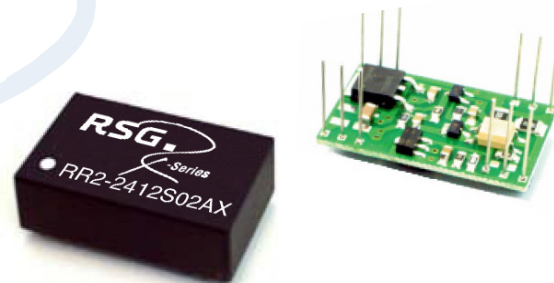


# RR2-S02/D02

## FEATURES

- 24 Pin DIL Package
- Wide 2:1 Input Range
- 1500VDC Isolation
- Up to 3500VDC Isolation
- Continuous Short Circuit Protection
- Efficiency up to 80%
- Operating Temperature Range  
-40° ~ +85°C
- Plastic Case Standard , Optional  
Metal Case



RoHS

### OUTPUT SPECIFICATION

Voltage accuracy:  $\pm 1\%$

Line regulation: Single & Dual  $\pm 0.5\%$  max.

Load regulation: Single & Dual  $\pm 0.5\%$  max.

Short Circuit Protection : Continuous

Ripple noise (20Mhz bandwidth): 60mV pk-pk

Temperature coefficient:  $\pm 0.02\%$  °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: 1000VDC

I/O Isolation Voltage (3sec): 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 : > 1.00MHrs  
(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: Non-conductive Black Plastic (UL94V-0 rated)

Nickel-coated Copper

PIN Material:  $\varnothing$  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. <sup>(2)</sup>

### 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.

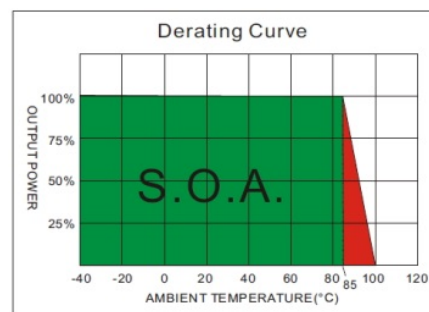
2) (1.5mm from case 10sec Max.)

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.

## 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								

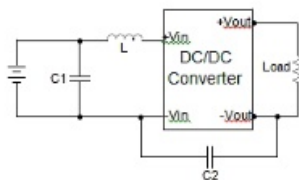


## MODEL SELECTION GUIDE

MODEL NUMBER	INPUT Voltage Range (Vdc)	INPUT Current		OUTPUT Voltage (Vdc)	OUTPUT Current		EFFICIENCY @FL(%)	Capacitor Load(uF)
		No-Load (mA)	Full Load (mA)		Min. load (mA)	Full load (mA)		
RR2-0505S02AX	4.5-9	40	588	5	100	400	68	2200
RR2-0509S02AX	4.5-9	40	571	9	55.5	222	70	470
RR2-0512S02AX	4.5-9	40	571	12	42.8	167	70	470
RR2-0515S02AX	4.5-9	40	571	15	33.3	133	70	470
RR2-0524S02AX	4.5-9	40	579	24	20.8	83	69	220
RR2-0505D02AX	4.5-9	40	588	±5	±50	±200	68	±1000
RR2-0509D02AX	4.5-9	40	571	±9	±27.8	±111	70	±220
RR2-0512D02AX	4.5-9	40	571	±12	±20.8	±83	70	±220
RR2-0515D02AX	4.5-9	40	571	±15	±16.8	±67	70	±220
RR2-0524D02AX	4.5-9	40	579	±24	±10.5	±42	69	±100
RR2-1205S02AX	9-18	20	222	5	100	400	75	2200
RR2-1209S02AX	9-18	20	213	9	55.5	222	78	470
RR2-1212S02AX	9-18	20	213	12	42.8	167	78	470
RR2-1215S02AX	9-18	20	213	15	33.3	133	78	470
RR2-1224S02AX	9-18	20	210	24	20.8	83	79	220
RR2-1205D02AX	9-18	20	225	±5	±50	±200	74	±1000
RR2-1209D02AX	9-18	20	225	±9	±27.8	±111	74	±220
RR2-1212D02AX	9-18	20	219	±12	±20.8	±83	76	±220
RR2-1215D02AX	9-18	20	216	±15	±16.8	±67	77	±220
RR2-1224D02AX	9-18	20	219	±24	±10.5	±42	76	±100
RR2-2405S02AX	18-36	12	106	5	100	400	78	2200
RR2-2409S02AX	18-36	12	104	9	55.5	222	80	470
RR2-2412S02AX	18-36	12	105	12	42.8	167	79	470
RR2-2415S02AX	18-36	12	106	15	33.3	133	78	470
RR2-2424S02AX	18-36	12	104	24	20.8	83	80	220
RR2-2405D02AX	18-36	12	111	±5	±50	±200	75	±1000
RR2-2409D02AX	18-36	12	111	±9	±27.8	±111	75	±220
RR2-2412D02AX	18-36	12	105	±12	±20.8	±83	79	±220
RR2-2415D02AX	18-36	12	105	±15	±16.8	±67	79	±220
RR2-2424D02AX	18-36	12	106	±24	±10.5	±42	78	±100
RR2-4805S02AX	36-72	8	55.5	5	100	400	75	2200
RR2-4809S02AX	36-72	8	53	9	55.5	222	78	470
RR2-4812S02AX	36-72	8	52	12	42.8	167	79	470
RR2-4815S02AX	36-72	8	52	15	33.3	133	80	470
RR2-4824S02AX	36-72	8	52	24	20.8	83	80	220
RR2-4805D02AX	36-72	8	56	±5	±50	±200	74	±1000
RR2-4809D02AX	36-72	8	55.5	±9	±27.8	±111	75	±220
RR2-4812D02AX	36-72	8	53	±12	±20.8	±83	78	±220
RR2-4815D02AX	36-72	8	53	±15	±16.8	±67	78	±220
RR2-4824D02AX	36-72	8	53	±24	±10.5	±42	79	±100

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

## 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/D02AX	220uF/100V	12uH	
RR2-12XXS/D02AX	220uF/100V	12uH	
RR2-24XXS/D02AX	220uF/100V	12uH	MLCC470pF
RR2-48XXS/D02AX	220uF/100V	12uH	MLCC470pF

### NOTE

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.

