

# RS5-R20W/RD20W

- 8 Pin SIL Package
- Wide 4:1 Input Range
- 1600VDC Isolation
- Continuous Short Circuit Protection
- Efficiency up to 82%
- Operating Temperature Range  
-40° ~ +85°C
- Non Conductive Black Plastic Case
- Remote on/off Control(Optional)

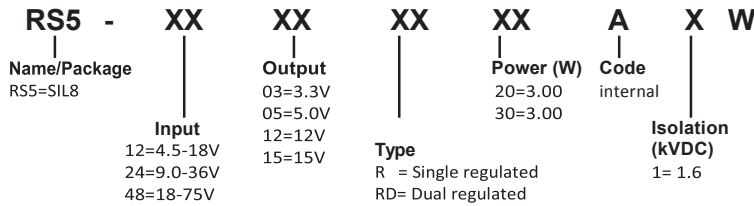
RoHS



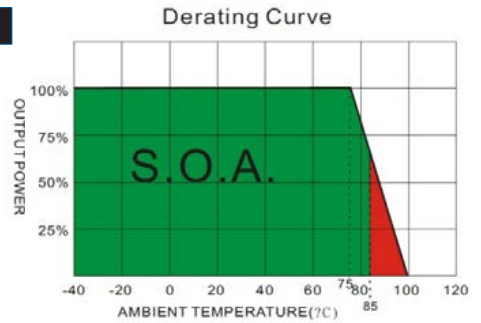
OUTPUT SPECIFICATION	ENVIRONMENTAL SPECIFICATION
Voltage accuracy: ±1%	Operating Temperature range: -40°C ~+85°C (see Derating Curve)
Maximum Output Current: See table	Maximum Case Temperature: 100°C
Line regulation: ± 0.2% max.	Storage Temperature : -40°C ~+125°C
LOAD REGULATION: Single (from 0% to 100% Load) ±1% max. Dual (from 10% to 100% Load) ±1% max.	Cooling : Nature Convection
Cross Regulation (Dual Output): ± 5%	PHYSICAL SPECIFICATIONS:
Short Circuit Protection : Indefinite (Automatic Recovery )	Case Material: Non conductive black plastic
Ripple noise (20Mhz bandwidth): 30mV pk-pk max.	PIN Material SIP Case: C519R-H Solder -coated
Temperature coefficient: ±0.02%<>°C	Potting Material: Silicon (UL94V-0 rated)
Capacitor load: See table	Weight Case- Sip: 4.8g, typ.
Transient Recovery Time: 250us, typ.	Dimmension SIP: 0.86 x 0.36 x 0.44"
Transient Response: ( Deviation) ±3% max.	ABSOLUTE MAXIMUM RATINGS (1)
INPUT SPECIFICATIONS	Input Surge Voltage (100ms)/max.
Voltage Range: See table	12 V Models: 25VDC max
Start up Time: 30ms, typ.	24 V Models: 50VDC max.
Max. Input Current: See table	48 V Models: 100VDC max.
No-Load/Full-Load Input Current: See table	Soldering Temperature: 260°C max. <sup>(2)</sup>
Input Filter: Capacitors	EMC SPECIFICATIONS
Input Reflected Ripple Current : 20mA pk-pk	Radiated-/Conducted Emissions: EN55022 Class A (see EMI Filter note)
GENERAL SPECIFICATIONS	ESD: IEC 61000-4-2 Perf.Criteria A
Efficiency: See table	RS: IEC 61000-4-3 Perf.Criteria A
I/O Isolation Voltage (60sec): 1600VDC	EFT: IEC 61000-4-4 Perf.Criteria A
I/O Isolation Capacitance: 200pF max.	SURGE: IEC 61000-4-5 Perf.Criteria A
I/O Isolation Resistance: 1000M Ohm, min	CS: IEC 61000-4-6 Perf.Criteria A
Switching Frequency: 100kHz, typ.	PFFM: IEC 61000-4-8 Perf.Criteria A
Humidity: 95% rel H	
Reliability Calculated MTBF : > 1.7Mhrs (MIL-HDBK-217 f)	
Safety Standard: (designed to meet): IEC 60950-1	
Remote on Controll: on: open or high impedance	
Remote off Controll: 2-4mA Input current (via 1K)	
Off stand by current (Nominal Vin): 2.5mA max.	

