



CURRENT SENSOR

PRODUCT SERIES: SHK-VBS8

PRODUCT PART NUMBER: SHK-2000VBS8

VERSION: Ver 1.4



Sinomags Technology Co., Ltd.

Web site: www.sinomags.com

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1. Description

The SHK-VBS8 series current sensor is based on HALL technology 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	155

Absolute maximum rating

Parameter	Symbol	Unit	Value
Supply voltage	V _{cc}	V	8
ESD rating (HBM)	U_ESD	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 _d	kV	2.5	
Clearance distance (pri. -sec)	d _{Cl}	mm	6	
Creepage distance (pri. -sec)	d _{Cp}	mm	6	
Comparative tracking index	CTI		PLC3	
Case material			V0 according to UL 94	

Measuring current table

Product	Optimized Range I _{pm} (A)	Sensitivity, (mV/A)	T(°C)
SHK-2000VBS8	±2000A	1	-40 ~ 125

2. Electrical data

Condition: $V_{CC} = 5.0\text{ V}$, $T_A = 25^\circ\text{C}$, unless specified.

Parameter	Symbol	Unit	Min	Typ	Max	Comment	Conditions
Primary nominal current	I_{PN}	A		2000		SHK-2000VBS8	
Current range (refer remark)	I_{PM}	A	-2000		2000	SHK-2000VBS8	
Supply voltage	V_{CC}	V		$5 \pm 5\%$		SHK-2000VBS8	
Current consumption	I_{CC}	mA		15		SHK-2000VBS8	@ $T_A=25^\circ\text{C}$, @ $U_C=5\text{ V}$
Quiescent voltage $V_{out} @ 0\text{ A}$	V_{off}	V	$V_{CC}/2 - 0.013$	$V_{CC}/2$	$V_{CC}/2 + 0.013$	SHK-2000VBS8	
Peak output voltage ($V_{out} @ \pm I_{PM}$) - V_{off}	V_{FS}	V		± 2		SHK-2000VBS8	@ $T_A=25^\circ\text{C}$, @ $U_C=5\text{ V}$
Internal output resistance	R_{out}	Ω		5		V_{out}	DC to 1KHz
Load resistance	R_L	K Ω	10			SHK-2000VBS8	
Theoretical gain (Typ)	G_{th}	mV/A		1		SHK-2000VBS8	@ $U_C=5\text{ V}$, @ $T_A=25^\circ\text{C}$
Rated linearity error	Non-L	% I_{PN}		± 1		$\pm I_{PN}$	@ $T_A=25^\circ\text{C}$
Step response time	t_{res}	μs		3.5		@90% of I_{PN}	$di/dt=100\text{ A}/\mu\text{s}$
Frequency bandwidth	BW	kHz	40			No RC circuit	@ -3dB

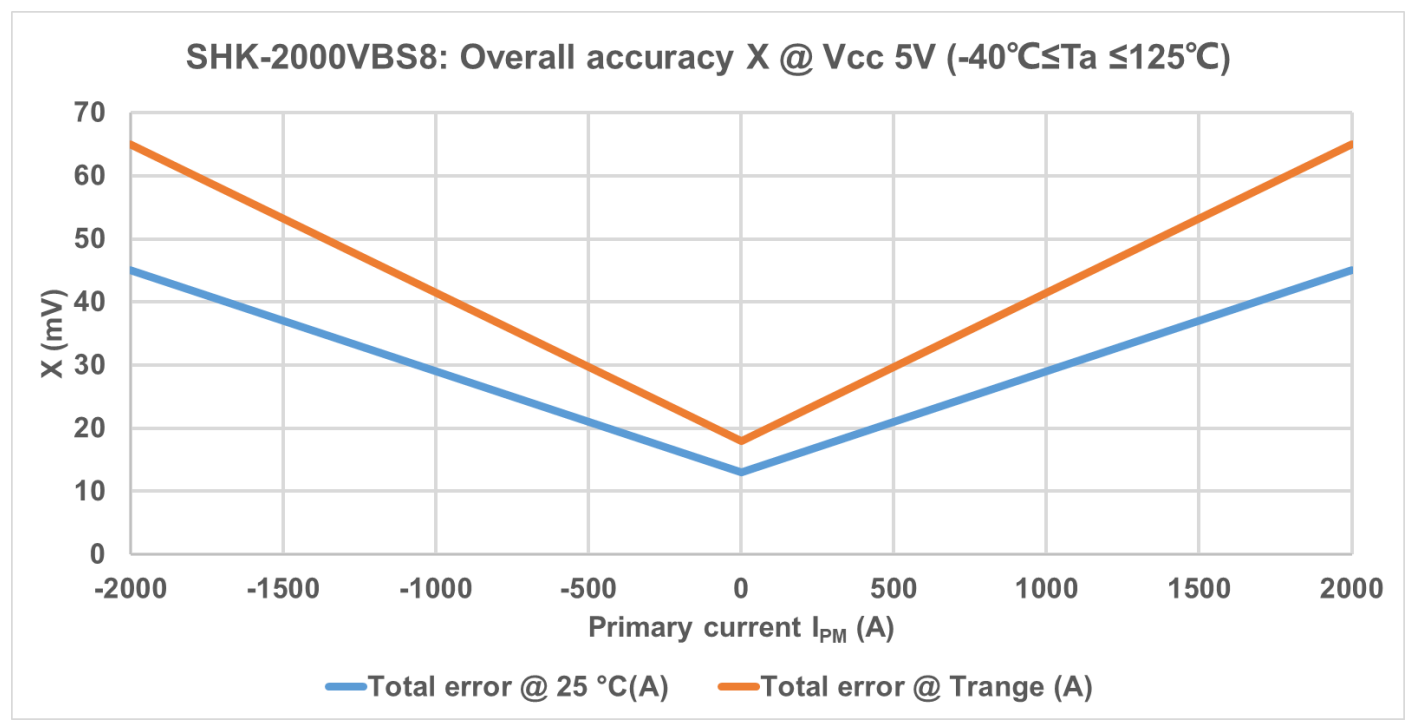
(-3dB)							
Output voltage noise DC ~ 10 kHz DC ~ 100 kHz	Vnoise	mVpp		10 30		SHK-2000VBS8	@14KHz noise filter @140KHz noise filter
Temperature coefficient of V_{off}	TCV_{off}	mV	-18		18	SHK-2000VBS8	@-40°C<T<125°C
Accuracy @ 25°C	X	% of I_{PM}		± 2.25		All	@ $U_C=5V$
Accuracy @ -40°C ~ 125°C	X_TRange	% of I_{PM}	-3.25		3.25	All	@ $U_C=5V$

