

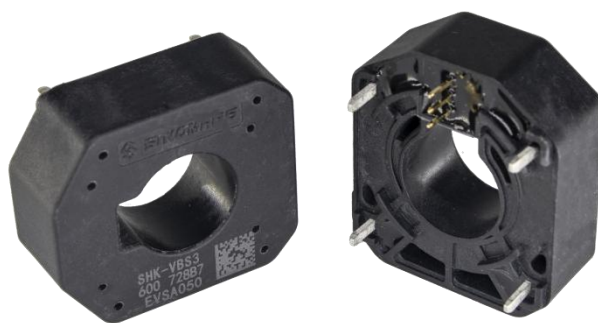
## Current Sensor

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Product Series: SHK-VBS3

Part number: SHK-100VBS3 & SHK-200VBS3 &  
SHK-300VBS3 & SHK-400VBS3 &  
SHK-500VBS3 & SHK-600VBS3 &  
SHK-700VBS3 & SHK-800VBS3 &  
SHK-900VBS3

VERSION: Ver 3.2



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## 1. Introduction

The SHK-VBS3 series current sensor is based on Hall technology, and it has an open-loop design. It is suitable for DC, AC pulsed and any kind of irregular current measurement under the isolated conditions.

### Typical applications

- AC Variable speed drives
- Motor driver
- Electric welder power supply

### General parameter

Parameter	Symbol	Unit	Value
Working temperature	T <sub>A</sub>	°C	-40 ~ 125
Storage temperature	T <sub>stg</sub>	°C	-40 ~ 125
Mass	m	g	30

### Absolute maximum rating

Parameter	Symbol	Unit	Value
Supply voltage (not-destructive)	V <sub>CC</sub>	V	6
ESD rating (HBM)	U <sub>ESD</sub>	kV	4

Remark: the unrecoverable damage may occur when the product works on the conditions over the absolute maximum ratings. Long-time working on the absolute maximum ratings may cause the degradation on performance and reliability.

### Isolation parameter

Parameter	Symbol	Unit	Value	Comment
RMS voltage for AC test 50Hz/1 min	U <sub>d</sub>	kV	4	
Case material			V0 according to UL 94	

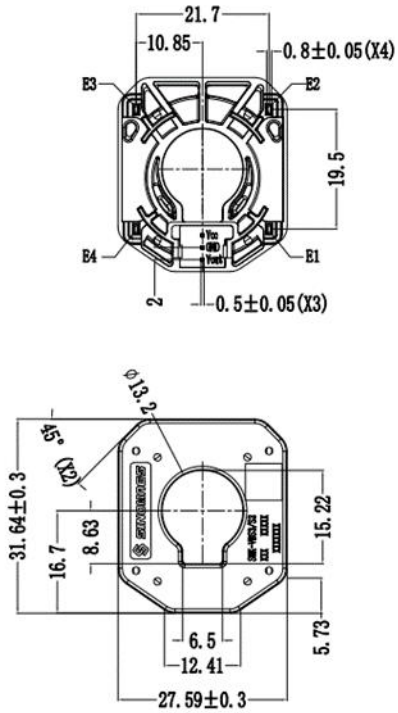
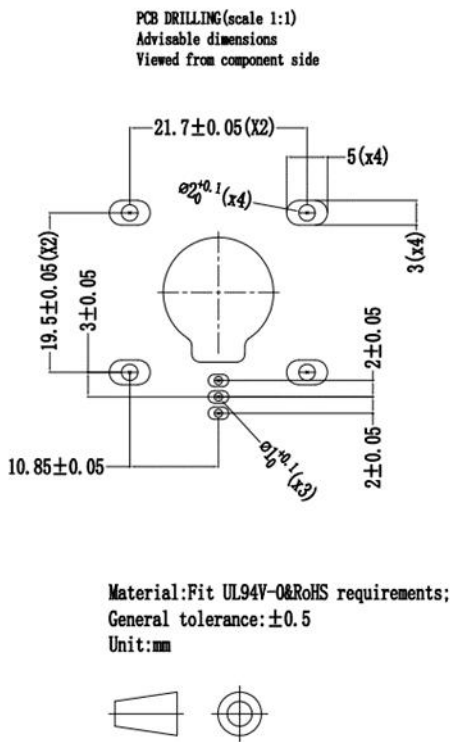
## 2. Electrical Data

