

RR6-S04/D04

- 24 Pin DIL Package
- Wide 4:1 Input Range
- 1500VDC Isolation
- Up to 3500VDC Isolation
- Continuous Short Circuit Protection
- Efficiency up to 82%
- Operating Temperature Range
-40° ~ +85°C
- Metal Case Standard , Optional Plastic Case

RoHS



| OUTPUT SPECIFICATION | ENVIRONMENTAL SPECIFICATION |
|--|--|
| Voltage accuracy: ±1% | Operating Temperature range: -40°C ~+85°C (see Derating Curve) |
| Line regulation: Single &Dual ±0.5% max. | Maximum Case Temperature: 100°C |
| LOAD REGULATION: ±0.5% | Storage Temperature : -40°C ~+125°C |
| Output 3.3V Model: ±1.5% | Cooling : Nature Convection |
| Short Circuit Protection : Indefinite (Automatic Recovery) | PHYSICAL SPECIFICATIONS: |
| Ripple noise (20Mhz bandwidth): 60mV pk-pk | Case Material: Nickel-coated Copper |
| Temperature coefficient: ±0.02% °C | Base Material: Non-conductive Black Plastic (UL94V-0 rated) |
| Capacitor load: See table | PIN Material: Ø 0.5mm Brass Solder coated |
| INPUT SPECIFICATIONS | Potting Material: Epoxy (UL94V-0 rated) |
| Voltage Range: See table | Weight Case-DIP: 17.0g (Metal), 13.5g (plastic) |
| Max. Input Current: See table | Dimmension DIP: 1.25" x 0.8" x 0.4" |
| No-Load/Full-Load Input Current: See table | ABSOLUTE MAXIMUM RATINGS (1) |
| Input Filter: PI Type | Input Surge Voltage (100ms)/ |
| Input Reflected Ripple Current : 35mA pk-pk | 24V Models: 40VDC max. |
| GENERAL SPECIFICATIONS | 48V Models: 80VDC max. |
| Efficiency: See table typ. | Soldering Temperature: 260°C max. ⁽²⁾ |
| I/O Isolation Voltage Metal Case (3 sec.): 1000VDC | EMC SPECIFICATIONS |
| I/O Isolation Voltage (3 sec.): 1500 ~ 3500VDC | Radiated-/Conducted Emissions: EN55022 Class A (see EMI Filter note) |
| I/O Isolation Capacitance: 470pF typ. | ESD: IEC 61000-4-2 Perf.Criteria A |
| I/O Isolation Resistance: 1000M Ohm | RS: IEC 61000-4-3 Perf.Criteria A |
| Switching Frequency: 266kHz, typ. | EFT: IEC 61000-4-4 Perf.Criteria A |
| Humidity: 95% rel H | SURGE: IEC 61000-4-5 Perf.Criteria A |
| Reliability Calculated MTBF : > 1.21Mhrs (MIL-HDBK-217 f) | CS: IEC 61000-4-6 Perf.Criteria A |
| Safety Standard: (designed to meet): IEC 60950-1 | 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.

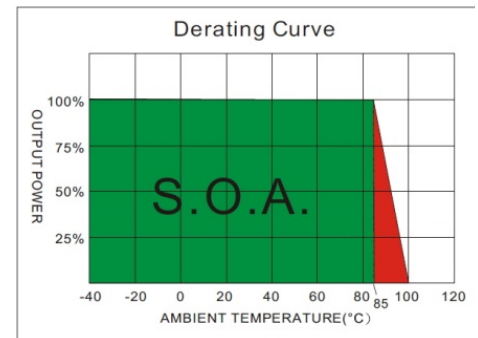
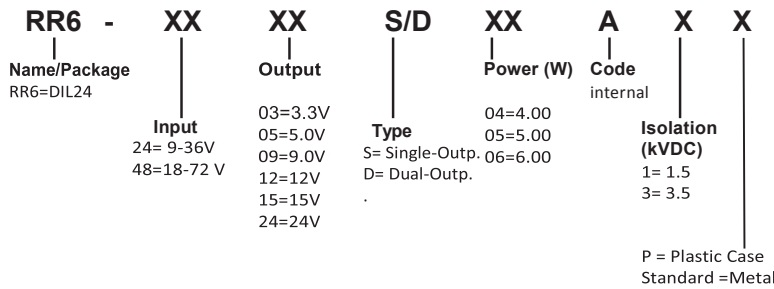
2) (1.5mm from case 10sec Max.)

