Features

Unregulated Converter

- 1:1 Input Range
- 0.5W SMD Package
- Efficiency up to 80%
- Approved for Medical Applications
- 1kVDC and 3 kVDC Isolation Option
- Operating Temperature from -40°C to +100°C

ECONOLINE
DC/DC-Converter
with 3 year Warranty

RECOM

0.5 Watt SMD Isolated Single or Dual Output

RoHS 2011/65/EU 6/6

c UL us
E358085

UL-60950-1 Certified

R0.5S_D

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

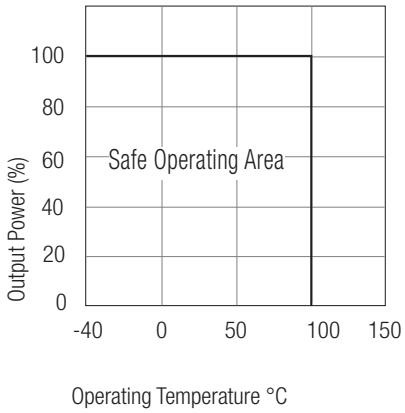
Part Number SMD	Input Voltage (VDC)	Output Voltage (VDC)	Output Current (mA)	Efficiency typ. (%)	Max Capacitive Load[1]**
R0.5S**-3.305*	3.3	5	100	80	1000µF
R0.5S**-3.312*	3.3	12	42	77	150µF
R0.5S**-3.315*	3.3	15	33	77	150µF
R0.5S**-0505*	5	5	100	72	1000µF
R0.5S**-0512*	5	12	42	77	150µF
R0.5S**-0515*	5	15	33	79	150µF
R0.5S**-1205*	12	5	100	74	1000µF
R0.5S**-1212*	12	12	42	75	150µF
R0.5S**-1215*	12	15	33	75	150µF
R0.5S**-2405*	24	5	100	75	1000µF
R0.5S**-2412*	24	12	42	77	150µF
R0.5S**-2415*	24	15	33	77	150µF
R0.5D**-3.305*	3.3	±5	±50	79	±470µF
R0.5D**-3.312*	3.3	±12	±21	76	±68µF
R0.5D**-3.315*	3.3	±15	±17	77	±68µF
R0.5D**-0505*	5	±5	±50	79	±470µF
R0.5D**-0512*	5	±12	±21	77	±68µF
R0.5D**-0515*	5	±15	±17	79	±68µF
R0.5D**1205*	12	±5	±50	76	±470µF
R0.5D**1212*	12	±12	±21	75	±68µF
R0.5D**1215*	12	±15	±17	75	±68µF
R0.5D**2405*	24	±5	±50	77	±470µF
R0.5D**2412*	24	±12	±21	75	±68µF
R0.5D**2415*	24	±15	±17	75	±68µF

*add Suffix "/H" for 3kVDC Isolation Voltage
*add Suffix "/P" for continuous short circuit protection
*add Suffix "-R" for tape & reel packing
For more details and dimensions of the tapes and reels see Application Notes

R0.5S**:
**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)

R0.5D**:
**without marking denotes 6 pins out of 10 fitted (includes „/H" option)
**with marking 10 denotes 10 pins out of 10 fitted („/H" option not available)
**with marking 12 denotes 10 pins out of 12 fitted (includes „/H" option)

Derating-Graph
(Ambient Temperature)



Refer to Application Notes

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

Input Voltage Range			±10% max.
Voltage Set Accuracy		100% Load/nominal Vin	-1% typ. / ±5% max.
Line Regulation		Low Line to High Line @ max. Load	1.2% typ.
Load Regulation		5V output	6% typ. / 15% max.
(10% to 100% Load)		12/15V output	5%typ. / 10% max.
Ripple & Noise @ 20MHz BW			50 mVp-p typ. / 100mVp-p max.
Efficiency at Full Load			70% min.
Operating Temperature			-40°C to +100°C
Storage Temperature			-55°C to +125°C
Isolation Voltage		(tested for 1 second)	1000VDC
		(rated for 1 minute***)	500VAC / 60Hz
Isolation Voltage	H-Suffix	(tested for 1 second)	3000VDC
	H-Suffix	(rated for 1 minute***)	1500VAC / 60Hz
Isolation Capacitance			75pF max.
Isolation Resistance		Viso = 500V	10 GΩ min.
Humidity			95% max.
Operating Frequency		Vin (nom.)	20kHz min. / 50 kHz typ. / 90 kHz max.
Short-Circuit Protection			1 Second
MTBF		Using MIL-HDBK 217F (+100°C)	1003 x 10^3 hours
Using MIL-HDBK 217F (+25°C)		3962 x 10^3 hours	*Detailed Information see Application Notes chapter „MTBF“*
Weight		Single Types	1.0 g
		Dual Types	1.2 g
Certification			
UL General Safety		Report: E358085	UL 60950-1 2nd Ed.

