RS1/RD1-S10

- 4 Pin SIL/ 8Pin DIL Package
- 1000VDC Isolation
- Up to 3000VDC Isolation
- Low Ripple and Noise
- Efficiency up to 83%
- Operating Temperature Range: -40° ~ +85°C
- Non Conductive Black Plastic Case
- EMI Complies with EN55022 Class B

CE

OUTPUT SPECIFICATION	
Voltage accuracy:	±3%
Line regulation:	±1.2% (per 1%Vin Change)
LOAD REGULATION:	±10% (from 20 to 100%) Load
	Output 3.3V Model: ±20%
Ripple noise (20Mhz bandwidth):	100mV pk-pk
Temperature coefficient:	±0.02% °C
Capacitor load:	see table

INPUT SPECIFICATIONS	
Voltage Range:	±10%
Max. Input Current:	see table
No-Load/Full-Load Input Current:	see table
Input Filter:	Capacitors
Input Reflected Ripple Current :	20mA pk-pk

GENERAL SPECIFICATIONS	
Efficiency:	See table
I/O Isolation Voltage (60sec):	1000 ~ 3000VDC
I/O Isolation Capacitance:	60pF typ.
I/O Isolation Resistance:	1000M Ohm
Switching Frequency:	Variable 80kHz
Humidity:	95% rel H
Reliability Calculated MTBF : (MIL-HDBK-217 f)	>1.121MHrs
Safety Standard: (designed to meet):	IEC 60950-1

ENVIRONMENTAL SPECIFICATION	
Operating Temperature range:	-40°C ~+85°C (see Derating Curve)
Maximum Case Temperature:	100°C
Storage Temperature :	-40°C ~+125°C
Cooling :	Nature Convection

PHYSICAL SPECIFICATIONS:	
Case Material:	Non-conductive Black Plastic (UL94V-0 rated)
PIN Material SIP Case:	Ø 0.5mm Alloy42 Solder-coated
PIN Material DIP Case:	Ø 0.5mm Brass Solder-coated
Potting Material:	Epoxy (UL94V-0 rated)
Weight Case- Sip:	1.5g
Weight Case-DIP:	1.8g
Dimmension SIP:	0.46 x 0.24 x 0.40“
Dimmension DIP:	0.50 x 0.40 x 0.27“

ABSOLUTE MAXIMUM RATINGS (1)	
Input Surge Voltage (100ms)/	
3.3V Models:	6VDC max
5 V Models:	7VDC max
12V Models:	15VDC max
15V Models:	18VDC max
24V Models:	28VDC max
48V Models:	54VDC max
Soldering Temperature (2):	260°C max.

EMC SPECIFICATIONS	
Radiated-/Conducted Emissions:	EN55022 Class B
ESD:	IEC 61000-4-2 Perf.Criteria A
RS:	IEC 61000-4-3 Perf.Criteria A
EFT:	IEC 61000-4-4 Perf.Criteria A
SURGE:	IEC 61000-4-5 Perf.Criteria A
CS:	IEC 61000-4-6 Perf.Criteria A
PFMF	IEC 61000-4-8 Perf.Criteria A

1) These are stress ratings. Exposure of devices to any of these conditions may adversely affect long-term reliability.
2) (1.5mm from case 10sec Max.)
3) All specifications typical at TA= 25°C, nominal input voltage and full load unless otherwise specified.
4) The information and specification contained in this data sheet are believed to be correct at time of publication. However RSG accepts no responsibility for consequences arising from printing errors or inaccuracies. Specifications are subject to change without notice.

