

Features

Unregulated Converters

- RoHS 5/6 Conform
- 1kVDC or 3kVDC 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 | Input Voltage (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. | |

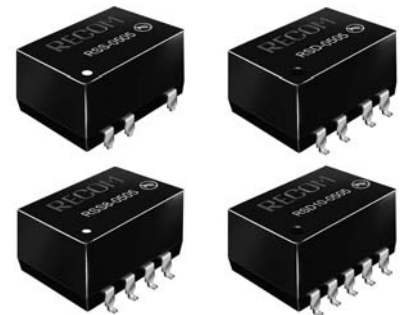
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ECONOLINE

DC/DC-Converter



1 Watt SMD Single & Dual Output



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

RSS_RSD

EOL Dec.2011

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

www.recom-electronic.com

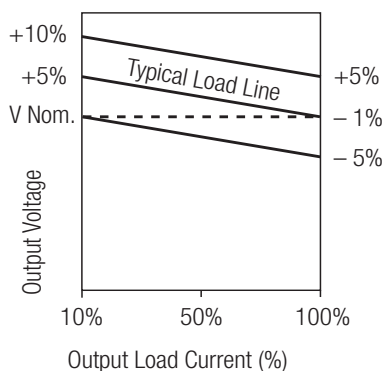
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DC/DC-Converter

Specifications - continued

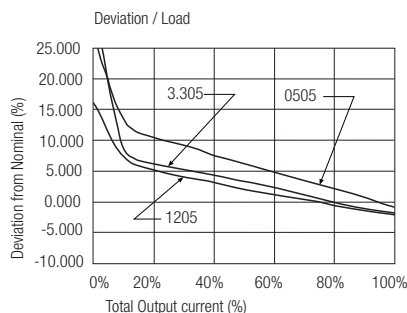
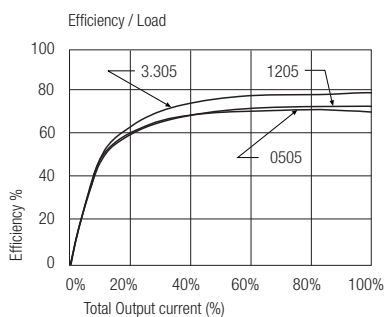
| | | | |
|---|--|----------------------------|------------------------------|
| Short Circuit Protection | | 1 Second | |
| P-Suffix | | Continuous | |
| Operating Temperature Range (free air convection) | | -40°C to +85°C (see Graph) | |
| Storage Temperature Range | | -55°C to +125°C | |
| Reflow 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 |
| | | using MIL-HDBK 217F | 183 x 10 ³ hours |

Tolerance Envelope

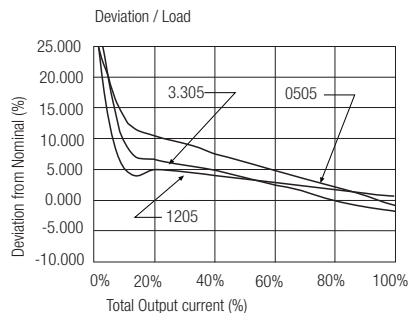
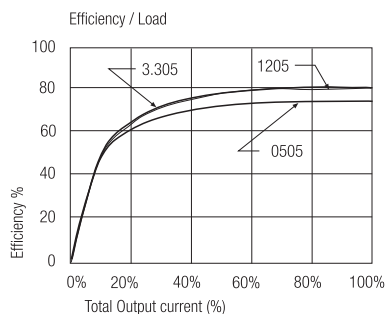


Typical Characteristics

RSS**-xx05



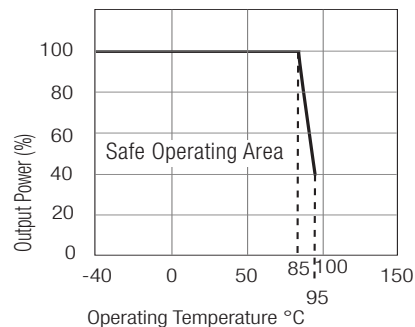
RSS12-xx05



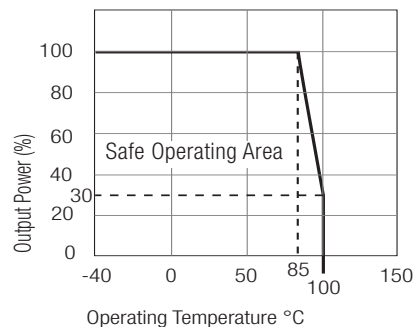
RSS_RSD Series

Derating-Graphs (Ambient Temperature)

