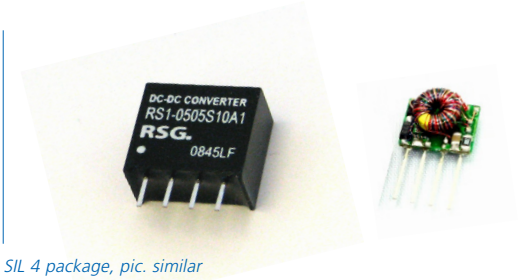
RS1-S20

2.0 Watt unregulated single output

RSG. ELECTRONIC COMPONENTS



SIL 4 package, pic. similar

- 4 Pin SIL package
- 1000 VDC isolation up to 3000 VDC isolation
- Low ripple and noise
- Efficiency up to 84%
- -40°C~85°C operation temperature range
- Non-conductive black plastic case
- EMI complies with EN55022 class B

OUTPUT SPECIFICATIONS

Voltage accuracy	± 3%
Line regulation (Per 1% Vin Charge)	± 1.2%
Load regulation (From 20% to 100% Load)	± 10%
(Output 3.3 V Model)	± 20%
Ripple & Noise (20 MHz bandwith) (1)	150 mV pk-pk
Temperature coefficient	± 0.02%/°C
Capacitor load (2)	See table

INPUT SPECIFICATIONS

Voltage range	± 10%
Max. input current	See table
No-load input current	See table
Input filter	Capacitors
Input reflected ripple current (3)	20 mA pk-pk

GENERAL SPECIFICATIONS

Efficiency	See table
I/O isolation voltage (3 sec.)	
Input / output	1000 ~ 3000 VDC
I/O isolation capacitance	60 pF typ.
I/O isolation resistance	1000 M Ohm
Switching frequency	variable 70 kHz
Humidity	95% rel. H
Reliability calculated MTBF (MIL-HDBK-217F)	> 1.121 Mhrs.
Safety standard (designed to meet)	IEC 60950-1

EMC SPECIFICATIONS

Radiated emissions	EN55022	Class B
	FCC 47 CFR Part 15 Subpart B	Class B
ESD	IEC 61000-4-2	Perf. criteria B
RS	IEC 61000-4-3	Perf. criteria A

PHYSICAL SPECIFICATIONS

Case material	Non-conductive black plastic (UL94V-0 rated)
Pin material	0.5 mm Alloy42 solder-coated
Potting material	Epoxy (UL94V-0 rated)
Weight	1.5 g
Dimensions	0.46" x 0.29" x 0.40"

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)

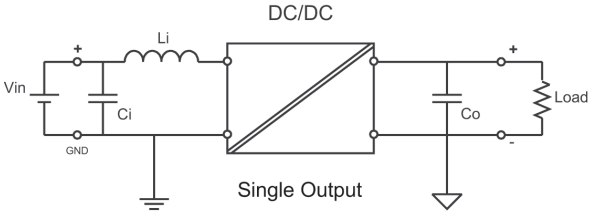
These are stress ratings. Exposure of devices to any of these conditions may adversely affect long-term reliability.

Input voltage (100 mS)		
	5 modes	0 ~ 7 VDC
	12 modes	0 ~ 15 VDC
	15 modes	0 ~ 18 VDC
	24 modes	0 ~ 28 VDC
	48 mode	0 ~ 54 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) 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.
4) Exceeding the absolute ratings of the unit could cause damage. It is not allowed for continuous operating.
5) Operation under no-load conditions will not damage these devices. However they may not meet all listed specifications.
6) To reduce converter´s Ripple & Noise it is recommended to add a 4.7µF ~ 220µF capacitor in output end. For EMI performance improvement it is recommended to add a 12µH inductor and a 10µF ~ 100µF capacitor in input end.



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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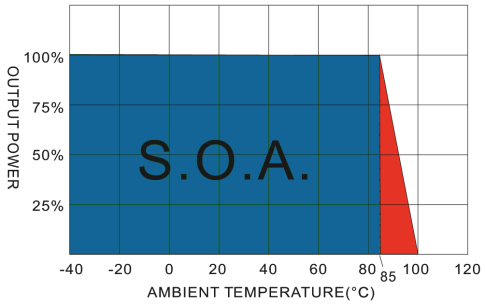
NUMBER STRUCTURE

RS1 - XX XX S 20 A X

- **Name/Package**: RS1=SIL4
- **Input**: 05=5V, 12=12V, 15=15V, 24=24V, 48=48V
- **Output**: 03=3.3V, 05=5V, 07=7.2V, 09=9V, 12=12V, 15=15V, 18=18V, 24=24V
- **Type**: S=Single
- **Power**: 20=2.0W
- **Code**: internal
- **Isolation**: 1=1.0 kVDC, 3=3.0 kVDC

