RR8-S/D12

12W Regulated Single & Dual Output DC/DC Converter

Picture similar

CE
RoHS

- **24 Pin DIL Package**
- **Wide 2:1 Input Range**
- **1600VDC Isolation**
- **No Minimum Load Required**
- **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	±1.2%, max.
Output Voltage Adjustability (Trim)	–
Maximum Output Current	See table
Line Regulation	Single & Dual ±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)	85mV 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	1200pF typ.
I/O Isolation Resistance	1000M Ohm, min.
Switching Frequency	330kHz typ.
Humidity	95% rel H
Reliability Calculated MTBF	>1.00MHrs (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	100°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	18.0g
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 A
Surge	IEC 61000-4-5 Perf.Criteria A
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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Acal BFi Germany GmbH
Assar-Gabrielsson-Straße 1
63128 Dietzenbach, Germany

Tel. +49 6074 4098-0
Fax +49 6074 4098-777
vertrieb.rsg@acalbfi.de
www.rsg-electronic.com

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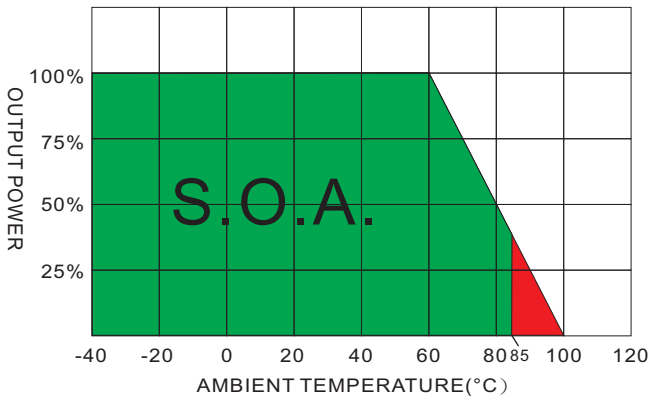
RR8-S12/D12

NUMBER STRUCTURE

RR8	-	XX	XX	S/D	XX	A	X
Name/Package		Input	Output	Type	Power (W)	Code	Isolation (kVDC)
RR8=DIL24		12= 9-18V 24=18-36V 48=36-75V	02=2.5V 03=3.3V 05=5.0V 12=12V 15=15V	S= Single-Outp. D= Dual-Outp. .	12=12.00	internal	1= 1.6

Derating Curve

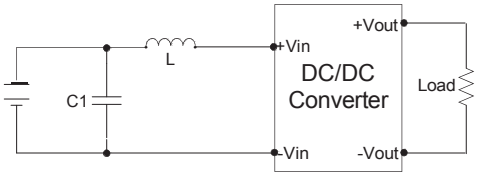


MODEL SELECTION GUIDE

MODEL NUMBER	INPUT Voltage Range (Vdc)	INPUT Current No-Load (mA)	INPUT Current Full Load (mA)	OUTPUT Voltage (Vdc)	OUTPUT Current Min. load (mA)	OUTPUT Current Full load (mA)	EFFICIENCY @FL(%)	Capacitor Load(uF)
RR8-1202S12A1	9-18	15	889	2.5	0	3500	85	2000
RR8-1203S12A1	9-18	15	1146	3.3	0	3500	87	2000
RR8-1205S12A1	9-18	15	1163	5	0	2400	89	2000
RR8-1212S12A1	9-18	15	1149	12	0	1000	90	430
RR8-1215S12A1	9-18	15	1149	15	0	800	90	300
RR8-1212D12A1	9-18	15	1149	±12	0	±500	90	±200
RR8-1215D12A1	9-18	15	1136	±15	0	±400	91	±120
RR8-2402S12A1	18-36	15	445	2.5	0	3500	85	2000
RR8-2403S12A1	18-36	15	573	3.3	0	3500	87	2000
RR8-2405S12A1	18-36	15	581	5	0	2400	89	2000
RR8-2412S12A1	18-36	15	575	12	0	1000	90	430
RR8-2415S12A1	18-36	15	575	15	0	800	90	300
RR8-2412D12A1	18-36	15	575	±12	0	±500	90	±200
RR8-2415D12A1	18-36	15	562	±15	0	±400	91	±120
RR8-4802S12A1	36-75	15	225	2.5	0	3500	84	2000
RR8-4803S12A1	36-75	15	283	3.3	0	3500	88	2000
RR8-4805S12A1	36-75	15	291	5	0	2400	89	2000
RR8-4812S12A1	36-75	15	294	12	0	1000	88	430
RR8-4815S12A1	36-75	15	291	15	0	800	89	300
RR8-4812D12A1	36-75	15	294	±12	0	±500	88	±200
RR8-4815D12A1	36-75	15	291	±15	0	±400	89	±120

NOTE

1. For Cross Regulation one load is 25% to 100% load, the other load is 100% load, the output voltage variable rate is within ±5%.
2. Ripple&Noise maximum value at nominal input voltage, measured with 20MHz bandwidth and 1.0uF ceramic capacitor.
3. Capacitive Load tested by minimal Vin and constant resistive load.
4. Transient recovery & response tested by normal Vin and 25% load step change (75%-50%-25% of Io).
5. Input filter components (C1, 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.
6. An external filter capacitor is required if the module has to meet IEC61000-4-5.
   The filter capacitor RSG suggest: Nippon - chemi - con KY series, 330uF/100V.
7. Exceeding the absolute ratings of the unit could cause damage.
   It is not allowed for continuous operating.