RSS, RSS8, RSD, RSD10

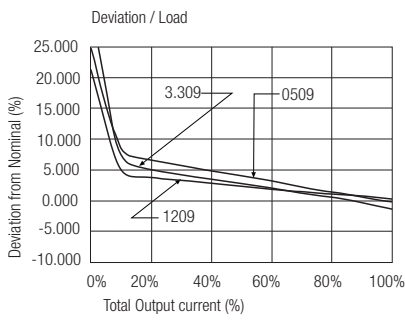
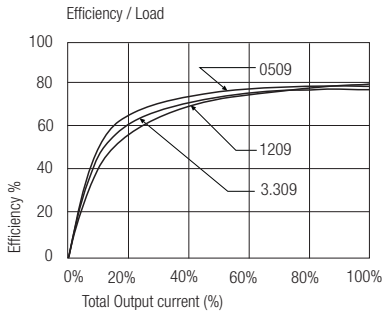


RSS12, RSD12

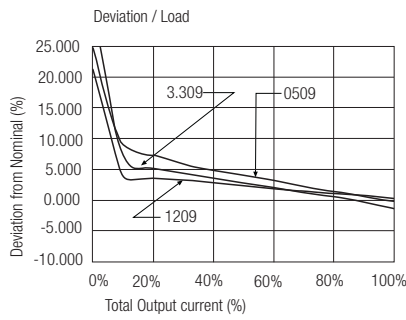
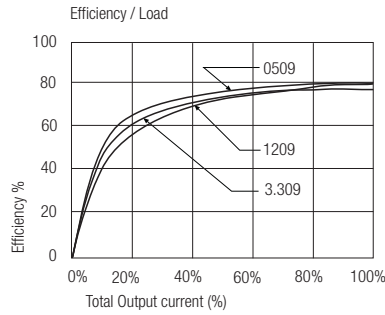


Typical Characteristics

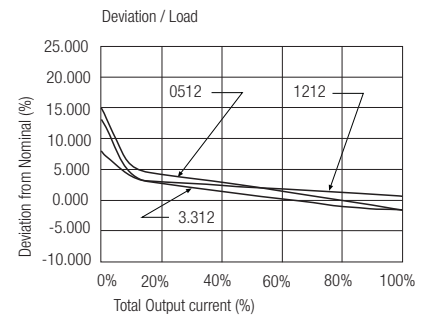
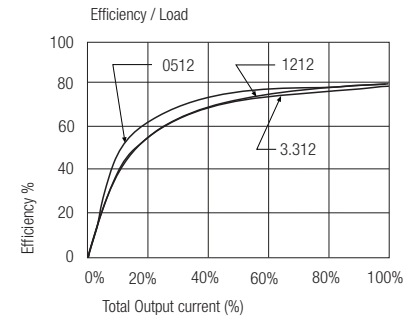
RSS-xx09**



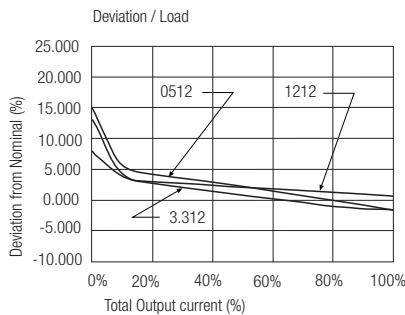
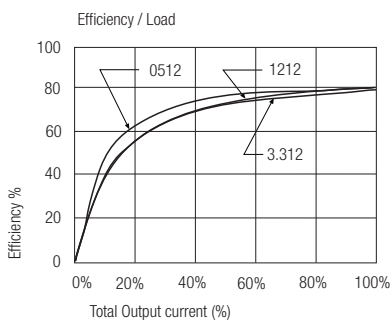
RSS12-xx09



