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Features

Unregulated Converters

- RoHS 5/6 Conform
- 1kVDC or3kVDC Isolation Options
- H version Approved for Medical Applications
- Suitable for Fully Automated Assembly
- Optional Continuous Short Circuit Protected
- Efficiency to 84%
- RoHS 5/6 Conform

Selection Guide

Part Number SMD	(3kV)	Input Voltage (VDC)	Output Voltage (VDC)	Output Current (mA)	Efficiency (%)
RSS**-xx3.3	(H)	3.3, 5, 12, 15, 24	3.3	303	75
RSS**-xx05	(H)	3.3, 5, 12, 15, 24	5	200	70-78
RSS**-xx09	(H)	3.3, 5, 12, 15, 24	9	111	74-78
RSS**-xx12	(H)	3.3, 5, 12, 15, 24	12	84	76-80
RSS**-xx15	(H)	3.3, 5, 12, 15, 24	15	66	76-82
RSS**-xx24	(H)	3.3, 5, 12, 15, 24	24	42	74-84
RSD**-xx3.3	(H)	3.3, 5, 12, 15, 24	±3.3	±152	70
RSD**-xx05	(H)	3.3, 5, 12, 15, 24	±5	±100	72-78
RSD**-xx09	(H)	3.3, 5, 12, 15, 24	±9	±56	74-78
RSD**-xx12	(H)	3.3, 5, 12, 15, 24	±12	±42	76-80
RSD**-xx15	(H)	3.3, 5, 12, 15, 24	±15	±33	76-82
RSD**-xx24	(H)	3.3, 5, 12, 15, 24	±24	±21	74-84

xx = Input Voltage (other input and output voltage combinations available on request)

* add Suffix "H" for 3kV Isolation, e.g. RSS-0505/H, RSD-0505/H, RSS12-0505/H, RSD12-0505/H

* add Suffix "P" for Continuous Short Circuit Protection, e.g. RSS8-0505/P, RSS-0505/HP, RSD12-0505/HP

* add suffix -R for tape & reel packing e.g. RSS-0505-R. For more details see Application Notes.

Case and Pinning Options (note restrictions on /H option)

RSS** : ** 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)
RSD** : ** without marking denotes 6 pins out of 10 fitted (includes /H option)
** with marking **10** denotes with 10 pins out of 10 fitted (/H option not available)
** with marking **12** denotes 10 pins out of 12 fitted (includes /H option)

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

Input Voltage Range			±10%
Output Voltage Accuracy			±5% max.
Line Voltage Regulation		RSS, RSS8, RSD, RSD10	1.2%/1% of Vin typ.
		RSS12, RSD12	1%/1% of Vin typ.
Load Voltage Regulation (10% to 100% full load)		3.3V output types	15% typ., 20% max.
		5V output type	12% typ., 15% max.
		9V, 12V, 15V, 24V output types	7% typ., 10% max.
Output Ripple and Noise (20MHz limited)		All Variants	100mVp-p max.
Operating Frequency			50kHz min. / 100kHz typ. / 120kHz max.
Efficiency at Full Load			See Selection Guide
Minimum Load = 0%			Specifications valid for 10% minimum load only.
Isolation Voltage		(tested for 1 second)	1000VDC min.
	H-Suffix	(tested for 1 second)	3000VDC min.
Rated Working Voltage		(long term isolation)	see Application Notes
Isolation Capacitance		RSS, RSS8, RSD, RSD10	15pF min. / 70pF max.
		RSS12, RSD1	10pF min. / 75pF max.
Isolation Resistance			10 GΩ min.