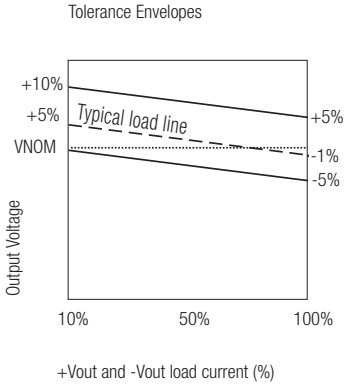
***Any data referred to in this datasheet are of indicative nature and based on our practical experience only. For further details, please refer to our Application Notes.

Notes

Note1: Maximum capacitive load is defined as the capacitive load that will allow start up in under 1second without damage to the converter.

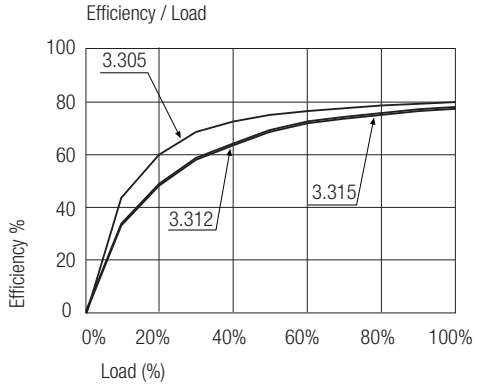
Typical Characteristics

