

# RS3/RD3-S20/D20

- 7 Pin SIL/ 14Pin DIL Package
- 1000VDC Isolation
- Up to 6000VDC Isolation
- Low Ripple and Noise
- Efficiency up to 86%
- Operating Temperature Range:  
-40° ~ +85°C
- Non Conductive Black Plastic Case
- EMI Complies with EN55022 Class B

RoHS

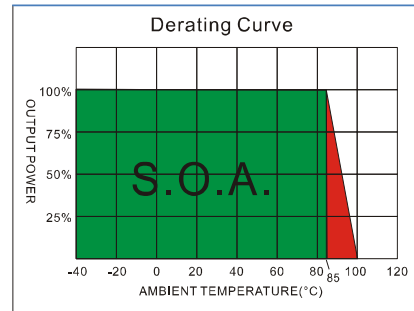


OUTPUT SPECIFICATION	ENVIRONMENTAL SPECIFICATION
Voltage accuracy: ±3%	Operating Temperature range: -40°C ~+85°C (see Derating Curve)
Line regulation: per 1%Vin Change: ±1.2%	Maximum Case Temperature: 100°C
LOAD REGULATION: from 20% to 100% load: ±10%	Storage Temperature : -40°C ~+125°C
Output 3.3V Model: ±20%	Cooling : Nature Convection
Ripple noise (20Mhz bandwidth): 75mV pk-pk	PHYSICAL SPECIFICATIONS:
Temperature coefficient: ±0.02% °C	Case Material: Non-conductive Black Plastic (UL94V-0 rated)
Capacitor load: See table	PIN Material: Ø 0.5mm Alloy42 Solder-coated
INPUT SPECIFICATIONS	Potting Material: Epoxy (UL94V-0 rated)
Voltage Range: ±10%	Weight Case- Sip: 2.3g
Max. Input Current: See table	Weight Case-DIP: 2.6g
No-Load/Full-Load Input Current: See table	Dimmension SIP: 0.76 x 0.24 x 0.39"
Input Filter: Capacitors	Dimmension DIP: 0.80 x 0.40 x 0.27"
Input Reflected Ripple Current : 20mA pk-pk	ABSOLUTE MAXIMUM RATINGS (1)
GENERAL SPECIFICATIONS	Input Surge Voltage (100ms)/
Efficiency: See table	3.3V Models: 6VDC max
I/O Isolation Voltage (60sec): 1000 ~ 6000VDC	5 V Models: 7VDC max
I/O Isolation Capacitance: 60pF typ.	12V Models: 15VDC max
I/O Isolation Resistance: 1000M Ohm	15V Models: 18VDC max
Switching Frequency: Variable 80kHz	24V Models: 28VDC max
Humidity: 95% rel H	48V Models: 54VDC max
Reliability Calculated MTBF : >1.121Mhrs (MIL-HDBK-217 f)	Soldering Temperature (2): 260°C max.
Safety Standard: (designed to meet): IEC 60950-1	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.

**NUMBER STRUCTURE**

<b>RS3</b> -	<b>XX</b>	<b>XX</b>	<b>X</b>	<b>XX</b>	<b>A</b>	<b>X</b>
Name/Package RS3=SIL7 RD3=DIL14	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 24=24V	Type S=Single D=Dual	Power (W) 20=2.00	Code internal	Isolation (kVDC) 1= 1.0 3= 3.0 5= 5.2 6= 6.0



