Features

Regulated Converters

- 2:1 and 3:1 Wide Input Voltage Ranges
- 1kVDC, 2kVDC and3kVDC Isolation
- UL94V-O Package Material
- Continuous Short Circuit Protection
- Low Ripple and Noise
- Remote On/Off Control
- Efficiency to 83%

Description

Very high power density, 2:1 or 3:1 input voltage range and a wide operating temperature range -40°C to +71°C and extra features such as On/Off control are just some of the characteristics of this converter which is ideal for highly sophisticated industrial designs. The RS3 is available with 2kV or 3kV isolation options (1kVDC is standard)

Part Number Voltage Range SiP8 Voltage Range (VOC) Voltop (VOC) Voltop (VAC) Voltop	Selection Guide						
SIPB (VDC) (VDC) (mA) (%) Load ⁽¹⁾ RS3-xx3.3S (H2/H3) 4.5-9, 9-18 3.3 600 73-75 4700μF RS3-xx0SS (H2/H3) 4.5-9, 9-18 5 600 76-79 4700μF RS3-xx0SS (H2/H3) 4.5-9, 9-18 9 333 77-80 3300μF RS3-xx12S (H2/H3) 4.5-9, 9-18 9 333 77-80 3300μF RS3-xx15S (H2/H3) 4.5-9, 9-18 12 250 80-81 2200μF RS3-xx15S (H2/H3) 4.5-9, 9-18 15 200 80-81 2200μF RS3-xx15S (H2/H3) 4.5-9, 9-18 ± 5 ± 300 73-75 ± 2200μF RS3-xx15S (H2/H3) 4.5-9, 9-18 ± 5 ± 300 73-75 ± 2200μF RS3-xx05D (H2/H3) 4.5-9, 9-18 ± 5 ± 300 76-80 ± 2200μF RS3-xx12D (H2/H3) 4.5-9, 9-18 ± 9 ± 167 77-81 ± 2200μF </th <th>Part Number</th> <th>r</th> <th></th> <th>•</th> <th>•</th> <th>Efficiency</th> <th></th>	Part Number	r		•	•	Efficiency	
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18-36, 36-72 77-78		(110 /110)	• • •				
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18-36, 36-72 75							
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18-36, 36-72 80-81							
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RS3-xx12D	RS3-xx09D	(H2/H3)	•	±9	±167		±2200μF
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18-36, 36-72 83 RS3-xx3.3SZ (H2/H3) 9-27 3.3 600 73 4700μF 20-60 74 RS3-xx05SZ (H2/H3) 9-27 5 600 76-79 4700μF 20-60 78 RS3-xx09SZ (H2/H3) 9-27 9 333 77 3300μF 20-60 79 RS3-xx12SZ (H2/H3) 9-27 12 250 80 2200μF 20-60 80 RS3-xx15SZ (H2/H3) 9-27 15 200 80 2200μF 20-60 80 RS3-xx3.3DZ (H2/H3) 9-27 ±3.3 ±300 73 ±2200μF 20-60 74 RS3-xx05DZ (H2/H3) 9-27 ±5 ±300 77 ±2200μF 20-60 78 RS3-xx09DZ (H2/H3) 9-27 ±5 ±167 79 ±2200μF 20-60 79 RS3-xx12DZ (H2/H3) 9-27 ±12 ±125 80 ±1000μF 20-60 RS3-xx12DZ (H2/H3) 9-27 ±12 ±125 80 ±1000μF 20-60 RS3-xx12DZ (H2/H3) 9-27 ±12 ±125 80 ±1000μF 20-60 RS3-xx15DZ (H2/H3) 9-27 ±15 ±100 80 ±1000μF 20-60 RS3-xx15DZ (H2/H3) 9-27 ±100 ±1000μF 20-60 RS3-xx15DZ (H2/H3) 9							
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RS3-xx05SZ (H2/H3) 9-27 5 600 76-79 4700μF							
