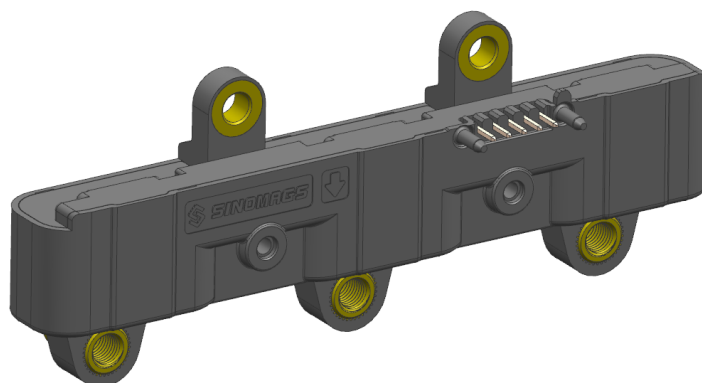


## Current Sensor

Product Series: SHK-VBS-TL

Part number: SHK-VBS-TL-800-S8  
SHK-VBS-TL-1000-S8  
SHK-VBS-TL-1200-S8

Version: Ver 1.0



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## 1. Description

The SHK-VBS-T 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

- Electrical Power Steering
- Converters
- Motor drive application
- Battery Management

### General parameter

Parameter	Symbol	Unit	Value
Working temperature	$T_a$	°C	-40 ~ 125
Storage temperature	$T_{stg}$	°C	-40 ~ 125
Mass	m	g	90

### Absolute maximum rating

Parameter	Symbol	Unit	Value
Supply voltage	Vcc	V	-0.3 ~ 10 (Not operating)
			6.5
Electrostatic discharge voltage	$U_{ESD}$	kV	8 (HBM)

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	2.8	RMS voltage for AC test 50Hz/1 min
Insulation resistance	$R_{is}$	MΩ	500	DC 1kV/1 min
Clearance distance (pri. -sec)	$d_{Cl}$	mm	9	Shortest distance through air
Creepage distance (pri. -sec)	$d_{Cp}$	mm	9	Shortest path along device body
Comparative tracking index	CTI	V	600	IEC60112
Case material			V0 according to UL 94	

### Selection Guide

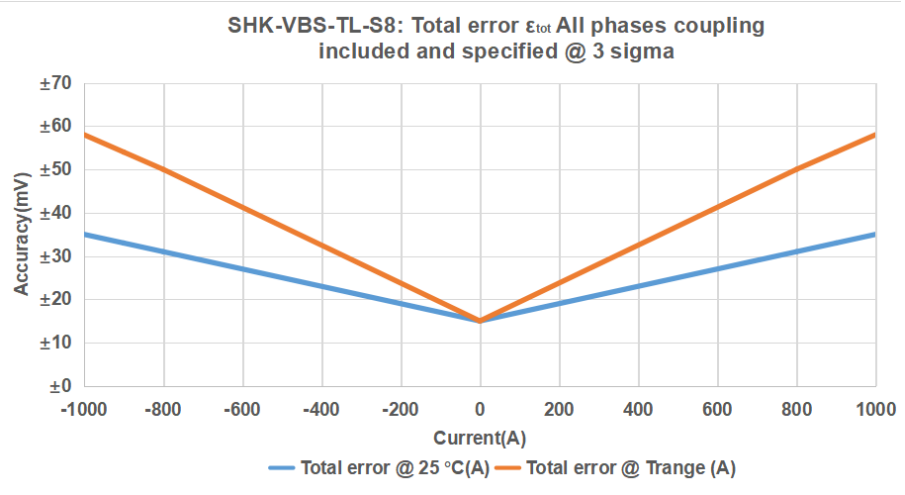
Product	Nominal current	Measuring range
SHK-VBS-TL-800-S8	800 A	800 A
SHK-VBS-TL-1000-S8	1000 A	1000 A
SHK-VBS-TL-1200-S8	1200 A	1200 A

