RR8-S/D15

15W Regulated Single & Dual Output DC/DC Converter

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- **24 Pin DIL Package**
- **Wide 2:1 Input Range**
- **1600VDC Isolation**
- **EMI filter meets EN55032 class A without external components**
- **Efficiency up to 91%**
- **Operating Temperature Range -40°C ~ +85°C**
- **Continuous Short Circuit Protection**
- **Over Current Protection, Over Voltage Protection**
- **Low no Load Input Current**
- **Soft Start**
- **Remote On/Off Control**

Output Specifications	
Voltage Accuracy	±1%, max.
Output Voltage Adjustability (Trim)	–
Maximum Output Current	See table
Line Regulation	Single & Dual ±0.2 ~ 0.5% max.
Load Regulation	from 0% to 100% Load:±0.5% ~ ±1% max. –
Cross Regulation (Dual Output)	±5%
Over Voltage Protection	118 ~ 125% of Vout typ.
Over Current Protection	150% of FL typ.
Short Circuit Protection	Indefinite (Automatic Recovery)
Ripple & Noise (20 MHz bandwidth)	60mV pk-pk max.
Temperature Coefficient	±0.02%/°C
Transient Recovery Time	250µs typ.
Transient Response Deviation	±3% max.

Input Specifications	
Voltage Range	See table
Start-up Time	20ms typ.
No-Load/Full-Load Input Current	See table
Input Filter	C/L (see filter details on following pages)
Input Reflected Ripple Current	20mA pk-pk typ.
Remote ON	3.0 ~ 12VDC or open circuit
Remote OFF	0 ~ 1.2VDC or short circuit pin 1 and 2/3
OFF Idle Current	5mA typ.
Surge Voltage (100 ms) †)	
12V Models 24V Models 48V Models	36VDC max. 50VDC max. 100VDC max.

General Specifications	
I/O Isolation Voltage (60 sec)	1600VDC
Isolation Voltage Case/Input&Output	1600VDC
I/O Isolation Capacitance	2000pF typ.
I/O Isolation Resistance	1000M Ohm, min.
Switching Frequency	250 ~ 330kHz typ.
Humidity	95% rel H
Reliability Calculated MTBF	>460KHrs (MIL-HDBK-217 f)
Safety Standard(s)	IEC/EN62368-1 (designed to meet)

Environmental Specifications	
Operating Temperature Range	-40°C ~ +85°C (see Derating Curve)
Maximum Case Temperature	105°C
Storage Temperature	-55°C ~ +125°C
Cooling	Natural Convection
Soldering Profile and Peak Temperature	Wave Flow: 260°C (1.5 mm from case), 10s, max.

Physical Specifications	
Case Material	Nickel-coated Copper –
Pin Material	0.5mm Brass Solder-coated
Potting Material	Epoxy (UL94V-0 rated)
Weight	20.0g
Case Dimensions	1.25" x 0.80" x 0.40"

EMC Specifications	
Radiated / Conducted Emissions	EN55032 Class A see EMI Filter
ESD	IEC 61000-4-2 Perf.Criteria B
Rad. RF	IEC 61000-4-3 Perf.Criteria A
EFT	IEC 61000-4-4 Perf.Criteria B
Surge	IEC 61000-4-5 Perf.Criteria B
Cond. RF	IEC 61000-4-6 Perf.Criteria A
PFMF	IEC 61000-4-8 Perf.Criteria A
VD/SI/VV	–

†) These are stress ratings; exposure of devices to any of these conditions may adversely affect long-term reliability.
All specifications typical at T_A = 25 °C, nominal input voltage and full load, unless otherwise specified.
The information and specification contained in this data sheet are believed to be correct at time of publication. However, Acal BFi accepts no responsibility for consequences arising from printing errors or inaccuracies. Specifications are subject to change without notice.

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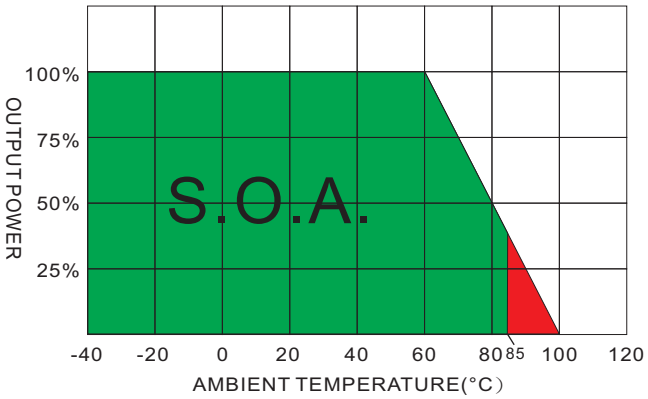
RR8-S15/D15

NUMBER STRUCTURE

RR8 - XX XX S/D XX A X

- **Name/Package**: RR8=DIL24
- **Input**: 12= 9-18V; 24=18-36V; 48=36-75V
- **Output**: 03=3.3V; 05=5.1V; 05=5.0V *; 12=12V; 15=15V
- **Type**: S= Single-Outp.; D= Dual-Outp.; *Nur bei Dual
- **Power (W)**: 15=15.00
- **Code**: internal
- **Isolation (kVDC)**: 1= 1.6