**MODEL SELECTION GUIDE**

MODEL NUMBER	INPUT	INPUT Current		OUTPUT	OUTPUT Current	EFFICIENCY @FL(%)	Capacitor Load(uF)
	Voltage Range (Vdc)	No-Load (mA)	Full Load (mA)	Voltage (Vdc)	Full load (mA)		
RS3-0303D20AX	3.3	25	797	±3.3	±200	76	±220
RS3-0305D20AX	3.3	40	777	±5	±200	78	±220
RS3-0307D20AX	3.3	40	797	±7.2	±138.8	76	±220
RS3-0309D20AX	3.3	40	797	±9	±111.1	76	±220
RS3-0312D20AX	3.3	45	777	±12	±83.3	78	±220
RS3-0315D20AX	3.3	45	777	±15	±66.67	78	±220
RS3-0318D20AX	3.3	45	777	±18	±55.55	78	±220
RS3-0324D20AX	3.3	45	767	±24	±41.67	79	±220
RS3-0503D20AX	5	30	406	±3.3	±200	65	±220
RS3-0505D20AX	5	30	555	±5	±200	72	±220
RS3-0507D20AX	5	30	555	±7.2	±138.8	72	±220
RS3-0509D20AX	5	30	519	±9	±111.1	77	±220
RS3-0512D20AX	5	30	512	±12	±83.3	78	±220
RS3-0515D20AX	5	30	500	±15	±66.67	80	±220
RS3-0518D20AX	5	30	500	±18	±55.55	80	±220
RS3-0524D20AX	5	30	500	±24	±41.67	80	±220
RS3-1203D20AX	12	20	164	±3.3	±200	67	±220
RS3-1205D20AX	12	20	222	±5	±200	75	±220
RS3-1207D20AX	12	20	219	±7.2	±138.8	76	±220
RS3-1209D20AX	12	20	216	±9	±111.1	77	±220
RS3-1212D20AX	12	20	203	±12	±83.3	82	±220
RS3-1215D20AX	12	20	203	±15	±66.67	82	±220
RS3-1218D20AX	12	20	203	±18	±55.55	82	±220
RS3-1224D20AX	12	20	203	±24	±41.67	82	±220
RS3-2403D20AX	24	10	80	±3.3	±200	68	±220
RS3-2405D20AX	24	10	111	±5	±200	75	±220
RS3-2407D20AX	24	10	111	±7.2	±138.8	75	±220
RS3-2409D20AX	24	10	104	±9	±111.1	80	±220
RS3-2412D20AX	24	10	101	±12	±83.3	82	±220
RS3-2415D20AX	24	10	101	±15	±66.67	82	±220
RS3-2418D20AX	24	10	101	±18	±55.55	82	±220
RS3-2424D20AX	24	10	101	±24	±41.67	82	±220
RS3-4803D20AX	48	6	45	±3.3	±200	60	±220
RS3-4805D20AX	48	6	57	±5	±200	73	±220
RS3-4807D20AX	48	6	54	±7.2	±138.8	77	±220
RS3-4809D20AX	48	6	54	±9	±111.1	77	±220
RS3-4812D20AX	48	6	52	±12	±83.3	80	±220
RS3-4815D20AX	48	6	52	±15	±66.67	80	±220
RS3-4818D20AX	48	6	52	±18	±55.55	80	±220
RS3-4824D20AX	48	6	52	±24	±41.67	80	±220

Suffix "3" means 3kVdc isolation    Suffix "5" means 5.2kVdc isolation    Suffix "6" means 6kVdc isolation

**RS3/RD3-S20/D20**

MODEL NUMBER	INPUT	INPUT Current		OUTPUT	OUTPUT Current	EFFICIENCY @FL(%)	Capacitor Load(µF)
	Voltage Range (Vdc)	No-Load (mA)	Full Load (mA)	Voltage (Vdc)	Full load (mA)		
RD3-0303D20AX	3.3	25	808	±3.3	±200	75	±220
RD3-0305D20AX	3.3	45	808	±5	±200	75	±220
RD3-0307D20AX	3.3	40	797	±7.2	±138.8	76	±220
RD3-0309D20AX	3.3	40	797	±9	±111.1	76	±220
RD3-0312D20AX	3.3	45	777	±12	±83.3	78	±220
RD3-0315D20AX	3.3	45	777	±15	±66.67	78	±220
RD3-0318D20AX	3.3	45	777	±18	±55.55	78	±220
RD3-0324D20AX	3.3	45	767	±24	±41.67	79	±220
RD3-0503D20AX	5	30	406	±3.3	±200	65	±220
RD3-0505D20AX	5	30	555	±5	±200	72	±220
RD3-0507D20AX	5	30	555	±7.2	±138.8	72	±220
RD3-0509D20AX	5	30	519	±9	±111.1	77	±220
RD3-0512D20AX	5	30	512	±12	±83.3	78	±220
RD3-0515D20AX	5	30	500	±15	±66.67	80	±220
RD3-0518D20AX	5	30	500	±18	±55.55	80	±220
RD3-0524D20AX	5	30	500	±24	±41.67	80	±220
RD3-1203D20AX	12	20	164	±3.3	±200	67	±220
RD3-1205D20AX	12	20	222	±5	±200	75	±220
RD3-1207D20AX	12	20	219	±7.2	±138.8	76	±220
RD3-1209D20AX	12	20	216	±9	±111.1	77	±220
RD3-1212D20AX	12	20	203	±12	±83.3	82	±220
RD3-1215D20AX	12	20	203	±15	±66.67	82	±220
RD3-1218D20AX	12	20	203	±18	±55.55	82	±220
RD3-1224D20AX	12	20	203	±24	±41.67	82	±220
RD3-2403D20AX	24	10	80	±3.3	±200	68	±220
RD3-2405D20AX	24	10	111	±5	±200	75	±220
RD3-2407D20AX	24	10	111	±7.2	±138.8	75	±220
RD3-2409D20AX	24	10	104	±9	±111.1	80	±220
RD3-2412D20AX	24	10	101	±12	±83.3	82	±220
RD3-2415D20AX	24	10	101	±15	±66.67	82	±220
RD3-2418D20AX	24	10	101	±18	±55.55	82	±220
RD3-2424D20AX	24	10	101	±24	±41.67	82	±220
RD3-4803D20AX	48	6	45	±3.3	±200	60	±220
RD3-4805D20AX	48	6	57	±5	±200	73	±220
RD3-4807D20AX	48	6	54	±7.2	±138.8	77	±220
RD3-4809D20AX	48	6	54	±9	±111.1	77	±220
RD3-4812D20AX	48	6	52	±12	±83.3	80	±220
RD3-4815D20AX	48	6	52	±15	±66.67	80	±220
RD3-4818D20AX	48	6	52	±18	±55.55	80	±220
RD3-4824D20AX	48	6	52	±24	±41.67	80	±220

