

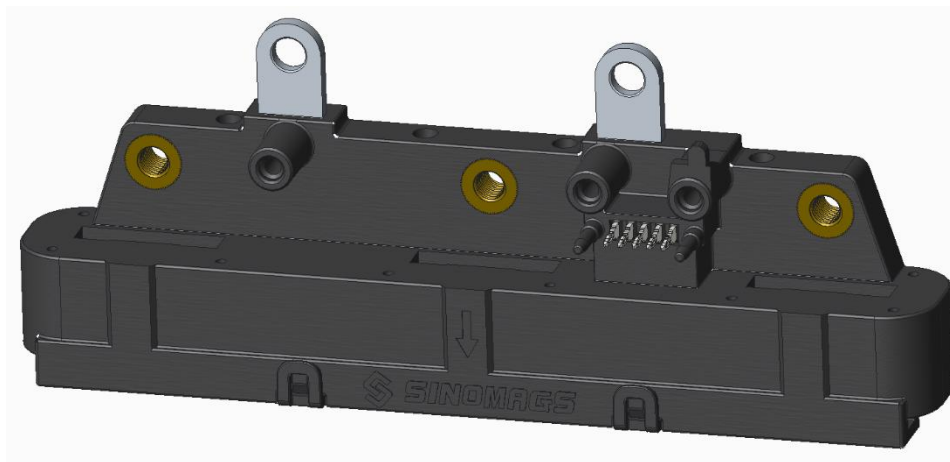


## Current Sensor

Product Series: SHK-VBS-T

Part number:  
SHK-VBS-T6-800-S3  
SHK-VBS-T6-900-S3  
SHK-VBS-T6-1000-S3  
SHK-VBS-T6-1100-S3  
SHK-VBS-T6-1200-S3

Version: Ver 1.2



Sinomags Technology Co., Ltd

Web site: [www.sinomags.com](http://www.sinomags.com)

## CONTENT

1.	Description .....	2
2.	Electrical data .....	3
3.	Dimension & Pin definitions .....	5

## 1. Description

The SHK-VBS-T6 current sensor is based on Hall and 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
- Electric welder power supply
- Inverter
- Switched model power supplies (SMPS)

### General parameter

Parameter	Symbol	Unit	Value
Working temperature	$T_a$	°C	-40 ~ 125
Storage temperature	$T_{stg}$	°C	-40 ~ 125
Mass	m	g	126

### Absolute maximum rating

Parameter	Symbol	Unit	Value
Supply voltage	$V_{cc}$	V	-0.5 ~ 8 (Not operating)
			6.5
Electrostatic discharge voltage	$U_{ESD\ HBM}$	kV	8

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
Insulation voltage	$U_d$	kV	2.5	RMS voltage for AC test 50Hz-1 min
Insulation resistance	$R_{INS}$	MΩ	500	500 V DC, ISO 16750
Clearance distance (pri. -sec)	$d_{Cl}$	mm	4	Shortest distance through air
Creepage distance (pri. -sec)	$d_{Cp}$	mm	5.1	Shortest path along device body
Comparative tracking index	CTI		PLC 3	
Case material			V0 according to UL 94	