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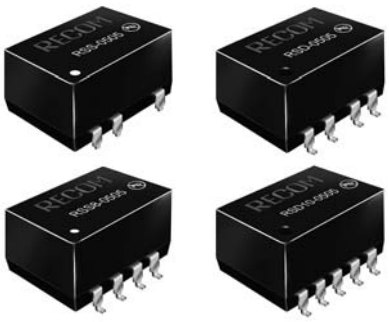
ECONOLINE
DC/DC-Converter

RECOM

1 Watt SMD Single & Dual Output



RoHS 2002/95/EC 5/6

EN-60950-1 Certified
EN-60601-1 Certified (suffix H)

RSS_RSD

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END OF LIFE: Please do not use for new design, replace with new SMD converter R1S (single output) and/or R1D (dual output).

Description

RSS and RSD DC/DC converters are typically used in general purpose low power isolation and voltage matching applications where an SMD mounting style is required. The converters feature a full industrial operating temperature range of -40°C ~ +85°C without derating and come in three different case formats to make them compatible with industry standards.

Refer to Application Notes

RSS-RSD

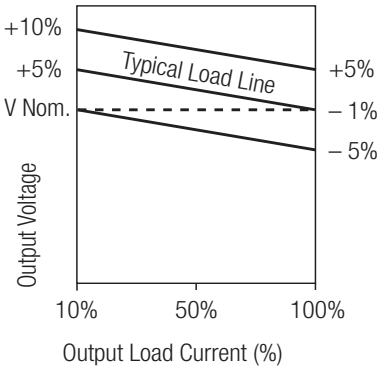
ECONOLINE
DC/DC-Converter

RSS_RSD Series

Specifications - continued

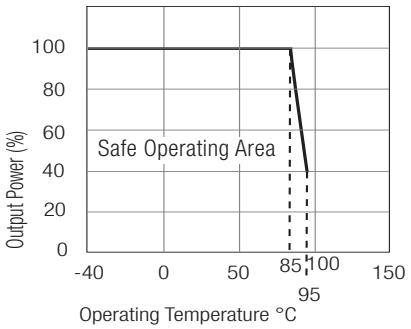
Short Circuit Protection P-Suffix			1 Second Continuous
Operating Temperature Range (free air convection)			-40°C to +85°C (see Graph)
Storage Temperature Range			-55°C to +125°C
Reflow Temperature	ROHS compliant		245°C (30 sec) max.
Vapour Phase Process	(for more details see Application Notes)		230°C (90 sec) max.
Relative Humidity			95% RH
Package weight			1.9g (RSS), 2.2g (RSD)
Packing Quantity		RSS, RSS8	40 pcs per Tube
		RSS12, RSD	33 pcs per tube
		All Types	500 pcs per Reel
MTBF (+25°C)	*Detailed Information see Application Notes chapter "MTBF"*	using MIL-HDBK 217F	1045 x 10^3 hours
(+85°C)		using MIL-HDBK 217F	183 x 10^3 hours

Tolerance Envelope

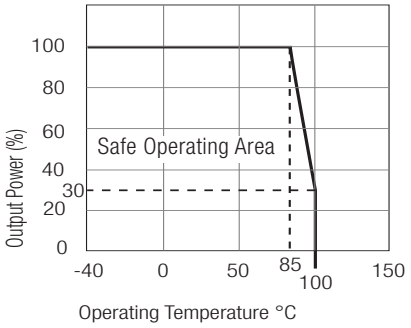


Derating-Graphs
(Ambient Temperature)

