100% load	3.3Vout	15.0% typ. / 20.0% max.
		5, 5/5Vout	12.0% typ. / 15.0% max.
		9Vout	7.0% typ. / 10.0% max.
		12, 12/12, 15, 24Vout	6.0% typ. / 10.0% max.

Notes:

Note6: Operation below 10% load will not harm the converter, but specifications may not be met

Tolerance Envelope

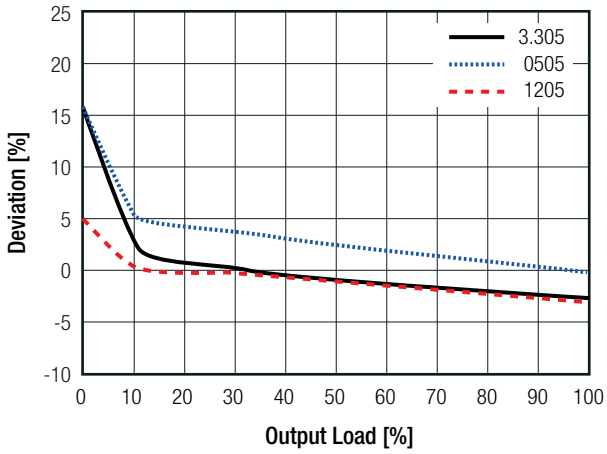


continued on next page

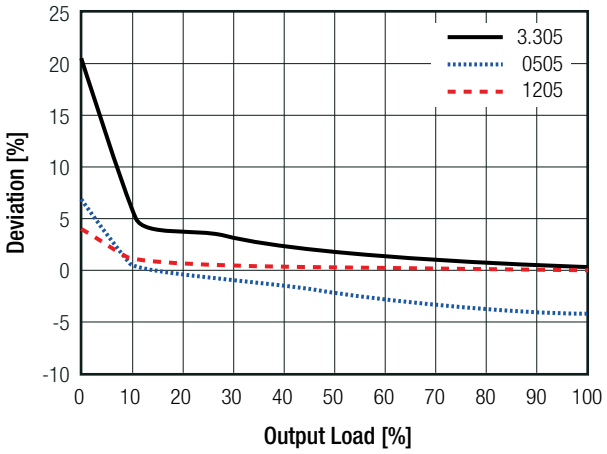
Specifications (measured @ Ta= 25°C, nom. Vin, full load and after warm-up unless otherwise stated)

Deviation vs. Load

R0.25S-xx05



R0.25D-xx05



PROTECTIONS				
Parameter	**Type**			**Value**
Short Circuit Protection (SCP)	below 100mΩ	without suffix with suffix "/P"		1 second continuous
Isolation Voltage[7]	I/P to O/P	without suffix	tested for 1 second rated for 1 minute	1kVDC 500VAC/60Hz
		with suffix "/H"	tested for 1 second rated for 1 minute	3kVDC 1.5kVAC/60Hz
	O/P to O/P	R0.25DA	tested for 1 second	1kVDC
Isolation Resistance	Viso=500V			10GΩ min.
Isolation Capacitance				75pF max.
Insulation Grade				functional

Notes:

Note7: For repeat Hi-Pot testing, reduce the time and/or the test voltage

Note8: 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, refer to ***"Derating Graph"***		-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	4423 x 10^3 hours 2161 x 10^3 hours

