

RR1-S02/D02

- 24 Pin DIL Package
- 1000VDC Isolation
- High Isolation up to 6000VDC (optional)
- Continuous Short Circuit Protection
- Efficiency up to 81%
- Operating Temperature Range -40° ~ +85°C
- Plastic Case Standard , Optional Metal Case



RoHS

OUTPUT SPECIFICATION	ENVIRONMENTAL SPECIFICATION
Voltage accuracy: ±2%	Operating Temperature range: -40°C ~+85°C (see Derating Curve)
Line regulation: Single &Dual ±0.5% max.	Maximum Case Temperature: 100°C
Load regulation: Single (0% to 100%) : ±0.5%,max.	Storage Temperature : -40°C ~+125°C
Short Circuit Protection : Indefinite (Automatic Recovery)	Cooling : Nature Convection
Ripple noise (20Mhz bandwidth): 75mV pk-pk	PHYSICAL SPECIFICATIONS:
Temperature coefficient: ±0.02%/°C	Case Material: Non-conductive Black Plastic (UL94V-0 rated) Nickel-coated Copper
Capacitor load: See table	PIN Material: Ø 0.5mm Alloy42 Solder-coated, Brass Solder coated
Transient Recovery Time: ±3% max.	Potting Material: Epoxy (UL94V-0 rated)
Transient Response: 3.3V Output ±5% max.	Weight Case- Sip: 12.5 (plastic), 15.0g (Metal)
INPUT SPECIFICATIONS	Dimmension DIP: 1.25" x 0.8" x 0.4"
Voltage Range: ±10%	ABSOLUTE MAXIMUM RATINGS (1)
Max. Input Current: See table	Input Surge Voltage (100ms)/
No-Load/Full-Load Input Current: See table	5 V Models: 7VDC max
Input Filter: PI Type	12V Models: 15VDC max
Input Reflected Ripple Current : 35mA pk-pk	24V Models: 28VDC max
GENERAL SPECIFICATIONS	Soldering Temperature: 260°C max. (2)
Efficiency: See table	EMC SPECIFICATIONS
I/O Isolation Voltage Metal Case (3 sec.): 1000VDC	Radiated-/Conducted Emissions: EN55022 Class A (see EMI Filter note)
I/O Isolation Voltage (3 sec.): 1000 ~ 6000VDC	ESD: IEC 61000-4-2 Perf.Criteria A
I/O Isolation Capacitance: 60pF typ.	RS: IEC 61000-4-3 Perf.Criteria A
I/O Isolation Resistance: 1000M Ohm	EFT: IEC 61000-4-4 Perf.Criteria A
Switching Frequency: Single 40kHz typ., Dual 250KHz typ.	SURGE: IEC 61000-4-5 Perf.Criteria A
Humidity: 95% rel H	CS: IEC 61000-4-6 Perf.Criteria A
Reliability Calculated MTBF : > 1.00Mhrs (MIL-HDBK-217 f)	PFMF IEC 61000-4-8 Perf.Criteria A
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.

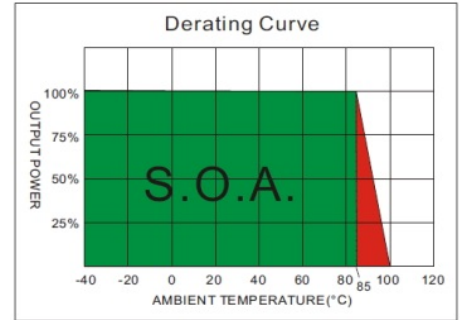
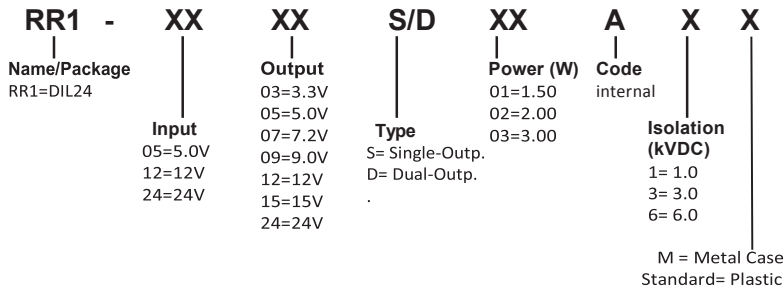
2) (1.5mm from case 10sec Max.)