RSS, RSS8, RSD, RSD10

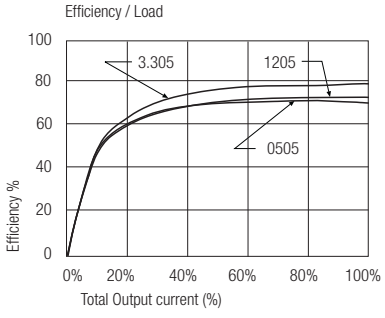


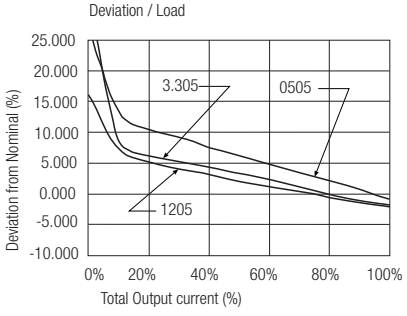
RSS12, RSD12



Typical Characteristics

RSS**-xx05





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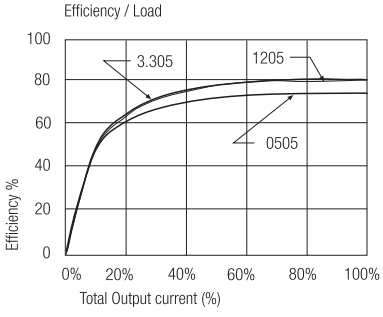

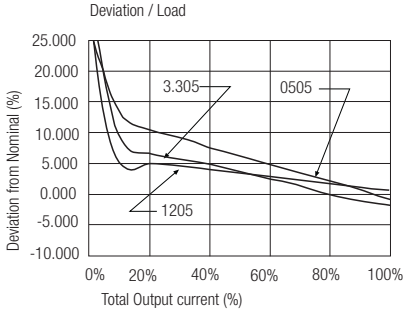

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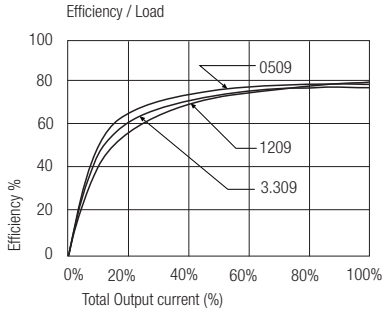
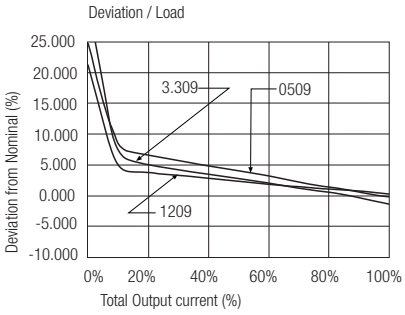
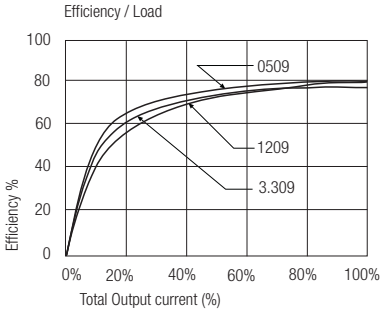
Typical Characteristics