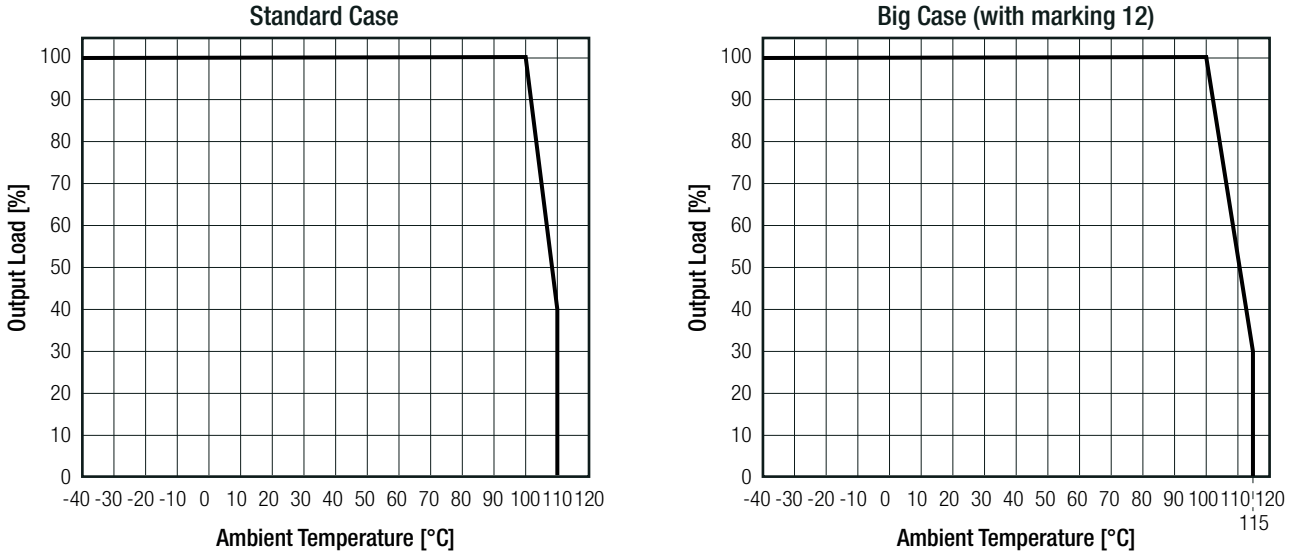
continued on next page

R0.25S & R0.25D(A) Series

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

Derating Graph

(@ Chamber and free air convection)



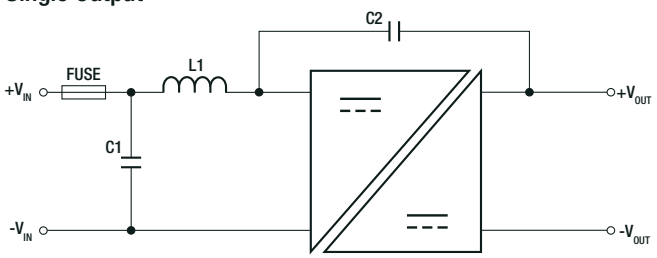
SAFETY AND CERTIFICATIONS

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. 60950-1-07, 2nd Edition:2007
Information Technology Equipment, General Requirements for Safety	LVD1605077-08	IEC60950-1:2005, 2nd Edition + A2:2013 EN60950-1:2006 + A2:2013
Information Technology Equipment, General Requirements for Safety (CB Scheme)	E322406-A2-CB-1	IEC60950-1:2001, 1st Edition
Medical Electrical Equipment Part 1: General Requirements for Basic Safety and Essential Performance	WD-SE-R-180674-A0	IEC60601-1:2005 + A1:2012, 3rd Edition EN60601-1:2006 + A12:2014
EAC	RU-AT.49.09571	TP TC 004/2011
RoHS2		RoHS-2011/65/EU + AM-2015/863

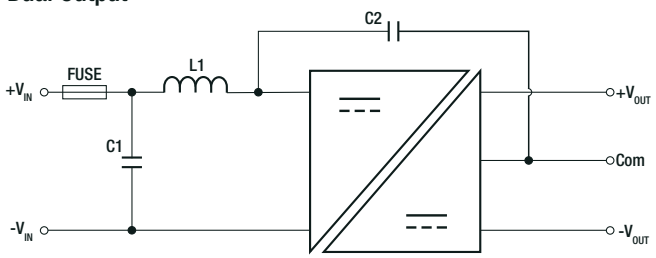
EMC Compliance	Condition	Standard / Criterion
Electromagnetic compatibility of multimedia equipment - Emission requirements	with external filter (see filter suggestion below)	EN55032, Class B