- 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.

**NUMBER STRUCTURE**



W = 4:1 input Range



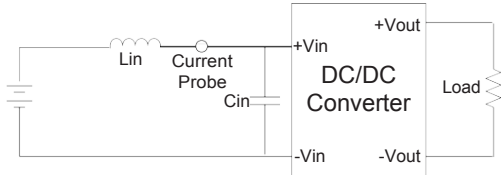
**MODEL SELECTION GUIDE**

MODEL NUMBER	INPUT Voltage Range (Vdc)	INPUT Current		OUTPUT Voltage (Vdc)	OUTPUT Current		EFFICIENCY @FL(%)	Capacitor Load(uF)
		No-Load (mA)	Full Load (mA)		Min. load (mA)	Full load		
RS5-1203R20A1W	4.5-18	40	196	3.3	0	500	70	1000uF
RS5-1205R20A1W	4.5-18	40	225	5	0	400	74	1000uF
RS5-1212R20A1W	4.5-18	40	213	12	0	167	78	220uF
RS5-1215R20A1W	4.5-18	40	213	15	0	133	78	100uF
RS5-1205SRD20A1W	4.5-18	30	219	±5	0	±200	77	±470uF
RS5-1212SRD20A1W	4.5-18	30	213	±12	0	±83	78	±100uF
RS5-1215SRD20A1W	4.5-18	40	216	±15	0	±66	77	±47uF
RS5-2403R20A1W	9-36	25	96	3.3	0	500	71	1000uF
RS5-2405R20A1W	9-36	20	106	5	0	400	78	1000uF
RS5-2412R20A1W	9-36	30	105	12	0	167	79	220uF
RS5-2415R20A1W	9-36	30	105	15	0	133	79	100uF
RS5-2405SRD20A1W	9-36	30	111	±5	0	±200	75	±470uF
RS5-2412SRD20A1W	9-36	30	108	±12	0	±83	77	±100uF
RS5-2415SRD20A1W	9-36	30	106	±15	0	±66	78	±47uF
RS5-4803R20A1W	18-75	10	47	3.3	0	500	72	1000uF
RS5-4805R20A1W	18-75	15	55	5	0	400	75	1000uF
RS5-4812R20A1W	18-75	15	55	12	0	167	75	220uF
RS5-4815R20A1W	18-75	15	54	15	0	133	76	100uF
RS5-4805SRD20A1W	18-75	15	56	±5	0	±200	74	±470uF
RS5-4812SRD20A1W	18-75	15	56	±12	0	±83	74	±100uF
RS5-4815SRD20A1W	18-75	15	55	±15	0	±66	75	±47uF

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 1uF ceramic capacitor.
3. Test by minimal Vin and constant resistive load.
4. Test by normal Vin and 100%-25% load, 25% load step change.
5. Measured Input reflected ripple current with a simulated source inductance of 12uH and a source capacitor Cin(47uF, ESR<1.0@ at 100KHz).
6. Exceeding the absolute ratings of the unit could cause damage. It's not allowed for continuous operating ratings.
7. Input filter components are required to help meet conducted emission class A, which application refer to the EMI Filter of design & feature configuration.
8. 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, 220uF/100V.

**Input Reflected Ripple Current Test Step**

Input reflected ripple current is measured through a source inductor  $L_{in}$  (12uH) and a source capacitor  $C_{in}$  (47uF, ESR<1.0@ at 100KHz) at nominal input and full load.

