

# RR4-S03/D03

3 Watt 2:1 regulated  
single & dual output



- DIP24, wide 2:1 input range
- Full SMD technology
- 1500 VDC isolation, up to 3500 VDC
- Continuous short circuit protection
- Efficiency up to 82%
- -40°C~85°C operation temperature range
- Optional plastic case

## OUTPUT SPECIFICATIONS

Voltage accuracy	± 1%
Line regulation	± 0.5%
Load regulation	± 0.5%
(Output 3.3 V / ±3.3 V Model)	± 1.5%
Ripple & Noise (20 MHz bandwidth) (1)	60 mV pk-pk
Short circuit protection	Indefinite (automatic recovery)
Temperature coefficient	± 0.02%/°C
Capacitor load (2)	See table

## INPUT SPECIFICATIONS

Voltage range	See table
Max. input current	See table
No-load input current	See table
Input filter	PI Type
Input reflected ripple current (3)	35 mA pk-pk

## GENERAL SPECIFICATIONS

Efficiency	See table, typ.
I/O isolation voltage (3 sec.)	
Input / Output	1500 VDC ~ 3500 VDC
Metal case / Input & Output	1000 VDC
I/O isolation capacitance	470 pF typ.
I/O isolation resistance	1000 M Ohm
Switching frequency	typ. 266 kHz
Humidity	95% rel. H
Reliability calculated MTBF (MIL-HDBK-217F)	> 1.121 Mhrs.
Safety standard (designed to meet)	IEC 60950-1:2001

## PHYSICAL SPECIFICATIONS

Case material	Nickel-coated copper
	Non-conductive black plastic (UL94V-0 rated)
Base material	Non-conductive black plastic (UL94V-0 rated)
Pin material	Ø 0.5 mm brass solder-coated
Potting material	Epoxy (UL94V-0 rated)
Weight	17.0 g Metal, 13.5 g Plastic
Dimensions	1.25" x 0.8" x 0.4"

## ENVIRONMENT SPECIFICATIONS

Operating temperature (See derating curve)	-40°C~ 85°C
Maximum case temperature	100°C
Storage temperature	-40°C~125°C
Cooling	Nature convection

## ABSOLUTE MAXIMUM RATINGS (4)

These are stress ratings. Exposure of devices to any of these conditions may adversely affect long-term reliability.

Input voltage (100 mS)	
12 modes	-0.7 ~ 24 VDC
24 modes	-0.7 ~ 40 VDC
48 modes	-0.7 ~ 80 VDC
Lead soldering temperature	260°C
(1.5 mm from case 10 sec.)	

All specifications typical at Ta = 25°C, nominal input voltage and full load unless otherwise specified.

The information and specifications contained in this data sheet are believed to be correct at time of publication. However, we accept no responsibility for consequences arising from printing errors or inaccuracies. Subject to change without notice.

## NOTE

- 1) Typical value at nominal input voltage and full load.
- 2) Tested by nominal Vin 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.

The models listed are just for standard type. If you need a special specification product, please contact our service. Phone: +49 69 984047-0, mail to: info@rsg-electronic.de or use the forms on www.rsg-electronic.de („Kontakt“).

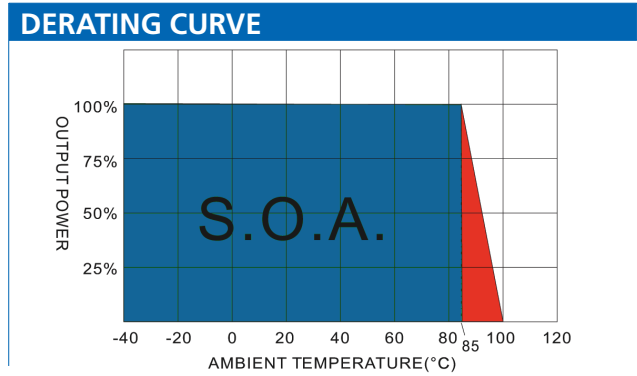
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### NUMBER STRUCTURE

<b>RR4</b>	-	<b>XX</b>	<b>XX</b>	<b>S/D</b>	<b>03</b>	<b>A</b>	<b>1</b>	<b>(P)*</b>
<b>Name/Package</b> RR4=DIL24		<b>Input</b> 12=9~18V 24=18~36V 48=36~72V	<b>Output</b> 03=3.3V 05=5V 09=9V 12=12V 15=15V 24=24V	<b>Type</b> S=Single D=Dual	<b>Power</b> 03=3W	<b>Code</b> internal	<b>Isolation</b> 1=1.5 kVDC 3=3.5 kVDC	

\* Add suffix „P” at the end for Plastic Case!



