

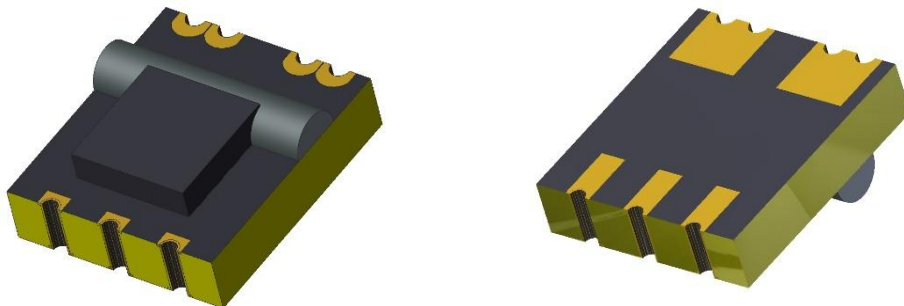
## Current Sensor

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Product Series: STK-616V

Part number: STK-616V-50AB  
STK-616V-100AB

Version: Ver 1.2



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## 1. Description

The STK-616V series current sensor is based on TMR (tunnel magnetoresistance) 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
- Inverter
- Power supply

### General parameter

Parameter	Symbol	Unit	Value
Working temperature	T_A	°C	-40 ~ 125
Storage temperature	T_stg	°C	-40 ~ 125
Mass	m	g	0.5

### Absolute maximum rating

Parameter	Symbol	Unit	Value
Supply voltage	Vcc	V	6
ESD rating (HBM)	U_ESD	kV	2
Junction temperature	T_J	°C	150

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 50 Hz, 1 min	Ud	kV	1	
Clearance distance (pri. -sec)	dCl	mm	1.2	Refer the PCB layout recommendation
Creepage distance (pri. -sec)	dCp	mm	1.2	

### Measuring current table

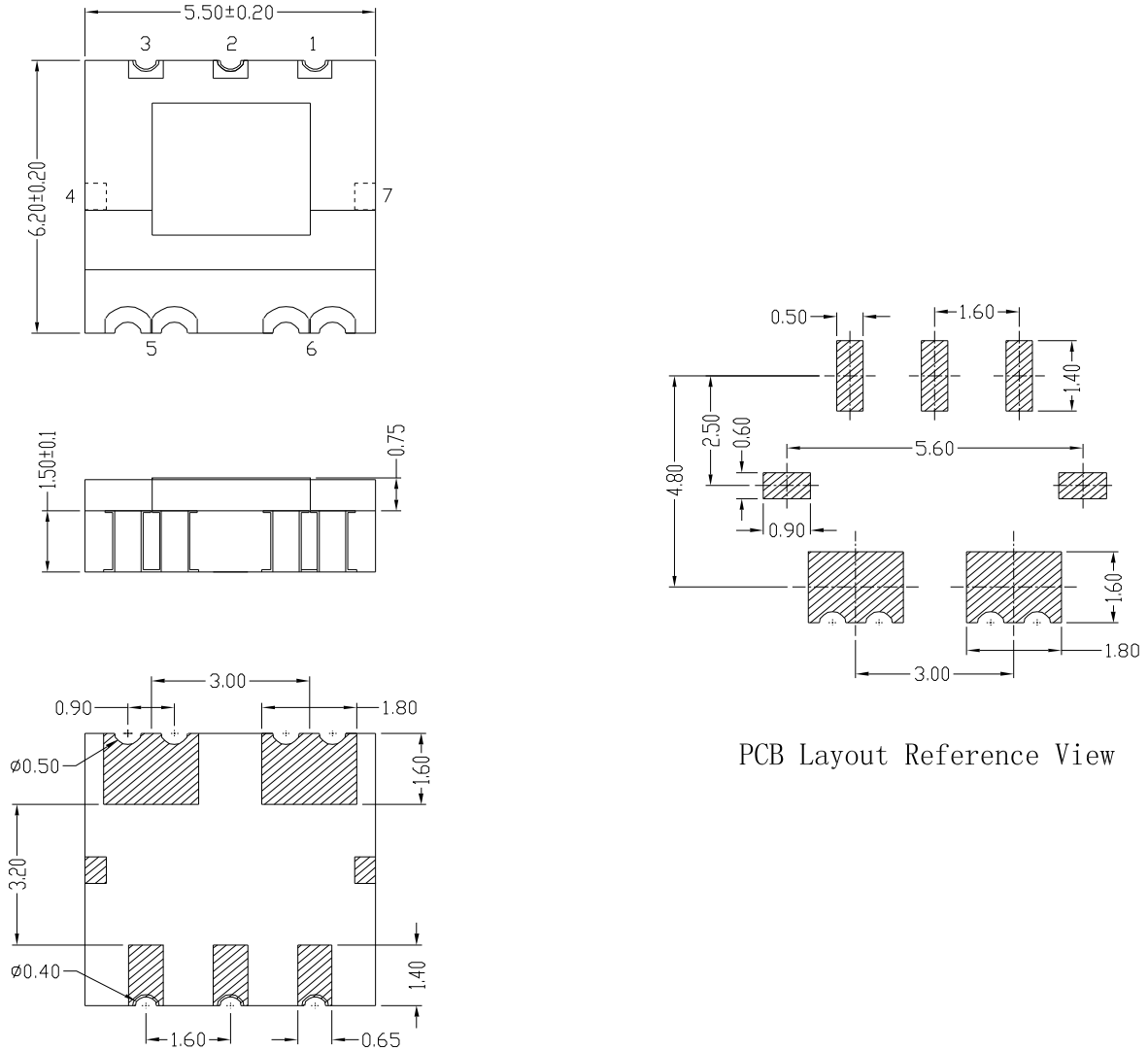
Part number	Current Range	Sensitivity (mV/A)	T (°C)
STK-616V-50AB	±50 A	40	-40 ~ 125
STK-616V-100AB	±100 A	20	-40 ~ 125