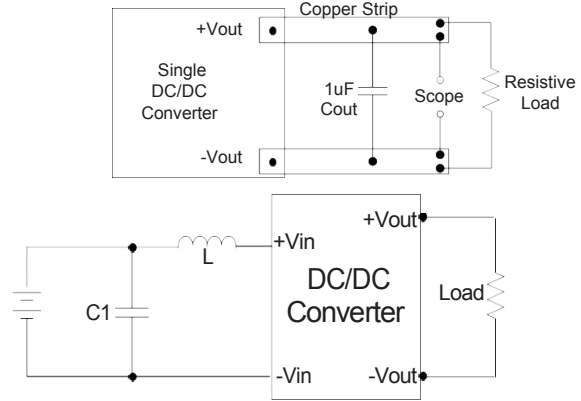


**EMI Filter**

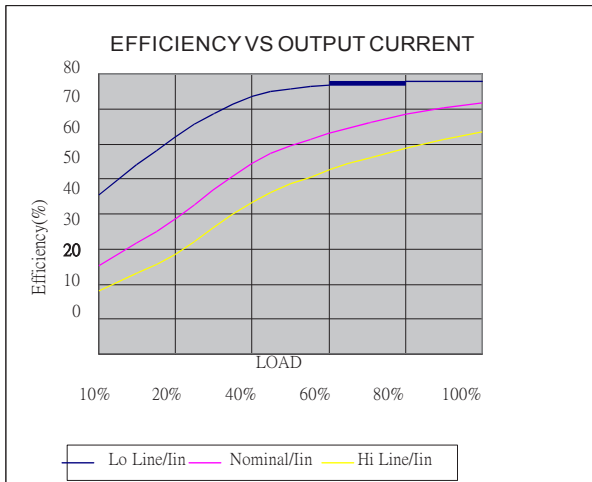
Input filter components (C1, L) are used to help meet conducted emissions requirement for the module. These components should be mounted as close as possible to the module; and all leads should be minimized to decrease radiated noise.

**Output Ripple & Noise Measurement Test**

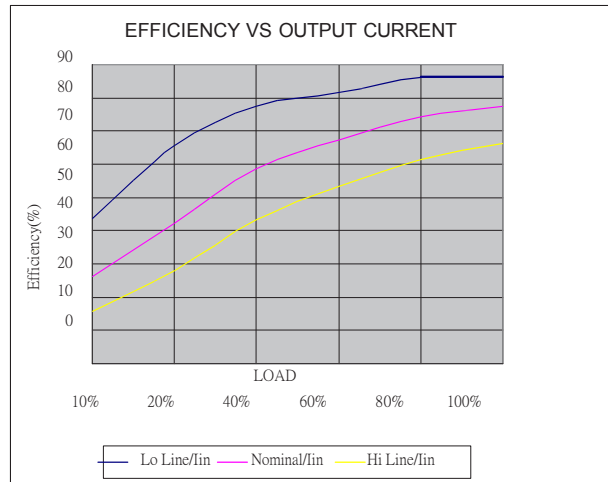
Use a capacitor  $C_{out}$  (1.0uF) measurement. The Scope measurement bandwidth is 0-20MHz.



	C1	L
RS5-12XXR/RD20A1W	1210 10uF/35V	2.5uH
RS5-24XXR/RD20A1W	1210 2.2uF/100V	10uH
RS5-48XXR/RD20A1W	1210 2.2uF/100V	18uH

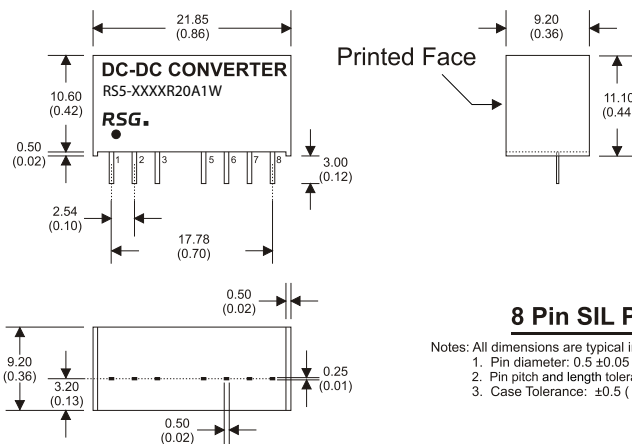


RS5-1203R20A1W



RS5-4815RD20A1W

**MECHANICAL SPECIFICATIONS**



**8 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 )

PIN CONNECTIONS		
PIN NUMBER	SINGLE	DUAL
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

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

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