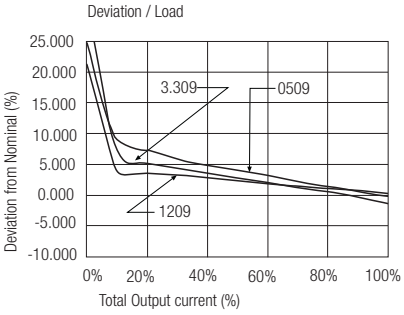
RSS**-xx09



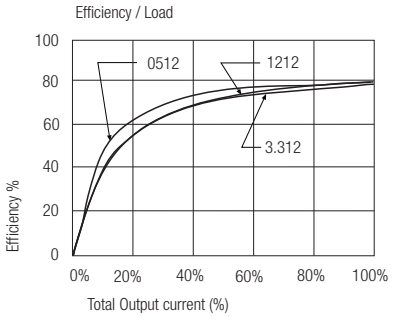


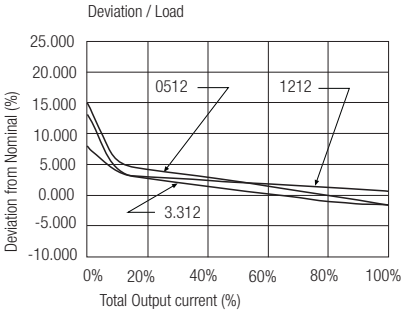
RSS12-xx09



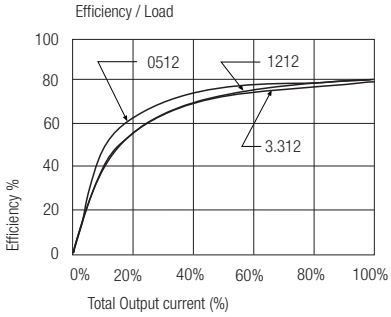


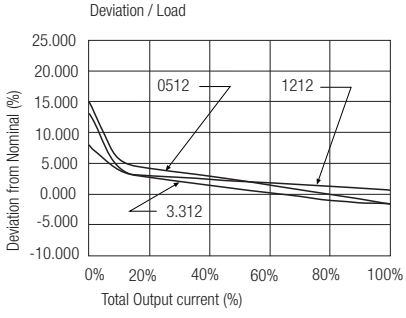
RSS**-xx12



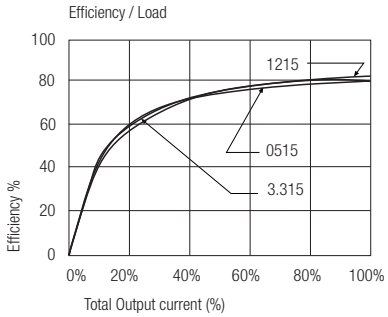


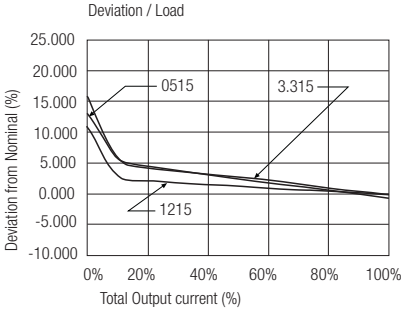
RSS12-xx12



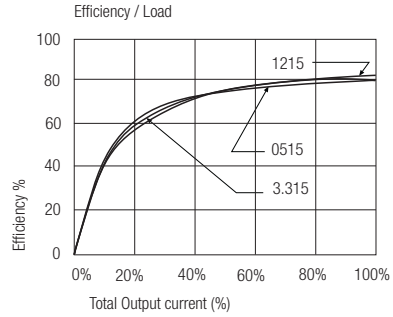


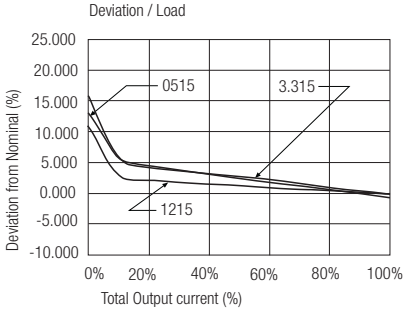
RSS**-xx15





RSS12-xx15





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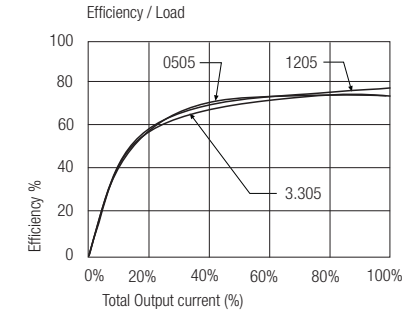
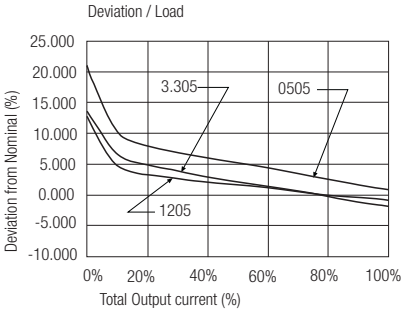
ECONOLINE
DC/DC-Converter