RS3-xx05SZ (H2/H3) 9-27 b 5 cm 600 cm 76-79 cm 4700μF RS3-xx09SZ (H2/H3) 9-27 cm 9 cm 333 cm 77 cm 3300μF RS3-xx12SZ (H2/H3) 9-27 cm 12 cm 250 cm 80 cm 2200μF RS3-xx15SZ (H2/H3) 9-27 cm 15 cm 200 cm 80 cm 2200μF RS3-xx3.3DZ (H2/H3) 9-27 cm ±3.3 cm ±300 cm 73 cm ±2200μF RS3-xx05DZ (H2/H3) 9-27 cm ±5 cm ±300 cm 77 cm ±2200μF RS3-xx09DZ (H2/H3) 9-27 cm ±9 cm ±167 cm 79 cm ±2200μF RS3-xx12DZ (H2/H3) 9-27 cm ±12 cm ±125 cm 80 cm ±1000μF RS3-xx15DZ (H2/H3) 9-27 cm ±12 cm ±125 cm 80 cm ±1000μF	RS3-xx3.3SZ	(H2/H3)		3.3	600		4700μF
20-60 78			20-60				
RS3-xx09SZ (H2/H3) 9-27 20-60 9 333 77 3300μF RS3-xx12SZ (H2/H3) 9-27 12 250 80 2200μF 20-60 80 RS3-xx15SZ (H2/H3) 9-27 15 200 80 2200μF 20-60 80 RS3-xx3.3DZ (H2/H3) 9-27 ±3.3 ±300 73 ±2200μF 20-60 74 RS3-xx05DZ (H2/H3) 9-27 ±5 ±300 77 ±2200μF 20-60 78 RS3-xx09DZ (H2/H3) 9-27 ±9 ±167 79 ±2200μF 20-60 79 RS3-xx12DZ (H2/H3) 9-27 ±12 ±125 80 ±1000μF 20-60 80 RS3-xx15DZ (H2/H3) 9-27 ±15 ±100 80 ±1000μF	RS3-xx05SZ	(H2/H3)		5	600		4700μF
20-60 79						78	
RS3-xx12SZ (H2/H3) 9-27	RS3-xx09SZ	(H2/H3)	9-27	9	333	77	3300µF
20-60 80 2200μF						79	
RS3-xx15SZ (H2/H3) 9-27	RS3-xx12SZ	(H2/H3)	9-27	12	250	80	2200µF
20-60 80 RS3-xx3.3DZ (H2/H3) 9-27 ±3.3 ±300 73 ±2200μF 20-60 74 RS3-xx05DZ (H2/H3) 9-27 ±5 ±300 77 ±2200μF 20-60 78 RS3-xx09DZ (H2/H3) 9-27 ±9 ±167 79 ±2200μF 20-60 79 RS3-xx12DZ (H2/H3) 9-27 ±12 ±125 80 ±1000μF 20-60 RS3-xx15DZ (H2/H3) 9-27 ±15 ±100 80 ±1000μF 1000μF 10						80	
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20-60 74			20-60			80	
RS3-xx05DZ (H2/H3) 9-27 ±5 ±300 77 ±2200μF 20-60 78 RS3-xx09DZ (H2/H3) 9-27 ±9 ±167 79 ±2200μF 20-60 79 RS3-xx12DZ (H2/H3) 9-27 ±12 ±125 80 ±1000μF 20-60 80 RS3-xx15DZ (H2/H3) 9-27 ±15 ±100 80 ±1000μF	RS3-xx3.3DZ	(H2/H3)	9-27	±3.3	±300	73	±2200µF
20-60 78			20-60			74	
RS3-xx09DZ (H2/H3) 9-27 ±9 ±167 79 ±2200μF 20-60 79 RS3-xx12DZ (H2/H3) 9-27 ±12 ±125 80 ±1000μF 20-60 80 RS3-xx15DZ (H2/H3) 9-27 ±15 ±100 80 ±1000μF	RS3-xx05DZ	(H2/H3)	9-27	±5	±300	77	±2200µF
20-60 79			20-60			78	
RS3-xx12DZ (H2/H3) 9-27 ±12 ±125 80 ±1000μF 20-60 80 RS3-xx15DZ (H2/H3) 9-27 ±15 ±100 80 ±1000μF	RS3-xx09DZ	(H2/H3)	9-27	±9	±167	79	±2200µF
20-60 80 RS3-xx15DZ (H2/H3) 9-27 ±15 ±100 80 ±1000μF			20-60			79	
RS3-xx15DZ (H2/H3) 9-27 ±15 ±100 80 ±1000µF	RS3-xx12DZ	(H2/H3)	9-27	±12	±125	80	±1000µF
· · · · · · · · · · · · · · · · · · ·			20-60			80	
20-60 80	RS3-xx15DZ	(H2/H3)	9-27	±15	±100	80	±1000µF
No suffix is standard isolation (11/DC) a a DCO OFOEC						80	

No suffix is standard isolation (1kVDC) e.g, RS3-0505S

*add suffix /H2 or /H3 for 2kVDC or 3kVDC isolation, e.g, RS3-0505S/H2, R3S-0505DZ/H3

