RS5-R30/RD30

3.0 Watt 2:1 regulated single & dual output

RSG ELECTRONIC COMPONENTS

- 8 Pin SIP8 package
- Wide 2:1 input range
- 1600 VDC isolation
- Continuous short circuit protection
- Efficiency up to 84%
- -40°C~71°C operation temperature range
- Metal case, Remote On/Off optional

OUTPUT SPECIFICATIONS

Voltage accuracy	± 1%
Line regulation	± 0.5%
Load regulation (From 25% to 100% Load)	± 1%
Cross regulation (dual output)	± 5%
Ripple & Noise (20 MHz bandwith) (1)	75 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	Capacitors
Input reflected ripple current (3)	35 mA pk-pk

GENERAL SPECIFICATIONS

Efficiency	See table
I/O isolation voltage (3 sec.) Input / Output	1600 VDC
I/O isolation capacitance	680 pF max.
I/O isolation resistance (min.)	1000 M Ohm
Switching frequency (min.)	100 kHz
Humidity	95% rel. H
Reliability calculated MTBF	> 2.465 Mhrs. @25°C
Safety standard (designed to meet)	IEC 60950

PHYSICAL SPECIFICATIONS

Case material	Non-conductive black plastic
Pin material	C5191R-H solder-coated
Potting material	Epoxy (UL94V-0 rated)
Weight	4.8 g, typ.
Dimensions	SIP > 0.86" x 0.36" x 0.44"

ENVIRONMENT SPECIFICATIONS

Operating temperature	-40°C~ 71°C
Maximum case temperature	100°C
Storage temperature	-40°C~125°C
Cooling	Nature convection

EMI CHARACTERISTICS

Conducted Emissions (10)	EN55022	CLASS A
Radiated Emissions	EN55022	CLASS A
ESD	IEC61000-4-2	Perf.Criteria B
RS	IEC61000-4-3	Perf.Criteria A
EFT (11)	IEC61000-4-4	Perf.Criteria B
Surge (11)	IEC61000-4-5	Perf.Criteria B
CS	IEC61000-4-6	Perf.Criteria A
PFMF	IEC61000-4-8	Perf.Criteria A

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)		
	5 modes	-0.7 ~ 15 VDC
	12 modes	-0.7 ~ 36 VDC
	24 modes	-0.7 ~ 50 VDC
	48 modes (SIP)	-0.7 ~ 100 VDC
Lead soldering temperature (1.5 mm from case 10 sec.)		260°C

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

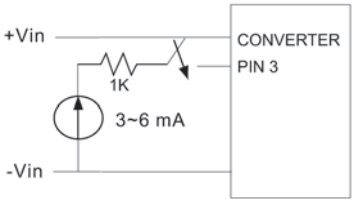
1) Ripple / Noise measured with 20 MHz bandwith.
2) Tested by minimal Vin and constant resistive load.
3) Measured input reflected ripple current with a simulated source inductance of 12uH and source capacitor Cin (47uF, ESR < 1.0 Ohm @100 kHz).
4) Exceeding the absolute ratings of the unit could cause damage. It is not allowed for continuous operating.
5) Operation at no-load conditions will not damage these devices. However they may not meet all listed specifications.

Transient Recovery Time 300 us typ., Transient Response Deviation ± 3% max., Test by normal Vin and 100% - 25% load, 25% load step change.

Remote ON / OFF control

ON: open or high impedance

OFF: 3.0~6.0 mA input current (via 1K)



Input filter components are required to help meet Conducted Emission class A, which application refer to the EMI filter of design & feature configuration.
An external filter capacitor is required if the module has to meet EN61000-4-4 and EN61000-4-5.

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NUMBER STRUCTURE

RS5 - XX XX R/RD 30 A X**

Name/Package
RS5=SIL8

Input
05=4.5-9V
12=9-18V
24=18-36V
48=36-72V

Output
03=3.3V
05=5V
12=12V
15=15V

Type
R=Single regulated
RD=Dual regulated

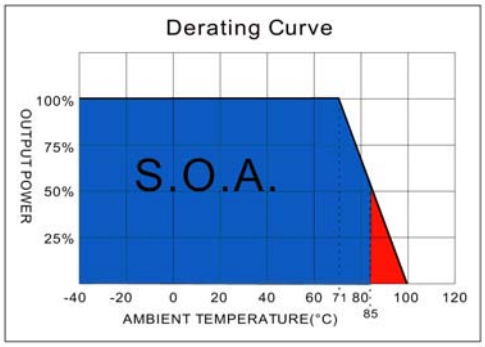
Power
30=3.0W

Code
internal

Isolation
1=1.6 kVDC

Options:
Please add suffix „M" for Metal case.
Please add suffix „C" for Remote Control function.

