

# Features

## Regulated Converters

- 2:1 and 3:1 Wide Input Voltage Ranges
- 1kVDC, 2kVDC and 3kVDC 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		Input Voltage Range (VDC)	Rated Output Voltage (VDC)	Output Current Full Load (mA)	Efficiency typ. (%)	Capacitive Load max.
SIP8	RS3-xx3.3S (H2/H3)	4.5-9, 9-18	3.3	600	73-75	1000µF
		18-36, 36-72			77-78	
RS3-xx05S (H2/H3)	4.5-9, 9-18	5	600	76-79	1000µF	
	18-36, 36-72			80-81		
RS3-xx09S (H2/H3)	4.5-9, 9-18	9	333	77-80	470µF	
	18-36, 36-72			81-82		
RS3-xx12S (H2/H3)	4.5-9, 9-18	12	250	80-81	220µF	
	18-36, 36-72			83		
RS3-xx15S (H2/H3)	4.5-9, 9-18	15	200	80-81	100µF	
	18-36, 36-72			83		
RS3-xx3.3D (H2/H3)	4.5-9, 9-18	±3.3	±300	73-75	±470µF	
	18-36, 36-72			75		
RS3-xx05D (H2/H3)	4.5-9, 9-18	±5	±300	76-80	±470µF	
	18-36, 36-72			80-81		
RS3-xx09D (H2/H3)	4.5-9, 9-18	±9	±167	77-81	±220µF	
	18-36, 36-72			81		
RS3-xx12D (H2/H3)	4.5-9, 9-18	±12	±125	78-83	±100µF	
	18-36, 36-72			83		
RS3-xx15D (H2/H3)	4.5-9, 9-18	±15	±100	79-83	±47µF	
	18-36, 36-72			83		
RS3-xx3.3SZ (H2/H3)	9-27	3.3	600	73	1000µF	
	20-60			74		
RS3-xx05SZ (H2/H3)	9-27	5	600	76-79	1000µF	
	20-60			78		
RS3-xx09SZ (H2/H3)	9-27	9	333	77	470µF	
	20-60			79		
RS3-xx12SZ (H2/H3)	9-27	12	250	80	220µF	
	20-60			80		
RS3-xx15SZ (H2/H3)	9-27	15	200	80	100µF	
	20-60			80		
RS3-xx3.3DZ (H2/H3)	9-27	±3.3	±300	73	±470µF	
	20-60			74		
RS3-xx05DZ (H2/H3)	9-27	±5	±300	77	±470µF	
	20-60			78		
RS3-xx09DZ (H2/H3)	9-27	±9	±167	79	±220µF	
	20-60			79		
RS3-xx12DZ (H2/H3)	9-27	±12	±125	80	±100µF	
	20-60			80		
RS3-xx15DZ (H2/H3)	9-27	±15	±100	80	±47µF	
	20-60			80		