ECONOLINE

DC/DC-Converter with 3 year Warranty



3 Watt SIP8 Isolated Single & Dual Output







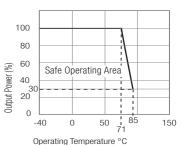
EN-60950-1 Certified EN-60601-1 Certified* (*/H suffix)

RS3

Derating-Graph

(Ambient Temperature)

RS3-(Z)S_D



2:1 Input (RS3-S/D)

xx = 4.5-9Vin = 05

xx = 9-18Vin = 12xx = 18-36Vin = 24 **3:1** Input (RS3-SZ/DZ) xx = 9-27Vin = 24 xx = 20-60Vin = 48

xx = 36-72Vin = 48

Refer to Application Notes

ECONOLINE

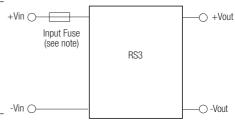
DC/DC-Converter

RS3-S_D/(Z) Series

Electrical Specifications (measured at T_A = 25°C, at nominal input voltage and rated output current unless otherwise specified)

Input Voltage Range				2:1 and 3:1
Output Accuracy		Nomi	nal Vin and full load	±2% typ.
Line Voltage Regulation			HL, full load	±0.5% max.
Load Voltage Regulation			to 100% full load	±0.5% typ.
Minimum Load				10% (2)
Output Ripple and Noise		20M	Hz limited	50mVp-p max.
Switching Frequency			to 100% full load	200kHz typ.
Efficiency at Full Load				see Selection Guide
Quiescent Current		RS3-	05xxS_D	35mA typ.
Nominal input Voltage		RS3-	12xxS_D	25mA typ.
(Standard, /H2 and /H3)		RS3-	24xxS_D, SZ_DZ	20mA typ.
		RS3-	48xxS_D, SZ_DZ	10mA typ.
Isolation Voltage	Standard	(teste	ed 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 (2:1 and 3:1)				200pF max.
(tested at 100kHz)			3	30pF max.
Isolation Resistance		1GΩ min.		
Short Circuit Protection (Continuous			
Operating Temperature Range				-40°C to +71°C
Storage Temperature Ra	−55°C to +125°C			
Relative Humidity 9				
Package Weight 4.7				
Packing Quantity 22 pcs per Tub				
MTBF (+25°C) \ Detailed Information see			using MIL-HDBK 217F	3303 x10 ³ hours
(+71°C) ∫ Applica	ation Notes chapter "N	ITBF"	using MIL-HDBK 217F	745 x10 ³ hours
Cortifications				

Typical Application



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

Certifications

EN General Safety Report: SPCLVD1212007 EN60950-1:2006 + A11:2009+A1:2010+A12:2011
EN Medical Safety Report: MDD1205098-3 + RM1205098-3 IEC/EN 60601-1 3rd Edition

Medical Report + ISO14971 Risk Assessment

Note: To protect the converter under all fault conditions, an input fuse is required. Quick-blow fuses should be rated at 2x-3x the normal input current, time-delay fuses at 1.5x the normal input current.

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 RS3 series require a minimum of 10% loading on the output to maintain specified regulation. Operating under un-load condition
	will not damage these devices, however they may not meet all listed specifications.

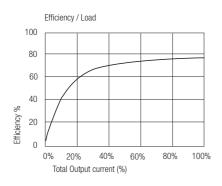
ECONOLINE

DC/DC-Converter

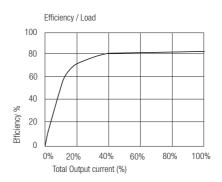
RS3-S_D/(Z) Series

Typical Characteristics

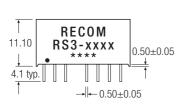
RS3-0505S



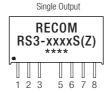
RS3-4805D

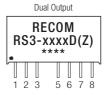


Package Style and Pinning (mm)

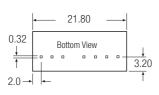


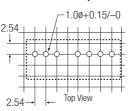






Recommended Footprint Details





XX.X ± 0.5 mm XX.XX ± 0.25 mm

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

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

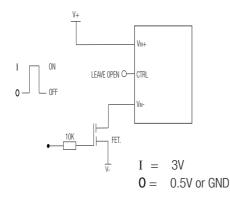
Pin 5 (NC) Not connected internally.

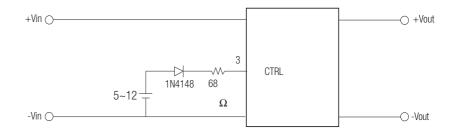
Pin 3 (CTRL)

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





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. All products are designed for non-safety critical commercial and industrial applications.

The Buyer agrees to implement safeguards that anticipate the consequences of any failures that might cause harm, loss of life and/or damage property.