

RR1-S03/D03

- 24 Pin DIL Package
- 1000VDC Isolation
- High Isolation up to 6000VDC (optional)
- Continuous Short Circuit Protection
- Efficiency up to 83%
- Operating Temperature Range
-40° ~ +85°C
- Plastic Case Standard , Optional
Metal Case

RoHS



OUTPUT SPECIFICATION	ENVIRONMENTAL SPECIFICATION
Voltage accuracy: $\pm 2\%$	Operating Temperature range: -40°C ~ +85°C (see Derating Curve)
Line regulation: Single & Dual $\pm 0.5\%$ max.	Maximum Case Temperature: 100°C
Load regulation: Single (0% to 100%) : $\pm 1\%$, max.	Storage Temperature : -40°C ~ +125°C
Short Circuit Protection : Indefinite (Automatic Recovery)	Cooling : Nature Convection
Ripple noise (20Mhz bandwidth): 75mV pk-pk max.	PHYSICAL SPECIFICATIONS:
Temperature coefficient: $\pm 0.02\%$ °C	Case Material: Non-conductive Black Plastic (UL94V-0 rated)
Capacitor load: See table	Nickel-coated Copper
Transient Recovery Time: $\pm 3\%$ max.	PIN Material: $\varnothing$ 0.5mm Alloy42 Solder-coated,
Transient Response: 3.3V Output $\pm 5\%$ max.	Brass Solder coated
INPUT SPECIFICATIONS	Potting Material: Epoxy (UL94V-0 rated)
Voltage Range: $\pm 10\%$	Weight Case- Sip: 12.5 (plastic), 15.0g (Metal)
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	5 V Models: 7VDC max
GENERAL SPECIFICATIONS	12V Models: 15VDC max
Efficiency: See table	24V Models: 28VDC max
I/O Isolation Voltage Metal Case (3 sec.): 1000VDC	Soldering Temperature: 260°C max.
I/O Isolation Voltage (3 sec.): 1000 ~ 6000VDC	EMC SPECIFICATIONS (2)
I/O Isolation Capacitance: 60pF typ.	Radiated-/Conducted Emissions: EN55022 Class A (see EMI Filter note)
I/O Isolation Resistance: 1000M Ohm	ESD: IEC 61000-4-2 Perf.Criteria A
Switching Frequency: Single 40kHz typ., Dual 250KHz typ.	RS: IEC 61000-4-3 Perf.Criteria A
Humidity: 95% rel H	EFT: IEC 61000-4-4 Perf.Criteria A
Reliability Calculated MTBF : > 1.00Mhrs (MIL-HDBK-217 f)	SURGE: IEC 61000-4-5 Perf.Criteria A
Safety Standard: (designed to meet): IEC 60950-1	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.

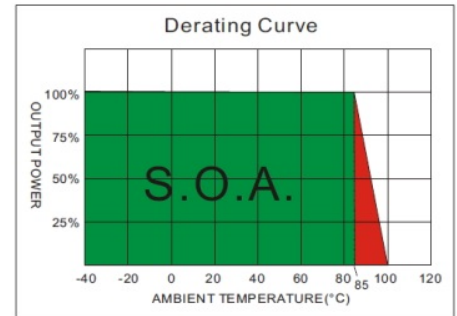
2) (1.5mm from case 10sec Max.)

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

RR1	-	XX	XX	S/D	XX	A	X	X
Name/Package RR1=DIL24		Input 05=5.0V 12=12V 24=24V	Output 03=3.3V 05=5.0V 07=7.2V 09=9.0V 12=12V 15=15V 24=24V	Type S= Single-Outp. D= Dual-Outp.	Power (W) 01=1.50 02=2.00 03=3.00	Code internal	Isolation (kVDC) 1= 1.0 3= 3.0 6= 6.0	
								M = Metal Case Standard= Plastic



MODEL SELECTION GUIDE

MODEL NUMBER	INPUT	INPUT Current		OUTPUT	OUTPUT Current	EFFICIENCY @FL(%)	Capacitor Load(uF)
	Voltage Range (Vdc)	No-Load (mA)	Full Load (mA)	Voltage (Vdc)	Full load (mA)		
RR1-0503S03AX	5	62	683	3.3	600	58	470
RR1-0505S03AX	5	65	909	5	600	66	470
RR1-0507S03AX	5	65	923	7.2	417	65	470
RR1-0509S03AX	5	70	882	9	333	68	470
RR1-0512S03AX	5	60	845	12	250	71	470
RR1-0515S03AX	5	70	833	15	200	72	470
RR1-0518S03AX	5	70	857	18	167	70	470
RR1-0524S03AX	5	100	896	24	125	67	470
RR1-1203S03AX	12	30	232	3.3	600	71	470
RR1-1205S03AX	12	36	253	5	600	66	470
RR1-1207S03AX	12	32	235	7.2	417	71	470
RR1-1209S03AX	12	32	235	9	333	71	470
RR1-1212S03AX	12	37	231	12	250	72	470
RR1-1215S03AX	12	35	225	15	200	74	470
RR1-1218S03AX	12	35	222	18	167	75	470
RR1-1224S03AX	12	55	235	24	125	71	470
RR1-2403S03AX	24	10	158	3.3	700	61	470
RR1-2405S03AX	24	23	187	5	600	67	470
RR1-2407S03AX	24	25	189	7.2	417	66	470
RR1-2409S03AX	24	27	184	9	333	68	470
RR1-2412S03AX	24	30	181	12	250	69	470
RR1-2415S03AX	24	28	179	15	200	70	470
RR1-2418S03AX	24	16	169	18	167	74	470
RR1-2424S03AX	24	20	167	24	125	75	470
RR1-0503D03AX	5	15	776	±3.3	±400	68	±1000
RR1-0505D03AX	5	20	845	±5	±300	71	±470
RR1-0507D03AX	5	20	811	±7.2	±417	74	±470
RR1-0509D03AX	5	25	789	±9	±167	76	±470
RR1-0512D03AX	5	40	822	±12	±125	73	±470
RR1-0515D03AX	5	30	811	±15	±100	74	±470
RR1-0518D03AX	5	45	822	±18	±167	73	±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

