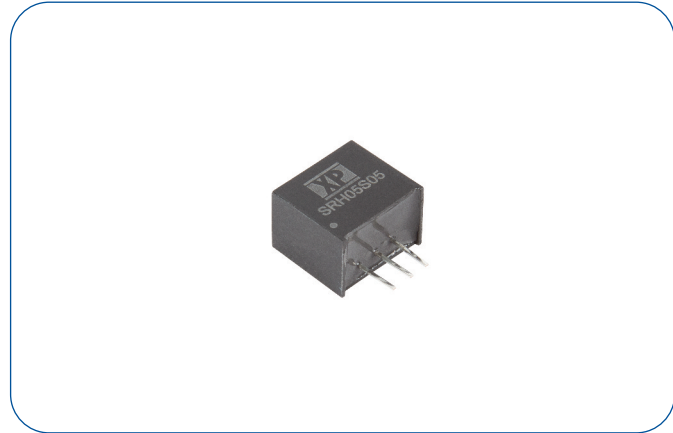


### 0.5 Amp

- 3 Pin Switching Regulator
- SIP Package
- Ultra Wide Input Range to 72 V
- -40 °C to +85 °C Operation
- Full Load to 60 °C Ambient
- Class B Conducted & Radiated Emissions
- MTBF >4.5 MHrs
- 3 Year Warranty



The SRH05 series of switching regulators provides a convenient cost effective solution to non-isolated DC-DC regulated voltage conversion applications. Operating from a wide DC input the SRH05 will step down to voltages from 3.3V to 15V DC. Features include continuous short circuit protection, high efficiency and an industrial operating temperature range.

#### Dimensions:

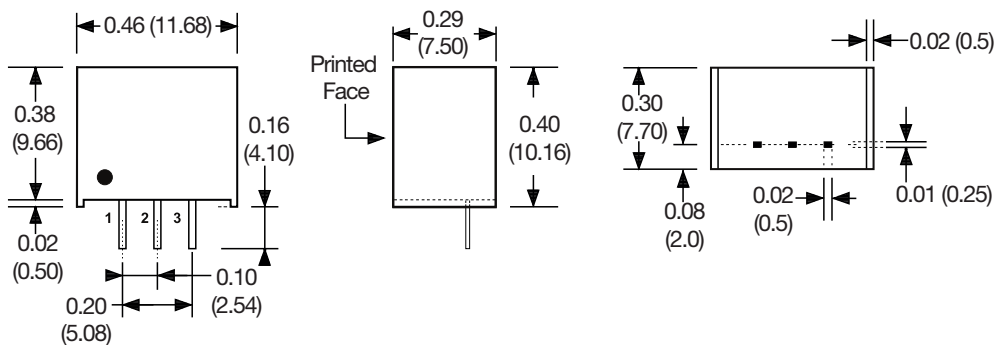
##### SRH05:

0.46 x 0.29 x 0.4" (11.68 x 7.5 x 10.16 mm)

### Models & Ratings

Input Voltage	Output Voltage	Output Current	Input Current			Efficiency		Max capacitive load	Model Number
			No Load	Full Load, min Vin	Full Load, max Vin	min Vin	max Vin		
9-72 V	3.3V	500 mA	3 mA	225 mA	30 mA	82%	75%	100 $\mu$ F	SRH05S3V3
9-72 V	5.0V	500 mA	3 mA	315 mA	45 mA	88%	80%	100 $\mu$ F	SRH05S05
9-72 V	6.5V	500 mA	3 mA	395 mA	55 mA	91%	83%	100 $\mu$ F	SRH05S6V5
14-72 V	7.2V	500 mA	3 mA	285 mA	60 mA	91%	84%	100 $\mu$ F	SRH05S7V2
14-72 V	9.0V	500 mA	3 mA	350 mA	75 mA	92%	86%	100 $\mu$ F	SRH05S09
17-72 V	12.0V	500 mA	3 mA	375 mA	95 mA	94%	89%	100 $\mu$ F	SRH05S12
21-72 V	15.0V	400 mA	3 mA	300 mA	95 mA	95%	89%	100 $\mu$ F	SRH05S15

### Mechanical Details



Pin Connections	
Pin	Single
1	+Vin
2	Ground
3	+Vout

### Notes

1. All dimensions are in inches (mm)
2. Weight: 0.004 lbs (2.1 g) approx.
3. Pin diameter: 0.02 $\pm$ 0.002 (0.5 $\pm$ 0.05)
4. Pin pitch tolerance:  $\pm$ 0.02 ( $\pm$ 0.5)
5. Case tolerance:  $\pm$ 0.02 ( $\pm$ 0.5)

### Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Input Voltage Range	9		72	VDC	Model dependant. See Models and Ratings table
Input Filter	Capacitor				
Input Reflected Ripple			35	mA pk-pk	Through 12 $\mu$ H inductor and 47 $\mu$ F capacitor
Input Surge			75	VDC for 100 ms	

### Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Output Voltage	3.3		15	VDC	See Models and Ratings table
Initial Set Accuracy			3	%	At full load
Minimum Load	10			mA	Minimum load required to meet specification. Operation at no load will not cause damage.
Line Regulation			1.0	%	
Load Regulation			0.6	%	From 10% to full load
Transient Response			$\pm$ 3	%	For 25% load change
Ripple & Noise			75	mV pk-pk	20 MHz bandwidth
Short Circuit Protection					Continuous, with auto recovery
Maximum Capacitive Load					See Models and Ratings table
Temperature Coefficient			0.02	%/ $^{\circ}$ C	

### General

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Efficiency		92		%	See models and ratings table
Isolation: Input to Output	0			VDC	Non isolated
Switching Frequency	120		800	kHz	See application notes
Mean Time Between Failure	4.5			MHrs	MIL-HDBK-217F, +25 $^{\circ}$ C GB
Weight		0.004 (2.1)		lb (g)	
Soldering temp			260	$^{\circ}$ C	Waveflow. 0.05" (1.5mm) from case, 10 seconds max.
Case material	Non-conductive black plastic UL94V-0 rated				
Pin material	Solder coated C5191R-H				
Potting material	Silicon UL94V-0 rated				

### Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Operating Temperature	-40		+85	$^{\circ}$ C	Derate from 100% load at +60 $^{\circ}$ C to 40% at +85 $^{\circ}$ C
Storage Temperature	-40		+125	$^{\circ}$ C	
Case Temperature			+100	$^{\circ}$ C	
Humidity			95	%RH	Non-condensing
Cooling					Natural convection

### EMC: Emissions

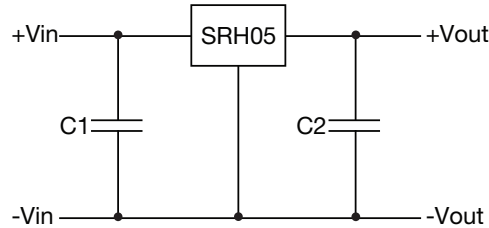
Phenomenon	Standard	Test Level	Notes & Conditions
Conducted	EN55032	Class B	See Application Note
Radiated	EN55032	Class B	See Application Note

### EMC: Immunity

Phenomenon	Standard	Test Level	Criteria	Notes & Conditions
ESD Immunity	EN61000-4-2	$\pm$ 6 kV/ $\pm$ 8 kV	A	Contact discharge/Air discharge
Radiated Immunity	EN61000-4-3	10 Vrms	A	
EFT/Burst	EN61000-4-4	$\pm$ 2.0 kV	A	See Application Note
Surges	EN61000-4-5	$\pm$ 1.0 kV	A	See Application Note
Conducted Immunity	EN61000-4-6	10 V rms	A	
Magnetic Fields	EN61000-4-8	1 A/m	A	

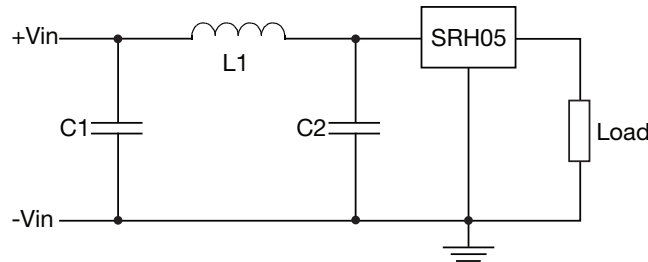
### Application Note

#### Standard Application



C1 = 3.3  $\mu$ F/100 V required if input voltage is above 50 VDC  
 C2 = 100  $\mu$ F (optional) to improve transient response

#### EMI & Surge/EFT Filter



C1 = 220  $\mu$ F/100 V  
 L1 = 12  $\mu$ H  
 C2 = 220 $\mu$ F/100 V

C1, C2 and L1 should be placed as close to the SRH05 as possible

#### Switching Frequency vs Load

