RR1-S01/D01

- 24 Pin DIL Package
- 1000VDC Isolation
- High Isolation up to 6000VDC Isolation (optional)
- Continuous Short Circuit Protection
- Efficiency up to 79%
- Operating Temperature Range -40° ~ +85°C
- Plastic Case Standard , Optional Metal Case

RoHS

OUTPUT SPECIFICATION

Voltage accuracy:	±2%
Line regulation:	Single &Dual ±0.5% max.
Load regulation:	Single (0% to 100%) : ±0.5%,max.
Short Circuit Protection :	Indefinite (Automatic Recovery)
Ripple noise (20Mhz bandwidth):	75mV pk-pk max.
Temperature coefficient:	±0.02% °C
Capacitor load:	See table
Transient Recovery Time:	±3% max.
Transient Response:	3.3V Output ±5% max.

INPUT SPECIFICATIONS

Voltage Range:	±10%
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
I/O Isolation Voltage Metal Case (3 sec.):	1000VDC
I/O Isolation Voltage (3sec.):	1000 ~ 6000VDC
I/O Isolation Capacitance:	60pF typ.
I/O Isolation Resistance:	1000M Ohm
Switching Frequency:	Single 40kHz typ., Dual 350KHz typ.
Humidity:	95% rel H
Reliability Calculated MTBF : (MIL-HDBK-217 f)	> 1.00MHrs
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:	Non-conductive Black Plastic (UL94V-0 rated)
	Nickel-coated Copper
PIN Material:	Ø 0.5mm Alloy42 Solder-coated,
	Brass Solder coated
Potting Material:	Epoxy (UL94V-0 rated)
Weight Case- Sip:	12.5 (plastic), 15.0g (Metal)
Dimmension DIP:	1.25“ x 0.8“ x 0.4“

ABSOLUTE MAXIMUM RATINGS (1)

Input Surge Voltage (100ms)/	
5 V Models:	7VDC max
12V Models:	15VDC max
24V Models:	28VDC 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.

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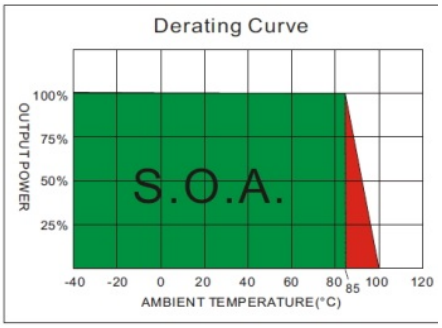
NUMBER STRUCTURE

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 Voltage Range (Vdc)	INPUT Current No-Load (mA)	INPUT Current Full Load (mA)	OUTPUT Voltage (Vdc)	OUTPUT Current Full load (mA)	EFFICIENCY @FL(%)	Capacitor Load(uF)
RR1-0503S01AX	5	50	426	3.3	400	62	220
RR1-0505S01AX	5	42	448	5	300	67	220
RR1-0507S01AX	5	50	462	7.2	208	65	220
RR1-0509S01AX	5	65	462	9	167	65	220
RR1-0512S01AX	5	50	429	12	125	70	220
RR1-0515S01AX	5	65	441	15	100	68	220
RR1-0518S01AX	5	60	448	18	83	67	220
RR1-0524S01AX	5	60	448	24	63	67	220
RR1-1203S01AX	12	50	177	3.3	400	62	220
RR1-1205S01AX	12	25	187	5	300	67	220
RR1-1207S01AX	12	50	189	7.2	208	66	220
RR1-1209S01AX	12	40	192	9	167	65	220
RR1-1212S01AX	12	26	179	12	125	70	220
RR1-1215S01AX	12	40	195	15	100	64	220
RR1-1218S01AX	12	45	198	18	83	63	220
RR1-1224S01AX	12	40	202	24	63	62	220
RR1-2403S01AX	24	35	104	3.3	400	53	220
RR1-2405S01AX	24	20	98	5	300	64	220
RR1-2407S01AX	24	35	98	7.2	208	64	220
RR1-2409S01AX	24	35	98	9	167	64	220
RR1-2412S01AX	24	16	93	12	125	67	220
RR1-2415S01AX	24	40	95	15	100	66	220
RR1-2418S01AX	24	40	96	18	83	65	220
RR1-2424S01AX	24	40	96	24	63	65	220
RR1-0503D01AX	5	15	377	±3.3	±200	70	±1000
RR1-0505D01AX	5	40	417	±5	±150	72	±470
RR1-0507D01AX	5	35	429	±7.2	±208	70	±470
RR1-0509D01AX	5	20	429	±9	±83	70	±470
RR1-0512D01AX	5	25	423	±12	±63	71	±470
RR1-0515D01AX	5	30	423	±15	±50	71	±470
RR1-0518 D01AX	5	30	429	±18	±83	70	±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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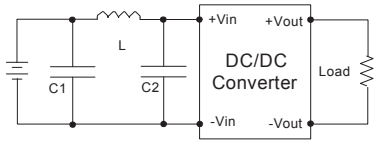
MODEL NUMBER	INPUT Voltage Range (Vdc)	INPUT Current No-Load (mA)	INPUT Current Full Load (mA)	OUTPUT Voltage (Vdc)	OUTPUT Current Full load (mA)	EFFICIENCY @FL(%)	Capacitor Load(uF)
RR1-0524D01AX	5	35	435	±24	±31.5	69	±220
RR1-1203D01AX	12	15	147	±3.3	±200	75	±1000
RR1-1205D01AX	12	6	162	±5	±150	77	±470
RR1-1207D01AX	12	8	167	±7.2	±208	75	±470
RR1-1209D01AX	12	10	158	±9	±83	79	±470
RR1-1212D01AX	12	24	164	±12	±63	76	±470
RR1-1215D01AX	12	20	169	±15	±50	74	±470
RR1-1218D01AX	12	20	169	±18	±83	74	±220
RR1-1224D01AX	12	20	164	±24	±31.5	76	±220
RR1-2403D01AX	24	8	76	±3.3	±200	72	±1000
RR1-2405D01AX	24	5	83	±5	±150	75	±470
RR1-2407D01AX	24	8	83	±7.2	±208	75	±470
RR1-2409D01AX	24	10	82	±9	±83	76	±470
RR1-2412D01AX	24	10	81	±12	±63	77	±470
RR1-2415D01AX	24	10	82	±15	±50	76	±470
RR1-24 18D01AX	24	13	89	±18	±83	70	±220
RR1-2424D01AX	24	16	87	±24	±31.5	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