## 2. Electrical data

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary current measuring range	$I_{PM}$	A	-800		800	SHK-VBS-TL-800-S8
			-1000		1000	SHK-VBS-TL-1000-S8
			-1200		1200	SHK-VBS-TL-1200-S8
Supply voltage	$V_{CC}$	V	4.75	5	5.25	
Current consumption	$I_{CC}$	mA		40	50	@ $V_{CC} = 5.0\text{ V}$
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		2.5		SHK-VBS-TL-800-S8
				2.00		SHK-VBS-TL-1000-S8
				1.67		SHK-VBS-TL-1200-S8
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	$\epsilon_G$	%		$\pm 0.6$		@ $T_a = 25^\circ\text{C}$ , $V_{CC} = 5.0\text{ V}$
Electrical offset voltage error	$V_{OE}$	mV		$\pm 4$		@ $T_a = 25^\circ\text{C}$ , $V_{CC} = 5.0\text{ V}$
Magnetic offset voltage error	$V_{OM}$	mV		$\pm 3$		@ $T_a = 25^\circ\text{C}$ , $V_{CC} = 5.0\text{ V}$ , after $\pm I_{PM}$
Ave. Temp. coefficient of $V_{OE}$	$TCV_{OEAV}$	mV/ $^\circ\text{C}$		$\pm 0.05$		@ $-40^\circ\text{C} \leq T_a \leq 125^\circ\text{C}$
Ave. Temp. coefficient of G	$TCG_{AV}$	%/ $^\circ\text{C}$		$\pm 0.03$		@ $-40^\circ\text{C} \leq T_a \leq 125^\circ\text{C}$
Linearity	$\epsilon_L$	%		$\pm 1$		@ $T_a = 25^\circ\text{C}$ , $V_{CC} = 5.0\text{ V}$ , $-1000\text{ A} < I_P < 1000\text{ A}$
Response time	$T_r$	$\mu\text{s}$		2	6	@ 90% of $I_{PM}$
Frequency bandwidth (-3 dB)	BW	kHz	40			No RC circuit
Output voltage noise	$V_{no\ pp}$	mV		10		@ DC ~ 140 kHz

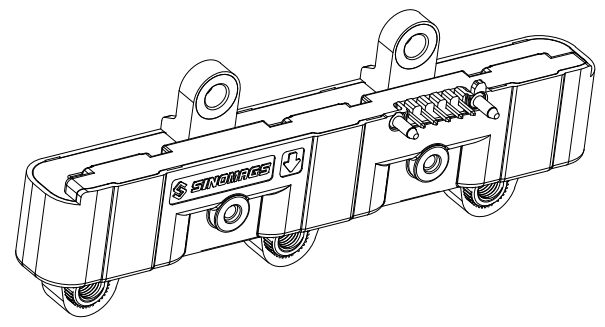
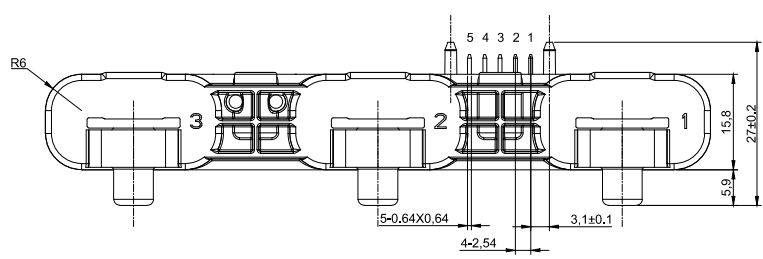
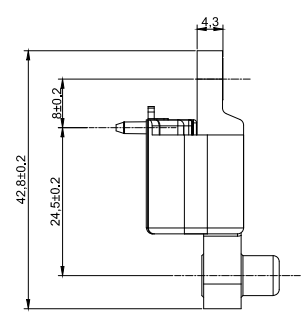
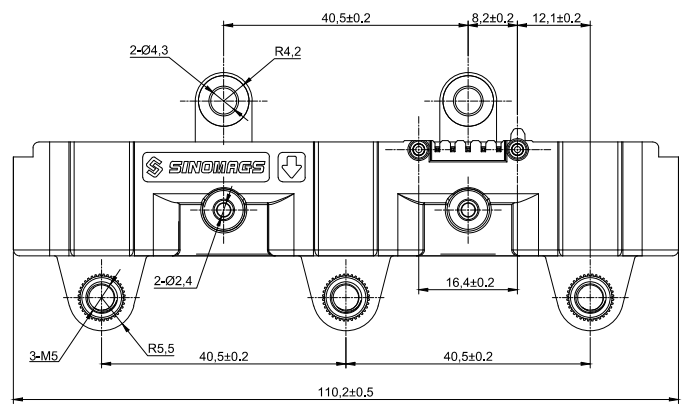
Phase shift	Δφ	°	-4		@ DC ~ 1 kHz
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Total error(mV) for ≤ 1200A

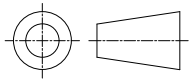


$I_{PM}$ (A)	Total error specification	
	@Ta=25°C, VCC=5.0V (mv)	@-40°C ≤ Ta ≤ 125°C, VCC=5.0V (mv)
1000	±35	±58
900	±33	±54
800	±31	±50
0	±15	±15
-800	±31	±50
-900	±33	±54
-1000	±35	±58

### 3. Dimension & Pin definitions



Material : Fit UL94V-0 & RoHS requirements ;  
 General tolerance :  $\pm 0.5$   
 Unit : mm



Terminals:

Pin1	Vcc
Pin2	GND
Pin3	Output1
Pin4	Output3
Pin5	Output2