Suffix "3" means 3 KVdc isolation

Suffix "5" means 5.2 KVdc isolation

Suffix "6" means 6 KVdc Isolation

**RS3/RD3-S20/D20**

MODEL NUMBER	INPUT	INPUT Current		OUTPUT	OUTPUT Current	EFFICIENCY @FL(%)	Capacitor Load(uF)
	Voltage Range (Vdc)	No-Load (mA)	Full Load (mA)	Voltage (Vdc)	Full load (mA)		
RS3-0303S20AX	3.3	26	797	3.3	400	76	470
RS3-0305S20AX	3.3	30	797	5	400	76	470
RS3-0307S20AX	3.3	30	808	7.2	277.7	75	470
RS3-0309S20AX	3.3	30	758	9	222.2	80	470
RS3-0312S20AX	3.3	35	748	12	166.7	81	470
RS3-0315S20AX	3.3	40	777	15	133.3	78	470
RS3-0318S20AX	3.3	35	787	18	111.1	77	470
RS3-0324S20AX	3.3	35	767	24	83.3	79	470
RS3-0503S20AX	5	30	367	3.3	400	72	470
RS3-0505S20AX	5	30	512	5	400	78	470
RS3-0507S20AX	5	30	500	7.2	277.7	80	470
RS3-0509S20AX	5	30	500	9	222.2	80	470
RS3-0512S20AX	5	30	487	12	166.7	82	470
RS3-0515S20AX	5	30	487	15	133.3	82	470
RS3-0518S20AX	5	30	487	18	111.1	82	470
RS3-0524S20AX	5	30	487	24	83.3	82	470
RS3-1203S20AX	12	36	169	3.3	400	65	470
RS3-1205S20AX	12	20	216	5	400	77	470
RS3-1207S20AX	12	20	208	7.2	277.7	80	470
RS3-1209S20AX	12	20	208	9	222.2	80	470
RS3-1212S20AX	12	20	203	12	166.7	82	470
RS3-1215S20AX	12	20	203	15	133.3	82	470
RS3-1218S20AX	12	20	208	18	111.1	80	470
RS3-1224S20AX	12	20	208	24	83.3	80	470
RS3-2403S20AX	24	10	76	3.3	400	72	470
RS3-2405S20AX	24	10	105	5	400	79	470
RS3-2407S20AX	24	10	104	7.2	277.7	80	470
RS3-2409S20AX	24	10	104	9	222.2	80	470
RS3-2412S20AX	24	10	102	12	166.7	80	470
RS3-2415S20AX	24	10	101	15	133.3	82	470
RS3-2418S20AX	24	10	101	18	111.1	82	470
RS3-2424S20AX	24	10	104	24	83.3	80	470
RS3-4803S20AX	48	6	45	3.3	400	60	470
RS3-4805S20AX	48	6	54	5	400	77	470
RS3-4807S20AX	48	6	54	7.2	277.7	77	470
RS3-4809S20AX	48	6	54	9	222.2	77	470
RS3-4812S20AX	48	6	53	12	166.7	78	470
RS3-4815S20AX	48	6	53	15	133.3	78	470
RS3-4818S20AX	48	6	53	18	111.1	78	470
RS3-4824S20AX	48	6	55	24	83.3	75	470
RD3-0303S20AX	3.3	26	808	3.3	400	75	470
RD3-0305S20AX	3.3	40	819	5	400	74	470
RD3-0307S20AX	3.3	40	808	7.2	277.7	75	470
RD3-0309S20AX	3.3	45	808	9	222.2	75	470
RD3-0312S20AX	3.3	50	767	12	166.7	79	470
RD3-0315S20AX	3.3	47	767	15	133.3	79	470
RD3-0318S20AX	3.3	50	787	18	111.1	77	470
RD3-0324S20AX	3.3	47	797	24	83.3	76	470

