

RR4-S10/D10

- 24 Pin DIL Package
- Wide 2:1 Input Range
- 1500VDC Isolation
- High Power Density
- Continuous Short Circuit Protection
- Over Voltage Protection
- Over Current Protection
- Efficiency up to 90%
- Operating Temperature Range -40° ~ +85°C
- Metal Case
- Soft Start



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: from 0% to 100% Load: ±0.5 - 1% max.	Storage Temperature : -40°C ~+125°C
Output 3.3V Model: ±1.0%	Cooling : Nature Convection
Cross Regulation (Dual Output): ± 5%	PHYSICAL SPECIFICATIONS:
Over Voltage Protection (<i>Zener diode clamp</i>): Zener Diode Clamp	Case Material: Nickel-coated Copper
Over Current Protection: 150%of I_L , typ..	PIN Material: 0.5mm Brass Solder coated
Short Circuit Protection : Indefinite (Automatic Recovery)	Potting Material: Epoxy (UL94V-0 rated)
Ripple noise (20Mhz bandwidth): 75mV pk-pk	Weight Case-DIP: 17.0g
Temperature coefficient: ±0.02%/°C	Dimmension DIP: 1.25" x 0.8" x 0.4"
Capacitor load: See table	ABSOLUTE MAXIMUM RATINGS (1)
Transient Recovery Time: 200us,typ.	Input Surge Voltage (100ms)/
Transient Response: (Deviation) ±3% max.	12V Models: 25VDC max.
INPUT SPECIFICATIONS	24V Models: 50VDC max.
Voltage Range: See table	48V Models: 100VDC max.
Start up Time: 20ms,typ.	Soldering Temperature: 260°C max.
Max. Input Current: See table	EMC SPECIFICATIONS (2)
No-Load/Full-Load Input Current: See table	Radiated-/Conducted Emissions: EN55022 Class A see EMI Filter
Input Filter: PI Type	ESD: IEC 61000-4-2 Perf.Criteria A
Input Reflected Ripple Current : 20mA pk-pk typ.	RS: IEC 61000-4-3 Perf.Criteria A
GENERAL SPECIFICATIONS	EFT: IEC 61000-4-4 Perf.Criteria A
Efficiency: See table typ.	SURGE: IEC 61000-4-5 Perf.Criteria A
I/O Isolation Voltage Metal Case: 1000VDC	CS: IEC 61000-4-6 Perf.Criteria A
I/O Isolation Voltage (3sec): 1500VDC	PFMF IEC 61000-4-8 Perf.Criteria A
I/O Isolation Capacitance: 1000pF typ.	
I/O Isolation Resistance: 1000M Ohm	
Switching Frequency: 330kHz, typ.	
Humidity: 95% rel H	
Reliability Calculated MTBF : > 1.00Mhrs (MIL-HDBK-217 f)	
Safety Standard: (designed to meet): IEC 60950-1	

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.)

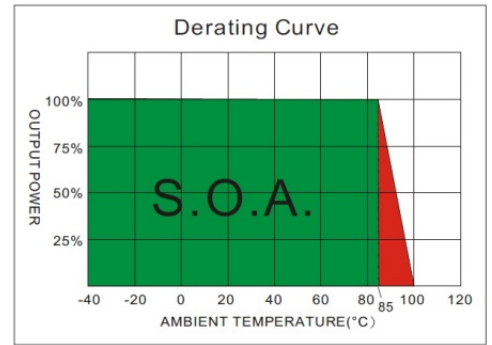
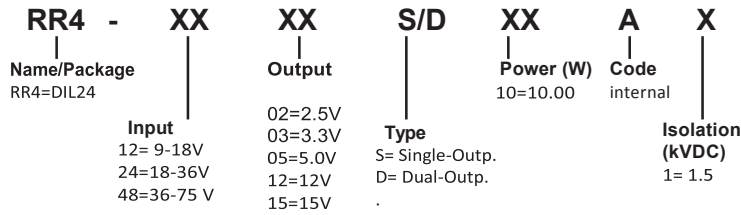
3) All specifications typical at TA= 25°C, nominal input voltage and full load unless otherwise specified.

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.