RSS_RSD Series

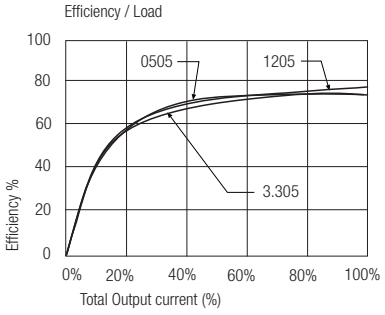
Package Style and Pinning (mm)

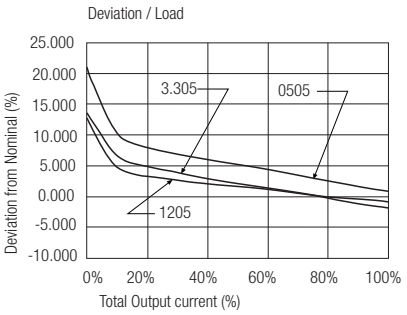
RSD**-xx05



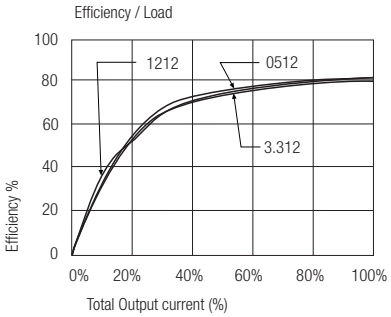


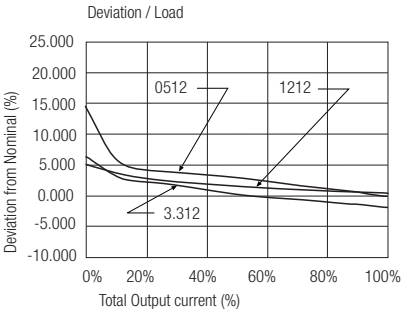
RSD12-xx05



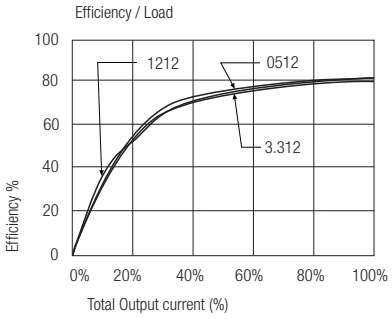


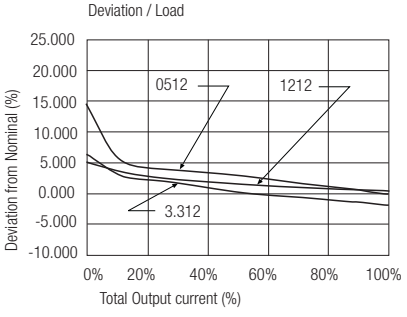
RSD**-xx12



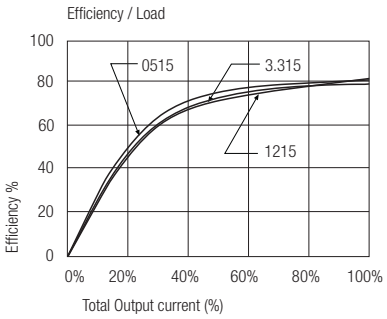


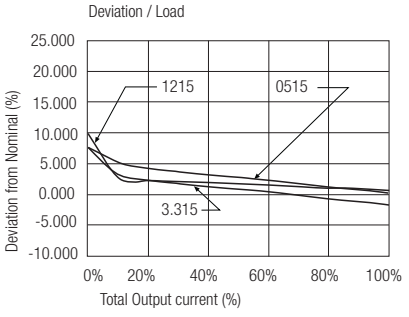
RSD12-xx12



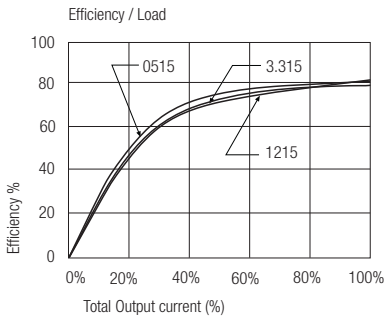


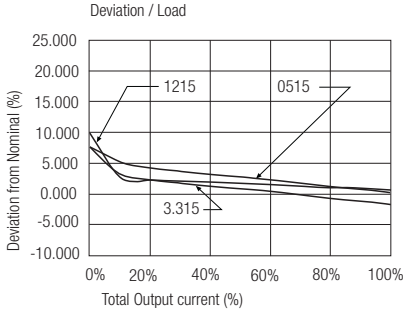
RSD**-xx15





RSD12-xx15





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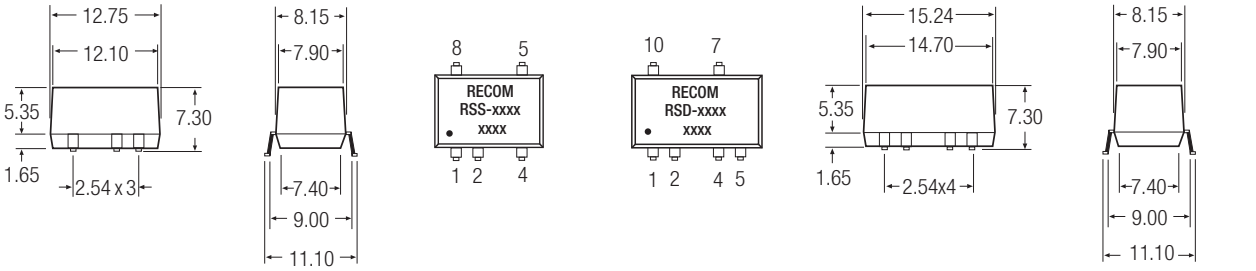
Package Style and Pinning (mm)