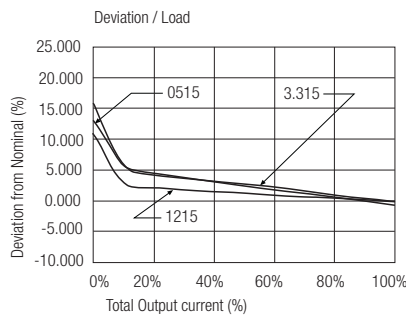
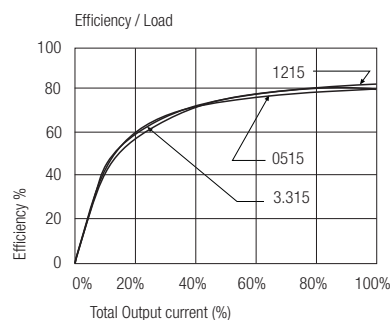
RSS-xx12**



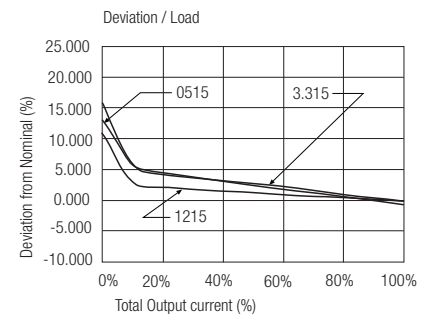
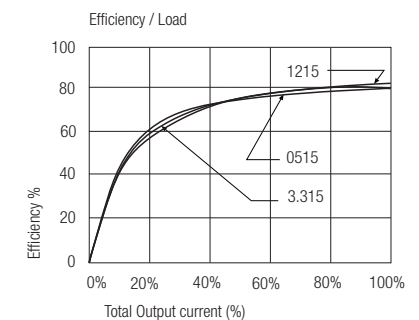
RSS12-xx12



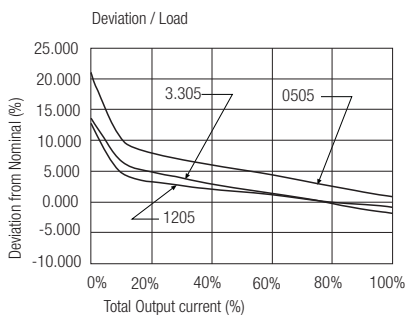
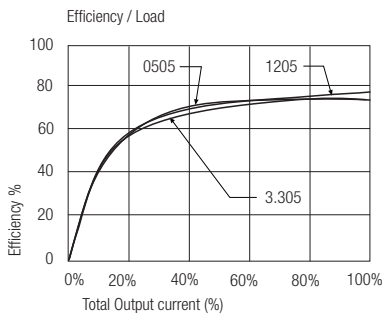
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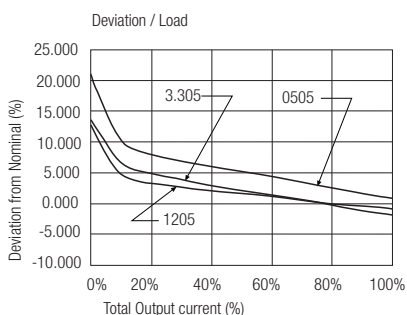
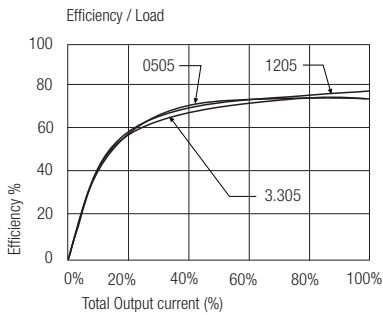
RSS12-xx15



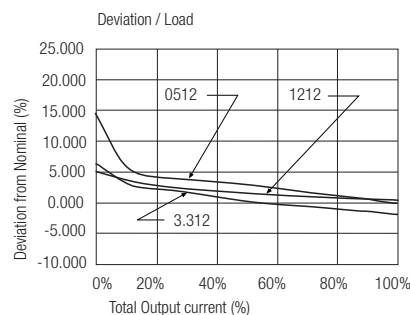
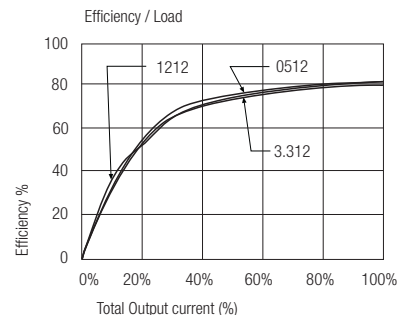
RSD-xx05**



