

Current Sensor

Product Series: STK-BS/T

Part number: STK-200BS/T & STK-400BS/T &
STK-500BS/T & STK-600BS/T &
STK-750BS/T & STK-800BS/T &
STK-1000BS/T & STK-1200BS/T &
STK-1500BS/T

VERSION: Ver 2.8



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1. Introduction

STK-BS/T 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 _A	°C	-40 ~ 85
Storage temperature	T _{stg}	°C	-40 ~ 85
Mass	m	g	300

Absolute maximum rating

Parameter	Symbol	Unit	Value
Supply voltage (not-destructive)	V _{CC}	V	±18
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	4.9	
Clearance distance (pri. -sec)	d _{Cl}	mm	7.9	Shortest distance through air
Creepage distance (pri. -sec)	d _{Cp}	mm	16	Shortest path along device body
Case material			V0 according to UL 94	
Comparative Tracking Index	CTI	V	600	
Insulation resistance	R _{Is}	MΩ	≥1000	at DC 500V

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		200		STK-200BS/T
				400		STK-400BS/T
				500		STK-500BS/T
				600		STK-600BS/T
				750		STK-750BS/T
				800		STK-800BS/T
				1000		STK-1000BS/T
				1200		STK-1200BS/T
				1500		STK-1500BS/T
Current range (refer remark)	I_{PM}	A	-600		600	STK-200BS/T
			-1200		1200	STK-400BS/T
			-1500		1500	STK-500BS/T
			-1800		1800	STK-600BS/T
			-2250		2250	STK-750BS/T
			-2400		2400	STK-800BS/T
			-2500		2500	STK-1000BS/T
			-2500		2500	STK-1200BS/T
			-2500		2500	STK-1500BS/T
Supply voltage	V_{CC}	V		$\pm 12 \sim \pm 15$		STK-200BS/T STK-400BS/T STK-500BS/T STK-600BS/T STK-750BS/T STK-800BS/T STK-1000BS/T STK-1200BS/T STK-1500BS/T
Current consumption	I_{CC}	mA		± 20		All
Quiescent voltage $V_{out} @ 0\text{A}$	V_{off}	V	-0.04	0	0.04	STK-200BS/T STK-400BS/T STK-500BS/T STK-600BS/T STK-750BS/T STK-800BS/T STK-1000BS/T STK-1200BS/T

						STK-1500BS/T
Peak output voltage ($V_{out} @ \pm I_{PN}$) – V_{off}	V_{FS}	V		± 4		STK-200BS/T STK-400BS/T STK-500BS/T STK-600BS/T STK-750BS/T STK-800BS/T STK-1000BS/T STK-1200BS/T STK-1500BS/T
Internal output resistance	R_{out}	Ω		100		V_{out}
Theoretical gain (Typ)	G_{th}	mV/A		20		STK-200BS/T
				10		STK-400BS/T
				8		STK-500BS/T
				6.66		STK-600BS/T
				5.33		STK-750BS/T
				5		STK-800BS/T
				4		STK-1000BS/T
				3.33		STK-1200BS/T
				2.66		STK-1500BS/T
Rated linearity error	Non-L	% I_{PN}		± 1		$\pm I_{PN}$
Step response time	t_{res}	μs		5		@90% of I_{PN}
Frequency bandwidth (-3dB)	BW	kHz		25		No RC circuit
Output voltage noise DC ~ 10 kHz DC ~ 100 kHz	V_{noise}	mVpp		20 30		STK-200BS/T STK-400BS/T STK-500BS/T STK-600BS/T STK-750BS/T STK-800BS/T STK-1000BS/T STK-1200BS/T STK-1500BS/T
Accuracy @ 25°C	X	% of I_{PN}		± 1		All
Temperature coefficient of V_{OE}	TCV_{OE}	mV/K		± 1		@ -40°C ~ 85°C
Temperature coefficient of V_{OUT}	TCV_{OUT}	%/K		± 0.1		@ -40°C ~ 85°C

3. Dimension & Pin Definitions