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)
RS1-0503S20AX	5	35 / 371	3.3	400	71	470
RS1-0505S20AX	5	35 / 519	5	400	77	470
RS1-0507S20AX	5	35 / 519	7.2	278	77	470
RS1-0509S20AX	5	35 / 500	9	222	80	470
RS1-0512S20AX	5	35 / 487	12	167	82	470
RS1-0515S20AX	5	35 / 487	15	133	82	470
RS1-0518S20AX	5	35 / 487	18	111	82	470
RS1-0524S20AX	5	35 / 487	24	83	82	470
RS1-1203S20AX	12	20 / 152	3.3	400	72	470
RS1-1205S20AX	12	20 / 213	5	400	78	470
RS1-1207S20AX	12	20 / 208	7.2	278	80	470
RS1-1209S20AX	12	20 / 203	9	222	82	470
RS1-1212S20AX	12	20 / 198	12	167	84	470
RS1-1215S20AX	12	20 / 198	15	133	84	470
RS1-1218S20AX	12	20 / 198	18	111	84	470
RS1-1224S20AX	12	25 / 203	24	83	82	470
RS1-1503S20AX	15	18 / 120	3.3	400	73	470
RS1-1505S20AX	15	18 / 170	5	400	78	470
RS1-1507S20AX	15	18 / 166	7.2	278	80	470
RS1-1509S20AX	15	18 / 162	9	222	82	470
RS1-1512S20AX	15	18 / 158	12	167	84	470
RS1-1515S20AX	15	18 / 158	15	133	84	470
RS1-1518S20AX	15	18 / 158	18	111	84	470
RS1-1524S20AX	15	18 / 162	24	83	82	470
RS1-2403S20AX	24	10 / 74	3.3	400	74	470
RS1-2405S20AX	24	10 / 104	5	400	80	470
RS1-2407S20AX	24	10 / 104	7.2	278	80	470
RS1-2409S20AX	24	10 / 99	9	222	84	470
RS1-2412S20AX	24	10 / 99	12	167	84	470
RS1-2415S20AX	24	10 / 99	15	133	84	470
RS1-2418S20AX	24	10 / 99	18	111	84	470
RS1-2424S20AX	24	10 / 99	24	83	84	470
RS1-4803S20AX	48	7 / 38	3.3	400	72	470
RS1-4805S20AX	48	7 / 53	5	400	78	470
RS1-4807S20AX	48	7 / 52	7.2	278	80	470
RS1-4809S20AX	48	7 / 51	9	222	82	470
RS1-4812S20AX	48	7 / 52	12	167	80	470
RS1-4815S20AX	48	7 / 51	15	133	82	470
RS1-4818S20AX	48	7 / 51	18	111	82	470
RS1-4824S20AX	48	7 / 51	24	83	82	470

RS1-S20

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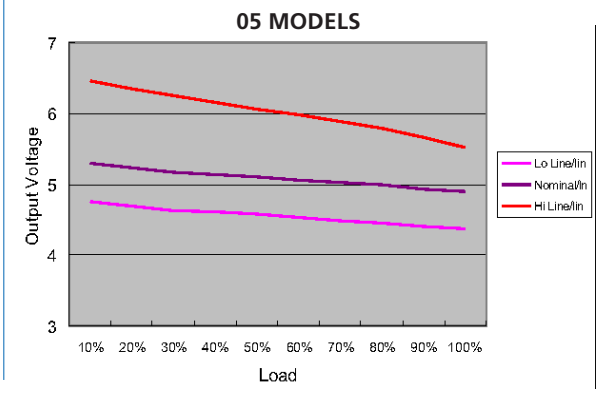
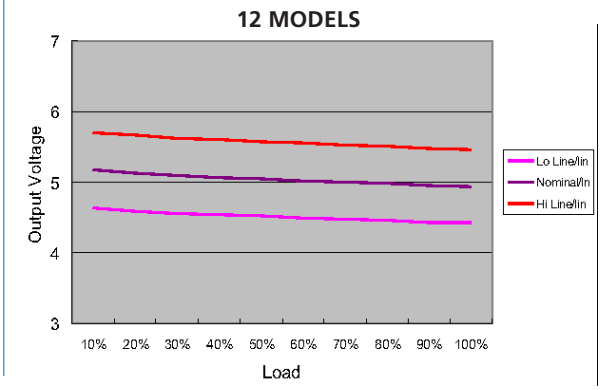
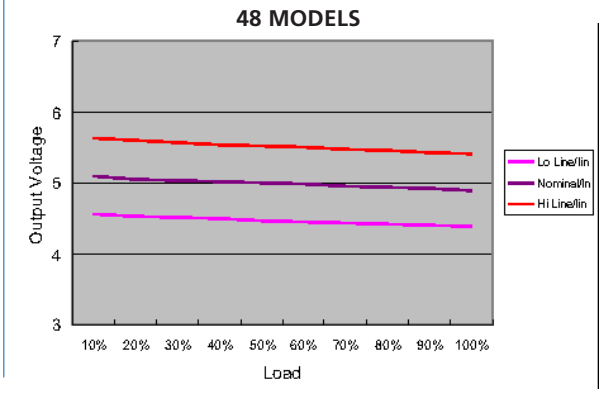
LOADING VS OUTPUT VOLTAGE 05



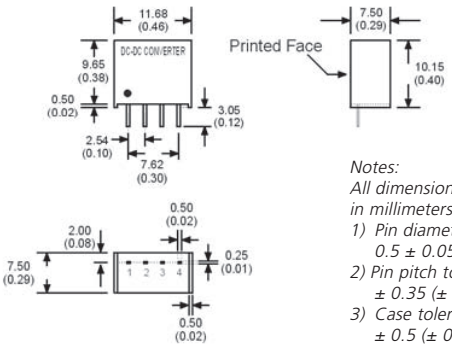
LOADING VS OUTPUT VOLTAGE 12



LOADING VS OUTPUT VOLTAGE 48



MECHANICAL SPECIFICATIONS 4 Pin SIL



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

PIN CONNECTIONS

PIN NUMBER	Single 4 Pin SIL	
1	-V Input	
2	+V Input	
3	-V Output	
4	+V Output	

RSG ELECTRONIC COMPONENTS

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