

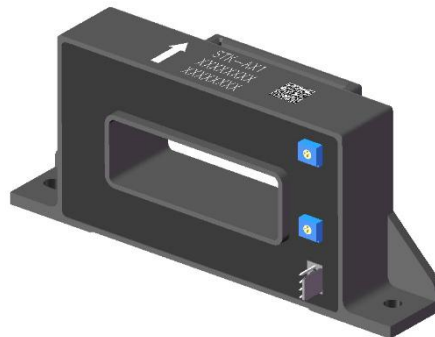
## Current Sensor

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Product Series: STK-AX1

Part number: STK-500AX1 & STK-600AX1 &  
STK-850AX1 & STK-1000AX1 &  
STK-1500AX1 & STK-2000AX1 &  
STK-2500AX1

VERSION: Ver 2.1



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## 1. Introduction

STK-AX1 series current sensor is based on Hall, 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

- Battery supplied applications
- Motor driver
- Electric welder power supply
- UPS

### General parameter

Parameter	Symbol	Unit	Value
Working temperature	T <sub>A</sub>	°C	-40 ~ 85
Storage temperature	T <sub>stg</sub>	°C	-40 ~ 85
Mass	m	g	450

### Absolute maximum rating

Parameter	Symbol	Unit	Value
Supply voltage (not-destructive)	V <sub>CC</sub>	V	± 18
ESD rating (HBM)	U <sub>ESD</sub>	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 <sub>d</sub>	kV	5	
Clearance distance (pri. -sec)	d <sub>Cl</sub>	mm	15.7	Shortest distance through air
Creepage distance (pri. -sec)	d <sub>Cp</sub>	mm	15.7	Shortest path along device body
Case material			V0 according to UL 94	

## 2. Electrical Data

 Condition:  $T_A = 25^{\circ}\text{C}$ ,  $V_{cc} = \pm 12 \sim \pm 15\text{V}$ 

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary nominal current	$I_{PN}$	A		500		STK-500AX1
				600		STK-600AX1
				850		STK-850AX1
				1000		STK-1000AX1
				1500		STK-1500AX1
				2000		STK-2000AX1
				2500		STK-2500AX1
Current range (refer remark)	$I_{PM}$	A	-1500		1500	STK-500AX1
			-1800		1800	STK-600AX1
			-2550		2550	STK-850AX1
			-3000		3000	STK-1000AX1
			-4500		4500	STK-1500AX1
			-5500		5500	STK-2000AX1
			-5500		5500	STK-2500AX1
Supply voltage	$V_{cc}$	V		$\pm 12 \sim \pm 15$		STK-500AX1 STK-600AX1 STK-850AX1 STK-1000AX1 STK-1500AX1 STK-2000AX1 STK-2500AX1
Current consumption	$I_{cc}$	mA		$\pm 20$		All
Quiescent voltage $V_{out} @ 0\text{A}$	$V_{off}$	V	-0.04	0	0.04	STK-500AX1 STK-600AX1 STK-850AX1 STK-1000AX1 STK-1500AX1 STK-2000AX1 STK-2500AX1
Peak output voltage ( $V_{out} @ \pm I_{PN}$ ) - $V_{off}$	$V_{FS}$	V		$\pm 4$		STK-500AX1 STK-600AX1 STK-850AX1 STK-1000AX1 STK-1500AX1 STK-2000AX1 STK-2500AX1
Internal output	$R_{out}$	$\Omega$		100		$V_{out}$

resistance						
Theoretical gain (Typ)	G <sub>th</sub>	mV/A		8		STK-500AX1
				6.66		STK-600AX1
				4.7		STK-850AX1
				4		STK-1000AX1
				2.66		STK-1500AX1
				2		STK-2000AX1
				1.6		STK-2500AX1
Rated linearity error	Non-L	% I <sub>PN</sub>		± 1		±I <sub>PN</sub>
Step response time	t <sub>res</sub>	μs		5		@90% of I <sub>PN</sub>
Frequency bandwidth (-3dB)	BW	kHz		25		No RC circuit
Output voltage noise DC ~ 10 kHz DC ~ 100 kHz	Vnoise	mVpp		20		STK-500AX1 STK-600AX1 STK-850AX1 STK-1000AX1 STK-1500AX1 STK-2000AX1 STK-2500AX1
				30		
Accuracy @ 25°C	X	% of I <sub>PN</sub>		± 1		All
Temperature coefficient of V <sub>OE</sub>	TCV <sub>OE</sub>	mV/K		± 1		@ -40°C ~ 85°C
Temperature coefficient of V <sub>OUT</sub>	TCV <sub>OUT</sub>	%/K		± 0.1		@ -40°C ~ 85°C

### 3. Dimension & Pin Definitions