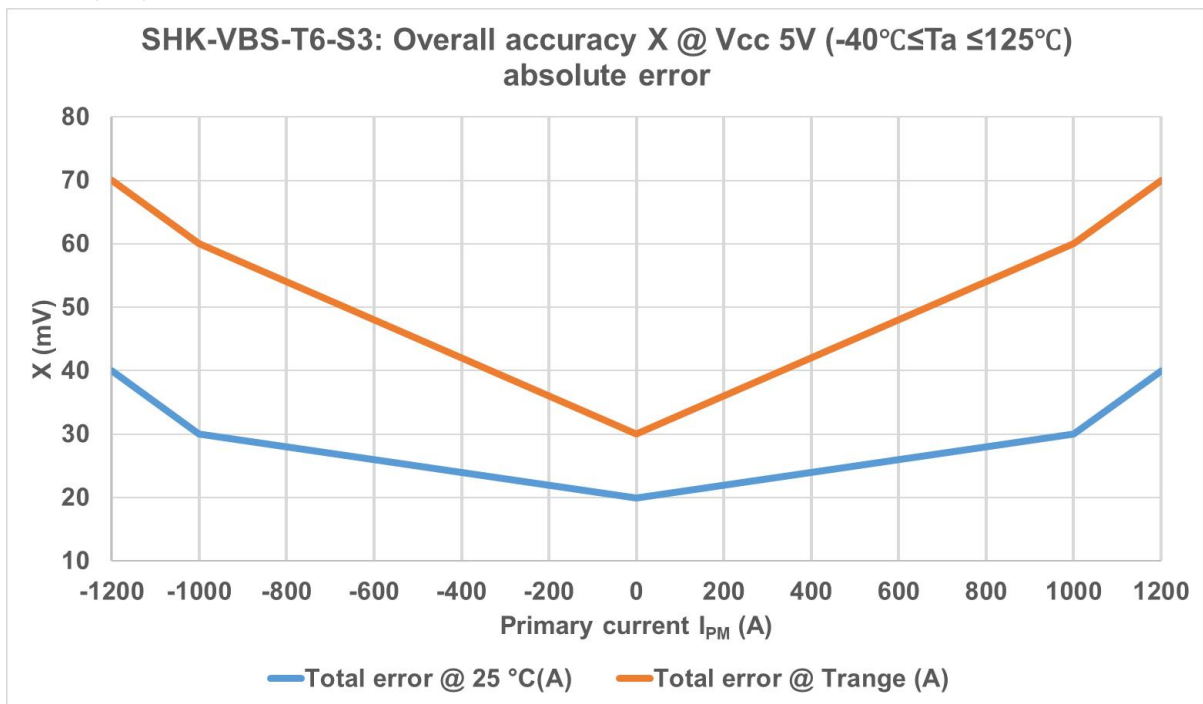
## 2. Electrical data

 Condition:  $T_a = 25^\circ\text{C}$ ,  $V_{CC} = 5.0\text{V}$ 

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary current measuring range	$I_{PM}$	A	-800		800	SHK-VBS-T6-800-S3
			-900		900	SHK-VBS-T6-900-S3
			-1000		1000	SHK-VBS-T6-1000-S3
			-1100		1100	SHK-VBS-T6-1100-S3
			-1200		1200	SHK-VBS-T6-1200-S3
Supply voltage	$V_{CC}$	V	4.75	5	5.25	All
Current consumption	$I_{CC}$	mA		45	60	@ $V_{CC} = 5.0\text{V}$
Output voltage	$V_{OUT}$	V	$(V_{CC}/5) \times (V_{off} + G \times I_P)$			@ $T_a = 25^\circ\text{C}$
Quiescent voltage	$V_{off}$	V		2.5		@ $T_a = 25^\circ\text{C}$ , $V_{CC} = 5.0\text{V}$
Sensitivity	G	mV/A		2.50		SHK-VBS-T6-800-S3
				2.22		SHK-VBS-T6-900-S3
				2.00		SHK-VBS-T6-1000-S3
				1.82		SHK-VBS-T6-1100-S3
				1.67		SHK-VBS-T6-1200-S3
Load resistance	$R_L$	k $\Omega$	10			
Ratiometricity error	$\epsilon_r$	%		$\pm 0.5$		@ $4.75\text{V} \leq V_{CC} \leq 5.25\text{V}$
Sensitivity error	$\epsilon_G$	%		$\pm 1$		@ $T_a = 25^\circ\text{C}$ , $V_{CC} = 5.0\text{V}$
Electrical offset voltage error	$V_{OE}$	mV		$\pm 2.0$		@ $T_a = 25^\circ\text{C}$ , $V_{CC} = 5.0\text{V}$
Magnetic offset voltage error	$V_{OM}$	mV		$\pm 2.0$		@ $T_a = 25^\circ\text{C}$ , $V_{CC} = 5.0\text{V}$ , after $\pm I_{PM}$
Ave. Temp. coefficient of $V_{OE}$	$TCV_{OEAV}$	mV/ $^\circ\text{C}$		$\pm 0.04$		@ $-40^\circ\text{C} \leq T_a \leq 125^\circ\text{C}$
Ave. Temp. coefficient of S	$TCS_{AV}$	%/ $^\circ\text{C}$		$\pm 0.02$		@ $-40^\circ\text{C} \leq T_a \leq 125^\circ\text{C}$
Linearity error	$\epsilon_L$	% $I_P$	-1		1	% of Full range, $-1000\text{A} < I_P < 1000\text{A}$
			-2		2	% of Full range, $1000\text{A} <  I_P  < 1200\text{A}$

Accuracy @ 25°C	E <sub>TOT</sub>	% of I <sub>P</sub>	-1.5		1.5	@ T <sub>a</sub> = 25°C, V <sub>CC</sub> = 5.0 V -1000 A < I <sub>P</sub> < 1000 A
			-2		2	@ T <sub>a</sub> = 25°C, V <sub>CC</sub> = 5.0 V 1000 A <  I <sub>P</sub>   < 1200 A
Accuracy @ -40°C ~ 125°C	E <sub>TOT</sub>	% of I <sub>P</sub>	-3		3	@ -40°C ≤ T <sub>a</sub> ≤ 125°C, V <sub>CC</sub> = 5.0 V -1000 A < I <sub>P</sub> < 1000 A
			-3.5		3.5	@ -40°C ≤ T <sub>a</sub> ≤ 125°C, V <sub>CC</sub> = 5.0 V 1000 A <  I <sub>P</sub>   < 1200 A
Response time	T <sub>r</sub>	μs		2	6	@ 90% of I <sub>PM</sub>
Frequency bandwidth (-3 dB)	BW	kHz	40			No RC circuit
Output voltage noise	V <sub>no</sub>	mVpp		20		@ DC ~ 10 kHz

Total error(mV) for I<sub>P</sub>



Overall accuracy X specification						
I <sub>PM</sub> (A)	@T <sub>a</sub> =25°C, V <sub>CC</sub> =5.0V			@-40°C ≤ T <sub>a</sub> ≤ 125°C, V <sub>CC</sub> =5.0V		
-1200	40mV	24A	2.00%	70mV	42A	3.50%
-1000	30mV	18A	1.50%	60mV	36A	3.00%
-800	20mV	12A	1.00%	30mV	18A	1.50%
0	20mV	12A	1.00%	30mV	18A	1.50%
800	20mV	12A	1.00%	30mV	18A	1.50%
1000	30mV	18A	1.50%	60mV	36A	3.00%
1200	40mV	24A	2.00%	70mV	42A	3.50%

### 3. Dimension & Pin definitions

