

RS2-SS10/SD10v2

FEATURES

- 7 Pin SIL Package
- 1000VDC Isolation
- Up to 3000VDC Isolation
- Low Ripple and Noise
- Efficiency up to 89%
- Operating Temperature Range:
-40° ~ +85°C
- Non Conductive Black Plastic Case
- EMI Complies with EN55022 Class B

RoHS



| OUTPUT SPECIFICATION | ENVIRONMENTAL SPECIFICATION |
|--|---|
| Voltage accuracy: $\pm 3\%$ | Operating Temperature range: -40°C ~ +85°C (see Derating Curve) |
| Line regulation: per 1%Vin Change: $\pm 1.2\%$ | Maximum Case Temperature: 100°C |
| LOAD REGULATION: from 10% to 100% Load: see table | Storage Temperature : -40°C ~ +125°C |
| Ripple & Noise: 50mV pk-pk | Cooling : Nature Convection |
| Temperature coefficient: $\pm 0.02\%$ °C | PHYSICAL SPECIFICATIONS: |
| Capacitor load: See table | Case Material: Non-conductive Black Plastic (UL94V-0 rated) |
| INPUT SPECIFICATIONS | PIN Material: C5191R-H Solder coated |
| Voltage Range: $\pm 10\%$ | Potting Material: Epoxy (UL94V-0 rated) |
| Max. Input Current: See table | Weight Case- Sip: 2.4 ~ 2.8g |
| No-Load/Full-Load Input Current: See table | Dimmension SIP: 0.76 x 0.24 (28") x 0.39" |
| Input Filter: Capacitors | ABSOLUTE MAXIMUM RATINGS (1) |
| Input Reflected Ripple Current : 20-50mA pk-pk by 5V-48V | Input Surge Voltage (100ms)/ |
| GENERAL SPECIFICATIONS | 5 V Models: 9VDC max |
| Efficiency: See table | 12V Models: 18VDC max |
| I/O Isolation Voltage (60sec): 1000 ~ 3000VDC | 15V Models: 20VDC max |
| I/O Isolation Capacitance: 60pF typ. | 24V Models: 30VDC max |
| I/O Isolation Resistance: 1000M Ohm | 48V Models: 54VDC max |
| Switching Frequency: Variable 70kHz | Soldering Temperature (2): 260°C max. |
| Humidity: 95% rel H | EMC SPECIFICATIONS |
| Reliability Calculated MTBF : >2.0Mhrs (MIL-HDBK-217 f) | Radiated-/Conducted Emissions: EN55022 Class B |
| Safety Standard: (designed to meet): IEC 60950-1 | ESD: IEC 61000-4-2 Perf.Criteria A |
| | RS: IEC 61000-4-3 Perf.Criteria A |
| | EFT: IEC 61000-4-4 Perf.Criteria A |
| | SURGE: IEC 61000-4-5 Perf.Criteria A |
| | CS: IEC 61000-4-6 Perf.Criteria A |
| | PFMF IEC 61000-4-8 Perf.Criteria A |

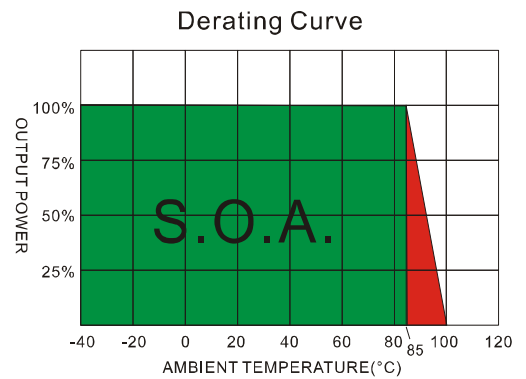
1) These are stress ratings. Exposure of devices to any of these conditions may adversely affect long-term reliability.

2) (1.5mm from case 10sec Max.)

3) All specifications typical at TA= 25°C, nominal input voltage and full load unless otherwise specified.

4) The information and specification contained in this data sheet are believed to be correct at time of publication. However RSG accepts no responsibility for consequences arising from printing errors or inaccuracies. Specifications are subject to change without notice.

| NUMBER STRUCTURE | | | | | | |
|--------------------------|----------|--|--|--|---------------------------------|---|
| RS2 | - | XX | XX | XX | A | X v2 |
| Name/Package RS2=SiL7 | | Input 05=5.0V 12=12V 15=15V 24=24V 48=48V | Output 05=5.0V 09=9.0V 12=12V 15=15V | Type SS=Semi-Reg. Single SD=Semi-Reg. Dual | Power (W) 10=1.00 20=2.00 | Code internal Isolation (kVDC) 1= 1.0 3= 3.0 |