EMC Filtering Suggestions according to EN55032 Class B

Single Output



Dual Output



Component List Class B

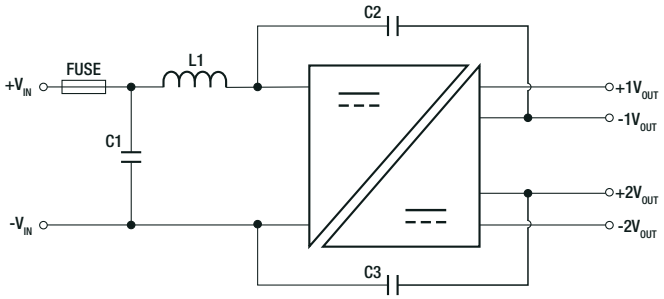
nom. Vin	C1	C2	L1
3.3VDC	2.2µF MLCC	470pF/4kVDC	3.3µH SMD Inductor
5VDC			4.7µH SMD Inductor
12, 15VDC	1.0µF MLCC		2.2µH SMD Inductor
24VDC	470nF MLCC		47µH SMD Inductor

R0.25S & R0.25D(A) Series

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

EMC Filtering Suggestions according to EN55032 Class B

Dual Independent Output



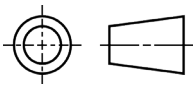
Component List Class B

nom. Vin	C1	C2	C3	L1
3.3VDC	2.2µF MLCC	470pF/2kVDC	470pF/2kVDC	3.3µH SMD Inductor
5VDC				4.7µH SMD Inductor
12, 15VDC	1.0µF MLCC			2.2µH SMD Inductor
24VDC	470nF MLCC			47µH SMD Inductor

DIMENSION AND PHYSICAL CHARACTERISTICS

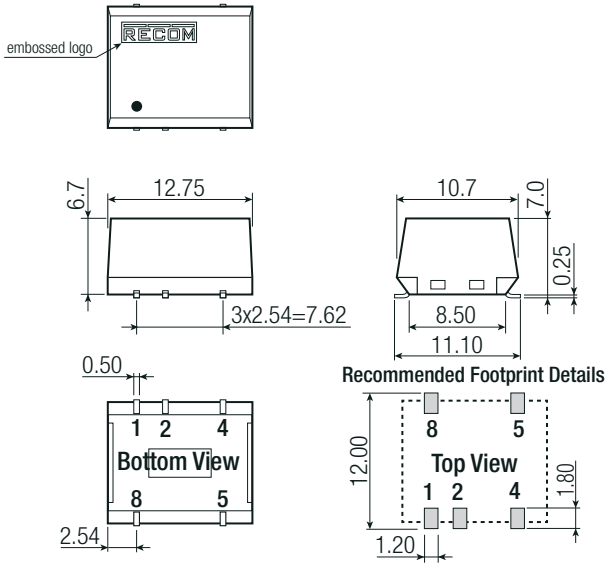
Parameter	Type	Value
Material	case	non-conductive black plastic, (UL94 V-0)
Dimension (LxWxH)	R0.25S, R0.25S8	12.75 x 10.7 x 6.7mm
	R0.25S12, R0.25D, R0.25D10, R0.25D12	15.25 x 10.7 x 6.7mm
Weight	R0.25S	1.0g typ.
	R0.25S8	1.1g typ.
	R0.25S12, R0.25D, R0.25D(A)10, R0.25D(A)12	1.2g typ.

Dimension Drawing (mm)



