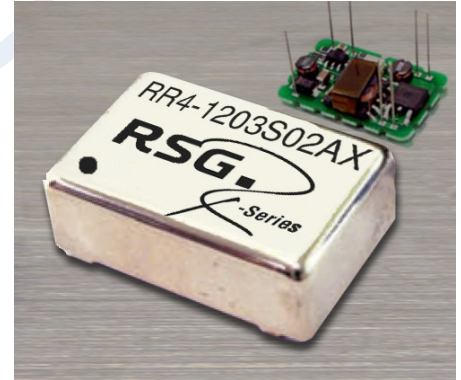


RR4-S02/D02

- 24 Pin DIL Package
- Wide 2:1 Input Range
- 1500VDC Isolation
- Up to 3500VDC Isolation
- Continuous Short Circuit Protection
- Efficiency up to 78%
- Operating Temperature Range
-40° ~ +85°C
- Metal Case Standard , Optional Plastic Case

RoHS



OUTPUT SPECIFICATION

Voltage accuracy:	±1%
Line regulation:	Single & Dual ±0.5% max.
LOAD REGULATION:	±0.5%
	Output 3.3V Model: ±1.5%
Short Circuit Protection :	Indefinite (Automatic Recovery)
Ripple noise (20Mhz bandwidth):	60mV pk-pk
Temperature coefficient:	±0.02% °C
Capacitor load:	See table

INPUT SPECIFICATIONS

Voltage Range:	See table
Max. Input Current:	See table
No-Load/Full-Load Input Current:	See table
Input Filter:	PI Type
Input Reflected Ripple Current :	35mA pk-pk

GENERAL SPECIFICATIONS

Efficiency:	See table typ.
I/O Isolation Voltage Metal Case (3 sec.):	1000VDC
I/O Isolation Voltage (3 sec.):	1500 ~ 3500VDC
I/O Isolation Capacitance:	500pF typ.
I/O Isolation Resistance:	1000M Ohm
Switching Frequency:	266kHz, typ.
Humidity:	95% rel H
Reliability Calculated MTBF :	> 1.21Mhrs
(MIL-HDBK-217 f)	
Safety Standard: (designed to meet):	IEC 60950-1

ENVIRONMENTAL SPECIFICATION

Operating Temperature range:	-40°C ~ +85°C (see Derating Curve)
Maximum Case Temperature:	100°C
Storage Temperature :	-40°C ~ +125°C
Cooling :	Nature Convection

PHYSICAL SPECIFICATIONS:

Case Material:	Nickel-coated Copper
Base Material:	Non-conductive Black Plastic (UL94V-0 rated)
PIN Material:	Ø 0.5mm Brass Solder coated
Potting Material:	Epoxy (UL94V-0 rated)
Weight Case-DIP:	17.0g (Metal) , 13.5g (plastic)
Dimmension DIP:	1.25" x 0.8" x 0.4"

ABSOLUTE MAXIMUM RATINGS (1)

Input Surge Voltage (100ms)/	
12V Models:	24VDC max.
24V Models:	40VDC max.
48V Models:	80VDC max.
Soldering Temperature:	260°C max. (2)

EMC SPECIFICATIONS

Radiated-/Conducted Emissions:	EN55022 Class A (see EMI Filter note)
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.

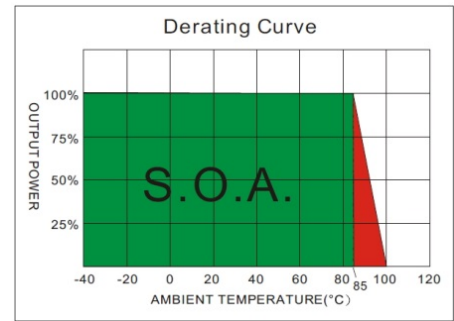
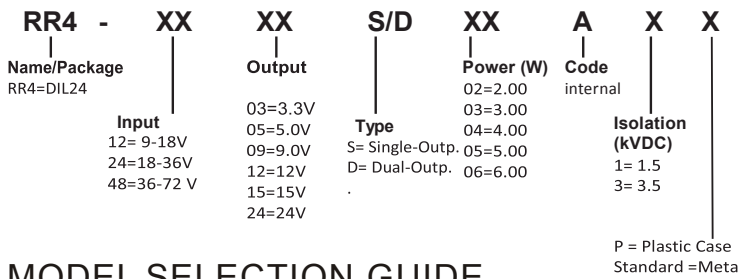
2) (1.5mm from case 10sec Max.)