5 PIN Single SMD Package

Note: /H option is available in these pin packages

6 PIN Dual SMD Package

3rd angle projection



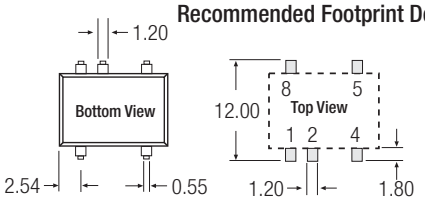
Pin Connections

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

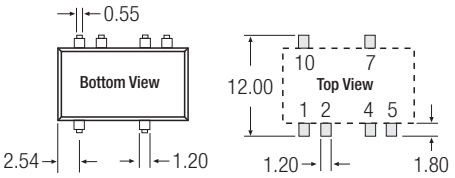
NC = No Connection

XX.X ± 0.5 mm
XX.XX ± 0.25 mm

Recommended Footprint Details



Recommended Footprint Details



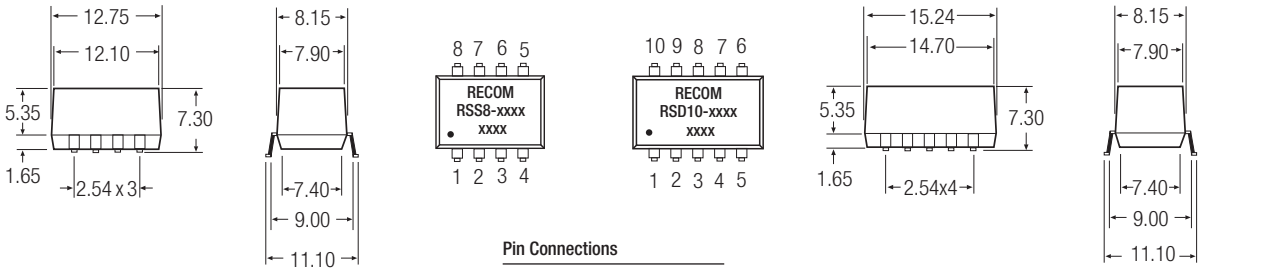
RSS-RSD

8 PIN Single SMD Package

Note: /H option is not available in these pin packages

10 PIN Dual SMD Package

3rd angle projection



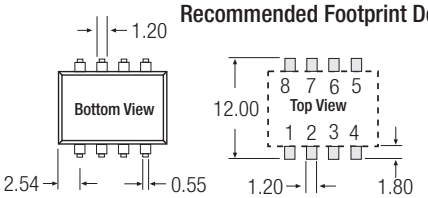
Pin Connections

Pin #	Single	Dual
1	–Vin	–Vin
2	+Vin	+Vin
3	NC	NC
4	–Vout	Com
5	+Vout	–Vout
6	NC	NC
7	NC	+Vout
8	NC	NC
9	-	NC
10	-	NC

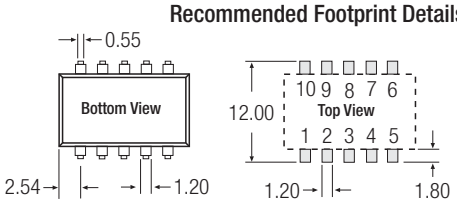
NC = No Connection

XX.X ± 0.5 mm
XX.XX ± 0.25 mm

Recommended Footprint Details



Recommended Footprint Details



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ECONOLINE
DC/DC-Converter

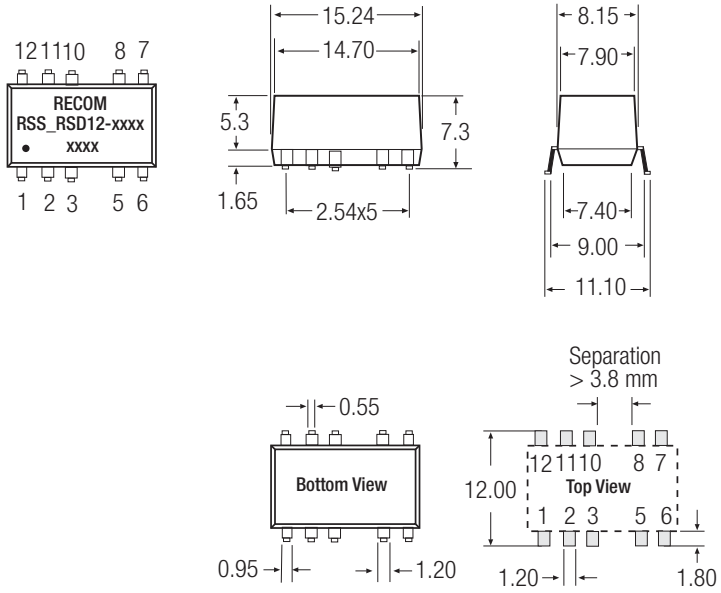
RSS_RSD Series

Package Style and Pinning (mm)

12 PIN Single and Dual SMD Package

Note: /H option is available in this pin package

3rd angle projection



Recommended Footprint Details

Pin Connections

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

XX.X ± 0.5 mm
XX.XX ± 0.25 mm

Part Number Information

RSS** : ** without marking denotes 5 pins out of 8 fitted (includes /H option) — e.g. RSS-0505, RSS-0505/H, RSS-0505/HP
** with marking **8** denotes 8 pins out of 8 fitted (/H option not available) — e.g. RSS8-0505, RSS8-0505/P
** with marking **12** denotes 10 pins out of 12 fitted (includes /H option) — e.g. RSS12-0505, RSS12-0505/H, RSS12-0505/HP

RSD** : ** without marking denotes 6 pins out of 10 fitted (includes /H option) — e.g. RSD-0505, RSD-0505/H, RSD-0505/HP
** with marking **10** denotes with 10 pins out of 10 fitted (/H option not available) — e.g. RSD10-0505, RSD10-0505/P
** with marking **12** denotes 10 pins out of 12 fitted (includes /H option) — e.g. RSD12-0505, RSD12-0505/H, RSD12-0505/HP

END OF LIFE Dec.2011