Features

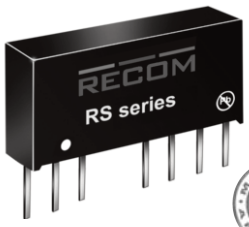
Regulated Converters

- 2:1 and 4:1 Wide Input Voltage Ranges
- 1kVDC, 2kVDC & 3kVDC Isolation
- UL94V-0 Package Material
- Continuous Short Circuit Protection
- Low Noise
- No External Capacitor needed
- Efficiency to 83%

ECONOLINE
DC/DC-Converter
with 3 year Warranty

RECOM

2 Watt SIP8 Isolated Single & Dual Output



RoHS 2011/65/EU 6/6

E-224736

UL-60950-1 Certified
EN-60950-1 Certified
EN-60601-1 Certified*
(*/H suffix)

RS

Description

High power-density, an industrial temperature range of -40°C to +85°C and extra features like Remote-On-Off- control are just some of the characteristics of this converter, ideal for highly sophisticated industrial designs. The RS series is available with isolation of 2kV or 3kV by choosing option "/H2" or "/H3" in which case it is also ideal for medical applications which additionally require EN-60601-1 certification.

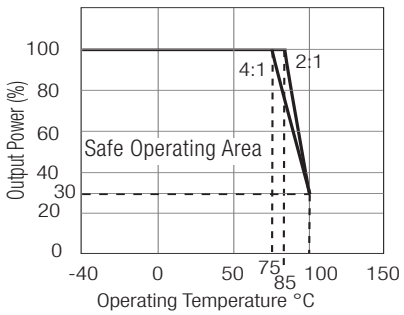
Selection Guide 5V, 12V, 24V and 48V Input Types

Part Number SIP8	Input Voltage Range (VDC)	Rated Output Voltage (VDC)	Output Current at Full Load (mA)	Efficiency typ. (%)	Max Capacitive Load
RS-xx3.3S (H2/H3)	4.5-9, 9-18 18-36, 36-72	3.3	500	68-69 70-73	4700µF
RS-xx05S (H2/H3)	4.5-9, 9-18 18-36, 36-72	5	400	73-75 78	1000µF
RS-xx09S (H2/H3)	4.5-9, 9-18 18-36, 36-72	9	222	74-78 81	1000µF
RS-xx12S (H2/H3)	4.5-9, 9-18 18-36, 36-72	12	166	75-80 83	1000µF
RS-xx15S (H2/H3)	4.5-9, 9-18 18-36, 36-72	15	134	75-80 83	1000µF
RS-xx3.3D (H2/H3)	4.5-9, 9-18 18-36, 36-72	±3.3	±250	68-69 70-73	±2200µF
RS-xx05D (H2/H3)	4.5-9, 9-18 18-36, 36-72	±5	±200	73-75 78	±680µF
RS-xx09D (H2/H3)	4.5-9, 9-18 18-36, 36-72	±9	±111	74-78 81	±680µF
RS-xx12D (H2/H3)	4.5-9, 9-18 18-36, 36-72	±12	±83	75-80 83	±680µF
RS-xx15D (H2/H3)	4.5-9, 9-18 18-36, 36-72	±15	±67	75-80 83	±680µF
RS-xx3.3SZ (H2/H3)	9-36 18-72	3.3	500	75 75	4700µF
RS-xx05SZ (H2/H3)	9-36 18-72	5	400	80 80	1000µF
RS-xx09SZ (H2/H3)	9-36 18-72	9	222	80 80	1000µF
RS-xx12SZ (H2/H3)	9-36 18-72	12	166	83 83	1000µF
RS-xx15SZ (H2/H3)	9-36 18-72	15	134	84 84	1000µF
RS-xx3.3DZ (H2/H3)	9-36 18-72	±3.3	±250	73 73	±2200µF
RS-xx05DZ (H2/H3)	9-36 18-72	±5	±200	77 77	±680µF
RS-xx09DZ (H2/H3)	9-36 18-72	±9	±111	80 80	±680µF
RS-xx12DZ (H2/H3)	9-36 18-72	±12	±83	81 81	±680µF
RS-xx15DZ (H2/H3)	9-36 18-72	±15	±67	83 83	±680µF