STAND Juni 2016 Rev 01

RS1/RD1-S10

NUMBER STRUCTURE

RD1 - XX XX X XX A X

Name/Package
RS1=SIL4
RD1=DIL8

Input
03=3.3V
05=5.0V
12=12V
15=15V
24=24V
48=48V

Output
03=3.3V
05=5.0V
07=7.2V
09=9.0V
12=12V
15=15V
18=18V
24=24V

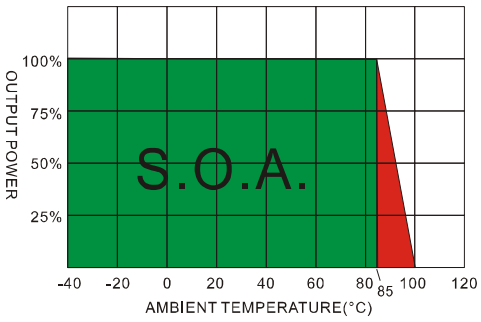
Type
S=Single
D=Dual
E= Dual separ.

Power (W)
02=0.25
05=0.50
10=1.00
15=1.50
20=2.0

Code
internal

Isolation (kVDC)
1= 1.0
3= 3.0

Derating Curve



MODEL SELECTION GUIDE

MODEL NUMBER	INPUT	INPUT Current		OUTPUT	OUTPUT Current		
	Voltage Range	No-Load	Full Load	Voltage	Full load	EFFICIENCY	Capacitor
	(Vdc)	(mA)	(mA)	(Vdc)	(mA)	@FL(%)	Load(uF)
RS1-0303S10AX	3.3	25	421	3.3	303	72	220
RS1-0305S10AX	3.3	25	394	5	200	77	220
RS1-0307S10AX	3.3	25	384	7.2	139	79	220
RS1-0309S10AX	3.3	30	404	9	111	75	220
RS1-0312S10AX	3.3	45	473	12	100	77	220
RS1-0315S10AX	3.3	35	384	15	67	79	220
RS1-0318S10AX	3.3	35	399	18	56	76	220
RS1-0324S10AX	3.3	53	461	24	50	79	220
RS1-0503S10AX	5	20	257	3.3	303	78	220
RS1-0505S10AX	5	25	247	5	200	81	220
RS1-0507S10AX	5	16	241	7.2	139	83	220
RS1-0509S10AX	5	26	250	9	111	80	220
RS1-0512S10AX	5	25	300	12	100	80	220
RS1-0515S10AX	5	35	244	15	67	82	220
RS1-0518S10AX	5	25	247	18	56	81	220
RS1-0524S10AX	5	35	289	24	50	83	220
RS1-1203S10AX	12	15	107	3.3	303	78	220
RS1-1205S10AX	12	16	105	5	200	79	220
RS1-1207S10AX	12	16	100	7.2	139	83	220
RS1-1209S10AX	12	15	107	9	111	78	220
RS1-1212S10AX	12	15	125	12	100	80	220
RS1-1215S10AX	12	15	105	15	67	79	220
RS1-1218S10AX	12	20	104	18	56	80	220
RS1-1224S10AX	12	25	123	24	50	81	220
RS1-1503S10AX	15	15	89	3.3	303	75	220
RS1-1505S10AX	15	9	82	5	200	81	220
RS1-1507S10AX	15	12	88	7.2	139	76	220
RS1-1509S10AX	15	10	90	9	111	74	220
RS1-1512S10AX	15	13	100	12	100	80	220
RS1-1515S10AX	15	15	84	15	67	79	220
RS1-1518S10AX	15	12	85	18	56	78	220
RS1-1524S10AX	15	10	99	24	50	81	220
RS1-2403S10AX	24	8	54	3.3	303	77	220
RS1-2405S10AX	24	8	52	5	200	80	220
RS1-2407S10AX	24	10	54	7.2	139	77	220
RS1-2409S10AX	24	7	54	9	111	77	220
RS1-2412S10AX	24	8	62	12	100	80	220
RS1-2415S10AX	24	8	51	15	67	81	220
RS1-2418S10AX	24	8	52	18	56	80	220
RS1-2424S10AX	24	9	60	24	50	83	220
RS1-4803S10AX	48	6	29	3.3	303	73	220
RS1-485S10AX	48	6	28	5	200	74	220
RS1-4807S10AX	48	7	27	7.2	139	77	220
RS1-4809S10AX	48	5	27	9	111	78	220
RS1-4812S10AX	48	5	32	12	100	77	220
RS1-4815S10AX	48	5	27	15	67	76	220
RS1-4818S10AX	48	8	28	18	56	75	220
RS1-4824S10AX	48	8	31	24	50	80	220