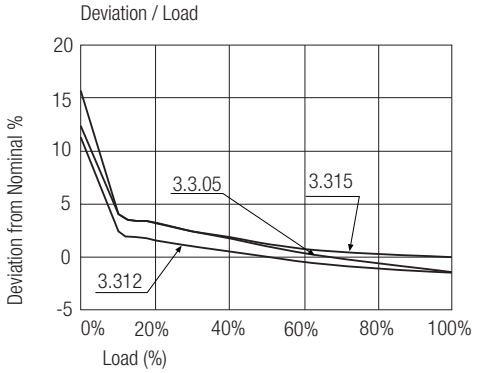
Tolerance Envelope



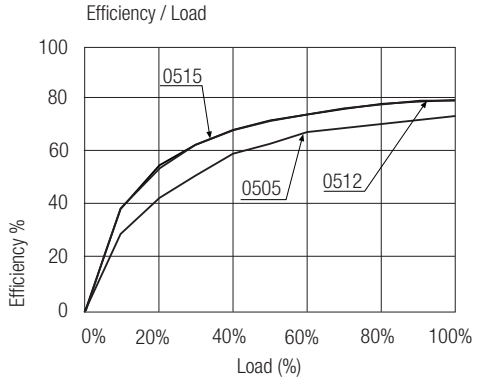
Typical Characteristics

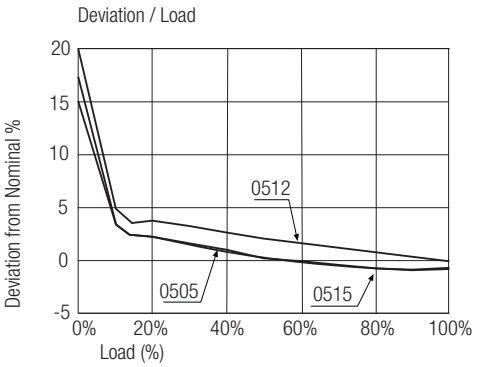
R0.5S-3.3xx



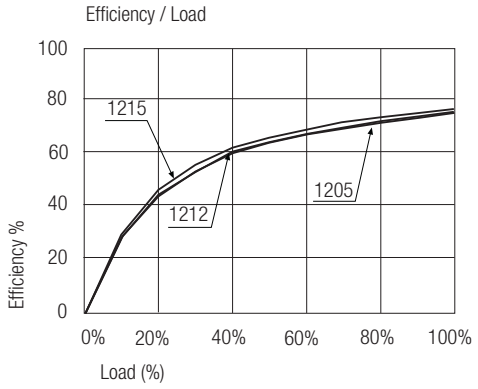


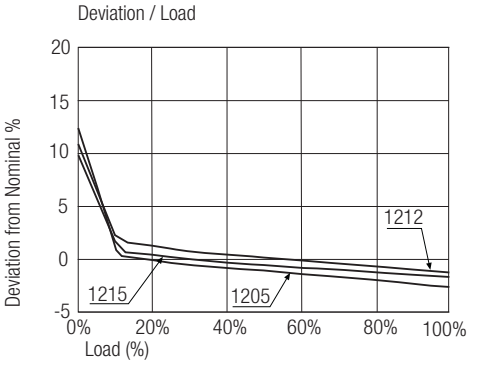
R0.5S-05xx



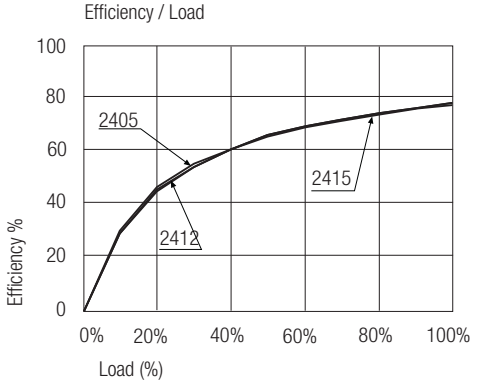


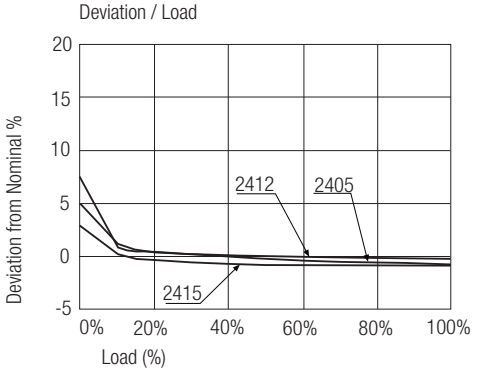
R0.5S-12xx





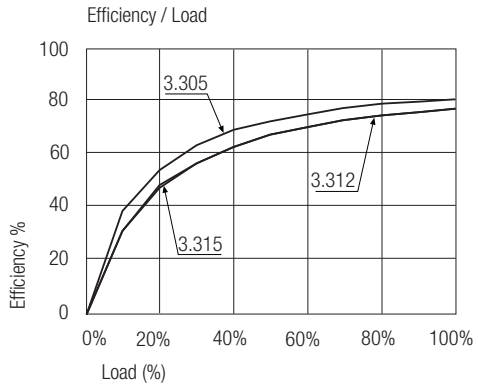