Suffix "3" means 3 KVdc isolation

Suffix "5" means 5.2 KVdc isolation

Suffix "6" means 6 KVdc isolation

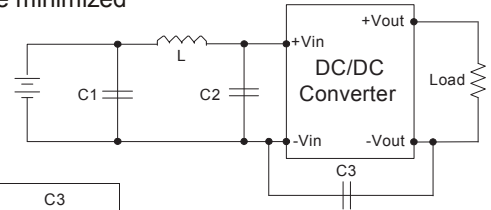
MODEL NUMBER	INPUT	INPUT Current		OUTPUT	OUTPUT Current	EFFICIENCY @FL(%)	Capacitor Load(uF)
	Voltage Range (Vdc)	No-Load (mA)	Full Load (mA)	Voltage (Vdc)	Full load (mA)		
RD3-0503S20AX	5	30	367	3.3	400	72	470
RD3-0505S20AX	5	30	512	5	400	78	470
RD3-0507S20AX	5	30	500	7.2	277.7	80	470
RD3-0509S20AX	5	30	500	9	222.2	80	470
RD3-0512S20AX	5	30	487	12	166.7	82	470
RD3-0515S20AX	5	30	487	15	133.3	82	470
RD3-0518S20AX	5	30	487	18	111.1	82	470
RD3-0524S20AX	5	30	487	24	83.3	82	470
RD3-1203S20AX	12	20	152	3.3	400	72	470
RD3-1205S20AX	12	20	216	5	400	77	470
RD3-1207S20AX	12	20	208	7.2	277.7	80	470
RD3-1209S20AX	12	20	208	9	222.2	80	470
RD3-1212S20AX	12	20	208	12	166.7	80	470
RD3-1215S20AX	12	20	208	15	133.3	80	470
RD3-1218S20AX	12	20	208	18	111.1	80	470
RD3-1224S20AX	12	20	208	24	83.3	80	470
RD3-2403S20AX	24	10	76	3.3	400	72	470
RD3-2405S20AX	24	10	105	5	400	79	470
RD3-2407S20AX	24	10	115	7.2	277.7	72	470
RD3-2409S20AX	24	10	104	9	222.2	80	470
RD3-2412S20AX	24	10	104	12	166.7	80	470
RD3-2415S20AX	24	10	104	15	133.3	80	470
RD3-2418S20AX	24	10	104	18	111.1	80	470
RD3-2424S20AX	24	10	104	24	83.3	80	470
RD3-4803S20AX	48	6	45	3.3	400	60	470
RD3-4805S20AX	48	6	54	5	400	77	470
RD3-4807S20AX	48	6	54	7.2	277.7	77	470
RD3-4809S20AX	48	6	54	9	222.2	77	470
RD3-4812S20AX	48	6	53	12	166.7	78	470
RD3-4815S20AX	48	6	53	15	133.3	78	470
RD3-4818S20AX	48	6	53	18	111.1	78	470
RD3-4824S20AX	48	6	55	24	83.3	75	470

Suffix "3" means 3 KVdc isolation      Suffix "5" means 5.2 KVdc isolation      Suffix "6" means 6 KVdc isolation

