Features

Regulated Converters

- 2:1 and 3:1 Wide Input Voltage Ranges
- 1kVDC, 2kVDC and3kVDC Isolation
- UL94V-0 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~+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)

Selection Guide

Part Number SIP8	Input Voltage Range (VDC)	Rated Output Voltage (VDC)	Output Current Full Load (mA)	Efficiency typ. (%)	Max Capacitive Load[1]
RS3-xx3.3S (H2/H3)	4.5-9, 9-18	3.3	600	73-75	4700µF
	18-36, 36-72			77-78	
RS3-xx05S (H2/H3)	4.5-9, 9-18	5	600	76-79	4700µF
	18-36, 36-72			80-81	
RS3-xx09S (H2/H3)	4.5-9, 9-18	9	333	77-80	3300µF
	18-36, 36-72			81-82	
RS3-xx12S (H2/H3)	4.5-9, 9-18	12	250	80-81	2200µF
	18-36, 36-72			83	
RS3-xx15S (H2/H3)	4.5-9, 9-18	15	200	80-81	2200µF
	18-36, 36-72			83	
RS3-xx3.3D (H2/H3)	4.5-9, 9-18	±3.3	±300	73-75	±2200µF
	18-36, 36-72			75	
RS3-xx05D (H2/H3)	4.5-9, 9-18	±5	±300	76-80	±2200µF
	18-36, 36-72			80-81	
RS3-xx09D (H2/H3)	4.5-9, 9-18	±9	±167	77-81	±2200µF
	18-36, 36-72			81	
RS3-xx12D (H2/H3)	4.5-9, 9-18	±12	±125	78-83	±1000µF
	18-36, 36-72			83	
RS3-xx15D (H2/H3)	4.5-9, 9-18	±15	±100	79-83	±1000µF
	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	±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
	20-60			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

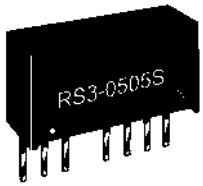
ECONOLINE

DC/DC-Converter

with 3 year Warranty

RECOM

3 Watt SIP8 Isolated Single & Dual Output



RoHS 2002/95/EC 6/6

EN-60950-1 Certified

EN-60601-1 Certified*

(*/H suffix)

RS3

2:1 Input (RS3-S/D)
xx = 4.5-9Vin = 05
xx = 9-18Vin = 12
xx = 18-36Vin = 24
xx = 36-72Vin = 48

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

Refer to Application Notes

RS3-S_D/(Z) Series

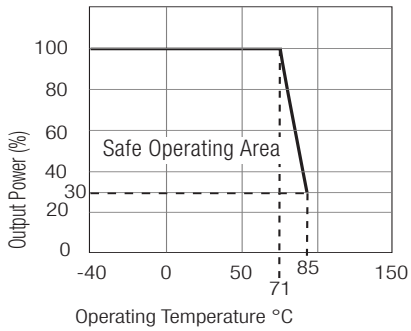
Electrical Specifications (measured at T_A = 25°C, at nominal input voltage and rated output current unless otherwise specified)

Input Voltage Range			2:1 and 3:1
Output Accuracy		Nominal Vin and full load	±2% typ.
Line Voltage Regulation		LL to HL, full load	±0.5% max.
Load Voltage Regulation		20% to 100% full load	±0.5% typ.
Minimum Load			0%
Output Ripple and Noise		20MHz limited	50mVp-p max.
Switching Frequency		20% 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	(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 (2:1 and 3:1)		H1	200pF max.
(tested at 100kHz)		H2/H3	30pF max.
Isolation Resistance			1GΩ min.
Short Circuit Protection (see note)			Continuous
Operating Temperature Range			–40°C to +71°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*		using MIL-HDBK 217F	3303 x10³ hours
(+71°C) } *Application Notes chapter "MTBF"*		using MIL-HDBK 217F	745 x10³ hours

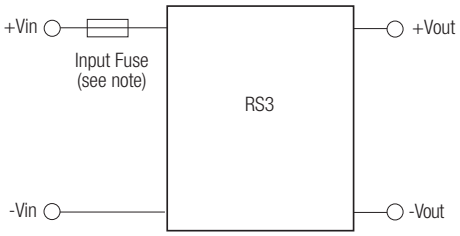
Note: To protect the converter under all fault conditions, an input fuse is required. Quick-blow fuses should be rated at 2x-3x the normal input current, time-delay fuses at 1.5x the normal input current.