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.

RR1-S02/D02

NUMBER STRUCTURE



MODEL SELECTION GUIDE

MODEL NUMBER	INPUT Voltage Range (Vdc)	INPUT Current		OUTPUT Voltage (Vdc)	OUTPUT Current Full load (mA)	EFFICIENCY @FL(%)	Capacitor Load(µF)
		No-Load (mA)	Full Load (mA)				
RR1-0503S02AX	5	65	569	3.3	500	58	330
RR1-0505S02AX	5	42	588	5	400	68	330
RR1-0507S02AX	5	50	588	7.2	278	68	330
RR1-0509S02AX	5	55	571	9	222	70	330
RR1-0512S02AX	5	52	563	12	167	71	330
RR1-0515S02AX	5	55	588	15	133	68	330
RR1-0518S02AX	5	55	597	18	111	67	330
RR1-0524S02AX	5	95	606	24	83.3	66	330
RR1-1203S02AX	12	35	225	3.3	500	61	330
RR1-1205S02AX	12	20	256	5	400	65	330
RR1-1207S02AX	12	25	256	7.2	278	65	330
RR1-1209S02AX	12	31	238	9	222	70	330
RR1-1212S02AX	12	30	231	12	167	72	330
RR1-1215S02AX	12	35	238	15	133	70	330
RR1-1218S02AX	12	40	238	18	111	70	330
RR1-1224S02AX	12	40	235	24	83.3	71	330
RR1-2403S02AX	24	15	139	3.3	600	60	330
RR1-2405S02AX	24	15	121	5	400	69	330
RR1-2407S02AX	24	20	126	7.2	278	66	330
RR1-2409S02AX	24	25	128	9	222	65	330
RR1-2412S02AX	24	20	121	12	167	69	330
RR1-2415S02AX	24	20	121	15	133	69	330
RR1-2418S02AX	24	20	121	18	111	69	330
RR1-2424S02AX	24	20	116	24	83.3	72	330
RR1-0503D02AX	5	13	606	±3.3	±300	66	±1000
RR1-0505D02AX	5	15	548	±5	±200	73	±470
RR1-0507D02AX	5	20	548	±7.2	±278	73	±470
RR1-0509D02AX	5	60	526	±9	±111	76	±470
RR1-0512D02AX	5	20	563	±12	±83.3	71	±470
RR1-0515D02AX	5	25	556	±15	±67	72	±470
RR1-0518 D02AX	5	42	556	±18	±111	72	±220

Suffix "3" means 3KVdc isolation Suffix "5" means 5.2KVdc isolation Suffix "6" means 6KVdc isolation
 Suffix "M" means Metal Case Up To 3KVdc isolation

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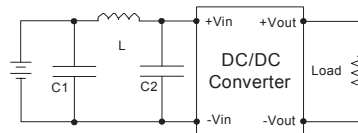
MODEL NUMBER	INPUT Voltage Range (Vdc)	INPUT Current		OUTPUT Voltage (Vdc)	OUTPUT Current Full load (mA)	EFFICIENCY @FL(%)	Capacitor Load(uF)
		No-Load (mA)	Full Load (mA)				
RR1-0524D02AX	5	40	556	±24	±42	72	±220
RR1-1203D02AX	12	6	231	±3.3	±300	72	±1000
RR1-1205D02AX	12	7	219	±5	±200	76	±470
RR1-1207D02AX	12	10	222	±7.2	±278	75	±470
RR1-1209D02AX	12	10	208	±9	±111	80	±470
RR1-1212D02AX	12	12	208	±12	±83.3	80	±470
RR1-1215D02AX	12	15	208	±15	±67	80	±470
RR1-1218D02AX	12	20	222	±18	±111	75	±220
RR1-1224D02AX	12	20	216	±24	±42	77	±220
RR1-2403D02AX	24	5	114	±3.3	±300	73	±1000
RR1-2405D02AX	24	5	107	±5	±200	78	±470
RR1-2407D02AX	24	6	104	±7.2	±278	80	±470
RR1-2409D02AX	24	6	103	±9	±111	81	±470
RR1-2412D02AX	24	6	103	±12	±83.3	81	±470
RR1-2415D02AX	24	10	107	±15	±67	78	±470
RR1-2418D02AX	24	10	110	±18	±111	76	±220
RR1-2424D02AX	24	15	107	±24	±42	78	±220

