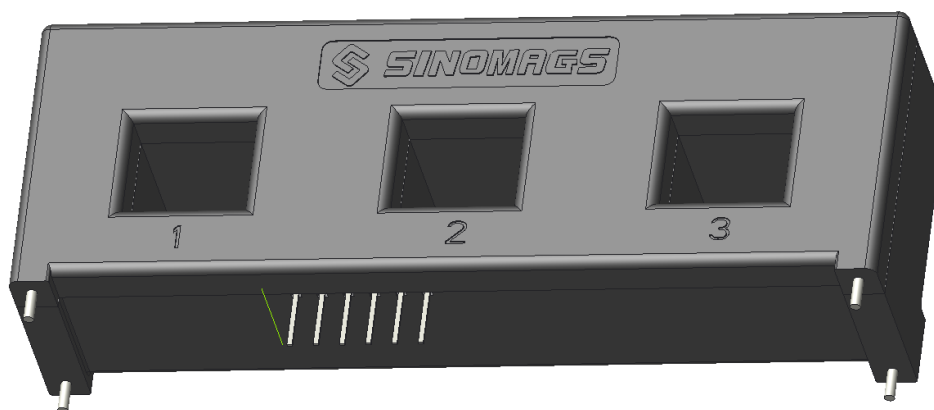


Current Sensor

Product Series: SHK-VBS-TG

Part number: SHK-VBS-TG-50-S2、
SHK-VBS-TG-100-S2、
SHK-VBS-TG-150-S2、
SHK-VBS-TG-200-S2

Version: Ver1.2



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1. Description

The SHK-VBS-TG 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	$^{\circ}\text{C}$	-40 ~ 125
Storage temperature	T_{stg}	$^{\circ}\text{C}$	-40 ~ 125
Mass	m	g	62.8

Absolute maximum rating

Parameter	Symbol	Unit	Value
Supply voltage	Vcc	V	$\pm 16\text{V}$
Electrostatic discharge voltage	$U_{\text{ESD HBM}}$	kV	2

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}	M Ω	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: $T_a = 25^\circ\text{C}$, $V_{CC} = \pm 15\text{ V}$

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary current measuring range	I_{PM}	A	-50		50	SHK-VBS-TG-50-S2
			-100		100	SHK-VBS-TG-100-S2
			-150		150	SHK-VBS-TG-150-S2
			-200		200	SHK-VBS-TG-200-S2
Saturation Current	I_{PM}	A	-150		150	SHK-VBS-TG-50-S2
			-300		300	SHK-VBS-TG-100-S2
			-450		450	SHK-VBS-TG-150-S2
			-600		600	SHK-VBS-TG-200-S2
Supply voltage	V_{CC}	V	-15		+15	All
Current consumption	I_{CC}	mA	9		60	@ $V_{CC} = \pm 15\text{ V}$
Output voltage	V_{OUT}	V	4			@ $T_a = 25^\circ\text{C}$
Quiescent voltage	V_{off}	V	-0.03	0	0.03	@ $T_a = 25^\circ\text{C}$, $V_{CC} = 5.0\text{ V}$
Sensitivity	G	mV-A		80		SHK-VBS-TG-50-S2
				40		SHK-VBS-TG-100-S2
				26.7		SHK-VBS-TG-150-S2
				20		SHK-VBS-TG-200-S2
Load resistance	R_L	k Ω	10			
Sensitivity error	ϵ_G	%		± 0.5		@ $T_a = 25^\circ\text{C}$
Linearity error	ϵ_L	% I_P		0.5		of Full range @ $T_a = 25^\circ\text{C}$, $V_{CC} = \pm 15\text{ V}$
Linearity Limits error	ϵ_L	% I_P		1.5		of Full range @ $T_a = 25^\circ\text{C}$, $V_{CC} = \pm 15\text{ V}$
Response time	T_r	μs		7	10	@ 90% of I_{PM}
Frequency bandwidth (-3 dB)	BW	kHz		60		No RC circuit
Output voltage noise	V_{no}	mV		8	10	@ DC ~ 10 kHz

Thermal drift of voff	Voff_T	mV	-50		50	@ -40~125℃ Drift related to the Value @25℃
Total Accuracy	X_TRange	% of I_pn	-3		3	

3. Dimension & Pin definitions