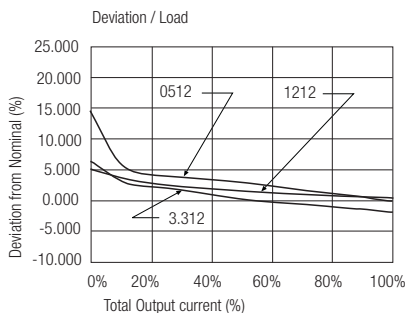
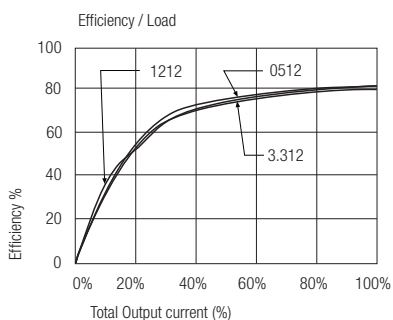
RSD12-xx05



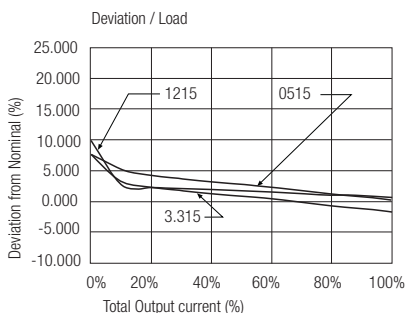
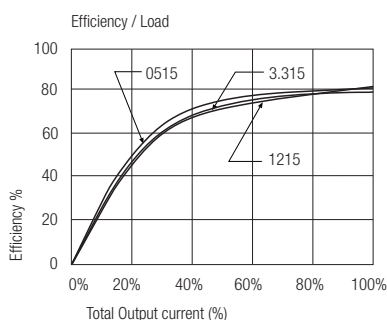
RSD-xx12**



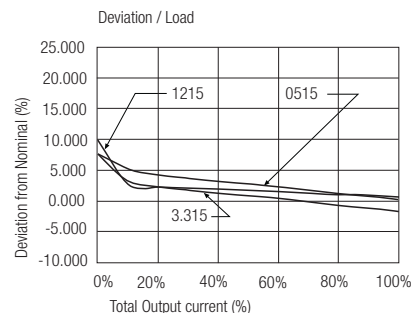
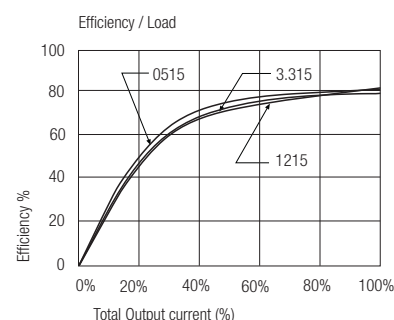
RSD12-xx12



RSD-xx15**



RSD12-xx15



RSS_RSD Series

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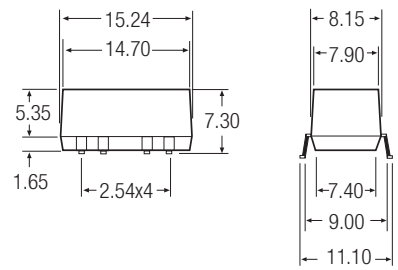
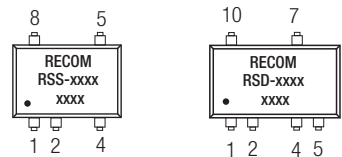
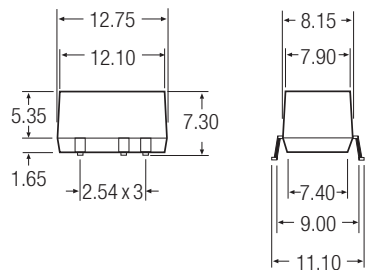
DC/DC-Converter