Note:

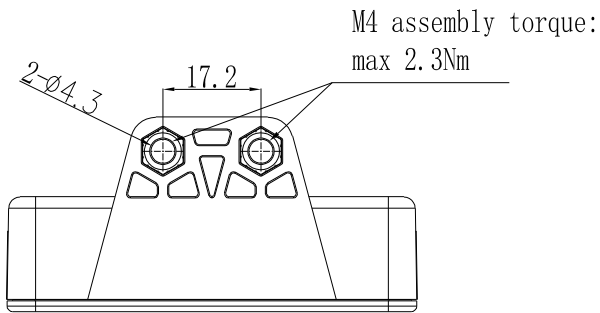
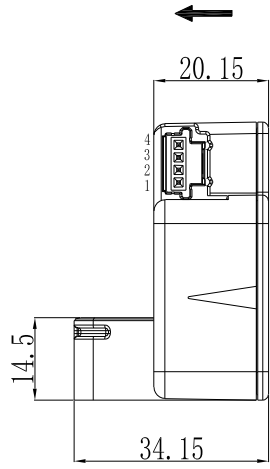
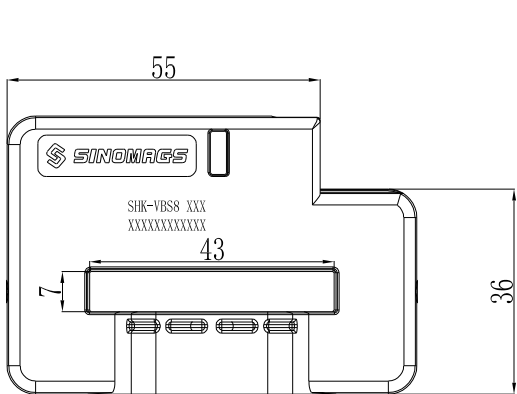
1. Accuracy @ RT, $X = ((V_{out} @ I_n @ 25^\circ C) - (G_{fit} * I_n + V_{off} @ 25^\circ C)) / V_{FS}$, Here I_n is the current test current. G_{fit} is the normal temperature fitting gain.
2. Accuracy, X_TRange = $((V_{out} @ I_n @ T_x) - (G_{fit}@25^\circ C * I_n + V_{off} @ 25^\circ C)) / V_{FS}$, The fitting gain of the product at $G_{fit}@25^\circ C$ is $25^\circ C$.

Accuracy table: SHK-2000VBS8:

Overall accuracy X specification						
I _{PM} (A)	@T _a = 25°C, V _{CC} = 5.0 V			@-40°C ≤ T _a ≤ 125°C, V _{CC} = 5.0 V		
-2000	45 mV	45 A	2.25%	65 mV	65 A	3.25%
0	13 mV	13 A	0.65%	18 mV	18 A	0.9%
2000	45 mV	45 A	2.25%	65 mV	65 A	3.25%



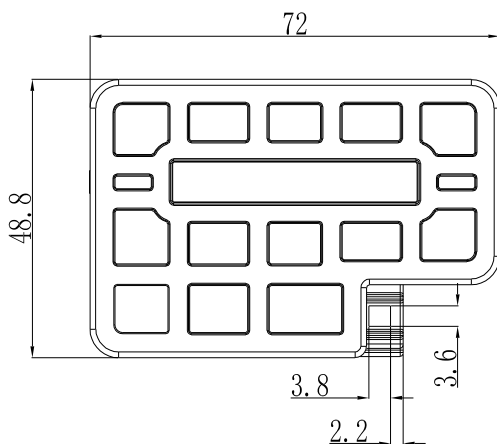
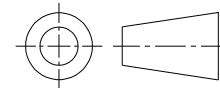
3. Dimension & Pin definitions



Terminals:

1	Vout
2	GND
3	Vcc
4	GND

Material : Fit UL94V-0 & RoHS requirements ;
General tolerance : ±0.5
Unit :mm



Mechanical characteristics

- 1.Connector type:TYCO connector P/N 1473672-1
- 2.Material:
Housing: PA66 with 30% GF,UL 94V-0,Black color.
Contacts: brass,H62, HV 116,0.64mm quadrilateral
- 3.Finish:
Contacts: Matte-tin 3.0um min 5.0um max on solder tail ,
with entire contact underplated 4.0um min 5.0um max.
Nickel-palladium alloy