C1	L
100uF, 100V	12uH

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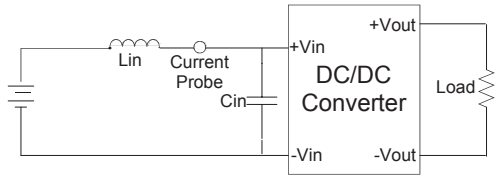
TEST CONFIGURATIONS

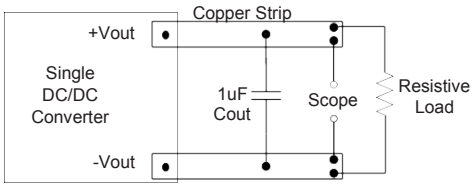
Input Reflected Ripple Current Test Step

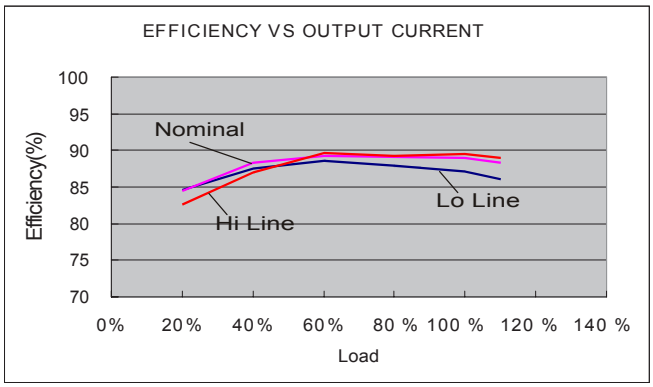
Input reflected ripple current is measured through a source inductor Lin(12uH) and a source capacitor Cin(47uF, ESR<1.0© at 100KHz) at nominal input and full load.



Output Ripple & Noise Measurement Test

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





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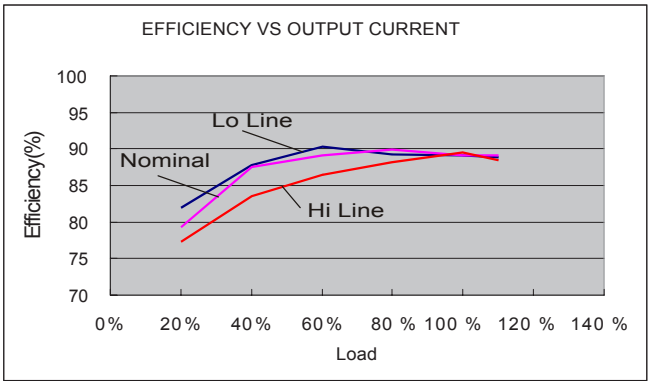

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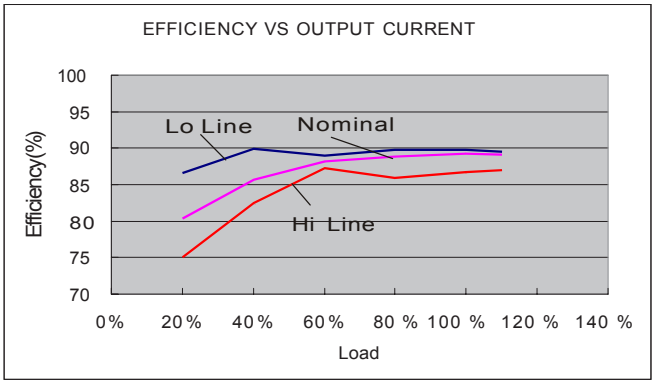

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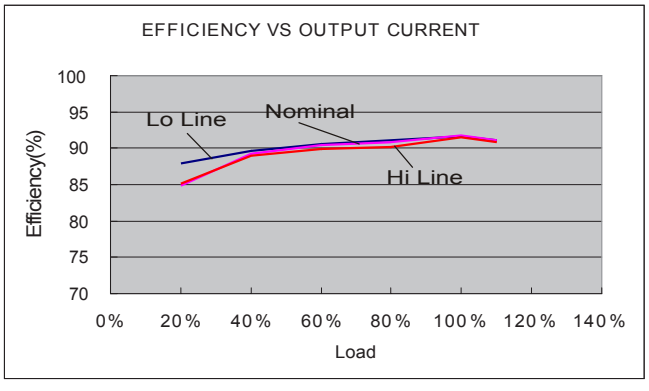

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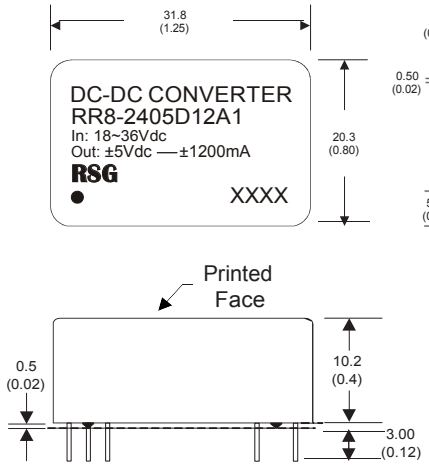
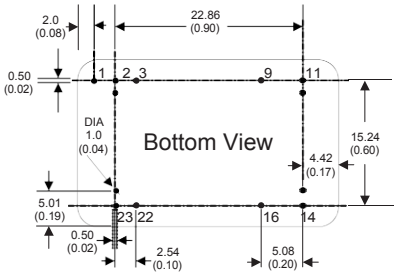
MECHANICAL SPECIFICATIONS





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 oder Tape/Reel) as well as application support, please contact our specialists: sales@rsg-electronic.de or +49 69-984047-0

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