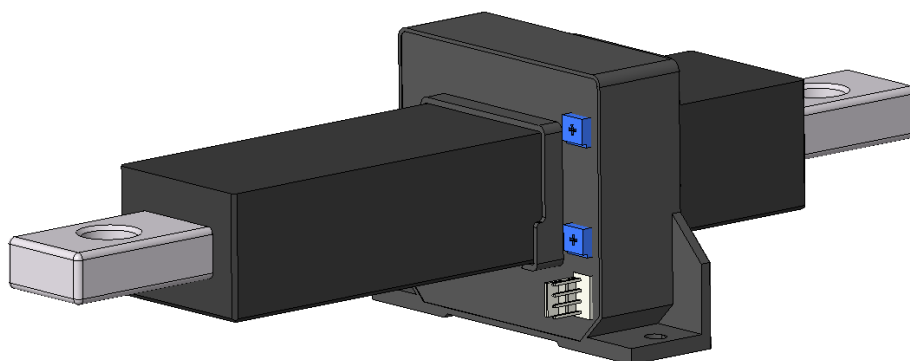


Current Sensor

Product Series: STK-BS/T5

Part number: STK-163BS/T5 & STK-233BS/T5 &
STK-320BS/T5 & STK-481BS/T5 &
STK-728BS/T5 & STK-1092BS/T5 &
STK-1456BS/T5 & STK-2097BS/T5 &
STK-2184BS/T5

VERSION: Ver 1.1



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1. Introduction

STK-BS/T5 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°C, V_{cc} = ±12~±15V

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary nominal current	I _{PN}	A		163		STK-163BS/T5
				233		STK-233BS/T5
				320		STK-320BS/T5
				481		STK-481BS/T5
				728		STK-728BS/T5
				1092		STK-1092BS/T5
				1456		STK-1456BS/T5
				2097		STK-2097BS/T5
Current range (refer remark)	I _{PM}	A	-500		500	STK-163BS/T5
			-500		500	STK-233BS/T5
			-500		500	STK-320BS/T5
			-1000		1000	STK-481BS/T5
			-1500		1500	STK-728BS/T5
			-2500		2500	STK-1092BS/T5
			-2500		2500	STK-1456BS/T5
			-2500		2500	STK-2097BS/T5
Supply voltage	V _{cc}	V		±15(±5%)		STK-163BS/T5 STK-233BS/T5 STK-320BS/T5 STK-481BS/T5 STK-728BS/T5 STK-1092BS/T5 STK-1456BS/T5 STK-2097BS/T5 STK-2184BS/T5
Current consumption	I _{cc}	mA		±20		All
Quiescent voltage V _{out} @ 0 A	V _{off}	V	-0.04	0	0.04	STK-163BS/T5 STK-233BS/T5 STK-320BS/T5 STK-481BS/T5 STK-728BS/T5 STK-1092BS/T5 STK-1456BS/T5 STK-2097BS/T5

						STK-2184BS/T5
Peak output voltage ($V_{out} @ \pm I_{PN}$) – V_{off} @ $R_L=10k\Omega$	V_{FS}	V		± 4		STK-163BS/T5 STK-233BS/T5 STK-320BS/T5 STK-481BS/T5 STK-728BS/T5 STK-1092BS/T5 STK-1456BS/T5 STK-2097BS/T5 STK-2184BS/T5
Internal output resistance	R_{out}	Ω		100		V_{out}
Theoretical gain (Typ)	G_{th}	mV/A		24.54		STK-163BS/T5
				17.17		STK-233BS/T5
				12.5		STK-320BS/T5
				8.32		STK-481BS/T5
				5.49		STK-728BS/T5
				3.66		STK-1092BS/T5
				2.75		STK-1456BS/T5
				1.91		STK-2097BS/T5
			1.83		STK-2184BS/T5	
Rated linearity error	Non-L	% I_{PN}	-1		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-163BS/T5 STK-233BS/T5 STK-320BS/T5 STK-481BS/T5 STK-728BS/T5 STK-1092BS/T5 STK-1456BS/T5 STK-2097BS/T5 STK-2184BS/T5
Accuracy @ 25°C	X	% of I_{PN}	-1		1	All
Temperature coefficient of V_{OE}	TCV_{OE}	mV/K	-1		1	@ -40°C ~ 85°C
Temperature coefficient of V_{OUT}	TCV_{OUT}	%/K	-0.1		0.1	@ -40°C ~ 85°C