## 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 <sub>pn</sub>	A		25		STK-616V-50AB
				50		STK-616V-100AB
Current range	I <sub>pm</sub>	A	-50		50	STK-616V-50AB
			-100		100	STK-616V-100AB
Supply voltage	V <sub>cc</sub>	V	4.75	5	5.25	
Current consumption	I <sub>cc</sub>	mA		6		
Quiescent voltage	V <sub>off</sub>	V	2.45	2.5	2.55	V <sub>out</sub> @ I <sub>pn</sub> = 0 A
Internal output resistance	R <sub>out</sub>	Ω	1		30	
GAIN	G <sub>th</sub>	mV/A		40		STK-616V-50AB
				20		STK-616V-100AB
Step response time	t <sub>res</sub>	μs		3.5		@90% of I <sub>pn</sub>
Frequency bandwidth (-3dB)	BW	kHz		150		No RC circuit
Noise	I <sub>noise</sub>	mArms		40		DC ~ 100 kHz
Non-linearity @ 25°C	ξ	% of I <sub>pn</sub>		±1.5		@ 25°C
Thermal drift of G <sub>th</sub> @ -40°C~85°C	GAIN <sub>T</sub>	% of G <sub>th</sub>		±1.5		Draft value related to the value @ 25°C
Thermal drift of V <sub>off</sub> @ -40°C~105°C	V <sub>off_T</sub>	mV		±20		
Total Accuracy @ -40°C~105°C	X <sub>T</sub>	% of I <sub>pn</sub>		±3.5		

### 3. Dimensions



### 4. Pin definitions

PIN	Symbol	Description
1	VCC	Power supply pin
2	GND	Ground pin (GND)
3	VOUT	Sensor output pin
4	NC	NC
5	IP+	Primary conductor pin ( + )
6	IP-	Primary conductor pin ( - )
7	NC	NC

5. Continues current vs working temperature

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