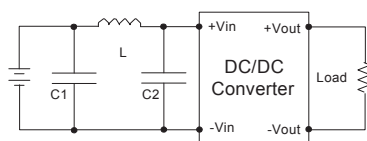
RR1-S03/D03

MODEL NUMBER	INPUT	INPUT Current		OUTPUT	OUTPUT Current	EFFICIENCY @FL(%)	Capacitor Load(uF)
	Voltage Range (Vdc)	No-Load (mA)	Full Load (mA)	Voltage (Vdc)	Full load (mA)		
RR1-0524D03AX	5	45	800	±24	±62.5	75	±220
RR1-1203D03AX	12	7	306	±3.3	±400	72	±1000
RR1-1205D03AX	12	8	321	±5	±300	78	±1000
RR1-1207D03AX	12	8	313	±7.2	±417	80	±470
RR1-1209D03AX	12	10	313	±9	±167	80	±470
RR1-1212D03AX	12	10	321	±12	±125	78	±470
RR1-1215D03AX	12	15	309	±15	±100	81	±470
RR1-1218D03AX	12	15	309	±18	±167	81	±220
RR1-1224D03AX	12	20	316	±24	±62.5	79	±220
RR1-2403D03AX	24	5	174	±3.3	±455	72	±1000
RR1-2405D03AX	24	6	158	±5	±300	79	±470
RR1-2407D03AX	24	5	158	±7.2	±417	79	±470
RR1-2409D03AX	24	7	152	±9	±167	82	±470
RR1-2412D03AX	24	8	151	±12	±125	83	±470
RR1-2415D03AX	24	10	154	±15	±100	81	±470
RR1-2418D03AX	24	15	156	±18	±167	80	±220
RR1-2424D03AX	24	15	154	±24	±62.5	81	±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

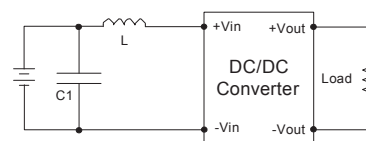
EMI Filter

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
RR1-05XXS03AX	220uF/100V	12uH	220uF/100V
RR1-12XXS03AX	220uF/100V	12uH	220uF/100V
RR1-24XXS03AX	220uF/100V	12uH	220uF/100V

SINGEL OUTPUT



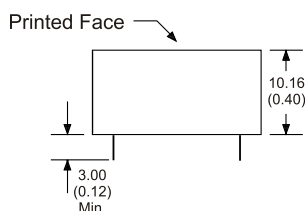
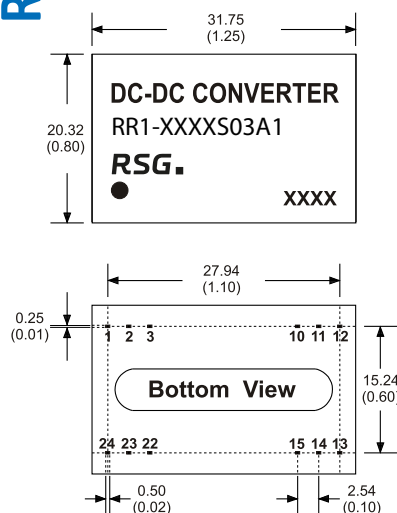
	C1	L
RR1-05XXD03AX	220uF/100V	12uH
RR1-12XXD03AX	220uF/100V	12uH
RR1-24XXD03AX	220uF/100V	12uH

DUAL OUTPUT

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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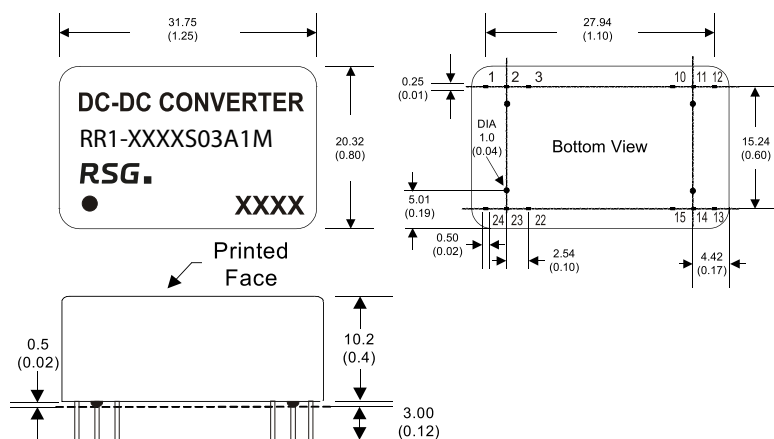
MECHANICAL SPECIFICATIONS



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)

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

For "M" Case

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