No suffix is standard isolation (1kVDC) e.g, RS-0505S
*add suffix /H2 or /H3 for 2kVDC or 3kVDC isolation, e.g, RS-0505S/H2, RS-0505DZ/H3

Derating-Graph
(Ambient Temperature)

RS-S(Z)_D(Z)



2:1 Input (RS-S/D)
xx = 4.5-9Vin = 05
xx = 9-18Vin = 12
xx = 18-36Vin = 24
xx = 36-72Vin = 48

4:1 Input (RS-SZ/DZ)
xx = 9-36Vin = 24
xx = 18-72Vin = 48

Specifications (measured at T_A = 25°C, nominal input voltage, full load and after warm-up time unless otherwise specified)

Input Voltage Range			2:1 and 4:1
Output Accuracy			±2% typ.
Line Voltage Regulation			±0.5% max.
Load Voltage Regulation		20%-100% Load	±0.5% max.
Minimum Load			10% (2)
Output Ripple and Noise (20MHz limited)			50mVp-p max.
Switching Frequency		Full Load	100kHz min. / 300kHz max.
Efficiency at Full Load			See Selection Guide
Quiescent Current		RS-05xxS_D	40mA typ.
Nominal input Voltage		RS-12xxS_D	32mA typ.
(Standard, /H2 and /H3)		RS-24xxS_D, SZ_DZ	25mA typ.
		RS-48xxS_D, SZ_DZ	15mA typ.
Isolation Voltage	Standard	(tested for 1 second)	1000VDC
		(rated for 1 minute**)	500VAC / 60Hz
	/H2 Version	(tested for 1 second)	2000VDC
		(rated for 1 minute**)	1000VAC / 60Hz
	/H3 Version	(tested for 1 second)	3000VDC
		(rated for 1 minute**)	1500VAC / 60Hz
Isolation Capacitance	Standard	2:1 Single	10pF min. / 40pF typ. / 60pF max.
	/H2 and /H3	2:1 Single	5pF min. / 30pF typ. / 60pF max.
	Standard	2:1 Dual	120pF min. / 170pF typ. / 250pF max.
	/H2 and /H3	2:1 Dual	5pF min. / 30pF typ. / 60pF max.
	Standard	4:1 Single/Dual	200pF max.
	/H2 and /H3	4:1 Single/Dual	30pF max
Isolation Resistance			1GΩ min.
Short Circuit Protection			Continuous
Operating Temperature Range		2:1	–40°C to +85°C
(No Derating)		4:1	–40°C to +75°C
Storage Temperature Range			–55°C to +125°C
Relative Humidity			95% RH
Package Weight			4.7g
Packing Quantity			22 pcs per Tube
MTBF (+25°C) *Detailed Information see Application Notes chapter "MTBF"*		using MIL-HDBK 217F	1398 x 10^3 hours
(+85°C)		using MIL-HDBK 217F	210 x 10^3 hours

Certifications		
EN General Safety	Report: SPCLVD1605077-10	EN60950-1, AM2:2013
EN Medical Safety	Report: MDD1205098-3 + RM1205098-3	IEC/EN 60601-1 3rd Edition
		Medical Report + ISO14971 Risk Assessment
UL General Safety	Report: E224736-A35	UL60950-1, 2nd Edition 2014
		CSA C22.2 60950-1-07, 2nd Edition 2014

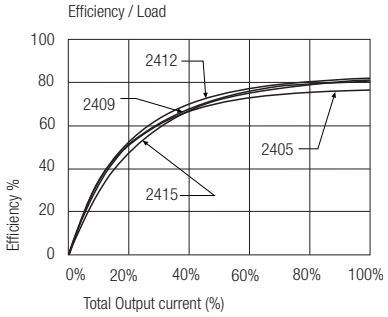
**Any data referred to in this datasheet are of indicative nature and based on our practical experience only. For further details, please refer to our Application Notes.

Notes	
Note 1:	Maximum capacitive load is defined as the capacitive load that will allow start up in under 1 second without damage to the converter
Note 2:	The RS series requires a minimum of 10% load on the output to maintain specified regulation. Operating under no-load conditions will not damage these devices; however, they may not meet all listed specifications.