Suffix "3" means 3KVdc isolation Suffix "5" means 5.2KVdc isolation Suffix "6" means 6KVdc isolation
 Suffix "M" means Metal Case Up To 3KVdc isolation

TEST CONFIGURATIONS

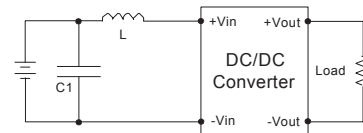
EMI Filter

Input filter components (C1,C2, 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	C2
RR1-05XXS02AX	220uF/100V	12uH	220uF/100V
RR1-12XXS02AX	220uF/100V	12uH	220uF/100V
RR1-24XXS02AX	220uF/100V	12uH	220uF/100V

SINGEL OUTPUT



	C1	L
RR1-05XXD02AX	220uF/100V	12uH
RR1-12XXD02AX	220uF/100V	12uH
RR1-24XXD02AX	220uF/100V	12uH

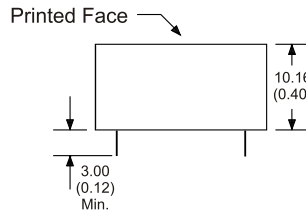
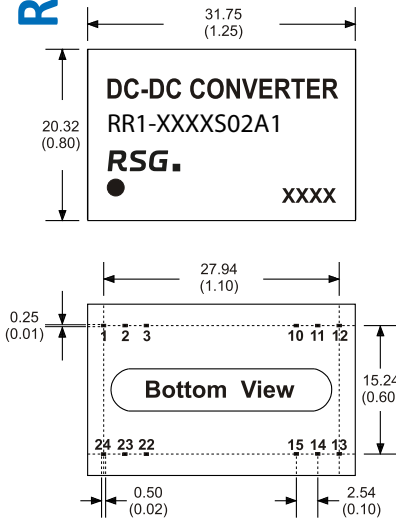
DUAL OUTPUT

NOTE

1. Ripple/Noise measured with 20MHz bandwidth.
2. Tested by minimal Vin and constant resistive load.
3. Tested by normal Vin and 25% load step change (75%-50%-25% of Io)
4. Measured Input reflected ripple current with a simulated source inductance of 12uH.
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.
7. Input filter components are be required to help meet conducted emission class A, which application refer to the EMI Filter of design & feature configuration.
8. An external filter capacitor is required if the module has to meet IEC61000-4-4 and IEC61000-4-5. The filter capacitor RSG suggest: Nippon - chemi - con KY series, 220uF/100V.

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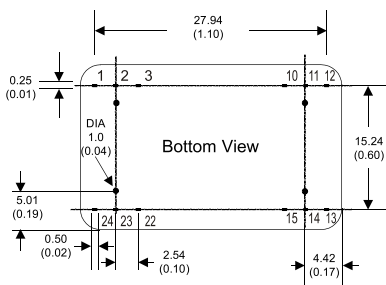
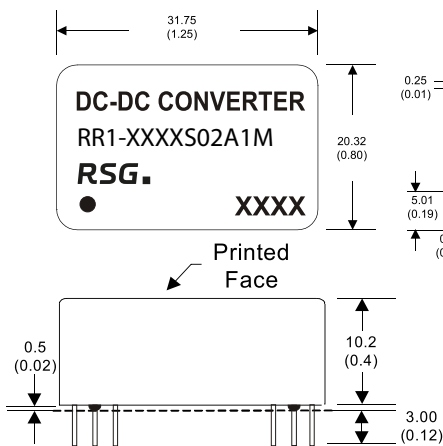
MECHANICAL SPECIFICATIONS



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



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)
4. Stand-off tolerance: ±0.1 (±0.004)

For "M" Case

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