R0.5S-24xx

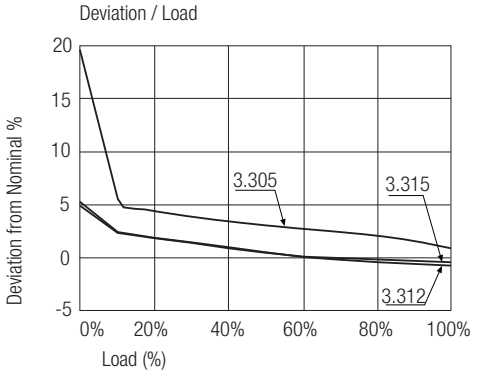




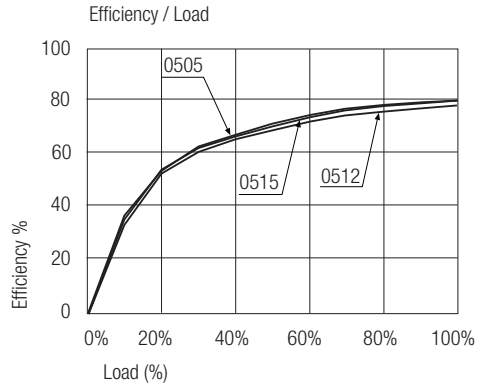
Typical Characteristics

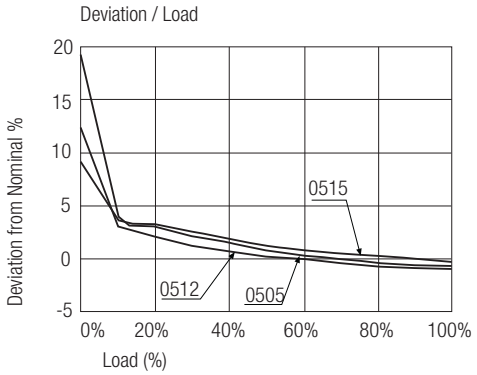
R0.5D-3.3xx



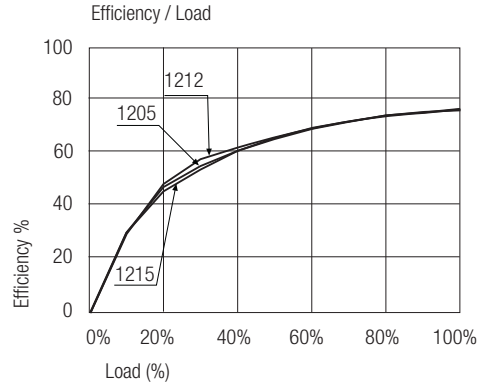


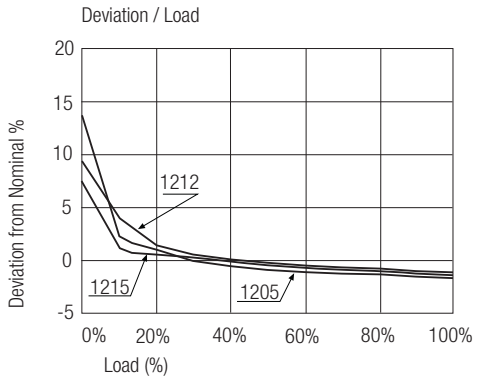
R0.5D-05xx



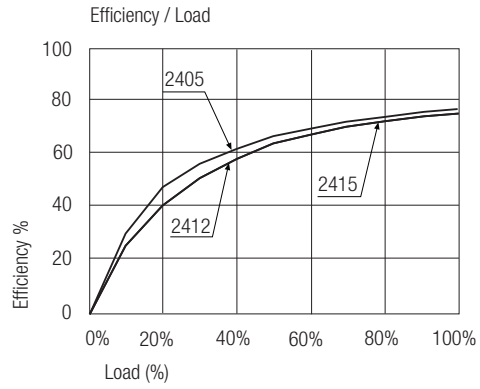


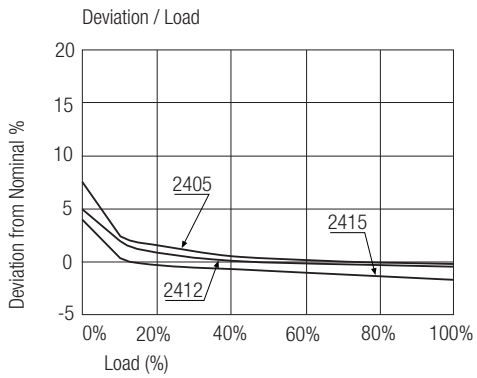
R0.5D-12xx





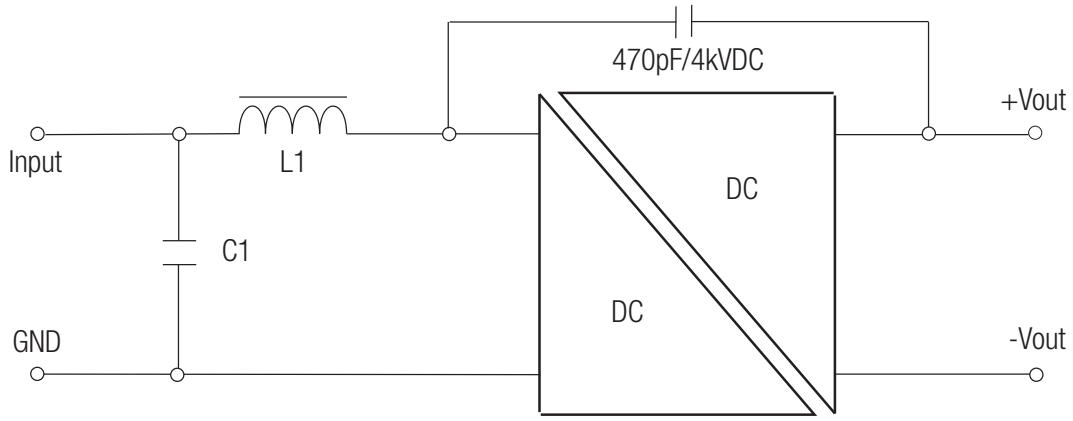
