RS5-R60/RD60

- 8 Pin SIL Package
- Wide 2:1 Input Range
- 1500VDC Isolation
- Up to 3000VDC Isoltation
- Continuous Short Circuit Protection
- Efficiency up to 86%
- Operating Temperature Range -40° ~ +65°C
- Non Conductive Black Plastic Case
- Remote on/off Control(Optional)

CE

OUTPUT SPECIFICATION	
Voltage accuracy:	±1%
Maximum Output Current:	See table
Line regulation:	± 0.2% max.
LOAD REGULATION:	from 0% to 100% Load: ±1% max.
Cross Regulation (Dual Output):	± 5%
Short Circuit Protection :	Continuos (Automatic Recovery)
Ripple noise (20Mhz bandwidth):	75mV pk-pk max.
Temperature coefficient:	±0.02%/°C
Capacitor load:	See table
Transient Recovery Time:	500us, typ.
Transient Response:	(Deviation) ±3% - ±5%max.
INPUT SPECIFICATIONS	
Voltage Range:	See table
Start up Time:	30ms,typ.
Max. Input Current:	See table
No-Load/Full-Load Input Current:	See table
Input Filter:	Capacitors
Input Reflected Ripple Current :	30mA pk-pk typ.
Remote On/Off (positive logic):	On: Open or high impedance,
	OFF: 2-4mA input current (via 1KOhm)
OFF stand by current (nominal Vin):	2.5mA typ.
GENERAL SPECIFICATIONS	
Efficiency:	See table
I/O Isolation Voltage (60sec):	1500 ~ 3000VDC
I/O Isolation Capacitance:	50pF typ.
I/O Isolation Resistance:	1000M Ohm, min
Switching Frequency:	100kHz min.
Humidity:	95% rel H
Reliability Calculated MTBF : (MIL-HDBK-217 f)	> 770KHrs
Safety Standard: (designed to meet):	IEC 60950-1
Remote on Controll:	see note

ENVIRONMENTAL SPECIFICATION	
Operating Temperature range:	-40°C ~+65°C (see Derating Curve)
Maximum Case Temperature:	105°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:	C519R-H Solder -coated
Weight Case- Sip:	4.8g, typ.
Potting Material:	Epoxy (UL94V-0 rated)
Dimmension SIP:	0.86 x 0.36 x 0.44“
ABSOLUTE MAXIMUM RATINGS (1)	
Input Surge Voltage (100ms)/	
5V Models:	15VDC max.
12V Models:	25VDC max.
24V Models:	50VDC max.
48V Models:	100VDC max.
Soldering Temperature:	260°C max.
EMC SPECIFICATIONS (2)	
Radiated-/Conducted Emissions:	EN55022 Class A see EMI Filter
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.

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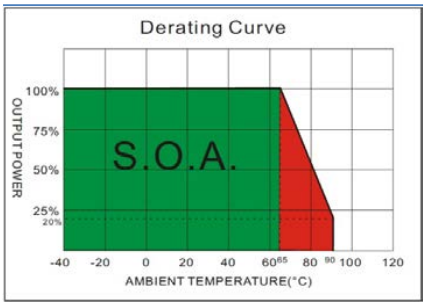
NUMBER STRUCTURE

RS5 - XX XX XX 60 A X * X

- **Name/Package**: RS5=SIL8
- **Input**: 05=4.5-9.0V, 12=9.0-18V, 24=18-36V, 48=36-72V
- **Output**: 03=3.3V, 05=5.0V, 09=9.0V, 12=12V, 15=15V, 24=24V
- **Type**: R = Single regulated, RD= Dual regulated
- **Power (W)**: 60=6.00
- **Code**: internal
- **Isolation (kVDC)**: 1= 1.5, 3 = 3.0
- * Optional, C = Control Pin