5 Pin Single SMD Package

/H option is available in this pin package



Pinning Information

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

NC = No Connection
Tolerance:
xx.x= ±0.5mm
xx.xx= ±0.25mm

continued on next page

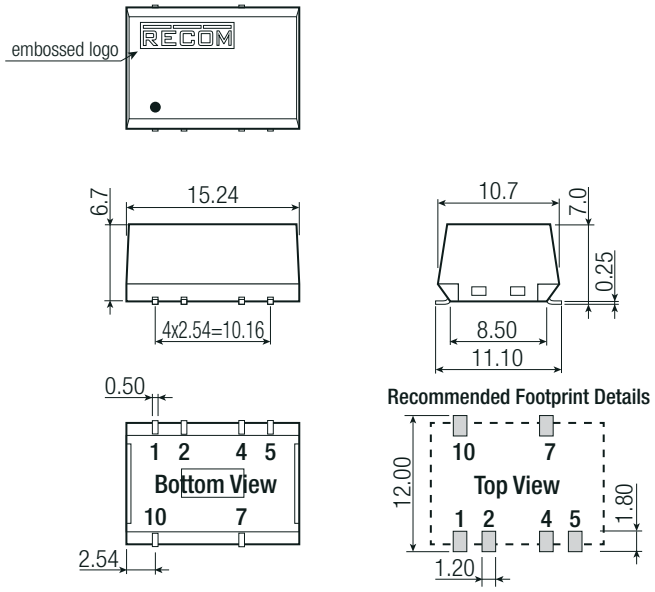
R0.25S & R0.25D(A) Series

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

Dimension Drawing (mm)

6 Pin Dual SMD Package

/H option is available in this pin package



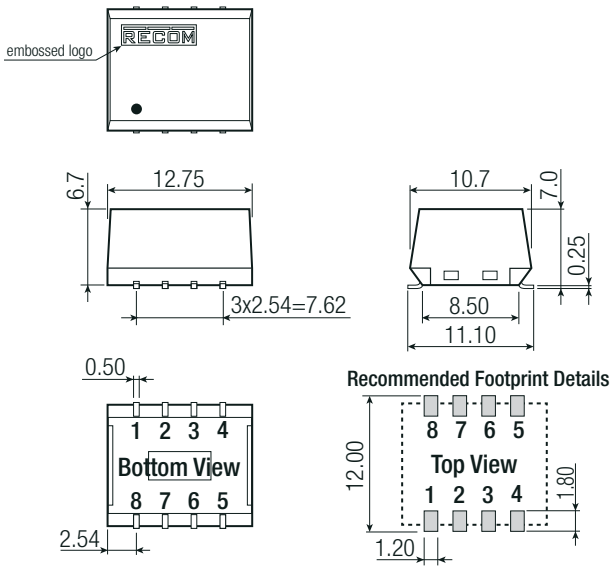
Pinning Information

Pin #	Dual
1	-Vin
2	+Vin
4	Com
5	-Vout
7	+Vout
10	NC

NC = No Connection
Tolerance:
xx.x= ±0.5mm
xx.xx= ±0.25mm

8 Pin Single SMD Package

/H option is not available in this pin package



Pinning Information

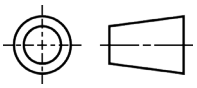
Pin #	Single
1	-Vin
2	+Vin
3	NC
4	-Vout
5	+Vout
6	NC
7	NC
8	NC

NC = No Connection
Tolerance:
xx.x= ±0.5mm
xx.xx= ±0.25mm

continued on next page

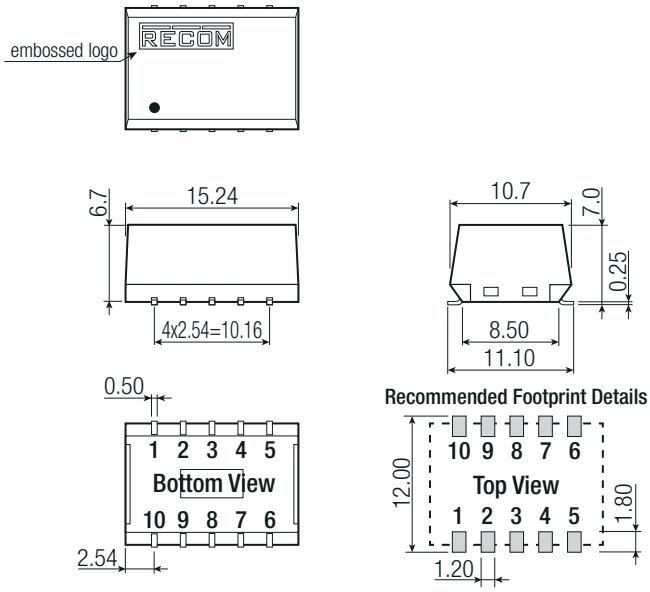
Specifications (measured @ Ta= 25°C, nom. Vin, full load and after warm-up unless otherwise stated)