MODEL SELECTION GUIDE

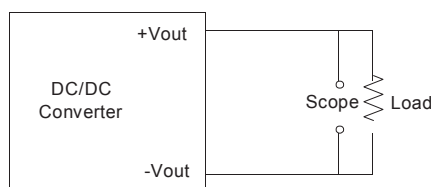
| MODEL NUMBER | INPUT Voltage Range (Vdc) | INPUT Current | | OUTPUT Voltage (Vdc) | OUTPUT Current Full load (mA) | LOAD Regulation % | EFFICIENCY @FL(%) | Capacitor Load(μF) |
|------------------|---------------------------|---------------|----------------|----------------------|-------------------------------|-------------------|-------------------|--------------------|
| | | No-Load (mA) | Full Load (mA) | | | | | |
| RS2-0505SD10AXv2 | 5 | 20 | 230 | ±5 | ±100 | 6 | 84 | ±100 |
| RS2-0509SD10AXv2 | 5 | 30 | 230 | ±9 | ±55.55 | 5.5 | 86 | ±100 |
| RS2-0512SD10AXv2 | 5 | 20 | 228 | ±12 | ±41.67 | 5.5 | 87 | ±47 |
| RS2-0515SD10AXv2 | 5 | 20 | 228 | ±15 | ±33.33 | 5 | 87 | ±47 |
| RS2-1205SD10AXv2 | 12 | 15 | 98 | ±5 | ±100 | 4 | 85 | ±100 |
| RS2-1209SD10AXv2 | 12 | 15 | 95 | ±9 | ±55.55 | 3.5 | 86 | ±100 |
| RS2-1212SD10AXv2 | 12 | 15 | 94 | ±12 | ±41.67 | 3.5 | 87 | ±47 |
| RS2-1215SD10AXv2 | 12 | 15 | 94 | ±15 | ±33.33 | 3.5 | 87 | ±47 |
| RS2-1505SD10AXv2 | 15 | 10 | 78 | ±5 | ±100 | 3.5 | 85 | ±100 |
| RS2-1509SD10AXv2 | 15 | 10 | 76 | ±9 | ±55.55 | 2.5 | 87 | ±100 |
| RS2-1512SD10AXv2 | 15 | 10 | 76 | ±12 | ±41.67 | 2.5 | 87 | ±47 |
| RS2-1515SD10AXv2 | 15 | 10 | 75 | ±15 | ±33.33 | 2.5 | 88 | ±47 |
| RS2-2405SD10AXv2 | 24 | 7 | 51 | ±5 | ±100 | 3.5 | 82 | ±100 |
| RS2-2409SD10AXv2 | 24 | 7 | 49 | ±9 | ±55.55 | 2.5 | 85 | ±100 |
| RS2-2412SD10AXv2 | 24 | 7 | 48 | ±12 | ±41.67 | 2.5 | 87 | ±47 |
| RS2-2415SD10AXv2 | 24 | 7 | 48 | ±15 | ±33.33 | 2.5 | 87 | ±47 |
| RS2-4805SD10AXv2 | 48 | 5 | 27 | ±5 | ±100 | 3 | 77 | ±100 |
| RS2-4809SD10AXv2 | 48 | 5 | 26 | ±9 | ±55.55 | 3 | 81 | ±100 |
| RS2-4812SD10AXv2 | 48 | 5 | 26 | ±12 | ±41.67 | 3 | 82 | ±47 |
| RS2-4815SD10AXv2 | 48 | 5 | 26 | ±15 | ±33.33 | 2 | 81 | ±47 |
| RS2-0505SS10AXv2 | 5 | 20 | 250 | 5 | 200 | 6 | 83 | 220 |
| RS2-0509SS10AXv2 | 5 | 20 | 230 | 9 | 111.1 | 5.5 | 86 | 220 |
| RS2-0512SS10AXv2 | 5 | 20 | 230 | 12 | 83.3 | 5.5 | 87 | 100 |
| RS2-0515SS10AXv2 | 5 | 20 | 230 | 15 | 66.7 | 5 | 87 | 100 |
| RS2-1205SS10AXv2 | 12 | 15 | 98 | 5 | 200 | 4 | 84 | 220 |
| RS2-1209SS10AXv2 | 12 | 15 | 96 | 9 | 111.1 | 3.5 | 86 | 220 |
| RS2-1212SS10AXv2 | 12 | 15 | 95 | 12 | 83.3 | 3.5 | 88 | 100 |
| RS2-1215SS10AXv2 | 12 | 15 | 95 | 15 | 66.7 | 3 | 88 | 100 |
| RS2-1505SS10AXv2 | 15 | 10 | 79 | 5 | 200 | 4 | 84 | 220 |
| RS2-1509SS10AXv2 | 15 | 10 | 77 | 9 | 111.1 | 3.5 | 86 | 220 |
| RS2-1512SS10AXv2 | 15 | 10 | 76 | 12 | 83.3 | 3.5 | 87 | 100 |
| RS2-1515SS10AXv2 | 15 | 10 | 76 | 15 | 66.7 | 3 | 89 | 100 |
| RS2-2405SS10AXv2 | 24 | 7 | 51 | 5 | 200 | 4 | 81 | 220 |
| RS2-2409SS10AXv2 | 24 | 7 | 50 | 9 | 111.1 | 3.5 | 84 | 220 |
| RS2-2412SS10AXv2 | 24 | 7 | 49 | 12 | 83.3 | 3.5 | 85 | 100 |
| RS2-2415SS10AXv2 | 24 | 7 | 49 | 15 | 66.7 | 2.5 | 86 | 100 |
| RS2-4805SS10AXv2 | 48 | 5 | 27 | 5 | 200 | 4 | 78 | 220 |
| RS2-4809SS10AXv2 | 48 | 5 | 26 | 9 | 111.1 | 3.5 | 80 | 220 |
| RS2-4812SS10AXv2 | 48 | 5 | 26 | 12 | 83.3 | 3 | 81 | 100 |
| RS2-4815SS10AXv2 | 48 | 5 | 26 | 15 | 66.7 | 3 | 81 | 100 |