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.

RR6-S04/D04

NUMBER STRUCTURE



MODEL SELECTION GUIDE

| MODEL NUMBER | INPUT Voltage Range (Vdc) | INPUT Current | | OUTPUT Voltage (Vdc) | OUTPUT Current | | EFFICIENCY @FL (%) | Capacitor Load (uF) |
|---------------|---------------------------|---------------|----------------|----------------------|----------------|----------------|--------------------|---------------------|
| | | No-Load (mA) | Full Load (mA) | | Min. load (mA) | Full load (mA) | | |
| RR6-2403S04AX | 9-36 | 18 | 222.0 | 3.3 | 0 | 1200 | 75 | 1000 |
| RR6-2405S04AX | 9-36 | 18 | 210.9 | 5 | 0 | 800 | 79 | 680 |
| RR6-2407S04AX | 9-36 | 18 | 208.3 | 7.2 | 0 | 555 | 80 | 100 |
| RR6-2409S04AX | 9-36 | 18 | 208.3 | 9 | 0 | 444 | 80 | 100 |
| RR6-2412S04AX | 9-36 | 18 | 203.3 | 12 | 0 | 333 | 82 | 100 |
| RR6-2415S04AX | 9-36 | 18 | 203.3 | 15 | 0 | 266 | 82 | 100 |
| RR6-2424S04AX | 9-36 | 18 | 205.8 | 24 | 0 | 166 | 81 | 100 |
| RR6-2403D04AX | 9-36 | 18 | 222.0 | ±3.3 | 0 | ±606 | 75 | ±470 |
| RR6-2405D04AX | 9-36 | 18 | 210.9 | ±5 | 0 | ±400 | 79 | ±330 |
| RR6-2407D04AX | 9-36 | 18 | 210.9 | ±7.2 | 0 | ±277 | 79 | ±47 |
| RR6-2409D04AX | 9-36 | 18 | 205.8 | ±9 | 0 | ±222 | 81 | ±47 |
| RR6-2412D04AX | 9-36 | 20 | 203.3 | ±12 | 0 | ±166 | 82 | ±47 |
| RR6-2415D04AX | 9-36 | 20 | 205.8 | ±15 | 0 | ±133 | 81 | ±22 |
| RR6-2424D04AX | 9-36 | 25 | 210.9 | ±24 | 0 | ±83 | 79 | ±10 |
| RR6-4803S04AX | 18-72 | 15 | 110.0 | 3.3 | 0 | 1200 | 75 | 1000 |
| RR6-4805S04AX | 18-72 | 15 | 105.5 | 5 | 0 | 800 | 79 | 680 |
| RR6-4807S04AX | 18-72 | 15 | 102.8 | 7.2 | 0 | 555 | 81 | 680 |
| RR6-4809S04AX | 18-72 | 15 | 104.2 | 9 | 0 | 444 | 80 | 220 |
| RR6-4812S04AX | 18-72 | 15 | 101.6 | 12 | 0 | 333 | 82 | 220 |
| RR6-4815S04AX | 18-72 | 15 | 101.6 | 15 | 0 | 266 | 82 | 68 |
| RR6-4824S04AX | 18-72 | 15 | 104.2 | 24 | 0 | 166 | 80 | 47 |
| RR6-4803D04AX | 18-72 | 15 | 108.2 | ±3.3 | 0 | ±606 | 77 | ±680 |
| RR6-4805D04AX | 18-72 | 15 | 105.5 | ±5 | 0 | ±400 | 79 | ±330 |
| RR6-4807D04AX | 18-72 | 15 | 107.0 | ±7.2 | 0 | ±277 | 78 | ±47 |
| RR6-4809D04AX | 18-72 | 15 | 104.2 | ±9 | 0 | ±222 | 80 | ±47 |
| RR6-4812D04AX | 18-72 | 15 | 102.8 | ±12 | 0 | ±166 | 81 | ±47 |
| RR6-4815D04AX | 18-72 | 15 | 101.6 | ±15 | 0 | ±133 | 82 | ±33 |
| RR6-4824D04AX | 18-72 | 15 | 104.2 | ±24 | 0 | ±83 | 80 | ±22 |