DERATING CURVE



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)
RS5-0503R30A1	4.5-9	65 / 640	3.3	700	74	2200
RS5-0505R30A1	4.5-9	70 / 800	5	600	76	1000
RS5-0512R30A1	4.5-9	75 / 750	12	250	82	470
RS5-0515R30A1	4.5-9	75 / 750	15	200	82	220
RS5-1203R30A1	9-18	25 / 260	3.3	700	76	2200
RS5-1205R30A1	9-18	15 / 320	5	600	81	1000
RS5-1212R30A1	9-18	35 / 305	12	250	84	470
RS5-1215R30A1	9-18	35 / 305	15	200	84	220
RS5-2403R30A1	18-36	15 / 133	3.3	700	74	2200
RS5-2405R30A1	18-36	15 / 160	5	600	79	1000
RS5-2412R30A1	18-36	20 / 156	12	250	82	470
RS5-2415R30A1	18-36	20 / 152	15	200	84	220
RS5-4803R30A1	36-72	10 / 66	3.3	700	75	2200
RS5-4805R30A1	36-72	10 / 82	5	600	78	1000
RS5-4812R30A1	36-72	15 / 78	12	250	81	470
RS5-4815R30A1	36-72	15 / 78	15	200	81	220
RS5-0505RD30A1	4.5-9	90 / 800	±5	±300	77	±470
RS5-0512RD30A1	4.5-9	90 / 760	±12	±125	81	±220
RS5-0515RD30A1	4.5-9	90 / 750	±15	±100	82	±100
RS5-1205RD30A1	9-18	45 / 320	±5	±300	80	±470
RS5-1212RD30A1	9-18	45 / 308	±12	±125	83	±220
RS5-1215RD30A1	9-18	45 / 312	±15	±100	82	±100
RS5-2405RD30A1	18-36	20 / 160	±5	±300	80	±470
RS5-2412RD30A1	18-36	20 / 154	±12	±125	83	±220
RS5-2415RD30A1	18-36	20 / 154	±15	±100	83	±100
RS5-4805RD30A1	36-72	15 / 82	±5	±300	78	±470
RS5-4812RD30A1	36-72	20 / 80	±12	±125	80	±220
RS5-4815RD30A1	36-72	15 / 78	±15	±100	81	±100

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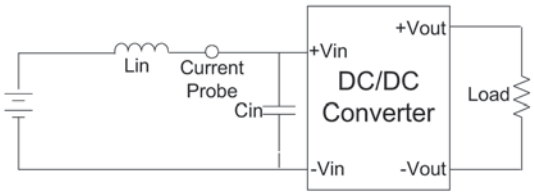
TEST CONFIGURATIONS

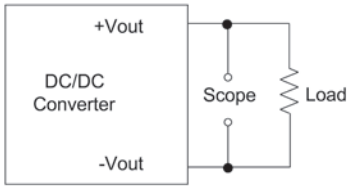
INPUT REFLECTED RIPPLE CURRENT TEST STEP

Input Reflected Ripple Current is measured through a source inductor Lin (12 uH) and a source capacitor Cin (47 uF, ESR < 1.0 Ω at 100 kHz) at nominal input and full load.



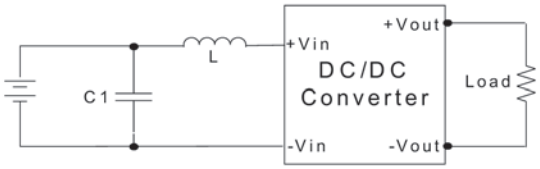
OUTPUT RIPPLE & NOISE MEASUREMENT TEST

The Scope measurement bandwidth is 20 MHz.



EMI Filter

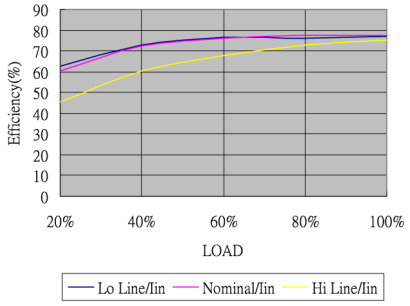
Input filter components (C1, L) are used to help meet conducted emissions requirement for the module. These components should be mounted as close as possible to the module; and all leads should be minimized to decrease radiated noise.



