RR2-S03/D03

- 24 Pin DIL Package
- Wide 2:1 Input Range
- 1500VDC Isolation
- Up to 3500VDC Isolation
- Continuous Short Circuit Protection
- Efficiency up to 82%
- Operating Temperature Range -40° ~ +85°C
- Plastic Case Standard , Optional Metal Case

RoHS



OUTPUT SPECIFICATION	
Voltage accuracy:	±1%
Line regulation:	Single &Dual ±0.5% max.
Short Circuit Protection :	Continuous
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):	1000 ~ 3500VDC
I/O Isolation Capacitance:	60pF typ.
I/O Isolation Resistance:	1000M Ohm
Switching Frequency:	100 ~ 400kHz
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)
PIN Material:	Ø 0.5mm Brass Solder coated
Potting Material:	Epoxy (UL94V-0 rated)
Weight Case-DIP:	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:	15VDC max.
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.

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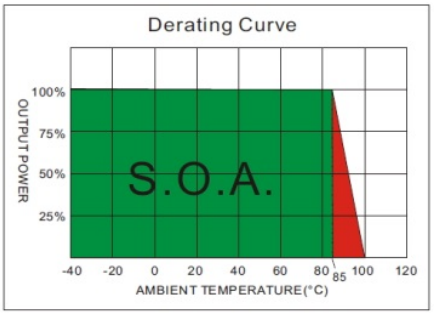
NUMBER STRUCTURE

RR2 - XX XX S/D XX A X X

- **Name/Package**: RR2=DIL24
- **Input**: 05=4.5-9.0V, 12= 9-18V, 24=18-36V, 48=36-72 V
- **Output**: 05=5.0V, 07=7.2V, 09=9.0V, 12=12V, 15=15V, 18=18V, 24=24V
- **Type**: S= Single-Outp., D= Dual-Outp.
- **Power (W)**: 02=2.00, 03=3.00, 04=4.00, 05=5.00, 06=6.00
- **Code**: internal
- **Isolation (kVDC)**: 1= 1.5, 3= 3.5
- 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 Min. load (mA)	OUTPUT Current Full load (mA)	EFFICIENCY @FL(%)	Capacitor Load(uF)
RR2-0505S03AX	4.5-9	40	857	5	150	600	70	2200
RR2-0507S03AX	4.5-9	40	833	7.2	104	417	72	1000
RR2-0509S03AX	4.5-9	40	833	9	83	333	72	470
RR2-0512S03AX	4.5-9	40	810	12	63	250	74	470
RR2-0515S03AX	4.5-9	40	810	15	50	200	74	470
RR2-0518S03AX	4.5-9	40	810	18	42	167	74	220
RR2-0524S03AX	4.5-9	40	857	24	31	125	70	220
RR2-0505D03AX	4.5-9	40	869	±5	±75	±300	69	±1000
RR2-0507D03AX	4.5-9	40	896	±7.2	±52	±208	67	±220
RR2-0509D03AX	4.5-9	40	857	±9	±42	±167	70	±220
RR2-0512D03AX	4.5-9	40	833	±12	±31	±125	72	±220
RR2-0515D03AX	4.5-9	40	810	±15	±25	±100	74	±220
RR2-0518D03AX	4.5-9	40	810	±18	±21	±83	74	±220
RR2-0524D03AX	4.5-9	40	857	±24	±16	±63	70	±100
RR2-1205S03AX	9-18	20	328	5	150	600	76	2200
RR2-1207S03AX	9-18	20	338	7.2	104	417	74	1000
RR2-1209S03AX	9-18	20	324	9	83	333	77	470
RR2-1212S03AX	9-18	20	316	12	63	250	79	470
RR2-1215S03AX	9-18	20	316	15	50	200	79	470
RR2-1218S03AX	9-18	20	316	18	42	167	79	220
RR2-1224S03AX	9-18	20	316	24	31	125	79	220
RR2-1205D03AX	9-18	20	329	±5	±75	±300	76	±1000
RR2-1207D03AX	9-18	20	325	±7.2	±52	±208	77	±220
RR2-1209D03AX	9-18	20	325	±9	±42	±167	77	±220
RR2-1212D03AX	9-18	20	316	±12	±31	±125	79	±220
RR2-1215D03AX	9-18	20	316	±15	±25	±100	79	±220
RR2-1218D03AX	9-18	20	321	±18	±21	±83	78	±220
RR2-1224D03AX	9-18	20	316	±24	±16	±63	79	±100
RR2-2405S03AX	18-36	12	156	5	150	600	80	2200
RR2-2407S03AX	18-36	12	162	7.2	104	417	77	1000

Suffix “3” means 3.5KVdc isolation
Suffix “M” means Metal Case instead of standard Plastic case

1. Typical value at nominal input voltage and full load.
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. Operation under no-load conditions will not damage these devices, however they may not meet all listed specifications.
6. It’s necessary to add minimum capacitor in output for some models, please check single model datasheet for detail value.
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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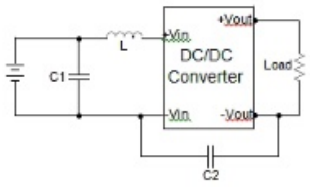
TEST CONFIGURATIONS



