

Current Sensor

Product Series: SHK-VBS5

Part number: SHK-100VBS5 & SHK-200VBS5 &
SHK-300VBS5 & SHK-400VBS5 &
SHK-500VBS5 & SHK-600VBS5 &
SHK-700VBS5 & SHK-800VBS5 &
SHK-900VBS5

VERSION: Ver 2.1



CONTENT

1.	Introduction.....	2
2.	Electrical Data.....	3
3.	Dimension & Pin Definitions.....	5

1. Introduction

The SHK-VBS5 series current sensor is based on Hall technology, and it has an 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
- Motor driver
- Electric welder power supply
- UPS

General parameter

Parameter	Symbol	Unit	Value
Working temperature	T _A	°C	-40 ~ 125
Storage temperature	T _{stg}	°C	-40 ~ 125
Mass	m	g	30

Absolute maximum rating

Parameter	Symbol	Unit	Value
Supply voltage (not-destructive)	V _{CC}	V	6
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	4	
Clearance distance (pri. -sec)	d _{Cl}	mm	4.5	Shortest distance through air
Creepage distance (pri. -sec)	d _{Cp}	mm	4.5	Shortest path along device body
Case material			V0 according to UL 94	

2. Electrical Data

 Condition: $T_A = 25^{\circ}\text{C}$, $V_{cc} = 5\text{V}$

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary nominal current	I_{PN}	A		100		SHK-100VBS5
				200		SHK-200VBS5
				300		SHK-300VBS5
				400		SHK-400VBS5
				500		SHK-500VBS5
				600		SHK-600VBS5
				700		SHK-700VBS5
				800		SHK-800VBS5
				900		SHK-900VBS5
Current range (refer remark)	I_{PM}	A	-100		100	SHK-100VBS5
			-200		200	SHK-200VBS5
			-300		300	SHK-300VBS5
			-400		400	SHK-400VBS5
			-500		500	SHK-500VBS5
			-600		600	SHK-600VBS5
			-700		700	SHK-700VBS5
			-800		800	SHK-800VBS5
			-900		900	SHK-900VBS5
Supply voltage	V_{cc}	V		$5 \pm 5\%$		All
Current consumption	I_{cc}	mA		20		All
Quiescent voltage $V_{out} @ 0\text{A}$	V_{off}	V	$V_{cc}/2 - 0.025$	$V_{cc}/2$	$V_{cc}/2 + 0.025$	$V_{out} @ 0\text{A}$
Peak output voltage ($V_{out} @ \pm I_{PM}$) - V_{off}	V_{FS}	V		± 2		All
Internal output resistance	R_{out}	Ω		5		V_{out}
Theoretical gain (Typ)	G_{th}	mV/A		20		SHK-100VBS5
				10		SHK-200VBS5
				6.66		SHK-300VBS5
				5		SHK-400VBS5
				4		SHK-500VBS5
				3.33		SHK-600VBS5
				2.85		SHK-700VBS5
				2.5		SHK-800VBS5
				2.22		SHK-900VBS5

Rated linearity error	Non-L	% I _{PN}		± 1		±I _{PN}
Step response time	t _{res}	μs		3.5		@90% of I _{PN}
Frequency bandwidth (-3dB)	BW	kHz		100		No RC circuit
Output voltage noise DC ~ 10 kHz DC ~ 100 kHz	Vnoise	mVpp		20 30		All
Accuracy @ 25°C	X	% of I _{PM}		± 1		All
Accuracy @ -40°C ~ 125°C	X_TRange	% of I _{PM}		± 3		All

3. Dimension & Pin Definitions