RR4-S10/D10

NUMBER STRUCTURE

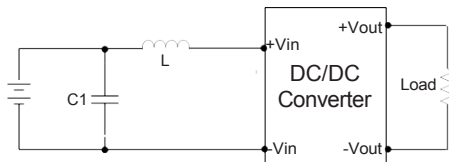


MODEL SELECTION GUIDE

MODEL NUMBER	INPUT Voltage Range (RR4c)	INPUT Current		OUTPUT Voltage (RR4c)	OUTPUT Current		EFFICIENCY @FL(%)	Capacitor Load(µF)
		No-Load (mA)	Full Load (mA)		Min. load (mA)	Full load (mA)		
RR4-1202S10A1	9-18	10	791	2.5	0	3000	81	2200
RR4-1203S10A1	9-18	10	1006	3.3	0	3000	84	2200
RR4-1205S10A1	9-18	10	992	5	0	2000	86	2200
RR4-1212S10A1	9-18	10	980	12	0	833	87	820
RR4-1215S10A1	9-18	10	958	15	0	667	89	470
RR4-1212D10A1	9-18	10	980	12	0	416	87	220
RR4-1215D10A1	9-18	10	969	±15	0	±333	88	±150
RR4-2402S10A1	18-36	10	381	2.5	0	3000	84	2200
RR4-2403S10A1	18-36	10	497	3.3	0	3000	85	2200
RR4-2405S10A1	18-36	10	479	5	0	2000	89	2200
RR4-2412S10A1	18-36	10	485	12	0	833	88	820
RR4-2415S10A1	18-36	10	485	15	0	667	88	470
RR4-2412D10A1	18-36	10	485	±12	0	±416	88	±220
RR4-2415D10A1	18-36	10	474	15	0	333	90	150
RR4-4802S10A1	36-75	10	191	2.5	0	3000	84	2200
RR4-4803S10A1	36-75	10	249	3.3	0	3000	85	2200
RR4-4805S10A1	36-75	10	242	5	0	2000	88	2200
RR4-4812S10A1	36-75	10	245	12	0	833	87	820
RR4-4815S10A1	36-75	10	242	15	0	667	88	470
RR4-4812D10A1	36-75	10	245	12	0	416	87	220
RR4-4815D10A1	36-75	10	245	±15	0	±333	87	±150

NOTE

1. Operation between no-load and 10% load conditions will not damage the module, but it may not meet all specifications listed.
2. One load is 25% to 100% load, the other load is 100% load, the output voltage variable rate is within ±5%.
3. Measured with 20MHz bandwidth and 1.0uF ceramic capacitor.
4. Tested by minimal Vin and constant resistive load.
5. Tested by normal Vin and 25% load step change (75%-50%-25% of Io).
6. Measured Input reflected ripple current with a simulated source inductance of 12uH.
7. Exceeding the absolute ratings of the unit could cause damage.
It is not allowed for continuous operating.
8. Input filter components (C1, 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.
9. An external filter capacitor is required if the module has to meet EN61000-4-5.
The filter capacitor RSG suggest: Nippon - chemi - con KY series, 220uF/100V.

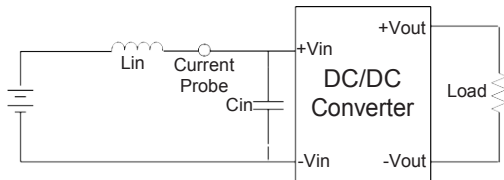


	C1	L
RR4-12XXXXXX	100uF, 100V	12uH
RR4-24XXXXXX	100uF, 100V	12uH
RR4-48XXXXXX	100uF, 100V	12uH

TEST CONFIGURATIONS

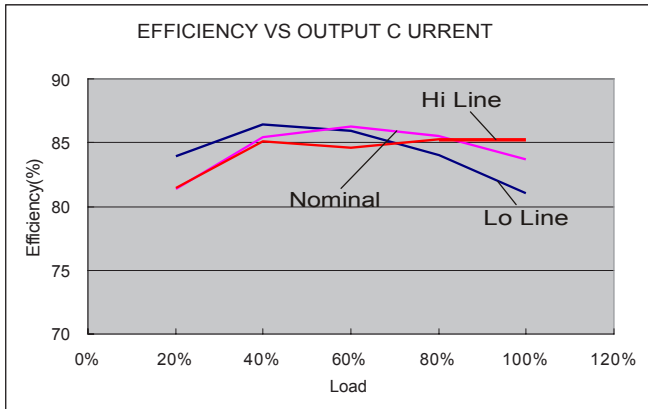
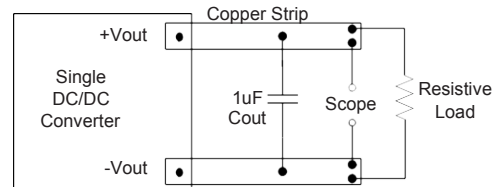
Input Reflected Ripple Current Test Step

Input reflected ripple current is measured through a source inductor L_{in} (12 μ H) and a source capacitor C_{in} (47 μ F, ESR<1.0 Ω at 100KHz) at nominal input and full load.

