

RR3-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 isolation
- 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 3.3V Model / ±3.3V 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 (typ.) | See table |
| I/O isolation voltage (3 sec.) Input/Output | 1500~3500 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 |

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 | Metal 17.0 g, Plastic 13.5 g |
| 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 $T_a = 25^\circ\text{C}$, 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

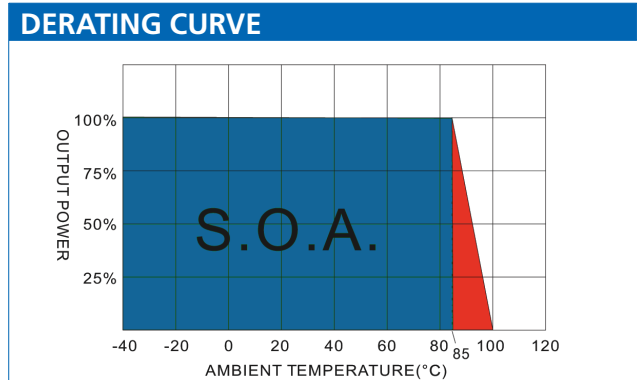
- 1) Typical value at nominal input voltage and full load.
- 2) Tested by nominal V_{in} and constant resistor load.
- 3) Measured input reflected ripple current with a simulated source inductance of 12µH.
- 4) Exceeding the absolute ratings of the unit could cause damage. It is not allowed for continuous 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 | | | | | | | |
|--------------------------------------------------|---|----------------------------------------------------|--------------------------------------------------------------------------|-----------------------------------|-----------------------|-------------------------|--------------------------------------------|
| RR3 | - | XX | XX | S/D | 03 | A | X (P)* |
| Name/Package RR3=DIL24 | | Input 12=9~18V 24=18~36V 48=36~72V | Output 03=3.3V 05=5V 09=9V 12=12V 15=15V 24=24V | Type S=Single D=Dual | Power 03=3W | Code internal | Isolation 1=1.5kVDC 3=3.5kVDC |
| Add suffix P at the end for Plastic Case! | | | | | | | |



