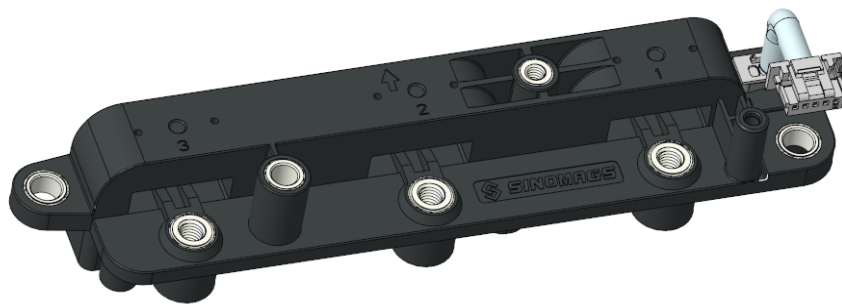


Current Sensor

Product Series: SHK-VBS-T

Part number: SHK-VBS-TU-1000-S3

Version: Ver 1.3



Sinomags Technology Co., Ltd

Web site: www.sinomags.com

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1. Description

The SHK-VBS-TU-S3 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	144

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

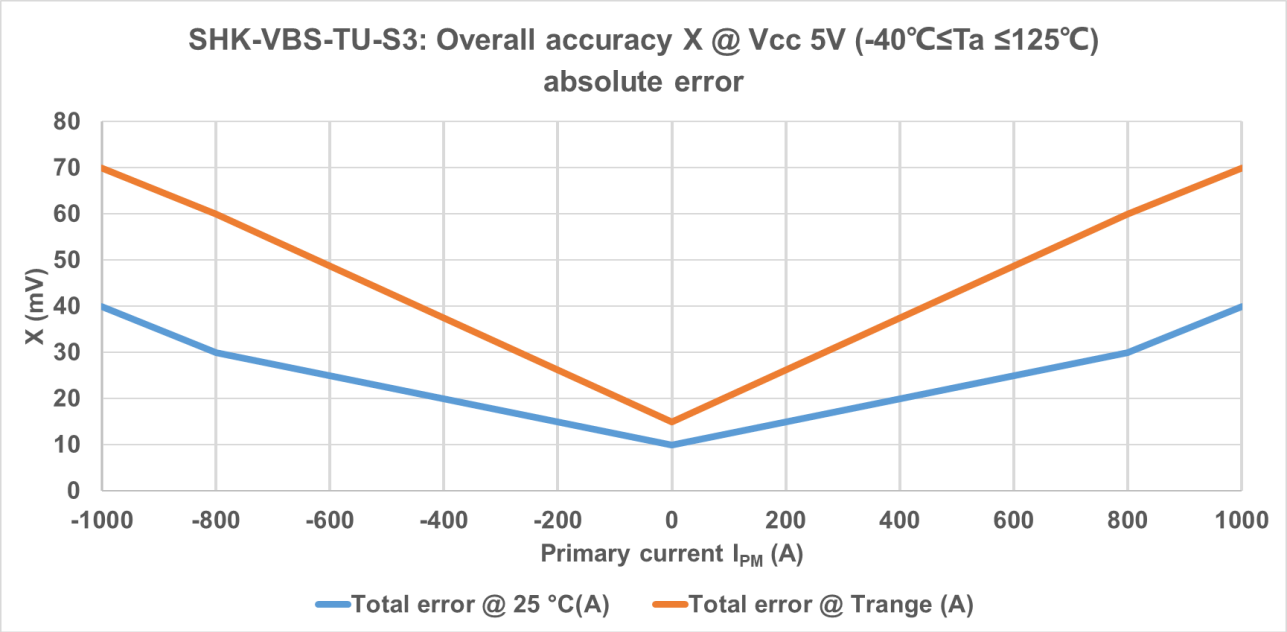
Parameter	Symbol	Unit	Value	Comment
Insulation voltage	U_d	kV	2.5	RMS voltage for AC test 50Hz-1 min
Insulation resistance	R_{INS}	MΩ	500	DC 500V, ISO 16750
Clearance distance (pri. -sec)	d_{Cl}	mm	5.1	Shortest distance through air
Creepage distance (pri. -sec)	d_{Cp}	mm	5.1	Shortest path along device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