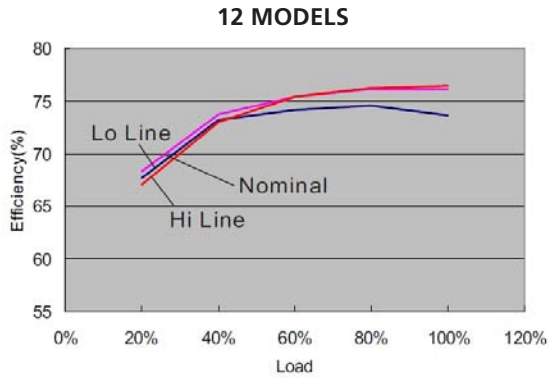
## MODEL SELECTION GUIDE

Model Number	Input Range VDC	Input current (mA) No Load / Full Load	Output VDC	Output current Full Load (mA)	Efficiency @FL (%)	Capacitor Load (µF)
RR4-1203S03AX	9-18	22 / 343	3.3	900	72	470
RR4-1205S03AX	9-18	22 / 328	5	600	76	470
RR4-1209S03AX	9-18	22 / 320	9	333	78	68
RR4-1212S03AX	9-18	22 / 312	12	250	80	47
RR4-1215S03AX	9-18	22 / 312	15	200	80	47
RR4-1224S03AX	9-18	22 / 313	24	125	80	22
RR4-1203D03AX	9-18	22 / 343	±3.3	±450	72	±220
RR4-1205D03AX	9-18	22 / 328	±5	±300	76	±220
RR4-1209D03AX	9-18	22 / 312	±9	±167	80	±33
RR4-1212D03AX	9-18	22 / 312	±12	±125	80	±22
RR4-1215D03AX	9-18	22 / 312	±15	±100	80	±22
RR4-1224D03AX	9-18	22 / 313	±24	±63	80	±10
RR4-2403S03AX	18-36	12 / 171	3.3	900	72	470
RR4-2405S03AX	18-36	12 / 164	5	600	76	470
RR4-2409S03AX	18-36	12 / 160	9	333	78	68
RR4-2412S03AX	18-36	12 / 156	12	250	80	47
RR4-2415S03AX	18-36	12 / 152	15	200	82	47
RR4-2424S03AX	18-36	12 / 153	24	125	82	22
RR4-2403D03AX	18-36	12 / 171	±3.3	±450	72	±220
RR4-2405D03AX	18-36	12 / 160	±5	±300	78	±220
RR4-2409D03AX	18-36	12 / 156	±9	±167	80	±33
RR4-2412D03AX	18-36	12 / 152	±12	±125	82	±22
RR4-2415D03AX	18-36	12 / 152	±15	±100	82	±22
RR4-2424D03AX	18-36	12 / 153	±24	±63	82	±10
RR4-4803S03AX	36-72	8 / 86	3.3	900	72	470
RR4-4805S03AX	36-72	8 / 82	5	600	76	470
RR4-4809S03AX	36-72	8 / 80	9	333	78	68
RR4-4812S03AX	36-72	8 / 78	12	250	80	47
RR4-4815S03AX	36-72	8 / 78	15	200	80	47
RR4-4824S03AX	36-72	8 / 78	24	125	80	22
RR4-4803D03AX	36-72	8 / 86	±3.3	±450	72	±220
RR4-4805D03AX	36-72	8 / 82	±5	±300	76	±220
RR4-4809D03AX	36-72	8 / 80	±9	±167	78	±33
RR4-4812D03AX	36-72	8 / 78	±12	±125	80	±22
RR4-4815D03AX	36-72	8 / 78	±15	±100	80	±22
RR4-4824D03AX	36-72	8 / 78	±24	±63	80	±10