Suffix "3" means 3.5KVdc isolation

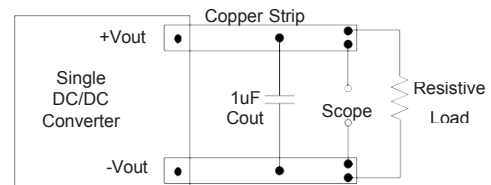
STAND Juni 2016 Rev 01

1. Ripple/Noise measured with a 1uF ceramic capacitor.
2. Test by nominal input voltage and constant resistor load.
3. Measured Input reflected ripple current with a simulated source inductance of 12uH.
4. Exceeding the absolute ratings of the unit could cause damage. It is not allowed for continuous operating.
5. It's recommended to add C1(220 uF), C3(1000PF,2KV), L(12uH) in input end to achieve EN55022 conducted Class A.
6. An external filter capacitor is required if the module has to meet IEC 61000-4-5. The filter capacitor RSG suggest: Nippon - chemi - con KY series, 220uF/100V.

TEST CONFIGURATION

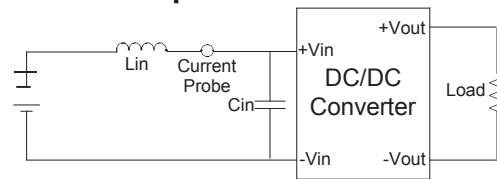
Output Ripple & Noise Measurement Test

Use a capacitor Cout(1.0uF) measurement.
The Scope measurement bandwidth is 0-20MHz.



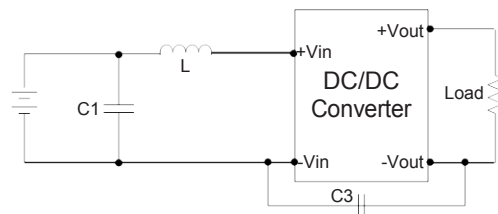
Input Reflected Ripple Current Test Step

Input reflected ripple current is measured through a source inductor Lin(12uH) and a source capacitor Cin(47uF, ESR<1.0u at 100KHz) at nominal input and full load.



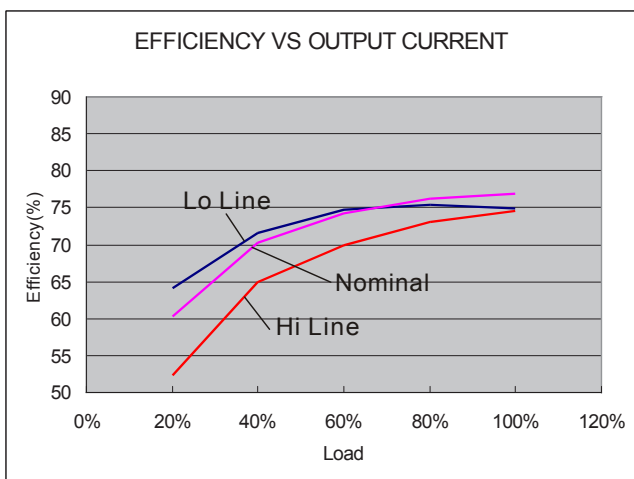
EMI Filter

Input filter components (C1,C3, L) 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.