**ECONOLINE**  
DC/DC-Converter

**RECOM**

## 3 Watt SIP8 Isolated Single & Dual Output



**EN-60950-1 Certified**  
**EN-60601-1 Certified**  
**(Suffix /H2 or /H3)**

**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)

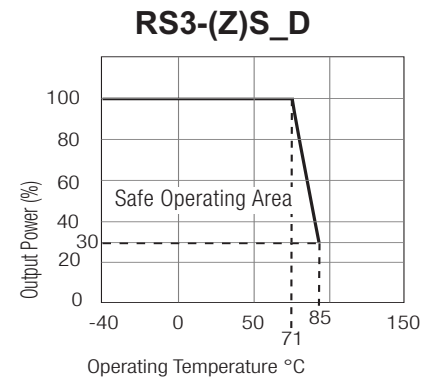
xx = 9-27Vin = 24  
xx = 20-60Vin = 48

Refer to Application Notes

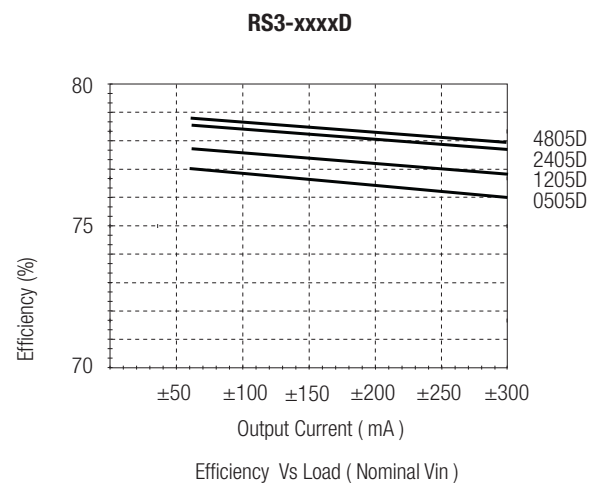
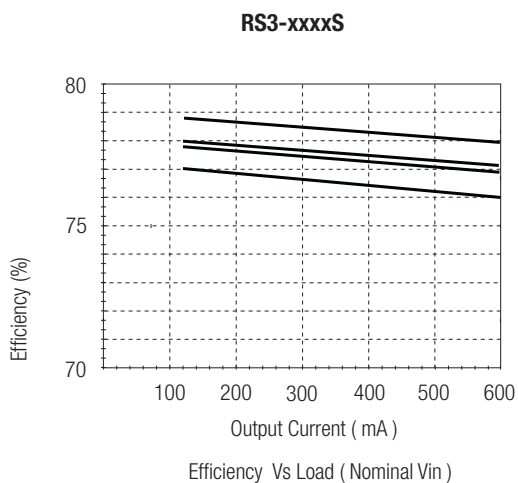
**Electrical Specifications** (measured at  $T_A = 25^\circ\text{C}$ , at nominal input voltage and rated output current unless otherwise specified)

Input Voltage Range		2:1 and 3:1	
Output Accuracy	Nominal $V_{in}$ and full load	$\pm 2\%$ typ.	
Line Voltage Regulation	LL to HL, full load	$\pm 0.5\%$ max.	
Load Voltage Regulation	20% to 100% full load	$\pm 0.5\%$ typ.	
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	RS-05xxS_D	35mA typ.	
Nominal input Voltage	RS-12xxS_D	25mA typ.	
(Standard, /H2 and /H3)	RS-24xxS_D, SZ_DZ	20mA typ.	
	RS-48xxS_D, SZ_DZ	10mA typ.	
Isolation Voltage (2:1 and 3:1)	(tested for 1 second)	1000VDC min.	
	H2	2000VDC min.	
	H3	3000VDC min.	
Rated Working Voltage	(long term isolation)	see Application Notes	
Isolation Capacitance (2:1 and 3:1)	H1	200pF max.	
(tested at 100kHz)	H2/H3	30pF max.	
Isolation Resistance		1G $\Omega$ min.	
Short Circuit Protection		Continuous	
Operating Temperature Range		$-40^\circ\text{C}$ to $+71^\circ\text{C}$	
Storage Temperature Range		$-55^\circ\text{C}$ to $+125^\circ\text{C}$	
Relative Humidity		95% RH	
Package Weight		4.7g	
Packing Quantity		22 pcs per Tube	
MTBF ( $+25^\circ\text{C}$ )	} Detailed Information see Application Notes chapter "MTBF"	using MIL-HDBK 217F	3303 x10 <sup>3</sup> hours
( $+71^\circ\text{C}$ )		using MIL-HDBK 217F	745 x10 <sup>3</sup> hours

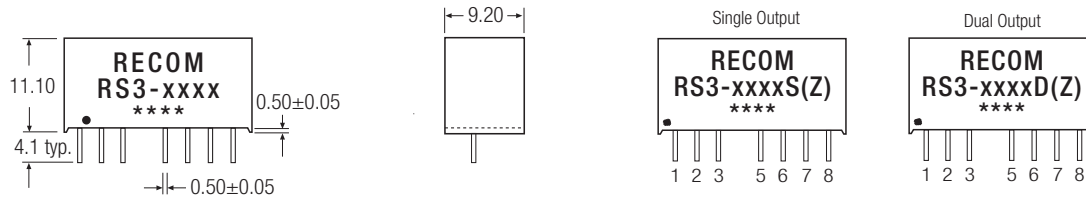
## Derating-Graph (Ambient Temperature)



## Typical Characteristics



**Package Style and Pinning (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  
XX.X ± 0.5 mm  
XX.XX ± 0.25 mm

**Notes**

**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.

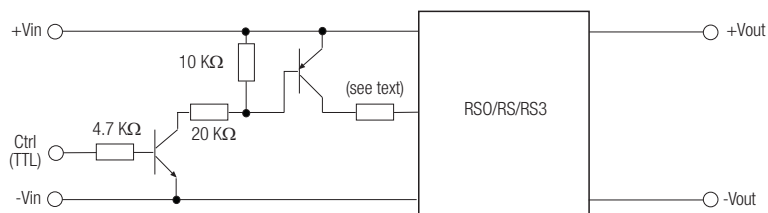
**Application Examples**

**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 OV: 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; RS3-24xx and 10K for RS3-48xx.

**Isolated Remote CTRL Circuit**