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.

RR4-S02/D02

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)		
RR4-1203S02AX	9-18	30	223	3.3	0	600	74	680
RR4-1205S02AX	9-18	30	222	5	0	400	75	680
RR4-1209S02AX	9-18	30	219	9	0	222	76	330
RR4-1212S02AX	9-18	30	219	12	0	167	76	220
RR4-1215S02AX	9-18	30	219	15	0	133	76	100
RR4-1224S02AX	9-18	30	219	24	0	83	76	33
RR4-1203D02AX	9-18	30	229	±3.3	0	±300	72	±330
RR4-1205D02AX	9-18	30	219	±5	0	±200	75	±330
RR4-1209D02AX	9-18	30	219	±9	0	±111	76	±100
RR4-1212D02AX	9-18	30	219	±12	0	±83	76	±47
RR4-1215D02AX	9-18	30	219	±15	0	±67	76	±33
RR4-1224D02AX	9-18	30	219	±24	0	±42	76	±22
RR4-2403S02AX	18-36	20	109	3.3	0	600	76	680
RR4-2405S02AX	18-36	20	107	5	0	400	78	680
RR4-2409S02AX	18-36	20	107	9	0	222	78	330
RR4-2412S02AX	18-36	20	107	12	0	167	78	220
RR4-2415S02AX	18-36	20	107	15	0	133	78	100
RR4-2424S02AX	18-36	20	107	24	0	83	78	33
RR4-2403D02AX	18-36	20	112	±3.3	0	±300	74	±330
RR4-2405D02AX	18-36	20	109	±5	0	±200	76	±330
RR4-2409D02AX	18-36	20	107	±9	0	±111	78	±100
RR4-2412D02AX	18-36	20	107	±12	0	±83	78	±47
RR4-2415D02AX	18-36	20	107	±15	0	±67	78	±33
RR4-2424D02AX	18-36	20	107	±24	0	±42	78	±22
RR4-4803S02AX	36-72	12	56	3.3	0	600	74	680
RR4-4805S02AX	36-72	12	56	5	0	400	75	680
RR4-4809S02AX	36-72	12	56	9	0	222	75	330
RR4-4812S02AX	36-72	12	56	12	0	167	75	220
RR4-4815S02AX	36-72	12	56	15	0	133	75	100
RR4-4824S02AX	36-72	12	56	24	0	83	75	33
RR4-4803D02AX	36-72	12	56	±3.3	0	±300	74	±330
RR4-4805D02AX	36-72	12	56	±5	0	±200	75	±330
RR4-4809D02AX	36-72	12	56	±9	0	±111	75	±100
RR4-4812D02AX	36-72	12	56	±12	0	±83	75	±47
RR4-4815D02AX	36-72	12	56	±15	0	±67	75	±33
RR4-4824D02AX	36-72	12	56	±24	0	±42	75	±22

Suffix "3" means 3.5KVdc isolation
Suffix "P" means Plastic case instead of standard Metal Case

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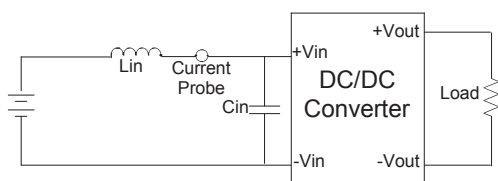
NOTE

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. Input filter components are be required to help meet conducted emission class A, which application refer to the EMI Filter of design & feature configuration.
6. An external filter capacitor is required if the module has to meet IEC 61000-4-4 and IEC 61000-4-5. The filter capacitor RSG suggest: Nippon - chemi - con KY series, 220uF/100V.