TEST CONFIGURATIONS

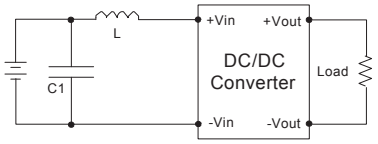
EMI Filter

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
RR1-05XXS01AX	220uF/100V	12uH	220uF/100V
RR1-12XXS01AX	220uF/100V	12uH	220uF/100V
RR1-24XXS01AX	220uF/100V	12uH	220uF/100V

SINGEL OUTPUT



	C1	L
RR1-05XXD01AX	220uF/100V	12uH
RR1-12XXD01AX	220uF/100V	12uH
RR1-24XXD01AX	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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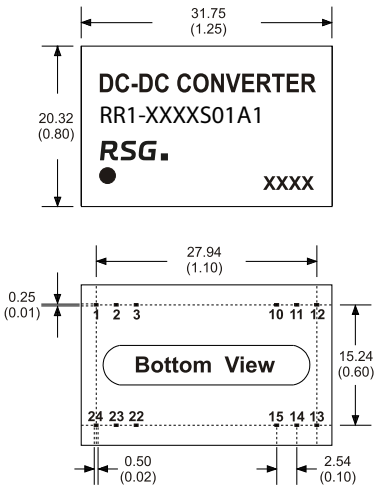
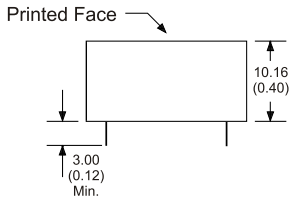
MECHANICAL SPECIFICATIONS

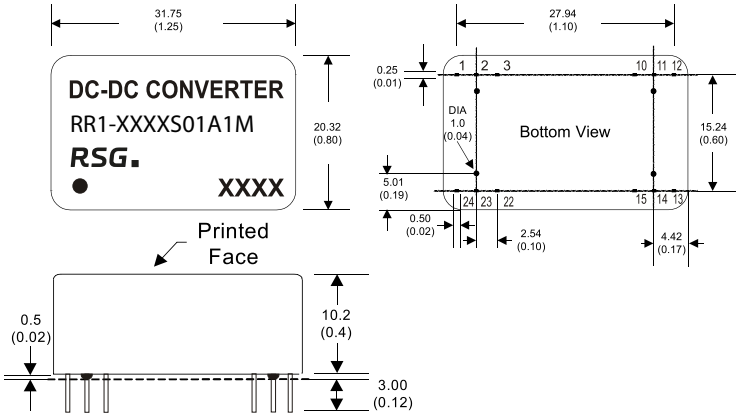




24 Pin DIL Package
Non-Conductive Plastic

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



For “M” Case

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

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

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