		C1	L
RS5-05XXXXX		220uF/25V	5.6uH
RS5-12XXXXX	Single	100uF/100V	18uH
	Dual	1210, 2.2uF/100V	
RS5-24XXXXX		1210, 10uF/35V	18uH
RS5-48XXXXX		100uF/100V	56uH

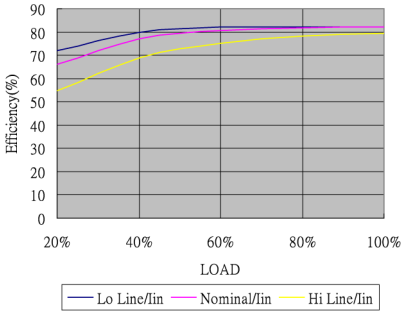
EFFICIENCY VS OUTPUT CURRENT 05

05 MODELS



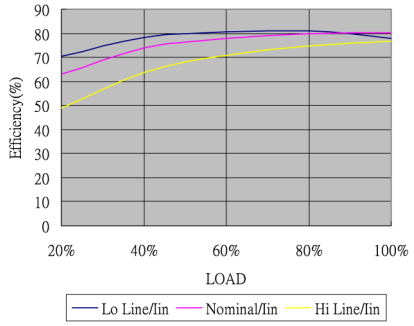
EFFICIENCY VS OUTPUT CURRENT 12

12 MODELS



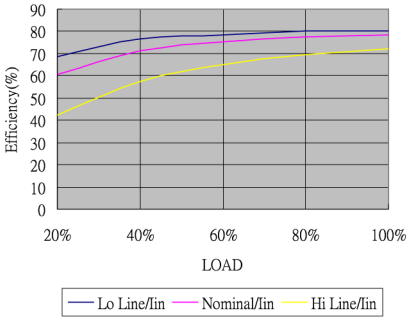
EFFICIENCY VS OUTPUT CURRENT 24

24 MODELS



EFFICIENCY VS OUTPUT CURRENT 48

48 MODELS



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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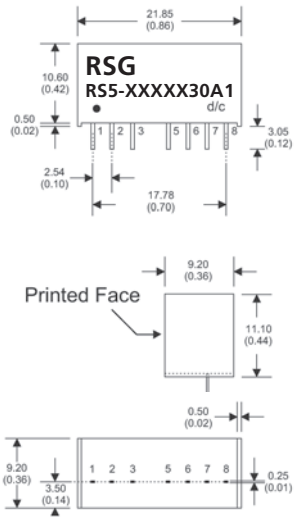
MECHANICAL SPECIFICATIONS

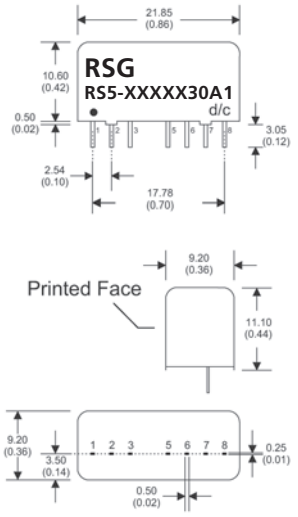


8 Pin SIL package
Non-conductive
Plastic

PIN CONNECTIONS +C MODELS

PIN NUMBER	SINGLE +C	DUAL +C
1	-V Input	-V Input
2	+V Input	+V Input
3	Remote ON/OFF	Remote ON/OFF
5	N.C.	N.C.
6	+V Output	+V Output
7	-V Output	Common
8	N.C.	-V Output

MECHANICAL SPECIFICATIONS



8 Pin SIL package
Nickel coated
copper

All dimensions are typical in millimeters (inches).
1) Pin diameter: 1.0 ± 0.05 (0.04 ± 0.002)
2) Pin pitch tolerance: ± 0.35 (± 0.014)
3) Case tolerance: ± 0.5 (± 0.02)

PIN CONNECTIONS

PIN NUMBER	SINGLE	DUAL
1	-V Input	-V Input
2	+V Input	+V Input
3	N.P.	N.C.
5	N.P.	N.C.
6	+V Output	+V Output
7	-V Output	Common
8	N.C.	-V Output

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