TEST CONFIGURATIONS

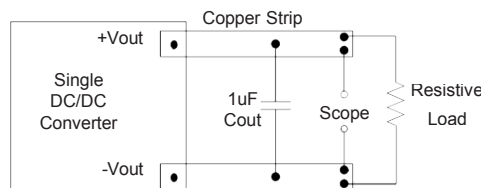
Input Reflected Ripple Current Test Step

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



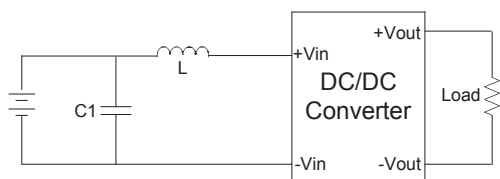
Output Ripple & Noise Measurement Test

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

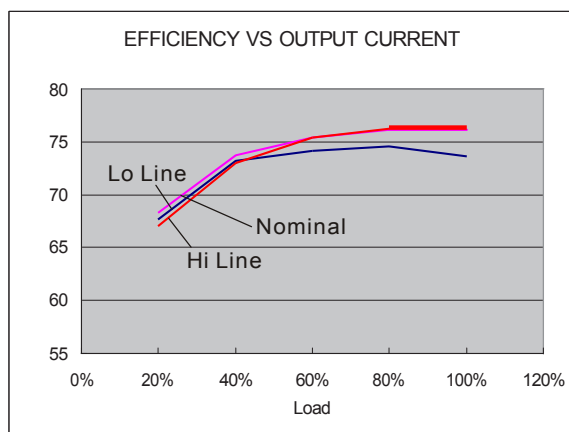


EMI Filter

Input filter components (C_1 , 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
100uF, 100V	12uH

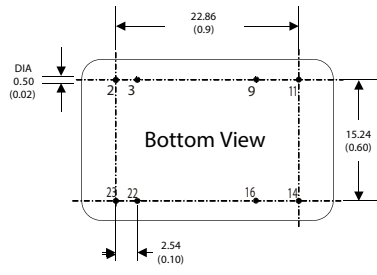
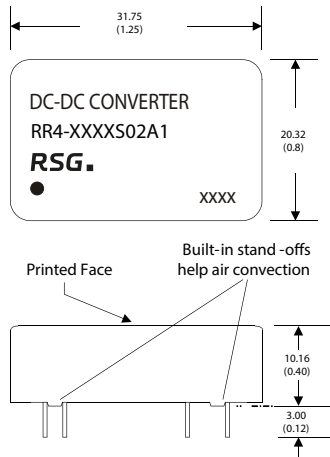


12 Models

The models listed above is just for standard type. If you need the special specification product, please contact our service member by telephone presented in shortform cover or e-mail to :info@rsg-electronic.de

RR4-S02/D02

MECHANICAL SPECIFICATIONS



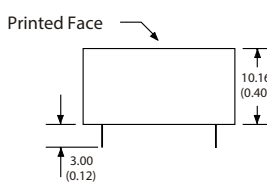
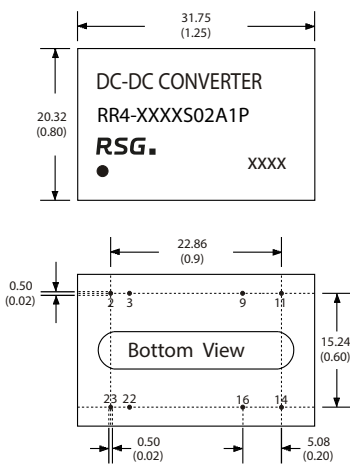
24 Pin DIL Package
Nickel-Coated Copper

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
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 Pin Connection of high isolation one is the same with normal one.)

MECHANICAL SPECIFICATIONS



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
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 Pin Connection of high isolation one is the same with normal one.)

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