Dimension Drawing (mm)



10 Pin Dual SMD Package

/H option is not available in this pin package



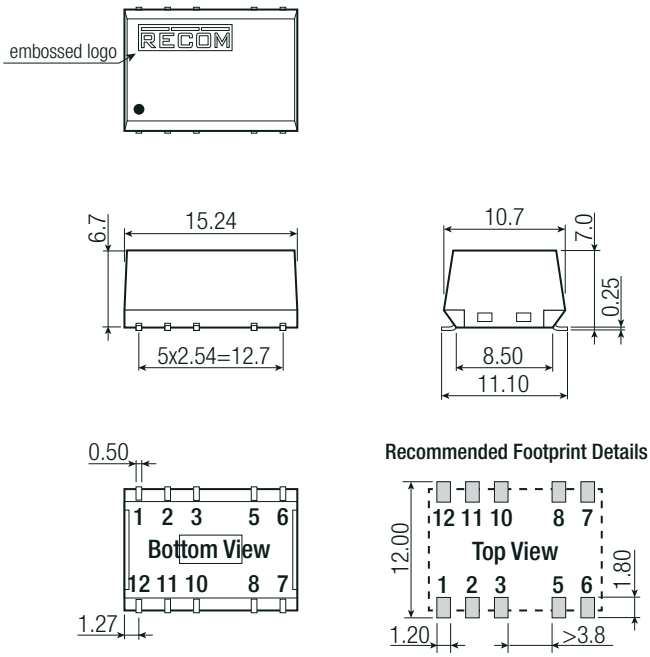
Pinning Information

Pin #	Dual	Independent
1	-Vin	-Vin
2	+Vin	+Vin
3	NC	no pin
4	Com	-Vout1
5	-Vout	+Vout1
6	NC	-Vout2
7	+Vout	+Vout2
8	NC	no pin
9	NC	no pin
10	NC	NC

NC = No Connection
Tolerance:
xx.x= ±0.5mm
xx.xx= ±0.25mm

12 Pin Single and Dual SMD Package

/H option is available in this pin package



Pinning Information

Pin #	Single	Dual
1	-Vin	-Vin
2	+Vin	+Vin
3	NC	NC
5	-Vout	Com
6	NC	-Vout
7	NC	NC
8	+Vout	+Vout
10	NC	NC
11	NC	NC
12	NC	NC

NC = No Connection
Tolerance:
xx.x= ±0.5mm
xx.xx= ±0.25mm

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

PACKAGING INFORMATION			
Packaging Dimension (LxWxH)	tube tape and reel (carton)		530.0 x 17.0 x 14.0mm 355.0 x 342.0 x 36.0mm
Packaging Quantity	tube	R0.25S, R0.25S8 R0.25S12, R0.25D, R0.25D(A)10, R0.25D(A)12	40pcs 33pcs
	tape and reel		500pcs
Tape Width			24.0mm
Storage Temperature Range			-55°C to +125°C
Storage Humidity	non-condensing		95% RH max.

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for Isolated DC/DC Converters ***category:***

Click to view products by Recom Power ***manufacturer:***

Other Similar products are found below :

ESM6D044440C05AAQ FMD15.24G PSL486-7LR PSR152.5-7IR Q48T30020-NBB0 AVO240-48S12B-6L AVO250-48S28B-6L NAN-0505 HW-L16D JAHW100Y1 217-1617-001 22827 SPB05C-12 SQ24S15033-PS0S 18952 19-130041 CE-1003 CE-1004 GQ2541-7R PSE1000DCDC-12V RDS180245 MAU228 419-2065-201 449-2075-101 TME 0303S TME 0505S TME 1205S TME 1212S TME 2405S TME 2412S J80-0041NL V300C24C150BG 419-2062-200 419-2063-401 419-2067-101 419-2067-501 419-2068-001 DCG40-5G DFC15U48D15 449-2067-000 XGS-0512 XGS-1205 XGS-1212 XGS-2412 XGS-2415 XKS-1215 033456 NCT1000N040R050B SPB05B-15 SPB05C-15