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)
RS5-0503R60A1	4.5-9	105	1144	3.3	0	1300	75	6600uF
RS5-0505R60A1	4.5-9	105	1519	5	0	1200	79	3300uF
RS5-0509R60A1	4.5-9	105	1445	9	0	666	83	2000uF
RS5-0512R60A1	4.5-9	105	1428	12	0	500	84	1600uF
RS5-0515R60A1	4.5-9	105	1428	15	0	400	84	1400uF
RS5-0524R60A1	4.5-9	105	1428	24	0	250	84	680uF
RS5-0505RD60A1	4.5-9	105	1481	±5	0	±600	81	±2000uF
RS5-0512RD60A1	4.5-9	105	1428	±12	0	±250	84	±900uF
RS5-0515RD60A1	4.5-9	105	1428	±15	0	±200	84	±660uF
RS5-1203R60A1	9-18	55	470	3.3	0	1300	76	6600uF
RS5-1205R60A1	9-18	55	602	5	0	1200	83	3300uF
RS5-1209R60A1	9-18	55	595	9	0	666	84	2000uF
RS5-1212R60A1	9-18	55	588	12	0	500	85	1600uF
RS5-1215R60A1	9-18	55	588	15	0	400	85	1400uF
RS5-1224R60A1	9-18	55	581	24	0	250	86	680uF
RS5-1205RD60A1	9-18	55	609	±5	0	±600	82	±2000uF
RS5-1212RD60A1	9-18	55	595	±12	0	±250	84	±900uF
RS5-1215RD60A1	9-18	55	581	±15	0	±200	86	±660uF
RS5-2403R60A1	18-36	30	229	3.3	0	1300	78	6600uF
RS5-2405R60A1	18-36	30	301	5	0	1200	83	3300uF
RS5-2409R60A1	18-36	30	294	9	0	666	85	2000uF
RS5-2412R60A1	18-36	30	294	12	0	500	85	1600uF
RS5-2415R60A1	18-36	30	287	15	0	400	87	1400uF
RS5-2424R60A1	18-36	30	287	24	0	250	87	680uF
RS5-2405RD60A1	18-36	30	304	±5	0	±600	82	±2000uF
RS5-2412RD60A1	18-36	30	297	±12	0	±250	84	±900uF
RS5-2415RD60A1	18-36	30	297	±15	0	±200	84	±660uF
RS5-4803R60A1	36-75	15	117	3.3	0	1300	76	6600uF
RS5-4805R60A1	36-75	15	156	5	0	1200	80	3300uF
RS5-4809R60A1	36-75	15	147	9	0	666	85	2000uF
RS5-4812R60A1	36-75	15	149	12	0	500	84	1600uF
RS5-4815R60A1	36-75	15	145	15	0	400	86	1400uF
RS5-4824R60A1	36-75	15	148	24	0	250	84	680uF
RS5-4805RD60A1	36-75	15	152	±5	0	±600	82	±2000uF
RS5-4812RD60A1	36-75	15	147	±12	0	±250	85	±900uF
RS5-4815RD60A1	36-75	15	147	±15	0	±200	85	±660uF

Suffix “H” means 3KVdc isolation Suffix “C” means with control pin

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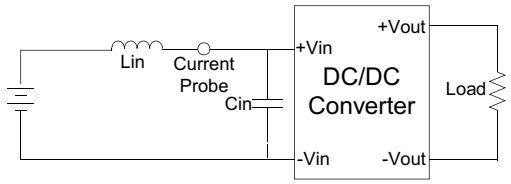
1. One load is 25% to 100% load, the other load is 100% load, the output voltage variable rate is within ±5%.
2. Measured with a 0.1uF ceramic capacitor.
3. Test by minimal Vin and constant resistive load.
4. Test by normal Vin and 100%-25% load,25% load step change.
5. Measured Input reflected ripple current with a simulated source inductance of 12uH and a source capacitor Cin(47uF, ESR<1.0Ω at 100KHz).
6. "Nature Convection" is usually about 30-65 LFM but is not equal to still air (0 LFM).
7. Exceeding the absolute ratings of the unit could cause damage. It's not allowed for continuous operating ratings
8. Input filter components are be required to help meet conducted emission class A, which application refer to the EMI Filter of design & feature configuration.
9. 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, 330uF/100V.