Derating Curve



MODEL SELECTION GUIDE

MODEL NUMBER	INPUT Voltage Range (Vdc)	INPUT Current No-Load (mA, max.)	INPUT Current Full Load (mA, typ.)	OUTPUT Voltage (Vdc)	OUTPUT Current Min. load (mA)	OUTPUT Current Full load (mA)	EFFICIENCY @FL (%, typ.)	Capacitor Load @FL (µF, max.)
RR8-1203S15A1	9-18	15	1309	3.3	0	4000	86	4700
RR8-1205S15A1	9-18	15	1465	5.1	0	3000	89	3300
RR8-1212S15A1	9-18	15	1436	12	0	1250	89	600
RR8-1215S15A1	9-18	15	1420	15	0	1000	90	400
RR8-1205D15A1	9-18	15	1488	±5	0	±1500	86	±1500
RR8-1212D15A1	9-18	15	1420	±12	0	±625	90	±288
RR8-1215D15A1	9-18	15	1420	±15	0	±500	90	±200
RR8-2403S15A1	18-36	10	647	3.3	0	4000	87	4700
RR8-2405S15A1	18-36	10	732	5.1	0	3000	89	3300
RR8-2412S15A1	18-36	10	710	12	0	1250	90	600
RR8-2415S15A1	18-36	10	702	15	0	1000	91	400
RR8-2405D15A1	18-36	10	744	±5	0	±1500	86	±1500
RR8-2412D15A1	18-36	10	710	±12	0	±625	90	±288
RR8-2415D15A1	18-36	10	710	±15	0	±500	90	±200
RR8-4803S15A1	36-75	5	327	3.3	0	4000	86	4700
RR8-4805S15A1	36-75	5	370	5.1	0	3000	88	3300
RR8-4812S15A1	36-75	5	359	12	0	1250	89	600
RR8-4815S15A1	36-75	5	359	15	0	1000	89	400
RR8-4805D15A1	36-75	5	372	±5	0	±1500	86	±1500
RR8-4812D15A1	36-75	5	359	±12	0	±625	89	±288
RR8-4815D15A1	36-75	5	355	±15	0	±500	90	±200

1. One load is 25% to 100% load, the other load is 100% load, the output voltage variable rate is within ±5%.
2. Measured with a 1.0uF ceramic capacitor.
3. Tested by minimal Vin and constant resistive load.
4. Tested by normal Vin and 25% load step change (75%-50%-25% of Io).
5. Measured Input reflected ripple current with a simulated source inductance of 12uHand a source capacitor Cin(47uF, ESR<1.0Ω at 100KHz).
6. The remote on/off control pin is referenced to -Vin(pin2 and pin3).
7. 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, 2pcs 330uF/100V paraller connection or 680uF/100V.
8. Exceeding the absolute ratings of the unit could cause damage.
   It is not allowed for continuous operating.
9. Operation under no-load conditions will not damage these devices, however they may not meet all listed specifications.

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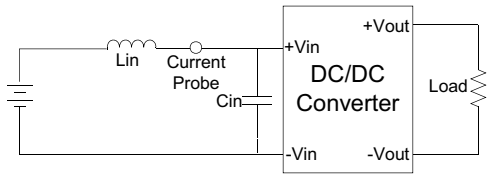
TEST CONFIGURATIONS

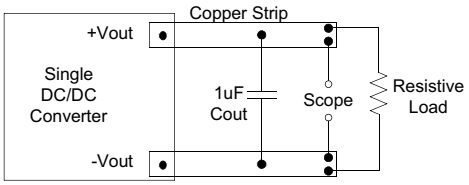
Input Reflected Ripple Current Test Step

Input reflected ripple current is measured through a source inductor Lin(12uH) and a source capacitor Cin(47uF, ESR<1.0Ω at 100KHz) at nominal input and full load.

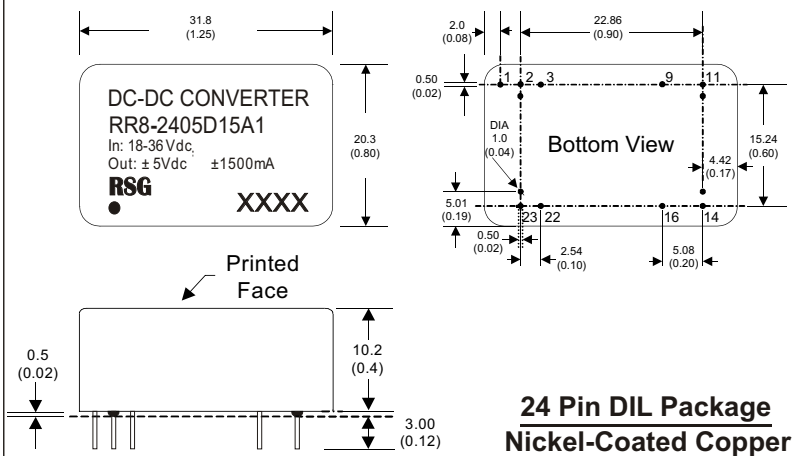


Output Ripple & Noise Measurement Test

Use a capacitor Cout(1.0uF) measurement.
The Scope measurement bandwidth is 0-20MHz.



MECHANICAL SPECIFICATIONS



24 Pin DIL Package
Nickel-Coated Copper

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
1	Remote On/Off	Remote On/Off
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 models listed here are just standard type. If you need a product with special specification or you have questions regarding packing standards (Tube or 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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