Suffix "3" means 3KVdc isolation

STAND Juni 2016 Rev 01

RS1/RD1-S10

MODEL SELECTION GUIDE

MODEL NUMBER	INPUT	INPUT Current		OUTPUT	OUTPUT Current		
	Voltage Range	No-Load	Full Load	Voltage	Full load	EFFICIENCY	Capacitor
	(Vdc)	(mA)	(mA)	(Vdc)	(mA)	@FL(%)	Load(uF)
RD1-0303S10AX	3.3	25	410	3.3	303	74	220
RD1-0305S10AX	3.3	25	394	5	200	77	220
RD1-0307S10AX	3.3	30	404	7.2	139	75	220
RD1-0309S10AX	3.3	30	399	9	111	76	220
RD1-0312S10AX	3.3	45	485	12	100	75	220
RD1-0315S10AX	3.3	25	384	15	67	79	220
RD1-0318S10AX	3.3	35	399	18	56	76	220
RD1-0324S10AX	3.3	90	485	24	50	75	220
RD1-0503S10AX	5	16	256	3.3	303	78	220
RD1-0505S10AX	5	15	253	5	200	79	220
RD1-0507S10AX	5	16	241	7.2	139	83	220
RD1-0509S10AX	5	25	253	9	111	79	220
RD1-0512S10AX	5	25	296	12	100	81	220
RD1-0515S10AX	5	25	244	15	67	82	220
RD1-0518S10AX	5	25	241	18	56	83	220
RD1-0524S10AX	5	28	293	24	50	82	220
RD1-1203S10AX	12	15	108	3.3	303	77	220
RD1-1205S10AX	12	16	105	5	200	79	220
RD1-1207S10AX	12	16	100	7.2	139	83	220
RD1-1209S10AX	12	15	105	9	111	79	220
RD1-1212S10AX	12	8	125	12	100	80	220
RD1-1215S10AX	12	17	105	15	67	79	220
RD1-1218S10AX	12	15	103	18	56	81	220
RD1-1224S10AX	12	25	127	24	50	79	220
RD1-1503S10AX	15	15	89	3.3	303	75	220
RD1-1505S10AX	15	10	83	5	200	80	220
RD1-1507S10AX	15	12	88	7.2	139	76	220
RD1-1509S10AX	15	10	85	9	111	78	220
RD1-1512S10AX	15	13	98	12	100	82	220
RD1-1515S10AX	15	15	83	15	67	80	220
RD1-1518S10AX	15	12	85	18	56	78	220
RD1-1524S10AX	15	10	99	24	50	81	220
RD1-2403S10AX	24	8	53	3.3	303	79	220
RD1-2405S10AX	24	8	53	5	200	79	220
RD1-2407S10AX	24	10	56	7.2	139	74	220
RD1-2409S10AX	24	7	53	9	111	79	220
RD1-2412S10AX	24	8	63	12	100	80	220
RD1-2415S10AX	24	8	52	15	67	80	220
RD1-2418S10AX	24	8	51	18	56	82	220
RD1-2424S10AX	24	9	61	24	50	82	220

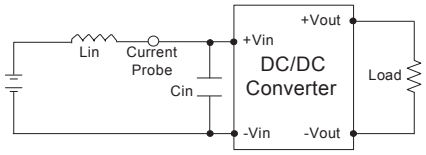
Suffix "3" means 3KVdc isolation

STAND Juni 2016 Rev 01

RS1/RD1-S10

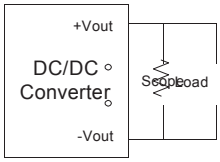
Input Reflected Ripple Current Test Step