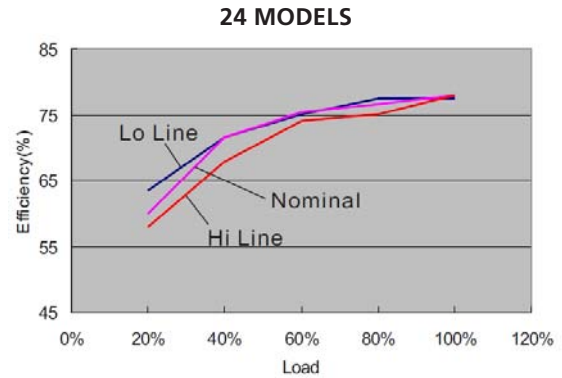
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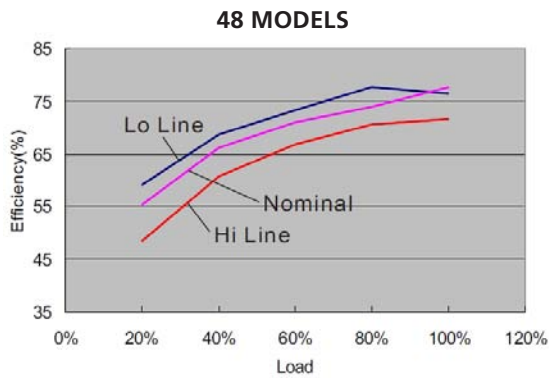
## EFFICIENCY VS OUTPUT CURRENT 12



## EFFICIENCY VS OUTPUT CURRENT 24



## EFFICIENCY VS OUTPUT CURRENT 48

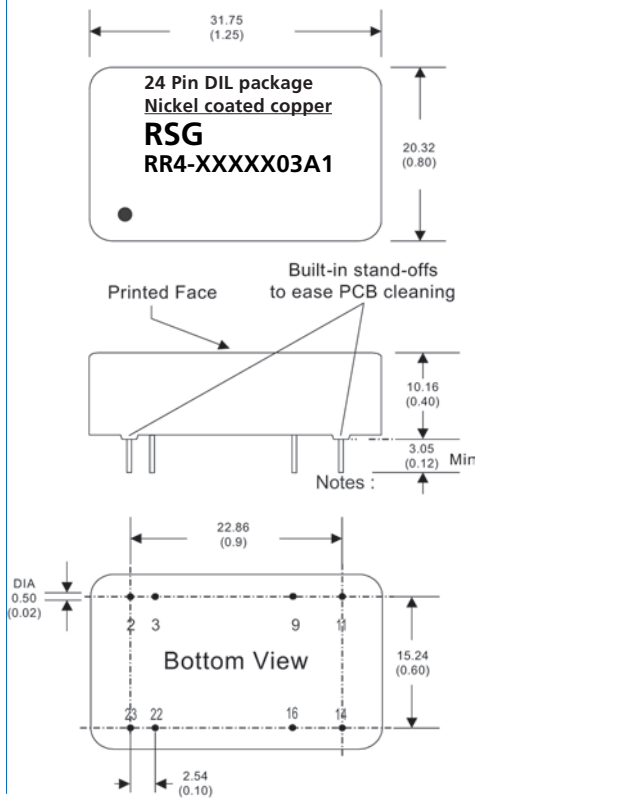


## PIN CONNECTIONS

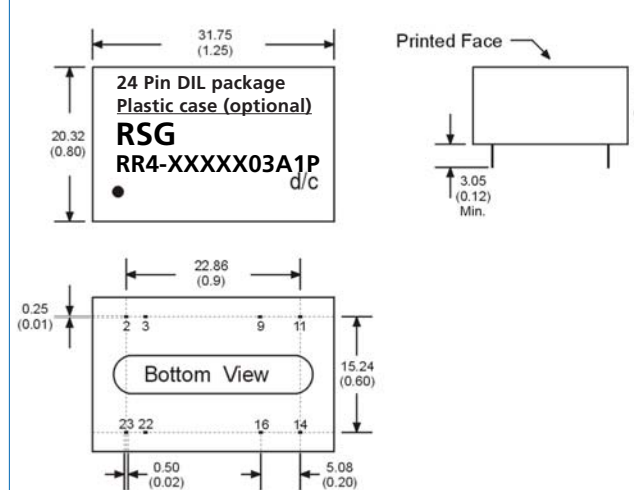
Pin Number	Single	Dual
2	-V Input	-V Input
3	-V Input	-V Input
9	N.P.	Common
11	N.C.	-V Output
14	+V Output	+V Output
16	-V Output	Common
22	+V Input	+V Input
23	+V Input	+V Input

The pin connection of high isolation models is the same as for normal ones.

## MECHANICAL SPECIFICATIONS METAL CASE



## MECHANICAL SPECIFICATIONS PLASTIC CASE



All dimensions are typical in millimeters (inches).

- 1) Pin diameter:  $0.5 \pm 0.05$  ( $0.02 \pm 0.002$ )
- 2) Pin pitch tolerance:  $\pm 0.35$  ( $\pm 0.014$ )
- 3) Case tolerance:  $\pm 0.5$  ( $\pm 0.02$ )