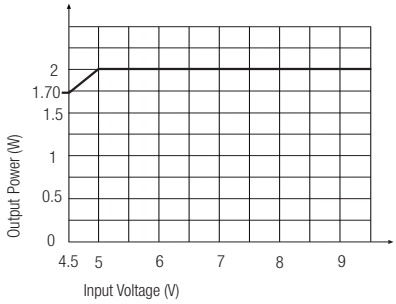
RS

Typical Characteristics

RS-24xx

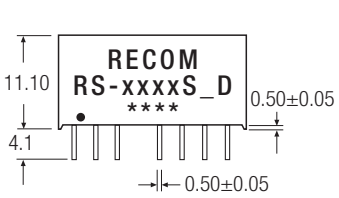


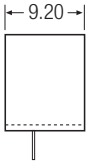
RS-05xx types

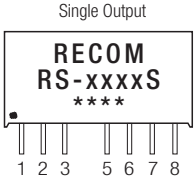


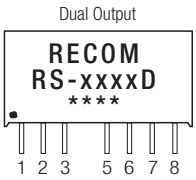
Package Style and Pinning (mm)

8 PIN SIP Package

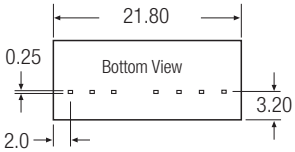




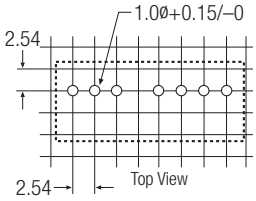




XX.X ± 0.5 mm
XX.XX ± 0.25 mm



Recommended Footprint Details



Pin Connections

Pin #	Single	Dual
1	–Vin	–Vin
2	+Vin	+Vin
3	CTRL	CTRL
5	NC	NC
6	+Vout	+Vout
7	–Vout	Com
8	NC*	–Vout

NC = No Connection

NC* = NC, but no external Connection allowed.

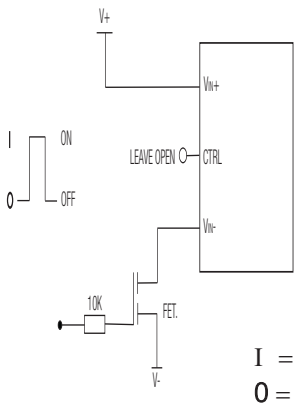
Pin 8 (NC*) This pin is used internally and must have no external connection.

Pin 5 (NC) Not connected internally.

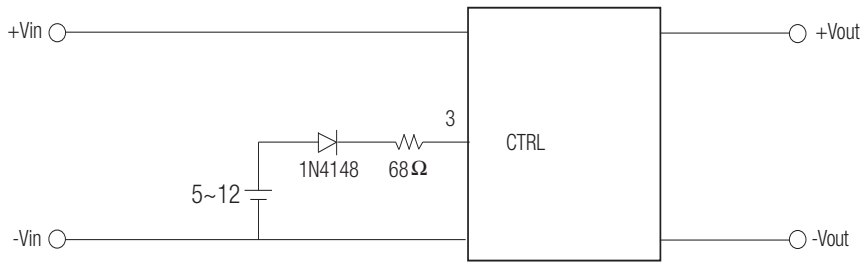
Pin 3 (CTRL)
This pin provides an Off function which puts the converter into a low power mode. When the pin is 'high' the converter is OFF and when the pin is high 'Z' the converter is ON. There is no allowed low state for this pin.

Application Examples

ON/OFF CONTROL



I = 3V
0 = 0.5V or GND



Remote ON/OFF ON: open or high impendance
OFF: external 5~12 Vdc and 1N4148+ 68Ω resistor

The product information and specifications are subject to change without prior notice. RECOM products are not authorized for use in safety-critical applications (such as life support) without RECOM's explicit written consent. A safety-critical application is defined as an application where a failure of a RECOM product may reasonably be expected to endanger or cause loss of life, inflict bodily harm or damage property. The buyer shall indemnify and hold harmless RECOM, its affiliated companies and its representatives against any damage claims in connection with the unauthorized use of RECOM products in such safety-critical applications.

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- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
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- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits,General Dynamics и др.);

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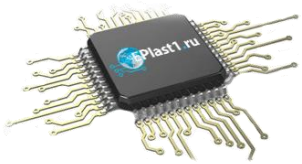
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

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