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

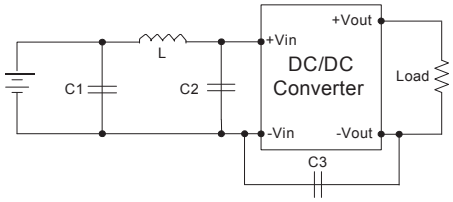
The Scope measurement bandwidth is 20MHz .



EMI Filter

Input filter components (C1 , L , C2 , C3) 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.

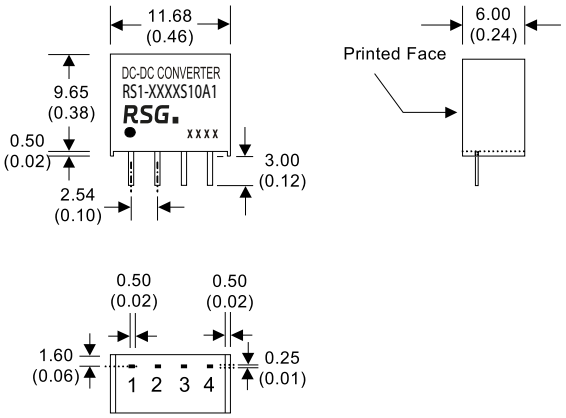


	C1	L	C2	C3
RS1/RD1-03XXS10AX	1210, 2.2uF/100V	18uH		
RS1/RD1-05XXS10AX	1210, 2.2uF/100V	18uH		
RS1/RD1-12XXS10AX	1210, 2.2uF/100V	18uH		
RS1/RD1-15XXS10AX	1210, 2.2uF/100V	18uH		
RS1/RD1-24XXS10AX	1210, 2.2uF/100V	18uH	1210, 2.2uF/100V	1206, 470pF/2KV
RS1/RD1-48XXS10AX	Electrolytic capacitor, 10uF/100V	18uH	1210, 2.2uF/100V	1206, 470pF/2KV

1. Ripple/Noise measured with 20MHz bandwidth.
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. Input filter components are be required to help meet conducted emission class B, which application refer to the EMI Filter of design & feature configuration.
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, 470uF/100V.

STAND Juni 2016 Rev 01

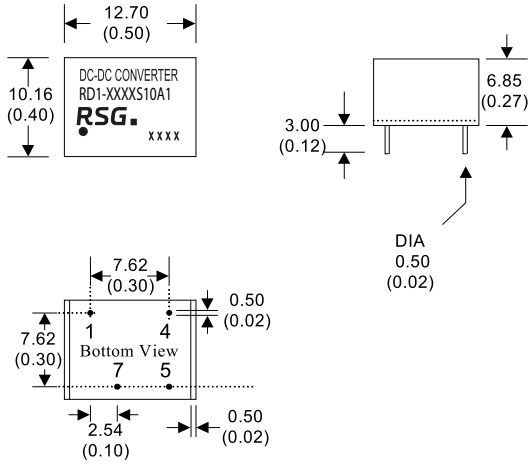
RS1/RD1-S10



* The thickness of 48V input voltage model is 7.50(0.29)

4 Pin SIL Package

Notes : 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)



8 Pin DIL Package

Notes : 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 PIN SIL

PIN CONNECTIONS	
PIN NUMBER	SINGLE
1	−V Input
2	+V Input
3	−V Output
4	+V Output

(The Pin Connection of high isolation one is the same with normal one.)

8 PIN DIL

PIN CONNECTIONS	
PIN NUMBER	SINGLE
1	−V Input
4	+V Input
5	+V Output
7	−V Output

(The Pin Connection of high isolation one is the same with normal one.)

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 69-984047-41/-28