 Condition:  $T_A = 25^{\circ}\text{C}$ ,  $V_{CC} = 5\text{V}$ 

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary nominal current	$I_{PN}$	A		100		SHK-100VBS3
				200		SHK-200VBS3
				300		SHK-300VBS3
				400		SHK-400VBS3
				500		SHK-500VBS3
				600		SHK-600VBS3
				700		SHK-700VBS3
				800		SHK-800VBS3
				900		SHK-900VBS3
Current range (refer remark)	$I_{PM}$	A	-100		100	SHK-100VBS3
			-200		200	SHK-200VBS3
			-300		300	SHK-300VBS3
			-400		400	SHK-400VBS3
			-500		500	SHK-500VBS3
			-600		600	SHK-600VBS3
			-700		700	SHK-700VBS3
			-800		800	SHK-800VBS3
			-900		900	SHK-900VBS3
Supply voltage	$V_{CC}$	V		$5 \pm 5\%$		SHK-100VBS3 SHK-200VBS3 SHK-300VBS3 SHK-400VBS3 SHK-500VBS3 SHK-600VBS3 SHK-700VBS3 SHK-800VBS3 SHK-900VBS3
Current consumption	$I_{CC}$	mA		15		All
Quiescent voltage $V_{out} @ 0\text{A}$	$V_{off}$	V	$V_{CC}/2 - 0.025$	$V_{CC}/2$	$V_{CC}/2 + 0.025$	SHK-100VBS3 SHK-200VBS3 SHK-300VBS3 SHK-400VBS3 SHK-500VBS3 SHK-600VBS3 SHK-700VBS3 SHK-800VBS3

						SHK-900VBS3
Peak output voltage (Vout @ $\pm I_{PM}$ ) – Voff	V_FS	V		$\pm 2$		SHK-100VBS3 SHK-200VBS3 SHK-300VBS3 SHK-400VBS3 SHK-500VBS3 SHK-600VBS3 SHK-700VBS3 SHK-800VBS3 SHK-900VBS3
Internal output resistance	R_out	$\Omega$		5		Vout
Theoretical gain (Typ)	G_th	mV/A		20		SHK-100VBS3
				10		SHK-200VBS3
				6.66		SHK-300VBS3
				5		SHK-400VBS3
				4		SHK-500VBS3
				3.33		SHK-600VBS3
				2.85		SHK-700VBS3
				2.5		SHK-800VBS3
			2.22		SHK-900VBS3	
Rated linearity error	Non-L	% I <sub>PN</sub>		$\pm 1$		$\pm I_{PN}$
Step response time	t_res	$\mu s$		3.5		@90% of I <sub>PN</sub>
Frequency bandwidth (-3dB)	BW	kHz		100		No RC circuit
Output voltage noise DC ~ 10 kHz DC ~ 100 kHz	Vnoise	mVpp		20 30		SHK-300VBS3 SHK-400VBS3 SHK-500VBS3 SHK-600VBS3 SHK-700VBS3 SHK-800VBS3 SHK-900VBS3
				30 40		SHK-100VBS3 SHK-200VBS3
Accuracy @ 25°C	X	% of I <sub>PM</sub>	-2	$\pm 1$	+2	All
Accuracy @ -40°C ~ 125°C	X_TRange	% of I <sub>PM</sub>	-3.5		3.5	All

### 3. Dimension & Pin Definitions



Terminals	Designations
1	Vcc
2	GND
3	Vout
E1-E4	GND