TEST CONFIGURATION

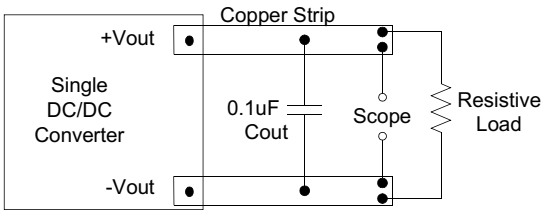
Input Reflected Ripple Current Test Step

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



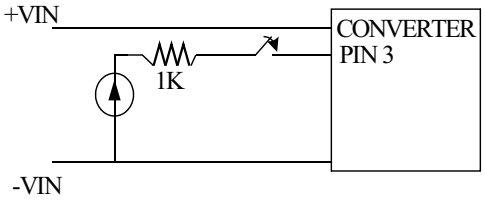
Output Ripple & Noise Measurement Test

Use a capacitor Cout(0.1uF) measurement.
The Scope measurement bandwidth is 0-20MHz.



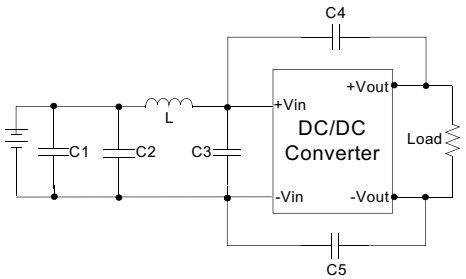
CTRL Module ON / OFF

ON: open or high impedance
OFF: 2-4mA input current (via 1K)



EMI Filter

Input filter components (C1,C2,C3,C4,C5, 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	C2 & C3	L	C4 & C5
RS5-05YYO6	Electrolytic capacitor, 220uF/100V	MLCC 22uF/25V	10uH	MLCC 220pF/3KV
RS5-12YYO6		MLCC 10uF/50V	10uH	MLCC 220pF/3KV
RS5-24YYO6		MLCC 10uF/50V	10uH	MLCC 220pF/3KV
RS5-48YYO6		MLCC 2.2uF/100V	15uH	MLCC 220pF/3KV

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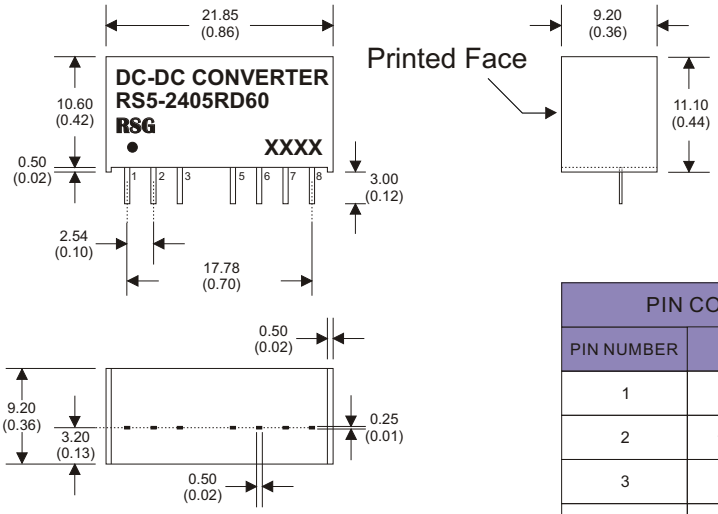
MECHANICAL SPECIFICATIONS



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. Pin to case tolerance: ±0.5 (±0.02)
4. Case Tolerance: ±0.5 (±0.02)
5. Stand-off tolerance: ±0.1 (±0.004)

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

PIN CONNECTIONS		
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

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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