2. Electrical data

Condition : T_a = 25℃, V_{CC} = 5.0 V

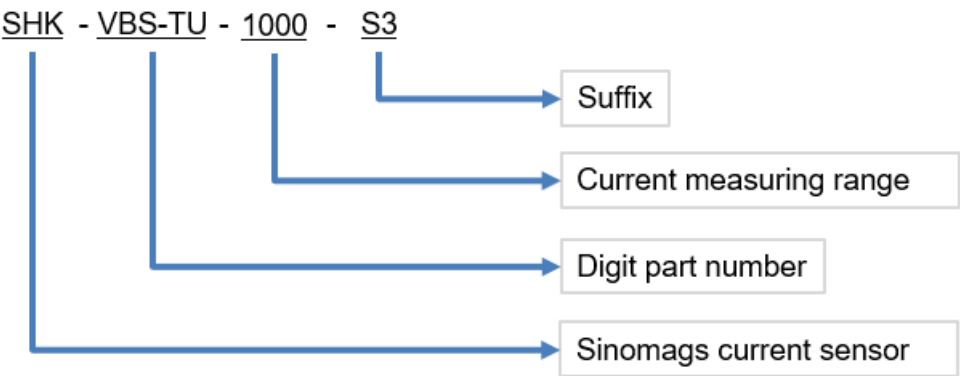
Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary current measuring range	I _{PM}	A	-1000		1000	SHK-VBS-TU-1000-S3
Supply voltage	V _{CC}	V	4.75	5	5.25	All
Current consumption	I _{CC}	mA		39	60	@ V _{CC} = 5.0 V
Output voltage	V _{OUT}	V	(V _{CC} /5)×(V _{off} +G×I _{PM})			@ T _a = 25℃
Quiescent voltage	V _{off}	V		2.5		@ T _a = 25℃, V _{CC} = 5.0 V
Sensitivity	G	mV/A		2.00		SHK-VBS-TU-1000-S3
Load resistance	R _L	kΩ	10			
Ratiometricity error	ε _r	%		±0.5		@ 4.75V ≤ V _{CC} ≤ 5.25V
Sensitivity error	ε _G	%		±1		@ T _a = 25℃, After T ° Cycles
Electrical offset voltage error	V _{OE}	mV		±4.0		@ T _a = 25℃, V _{CC} = 5.0 V
Magnetic offset voltage error	V _{OM}	mV	-7.5		7.5	@ T _a = 25℃, V _{CC} = 5.0 V
Ave. Temp. coefficient of V _{OE}	TCV _{OEAV}	mV/℃	-0.08		0.08	@ -40℃<T _a <125℃
Ave. Temp. coefficient of S	TCS _{AV}	%/℃	-0.03	±0.01	0.03	@ -40℃<T _a <125℃
Linearity error	ε _L	% I _P	-1		1	of Full range, -1000 A ≤ I _P ≤ 1000 A @ T _a = 25℃, V _{CC} = 5.0 V
Response time	T _r	μs		2	6	@ 90% of I _{PM}
Frequency bandwidth (-3 dB)	BW	kHz	40			No RC circuit
Output voltage noise	V _{no}	mVpp		20		@ DC ~ 10 kHz

Total error(mV) for ≤1000A

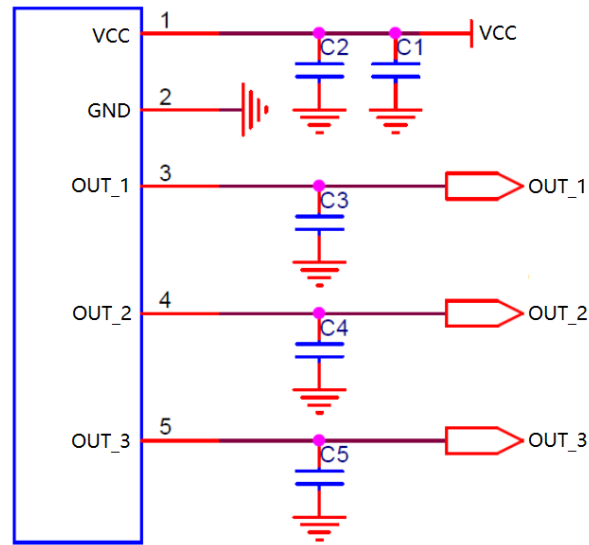


Overall accuracy X specification(mV)				
$I_{PM}(A)$	@Ta=25°C, VCC=5.0V		@-40°C≤Ta≤125°C, VCC=5.0V	
1000	40	±2%	70	±3.5%
800	30	±1.5%	60	±3%
0	10	±0.5%	15	±0.75%
-800	30	±1.5%	60	±3%
-1000	40	±2%	70	±3.5%

3. Product definition statement



4. Electrical circuit diagram



Remarks:

Capacitor recommended specification:

C1	1uF
C2	100nF
C3、C4、C5	1nf

5. Dimension & Pin definitions