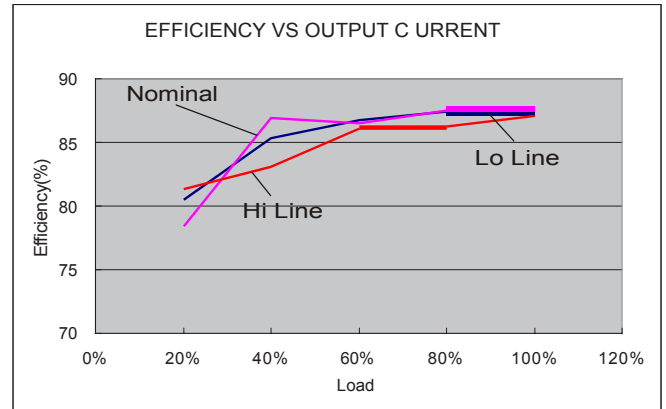


Output Ripple & Noise Measurement Test

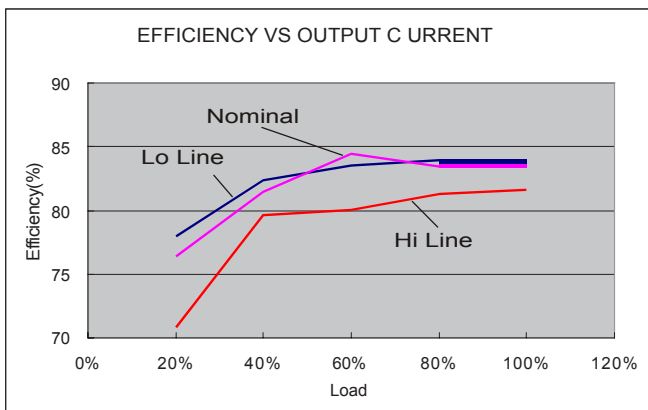
Use a capacitor C_{out} (1.0 μ F) measurement. The Scope measurement bandwidth is 0-20MHz.



12 Models

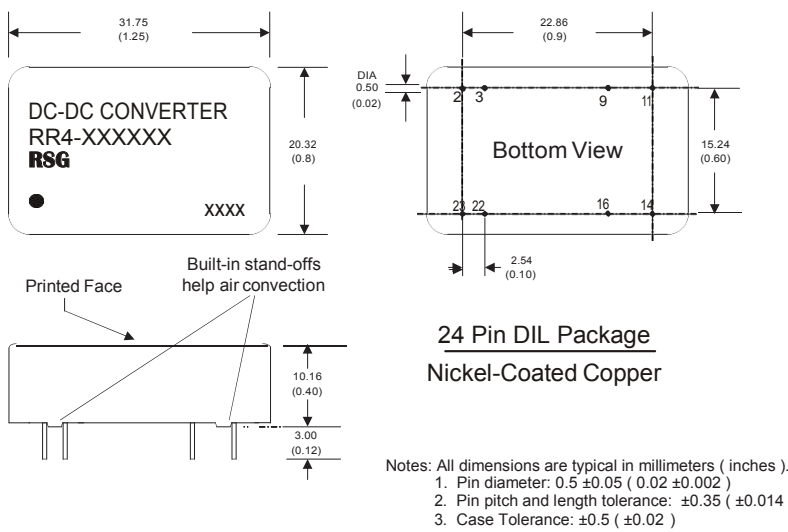


24 Models



48 Models

MECHANICAL SPECIFICATIONS



PIN CONNECTIONS		
PIN NUMBER	SINGLE	DUAL
2	- V Input	- V Input
3	- V Input	- V Input
9	N.P.	Common
11	N.C.	- V Output
14	+V Output	+V Output
16	- V Output	Common
22	+V Input	+V Input
23	+V Input	+V Input

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