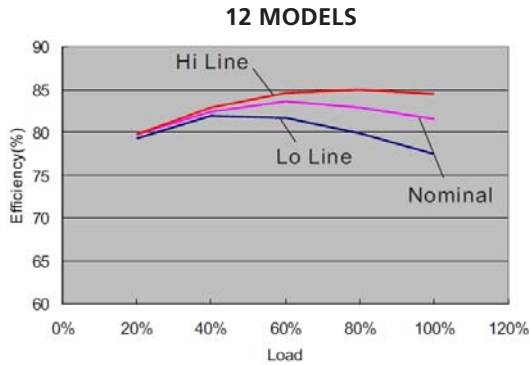
MODEL SELECTION GUIDE

| Model Number | Input Range VDC | Input current (mA) No Load / Full Load | Output VDC | Output current Full Load (mA) | Efficiency @FL (%) | Capacitor Load (μF) |
|---------------|-----------------|-------------------------------------------|------------|-------------------------------|--------------------|---------------------|
| RR3-1203S03AX | 9-18 | 22 / 343 | 3.3 | 900 | 72 | 470 |
| RR3-1205S03AX | 9-18 | 22 / 328 | 5 | 600 | 76 | 470 |
| RR3-1209S03AX | 9-18 | 22 / 320 | 9 | 333 | 78 | 68 |
| RR3-1212S03AX | 9-18 | 22 / 312 | 12 | 250 | 80 | 47 |
| RR3-1215S03AX | 9-18 | 22 / 312 | 15 | 200 | 80 | 47 |
| RR3-1224S03AX | 9-18 | 22 / 313 | 24 | 125 | 80 | 22 |
| RR3-1203D03AX | 9-18 | 22 / 343 | ±3.3 | ±450 | 72 | ±220 |
| RR3-1205D03AX | 9-18 | 22 / 328 | ±5 | ±300 | 76 | ±220 |
| RR3-1209D03AX | 9-18 | 22 / 312 | ±9 | ±167 | 80 | ±33 |
| RR3-1212D03AX | 9-18 | 22 / 312 | ±12 | ±125 | 80 | ±22 |
| RR3-1215D03AX | 9-18 | 22 / 312 | ±15 | ±100 | 80 | ±22 |
| RR3-1224D03AX | 9-18 | 22 / 313 | ±24 | ±63 | 80 | ±10 |
| RR3-2403S03AX | 18-36 | 12 / 171 | 3.3 | 900 | 72 | 470 |
| RR3-2405S03AX | 18-36 | 12 / 164 | 5 | 600 | 76 | 470 |
| RR3-2409S03AX | 18-36 | 12 / 160 | 9 | 333 | 78 | 68 |
| RR3-2412S03AX | 18-36 | 12 / 156 | 12 | 250 | 80 | 47 |
| RR3-2415S03AX | 18-36 | 12 / 152 | 15 | 200 | 82 | 47 |
| RR3-2424S03AX | 18-36 | 12 / 153 | 24 | 125 | 82 | 22 |
| RR3-2403D03AX | 18-36 | 12 / 171 | ±3.3 | ±450 | 72 | ±220 |
| RR3-2405D03AX | 18-36 | 12 / 160 | ±5 | ±300 | 78 | ±220 |
| RR3-2409D03AX | 18-36 | 12 / 156 | ±9 | ±167 | 80 | ±33 |
| RR3-2412D03AX | 18-36 | 12 / 152 | ±12 | ±125 | 82 | ±22 |
| RR3-2415D03AX | 18-36 | 12 / 152 | ±15 | ±100 | 82 | ±22 |
| RR3-2424D03AX | 18-36 | 12 / 153 | ±24 | ±63 | 82 | ±10 |
| RR3-4803S03AX | 36-72 | 8 / 86 | 3.3 | 900 | 72 | 470 |
| RR3-4805S03AX | 36-72 | 8 / 82 | 5 | 600 | 76 | 470 |
| RR3-4809S03AX | 36-72 | 8 / 80 | 9 | 333 | 78 | 68 |
| RR3-4812S03AX | 36-72 | 8 / 78 | 12 | 250 | 80 | 47 |
| RR3-4815S03AX | 36-72 | 8 / 78 | 15 | 200 | 80 | 47 |
| RR3-4824S03AX | 36-72 | 8 / 78 | 24 | 125 | 80 | 22 |
| RR3-4803D03AX | 36-72 | 8 / 86 | ±3.3 | ±450 | 72 | ±220 |
| RR3-4805D03AX | 36-72 | 8 / 82 | ±5 | ±300 | 76 | ±220 |
| RR3-4809D03AX | 36-72 | 8 / 80 | ±9 | ±167 | 78 | ±33 |
| RR3-4812D03AX | 36-72 | 8 / 78 | ±12 | ±125 | 80 | ±22 |
| RR3-4815D03AX | 36-72 | 8 / 78 | ±15 | ±100 | 80 | ±22 |
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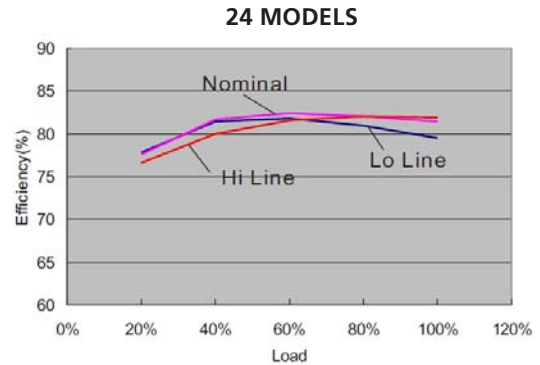
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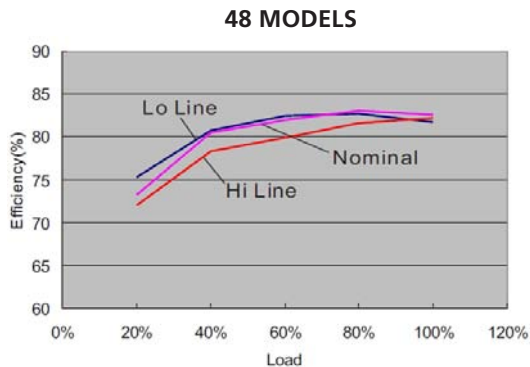
EFFICIENCY VS OUTPUT CURRENT 12



EFFICIENCY VS OUTPUT CURRENT 24



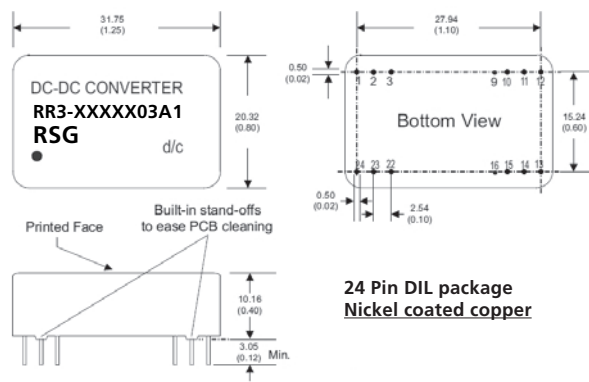
EFFICIENCY VS OUTPUT CURRENT 48



PIN CONNECTIONS

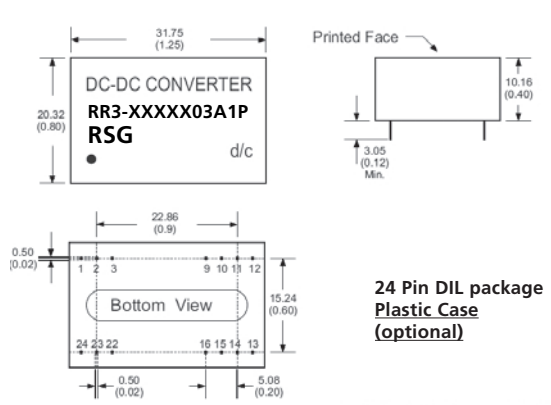
| PIN Nr. | SINGLE | DUAL | SINGLE-3 | DUAL-3 |
|---------|-----------|-----------|-----------|-----------|
| 1 | +V Input | +V Input | N.P. | N.P. |
| 2 | N.C. | -V Output | -V Input | -V Input |
| 3 | N.C. | Common | -V Input | -V Input |
| 9 | N.P. | N.P. | N.P. | Common |
| 10 | -V Output | Common | 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



All dimensions are typical in millimeters (inches).
 1) Pin diameter: 1.0 ± 0.05 (0.02 ± 0.002)
 2) Pin pitch tolerance: ± 0.35 (± 0.014)
 3) Case tolerance: ± 0.5 (± 0.02)

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