Package Style and Pinning (mm)

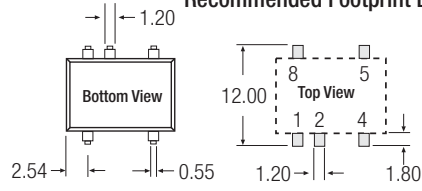
5 PIN Single SMD Package

Note: /H option is available in these pin packages

6 PIN Dual SMD Package



Recommended Footprint Details

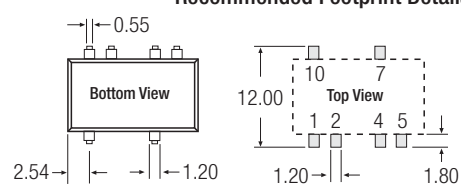


Pin Connections

| 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

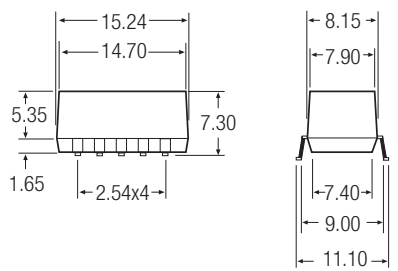
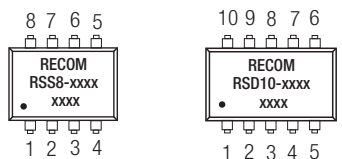
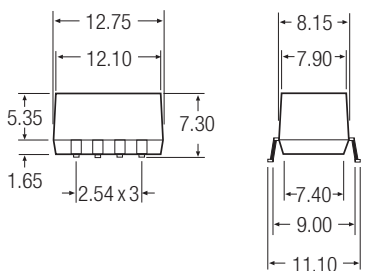
Recommended Footprint Details



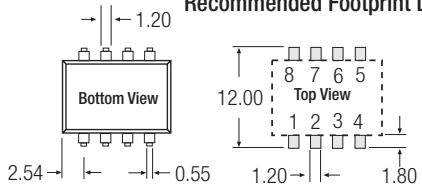
8 PIN Single SMD Package

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

10 PIN Dual SMD Package



Recommended Footprint Details

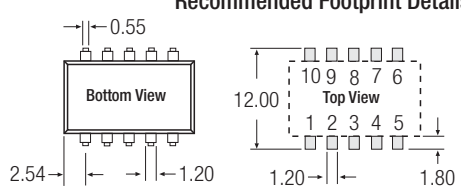


Pin Connections

| 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



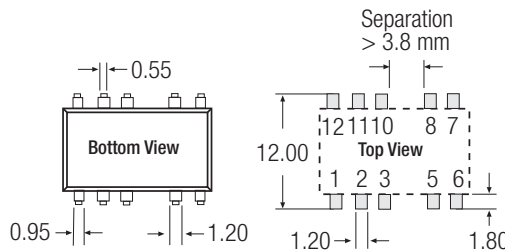
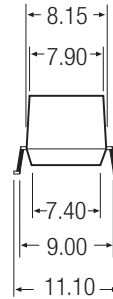
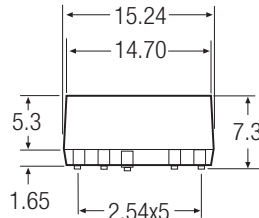
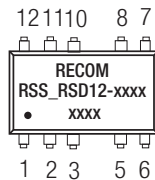
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DC/DC-Converter

Package Style and Pinning (mm)

12 PIN Single and Dual SMD Package

Note: /H option is available in this pin package



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

Recommended Footprint Details

Part Number Information

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)

e.g. RSS-0505, RSS-0505/H, RSS-0505/HP
 e.g. RSS8-0505, RSS8-0505/P
 e.g. RSS12-0505, RSS12-0505/H, RSS12-0505/HP

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)

e.g. RSD-0505, RSD-0505/H, RSD-0505/HP
 e.g. RSD10-0505, RSD10-0505/P
 e.g. RSD12-0505, RSD12-0505/H, RSD12-0505/HP

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