R0.5D-24xx





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

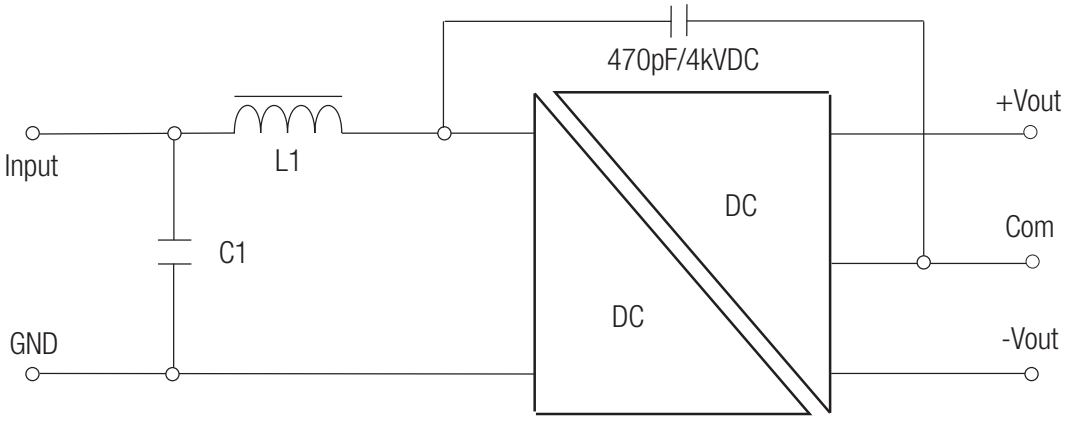
Single Output



Except „/P“ Verions

C1	L1	Vin
4.7µF	4.7µH	3.3V
4.7µF	4.7µH	5V
4.7µF	4.7µH	12V
2.2µF	4.7µH	15V

Dual Output



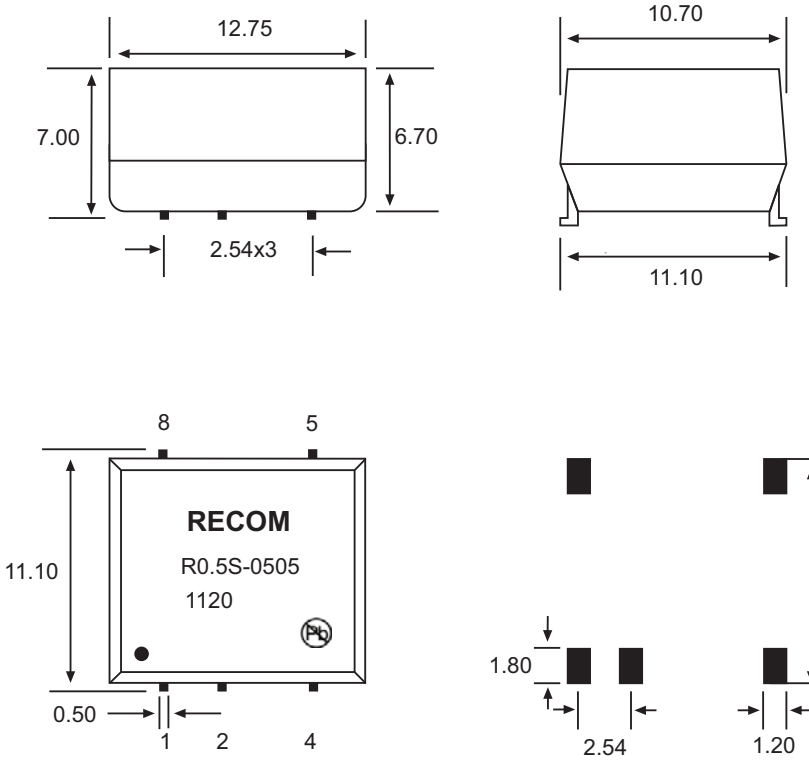
Except „/P“ Verions

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

C1 = MLCC
L1 = SMD Inductor

Package Style and Pinning (mm)

