

RR2-S05/D05

- 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.

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 (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 : > 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)/

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.

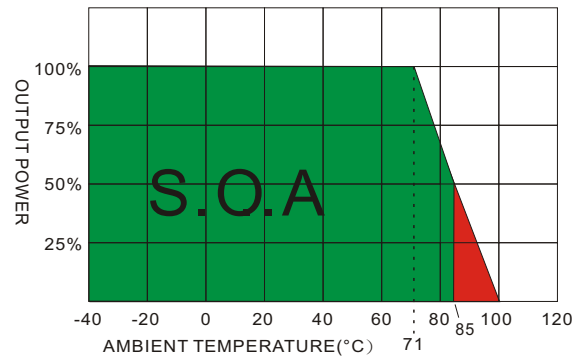
4) The information and specification contained in this data sheet are believed to be correct at time of publication. However RSG accepts no responsibility for consequences arising from printing errors or inaccuracies. Specifications are subject to change without notice.

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NUMBER STRUCTURE

RR2	-	XX	XX	S/D	XX	A	X	X
Name/Package RR2=DIL24		Input	Output	Type	Power (W)	Code internal	Isolation (kVDC)	
		12= 9-18V 24=18-36V 48=36-72 V	05=5.0V 07=7.2V 09=9.0V 12=12V 15=15V 18=18V 24=24V	S= Single-Outp. D= Dual-Outp.	02=2.00 03=3.00 04=4.00 05=5.00 06=6.00		1= 1.5 3= 3.5	
								M = Metal Case Standard =Plastic

Derating Curve

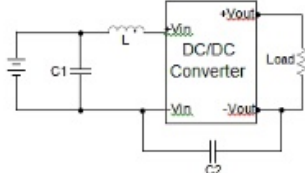


MODEL SELECTION GUIDE

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)		
RR2-1205S05AX	9-18	20	563	5	250	1000	74	2200
RR2-1209S05AX	9-18	20	541	9	139	555	77	470
RR2-1212S05AX	9-18	20	534	12	104	417	78	470
RR2-1215S05AX	9-18	20	534	15	83	333	78	470
RR2-1224S05AX	9-18	20	556	24	52	208	75	220
RR2-1205D05AX	9-18	20	579	±5	±125	±500	72	±1000
RR2-1209D05AX	9-18	20	548	±9	±70	±278	76	±220
RR2-1212D05AX	9-18	20	541	±12	±52	±208	77	±220
RR2-1215D05AX	9-18	20	541	±15	±42	±167	77	±220
RR2-1224D05AX	9-18	20	548	±24	±26	±104	76	±100
RR2-2405S05AX	18-36	12	278	5	250	1000	75	2200
RR2-2409S05AX	18-36	12	274	9	139	555	76	470
RR2-2412S05AX	18-36	12	271	12	104	417	77	470
RR2-2415S05AX	18-36	12	267	15	83	333	78	470
RR2-2424S05AX	18-36	12	274	24	52	208	76	220
RR2-2405D05AX	18-36	12	282	±5	±125	±500	74	±1000
RR2-2409D05AX	18-36	12	274	±9	±70	±278	76	±220
RR2-2412D05AX	18-36	12	267	±12	±52	±208	78	±220
RR2-2415D05AX	18-36	12	267	±15	±42	±167	78	±220
RR2-2424D05AX	18-36	12	278	±24	±26	±104	75	±100
RR2-4805S05AX	36-72	8	135	5	250	1000	77	2200
RR2-4809S05AX	36-72	8	134	9	139	555	78	470
RR2-4812S05AX	36-72	8	130	12	104	417	80	470
RR2-4815S05AX	36-72	8	130	15	83	333	80	470
RR2-4824S05AX	36-72	8	135	24	52	208	77	220
RR2-4805D05AX	36-72	8	137	±5	±125	±500	76	±1000
RR2-4809D05AX	36-72	8	134	±9	±70	±278	78	±220
RR2-4812D05AX	36-72	8	134	±12	±52	±208	78	±220
RR2-4815D05AX	36-72	8	130	±15	±42	±167	80	±220
RR2-4824D05AX	36-72	8	135	±24	±26	±104	77	±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/D05AX	220uF/100V	12uH	
RR2-12XXS/D05AX	220uF/100V	12uH	
RR2-24XXS/D05AX	220uF/100V	12uH	MLCC470pF
RR2-48XXS/D05AX	220uF/100V	12uH	MLCC470pF

Suffix "3" means 3.5KVdc isolation

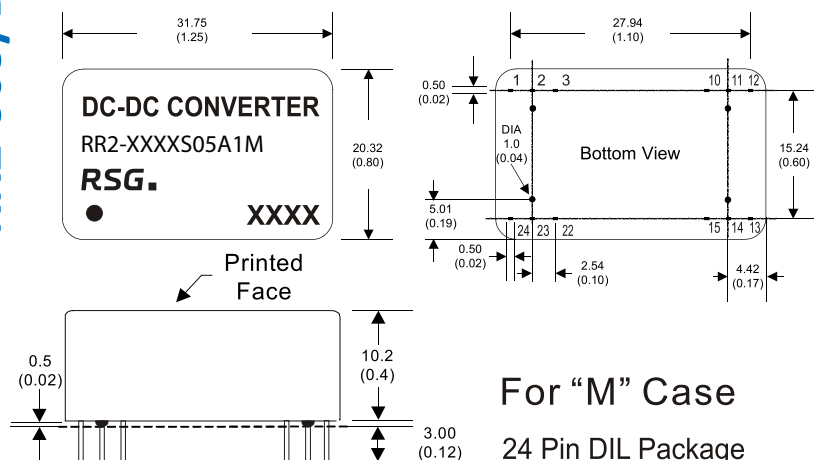
Suffix "M" means Metal Case instead of standard Plastic case

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 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

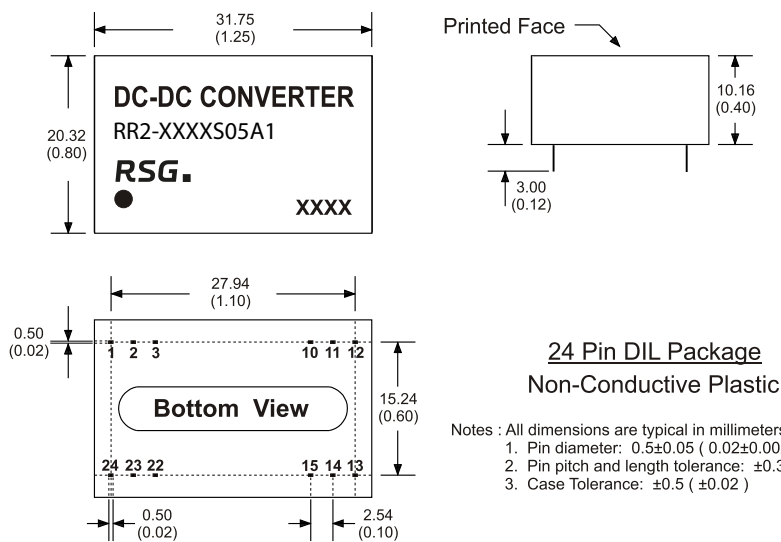


For "M" Case 24 Pin DIL Package Nickel-Coated Copper

- 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.

MECHANICAL SPECIFICATIONS FOR HIGH ISOLATED MODEL



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.

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 69-984047-0