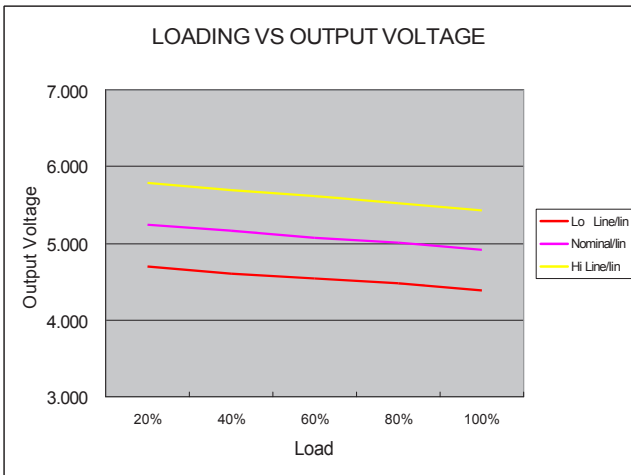
1. Ripple/Noise measured with 20MHz bandwidth.
2. Tested by minimal Vin and constant resistive load.
3. Measured Input reflected ripple current with a simulated source inductance of 12uH.
4. Input filter components are be required to help meet conducted emission class B, which application refer to the EMI Filter of design & feature configuration.
5. 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.
6. Exceeding the absolute ratings of the unit could cause damage. It is not allowed for continuous operating.
7. Operation under no-load conditions will not damage these devices, however they may not meet all listed specifications.

**EMI Filter**

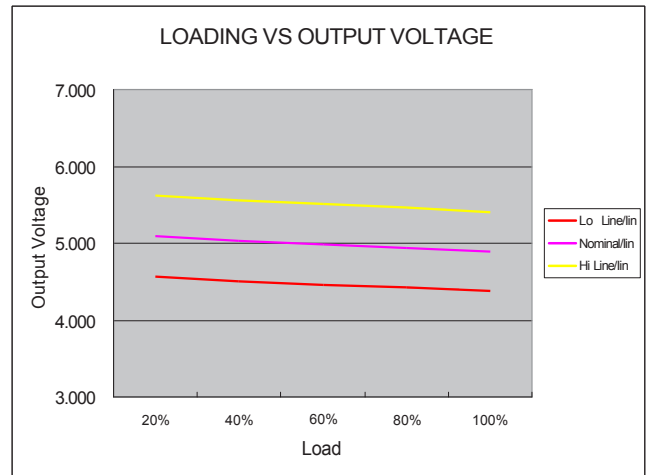
Input filter components (C1, L, C2, C3) are used to help meet conducted emissions requirement for the module. These components should be mounted as close as possible to the module; and all leads should be minimized to decrease radiated noise.



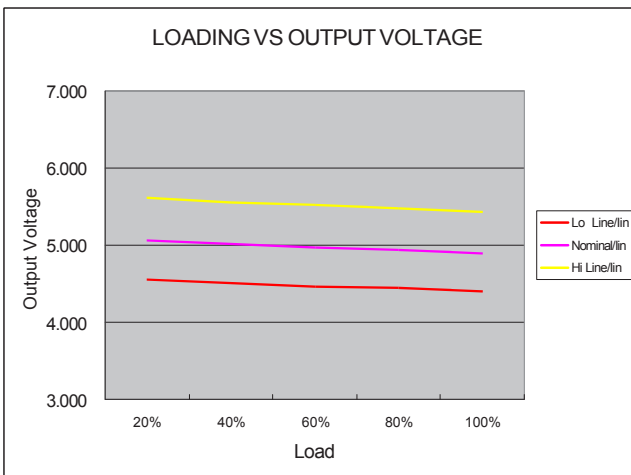
	C1	L	C2	C3
RS3/RD3-03XXS20/D20AX	1210, 2.2uF/100V	18uH		
RS3/RD3-05XXS20/D20AX	1210, 2.2uF/100V	18uH		
RS3/RD3-12XXS20/D20AX	1210, 2.2uF/100V	18uH		
RS3/RD3-15XXS20/D20AX	1210, 2.2uF/100V	18uH		
RS3/RD3-24XXS20/D20AX	1210, 2.2uF/100V	18uH	1210, 2.2uF/100V	1206, 470pF/2KV
RS3/RD3-48XXS20/D20AX	Electrolytic capacitor, 10uF/100V	18uH	1210, 2.2uF/100V	1206, 470pF/2KV