5 PINS Single SMD Package



Footprint

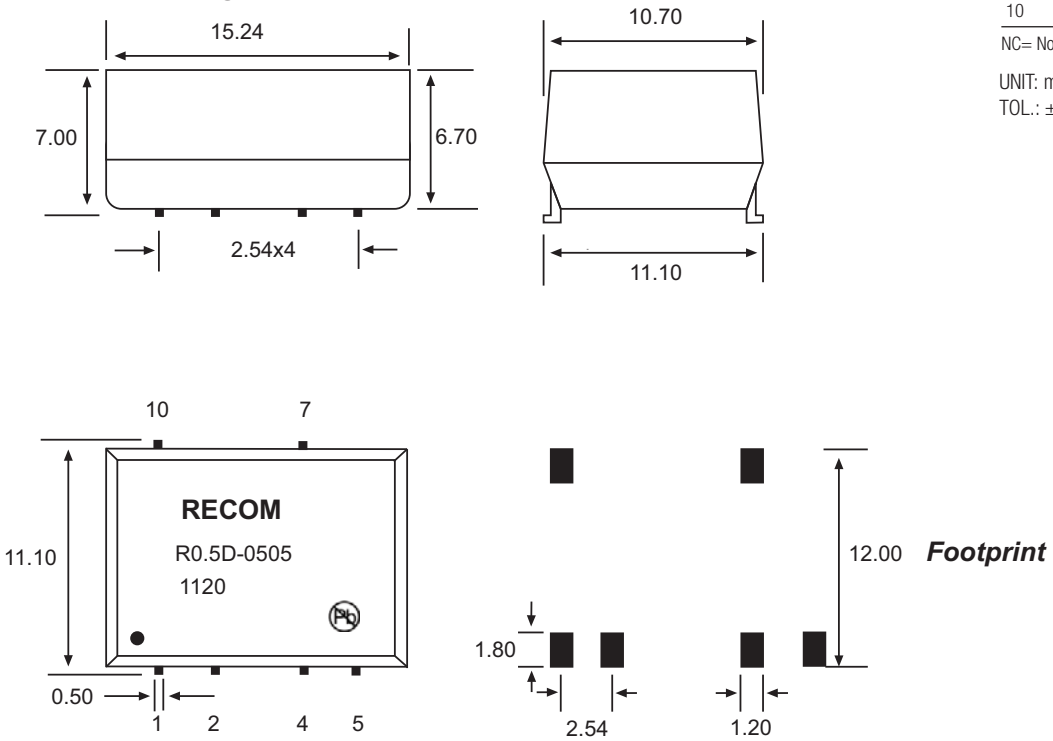
Pin Connections

Pin #	Single	Dual
1	–Vin	–Vin
2	+Vin	+Vin
4	-Vout	Com.
5	+Vout	–Vout
7	No Pin	+Vout
8	NC	No Pin
10	No Pin	NC

NC= No Connection

UNIT: mm
TOL.: ± 0.25 mm

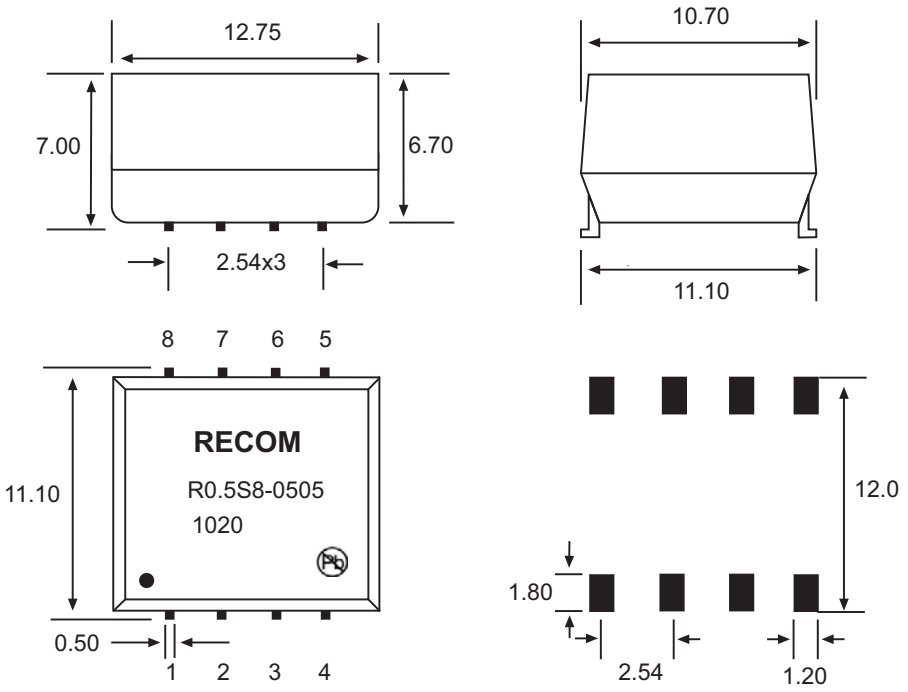
6 PINS Dual SMD Package



Footprint

Package Style and Pinning (mm)