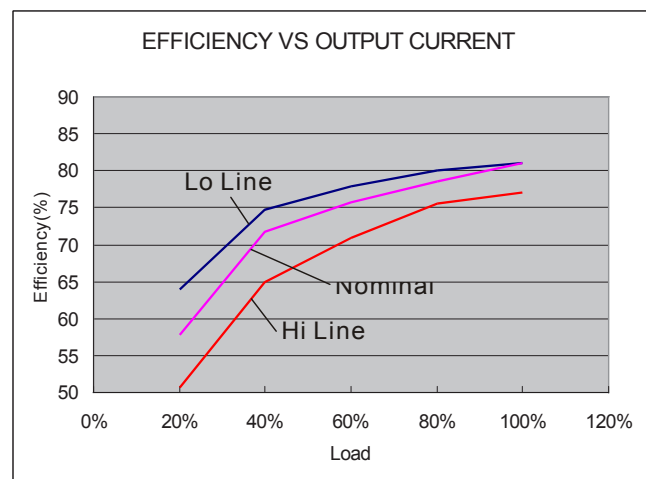


| C1 | L | C3 |
|-------------|------|------------|
| 220uF, 100V | 12uH | 1000PF,2KV |

ELECTRICAL CHARACTERISTICS CURVES



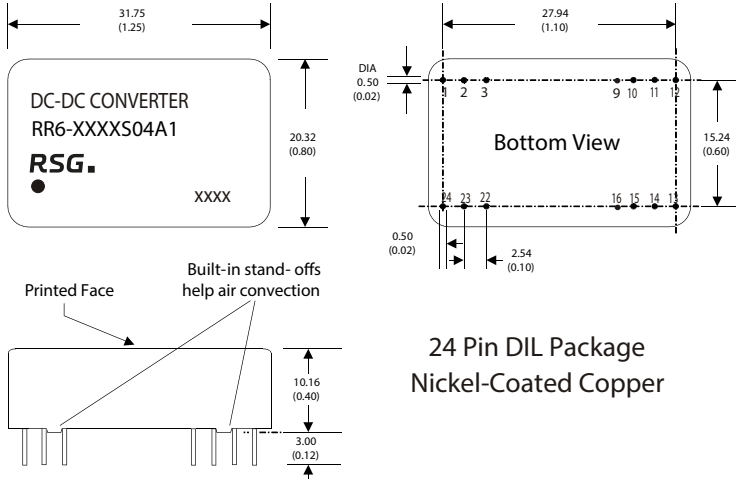
24 Models



48 Models

RR6-S04/D04

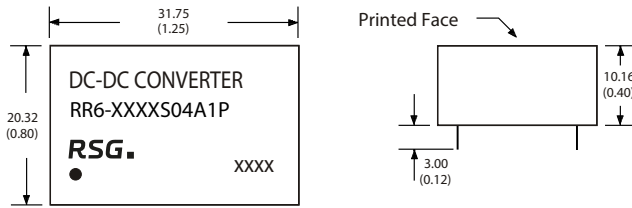
MECHANICAL SPECIFICATIONS



24 Pin DIL Package
Nickel-Coated Copper

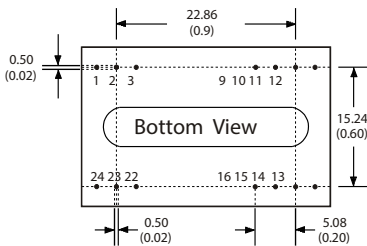
Notes: All dimensions are typical in millimeters (inches).
1. Pin diameter: 0.5 ± 0.05 (0.02 ± 0.002)
2. Pin pitch and length tolerance: ± 0.35 (± 0.014)
3. Case Tolerance: ± 0.5 (± 0.02)

| PIN CONNECTIONS | | | | |
|-----------------|-----------|-----------|-----------|-----------|
| PIN NUMBER | SINGLE | DUAL | SINGLE-H | DUAL-H |
| 1 | +V Input | +V Input | N.P. | N.P. |
| 2 | N.C. | -V Output | -V Input | -V Input |
| 3 | N.C. | Common | -V Input | -V Input |
| 9 | N.P. | N.P. | N.P. | Common |
| 10 | -V Output | Common | N.P. | N.P. |
| 11 | +V Output | +V Output | N.C. | -V Output |
| 12 | -V Input | -V Input | N.P. | N.P. |
| 13 | -V Input | -V Input | N.P. | N.P. |
| 14 | +V Output | +V Output | +V Output | +V Output |
| 15 | -V Output | Common | N.P. | N.P. |
| 16 | N.P. | N.P. | -V Output | Common |
| 22 | N.C. | Common | +V Input | +V Input |
| 23 | N.C. | -V Output | +V Input | +V Input |
| 24 | +V Input | +V Input | N.P. | N.P. |



For "P" Case

24 Pin DIL Package
Non-Conductive Plastic



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 | N.P. | N.P. |
| 2 | N.C. | -V Output | -V Input | -V Input |
| 3 | N.C. | Common | -V Input | -V Input |
| 9 | N.P. | N.P. | N.P. | Common |
| 10 | -V Output | Common | N.P. | N.P. |
| 11 | +V Output | +V Output | N.C. | -V Output |
| 12 | -V Input | -V Input | N.P. | N.P. |
| 13 | -V Input | -V Input | N.P. | N.P. |
| 14 | +V Output | +V Output | +V Output | +V Output |
| 15 | -V Output | Common | N.P. | N.P. |
| 16 | N.P. | N.P. | -V Output | Common |
| 22 | N.C. | Common | +V Input | +V Input |
| 23 | N.C. | -V Output | +V Input | +V Input |
| 24 | +V Input | +V Input | N.P. | N.P. |

The models listed here are just standard type. If you need a product with special specification or you have questions regarding packing standards (Tube oder Tape/Reel) as well as application support, please contact our specialists: sales@rsg-electronic.de or +49 69-984047-41/-28