Derating-Graph
(Ambient Temperature)

RS3-(Z)S_D

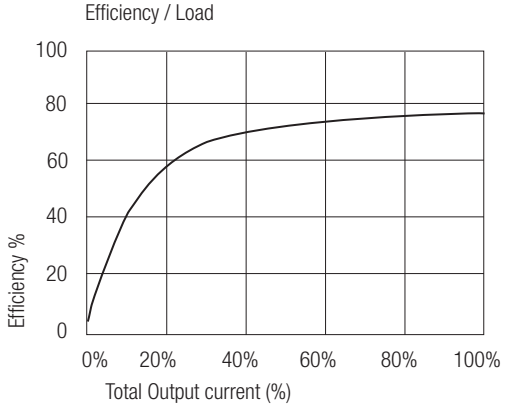


Typical Application

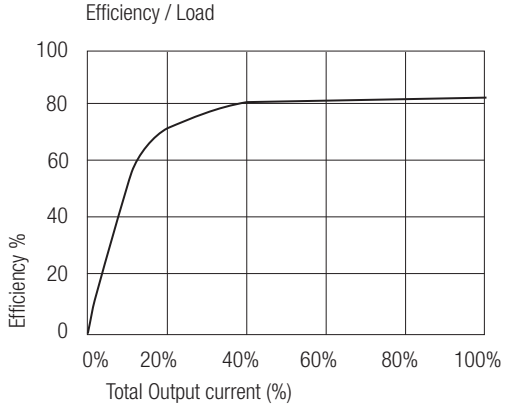


Typical Characteristics

RS3-0505S

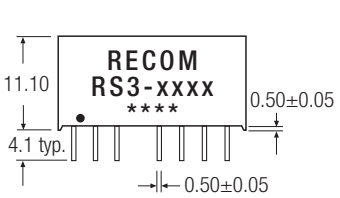


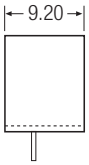
RS3-4805D



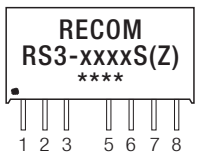
Package Style and Pinning (mm)

3rd angle projection

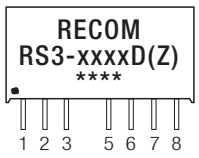




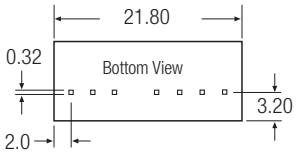
Single Output

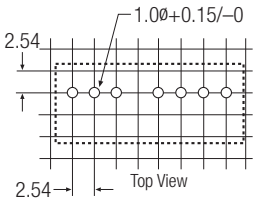


Dual Output



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

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		
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

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.

RS3

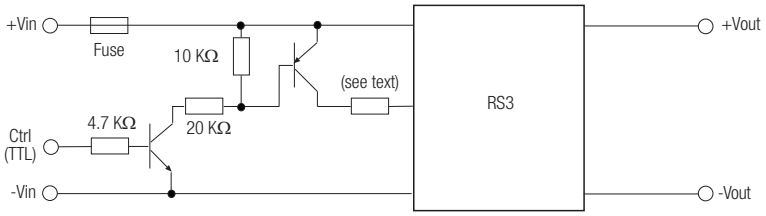
Application Examples

TTL Remote CTRL Circuit

Control Pin Input Current: 10mA

Voltage Set Point Accuracy with external input/output capacitors refer to recommended test circuit: typ. ± 1% max. ±2%

Control Pin (CTRL) Input Current, control voltage applied via 1K resistor, output voltage must reduce to 0V: typ. 3mA max. 6mA



Voltage to be applied via a limiting resistor with a recommended value of 1K for RS3-05xx; 3.3K for RS3-12xx; 4.7K for RS3-24xx and 10K for RS3-48xx.

Isolated Remote CTRL Circuit