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
RR2-05XXS/D03AX	220uF/100V	12uH	
RR2-12XXS/D03AX	220uF/100V	12uH	
RR2-24XXS/D03AX	220uF/100V	12uH	MLCC470pF
RR2-48XXS/D03AX	220uF/100V	12uH	MLCC470pF

MODEL NUMBER	INPUT Voltage Range (Vdc)	INPUT Current No-Load (mA)	INPUT Current Full Load (mA)	OUTPUT Voltage (Vdc)	OUTPUT Current Min. load (mA)	OUTPUT Current Full load (mA)	EFFICIENCY @FL(%)	Capacitor Load(uF)
RR2-2409S03AX	18-36	12	156	9	83	333	80	470
RR2-2412S03AX	18-36	12	152	12	62	250	82	470
RR2-2415S03AX	18-36	12	152	15	50	200	82	470
RR2-2418S03AX	18-36	12	158	18	42	167	79	220
RR2-2424S03AX	18-36	12	156	24	31	125	80	220
RR2-2405D03AX	18-36	12	156	±5	±75	±300	80	±1000
RR2-2407D03AX	18-36	12	160	±7.2	±52	±208	78	±220
RR2-2409D03AX	18-36	12	158	±9	±42	±167	80	±220
RR2-2412D03AX	18-36	12	152	±12	±31	±125	82	±220
RR2-2415D03AX	18-36	12	152	±15	±25	±100	82	±220
RR2-2418D03AX	18-36	12	156	±18	±21	±83	80	±220
RR2-2424D03AX	18-36	12	156	±24	±16	±63	80	±100
RR2-4805S03AX	36-72	8	81	5	150	600	77	2200
RR2-4807S03AX	36-72	8	80	7.2	104	417	78	1000
RR2-4809S03AX	36-72	8	80	9	83	333	78	470
RR2-4812S03AX	36-72	8	78	12	63	250	80	470
RR2-4815S03AX	36-72	8	78	15	50	200	80	470
RR2-4818S03AX	36-72	8	81	18	42	167	77	220
RR2-4824S03AX	36-72	8	78	24	31	125	80	220
RR2-4805D03AX	36-72	8	80	±5	±75	±300	78	±1000
RR2-4807D03AX	36-72	8	80	±7.2	±52	±208	78	±220
RR2-4809D03AX	36-72	8	79	±9	±42	±167	79	±220
RR2-4812D03AX	36-72	8	78	±12	±31	±125	80	±220
RR2-4815D03AX	36-72	8	78	±15	±25	±100	80	±220
RR2-4818D03AX	36-72	8	80	±18	±21	±83	78	±220
RR2-4824D03AX	36-72	8	78	±24	±15.8	±63	80	±100

Suffix “3” means 3.5KVdc isolation
Suffix “M” means Metal Case instead of standard Plastic case

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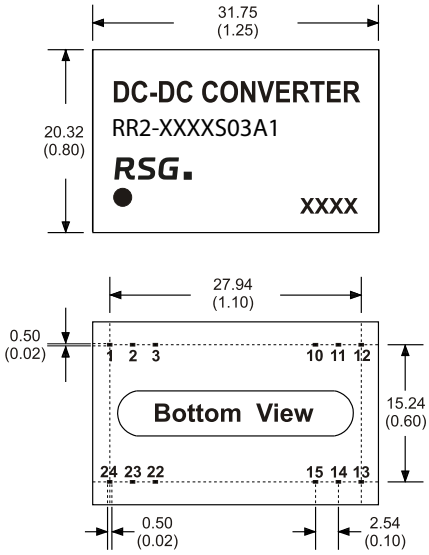
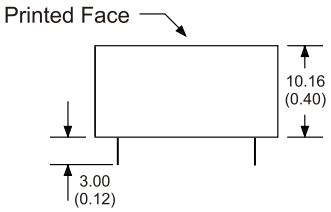
MECHANICAL SPECIFICATIONS

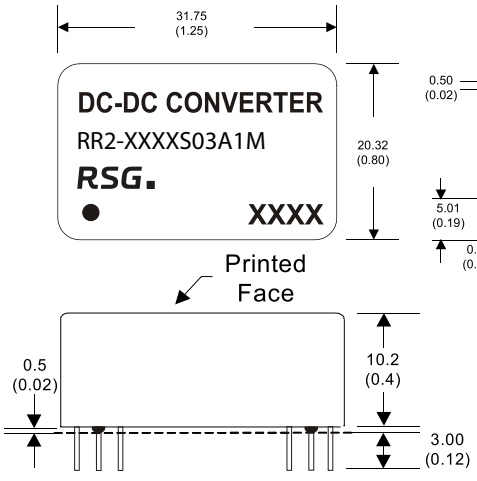


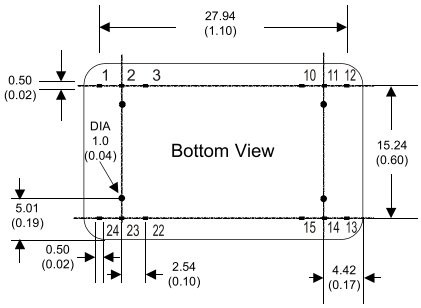


24 Pin DIL Package
Non-Conductive Plastic

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





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

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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