8 PINS Single SMD Package



Footprint

Pin Connections

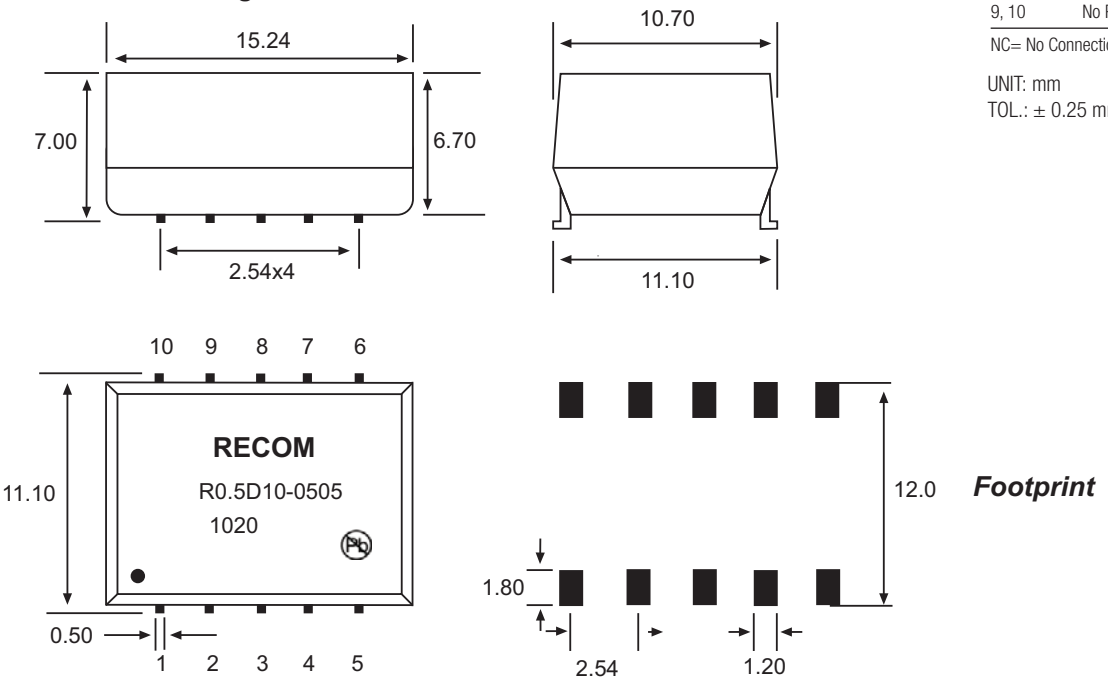
Pin #	Single	Dual
1	–Vin	–Vin
2	+Vin	+Vin
4	-Vout	Com.
5	+Vout	–Vout
7	NC	+Vout
3, 6, 8	NC	NC
9, 10	No Pin	NC

NC= No Connection

UNIT: mm
TOL.: ± 0.25 mm

R0.5S_D

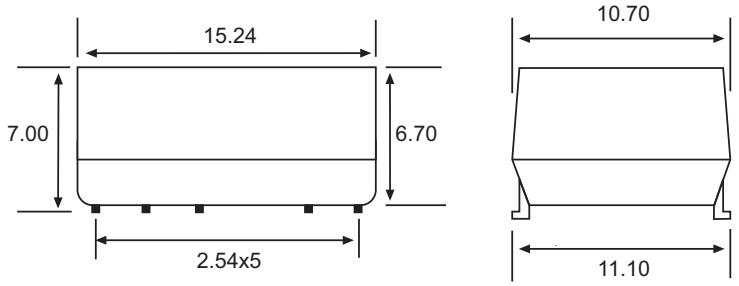
10 PINS Dual SMD Package



Footprint

Package Style and Pinning (mm)

12 PINS Dual SMD Package



Pin Connections

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

NC= No Connection

Unit: mm

TOL.: ± 0.25 mm