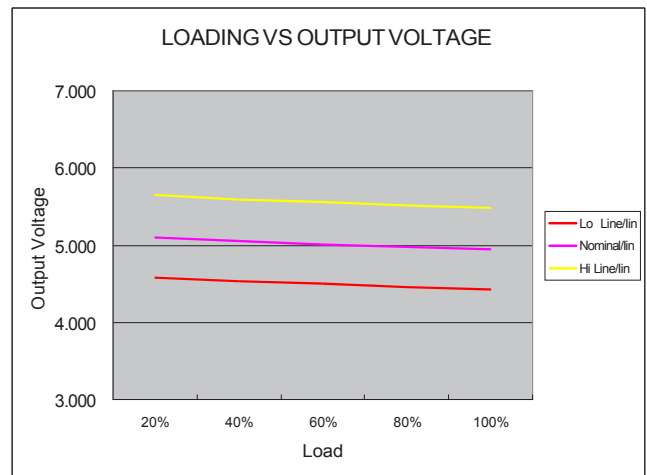
05 Models



12 Models

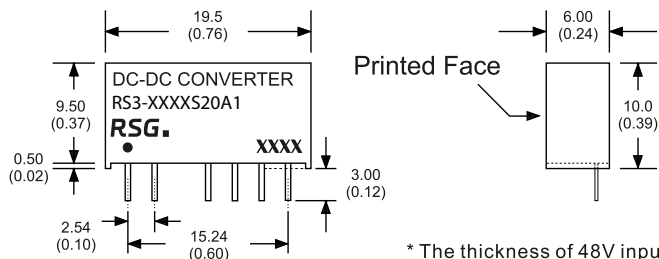


24 Models

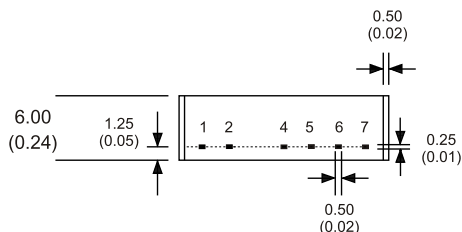


48 Models

RS3/RD3-S20/D20

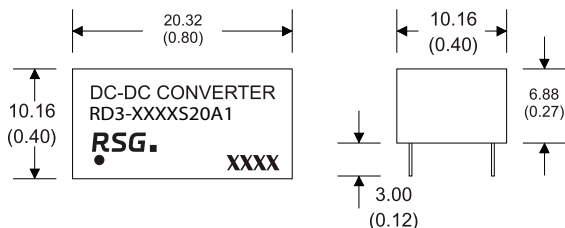


\* The thickness of 48V input voltage model is 7.20(0.28)



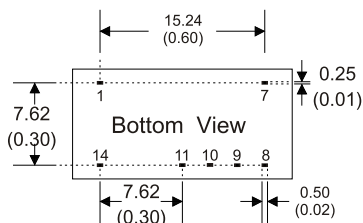
**7 Pin SIL Package**

- Notes : All dimensions are typical in millimeters ( inches ).
1. Pin diameter:  $0.5 \pm 0.05$  (  $0.02 \pm 0.002$  )
  2. Pin pitch and length tolerance:  $\pm 0.35$  (  $\pm 0.014$  )
  3. Case Tolerance:  $\pm 0.5$  (  $\pm 0.02$  )



**14 Pin DIL Package**

- Notes : All dimensions are typical in millimeters ( inches ).
1. Pin diameter:  $0.5 \pm 0.05$  (  $0.02 \pm 0.002$  )
  2. Pin pitch and length tolerance:  $\pm 0.35$  (  $\pm 0.014$  )
  3. Case Tolerance:  $\pm 0.5$  (  $\pm 0.02$  )



**SIL 7**

PIN CONNECTIONS				
PIN NUMBER	SINGLE	DUAL	SINGLE-H	DUAL-H
1	+V Input	+V Input	+V Input	+V Input
2	-V Input	-V Input	-V Input	-V Input
4	-V Output	-V Output	N.P.	N.P.
5	N.P.	Common	-V Output	-V Output
6	+V Output	+V Output	N.P.	Common
7	N.P.	N.P.	+V Output	+V Output

**DIL 14**

PIN CONNECTIONS				
PIN NUMBER	SINGLE	DUAL	SINGLE-H	DUAL-H
1	-V Input	-V Input	-V Input	-V Input
7	N.C.	N.C.	N.C.	N.C.
8	N.P.	Common	+V Output	+V Output
9	+V Output	+V Output	N.P.	Common
10	N.P.	N.P.	-V Output	-V Output
11	-V Output	-V Output	N.P.	N.P.
14	+V Input	+V Input	+V Input	+V Input

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](mailto:sales@rsg-electronic.de) or +49 69-984047-41/-28