X = 1 means 1kVDC, X = 3 means 3kVDC isolation

1. Ripple/Noise measured with 20MHz bandwidth.
2. Tested by minimal V_{in} and constant resistive full load.
3. Input filter components (C1, L, C2, C3) are used to help meet conducted emissions requirement for the module.
These components should be mounted as close as possible to the module; and all leads should be minimized to decrease radiated noise.
4. An external filter capacitor is required if the module has to meet IEC61000-4-4
The filter capacitor RSG suggest: Nippon chemi-con KY series, 220uF/100V.
5. Exceeding the absolute ratings of the unit could cause damage. It is not allowed for continuous operating.
6. Operation under no-load conditions will not damage these devices, however they may not meet all listed specifications.

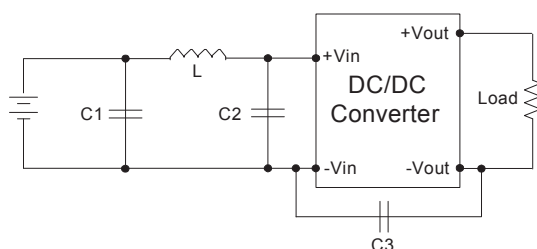
Output Ripple & Noise Measurement Test

The Scope measurement bandwidth is 0-20MHz.



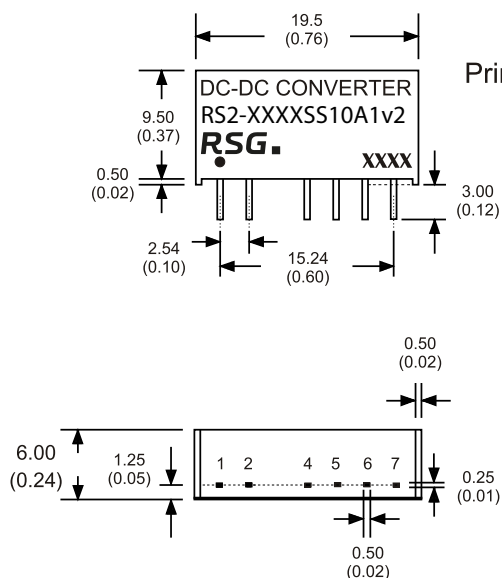
EMI Filter

Input filter components (C1, L, C2, C3) are used to help meet conducted emissions requirement for the module. These components should be mounted as close as possible to the module; and all leads should be minimized to decrease radiated noise.



| | C1 | L | C2 | C3 |
|-------------|------------------|------|------------------|-----------------|
| RS2- 5V in | 1210, 2.2uF/100V | 18uH | | |
| RS2- 12V in | 1210, 2.2uF/100V | 18uH | | |
| RS2- 15V in | 1210, 2.2uF/100V | 18uH | | |
| RS2- 24V in | 1210, 2.2uF/100V | 18uH | 1210, 2.2uF/100V | 1206, 470pF/2KV |
| RS2- 48V in | 1210, 2.2uF/100V | 18uH | 1210, 2.2uF/100V | 1206, 470pF/2KV |

RS2-SS10/SD10v2



* The thickness of 48V input voltage model is 7.20(0.28)

7 Pin SIL Package

- Notes : All dimensions are typical in millimeters (inches).
1. Pin diameter: 0.5 ± 0.05 (0.02 ± 0.002)
 2. Pin pitch and length tolerance: ± 0.35 (± 0.014)
 3. Case Tolerance: ± 0.5 (± 0.02)

| PIN CONNECTIONS | | | | |
|-----------------|-----------|-----------|-----------|-----------|
| PIN NUMBER | SINGLE | DUAL | SINGLE-H | DUAL-H |
| 1 | +V Input | +V Input | +V Input | +V Input |
| 2 | -V Input | -V Input | -V Input | -V Input |
| 4 | -V Output | -V Output | N.P. | N.P. |
| 5 | N.P. | Common | -V Output | -V Output |
| 6 | +V Output | +V Output | N.P. | Common |
| 7 | N.P. | N.P. | +V Output | +V Output |

The models listed above are standard types. If you need special specifications or have questions regarding packing (Tube or Tape&Reel) or need application support, please contact our specialists: sales@rsg-electronic.de or +49 69-984047-0