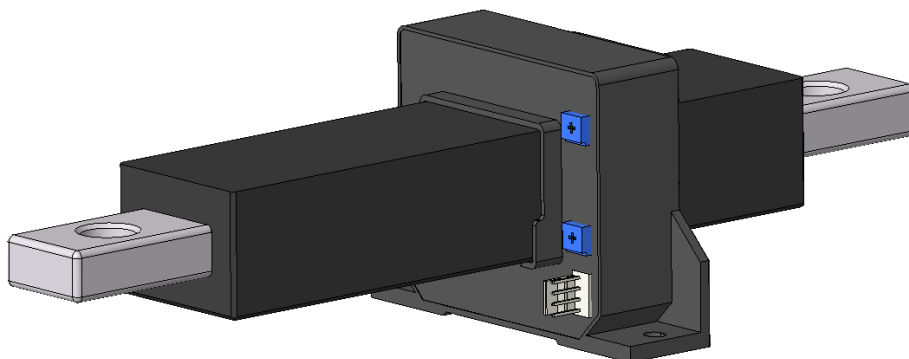


# Current Sensor

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 1.0



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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 <sub>A</sub>	°C	-40 ~ 85
Storage temperature	T <sub>stg</sub>	°C	-40 ~ 85
Mass	m	g	300

### 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	4.9	
Clearance distance (pri. -sec)	d <sub>Cl</sub>	mm	7.9	Shortest distance through air
Creepage distance (pri. -sec)	d <sub>Cp</sub>	mm	16	Shortest path along device body
Case material			V0 according to UL 94	
Comparative Tracking Index	CTI	V	600	
Insulation resistance	R <sub>is</sub>	MΩ	≥ 1000	at DC 500V

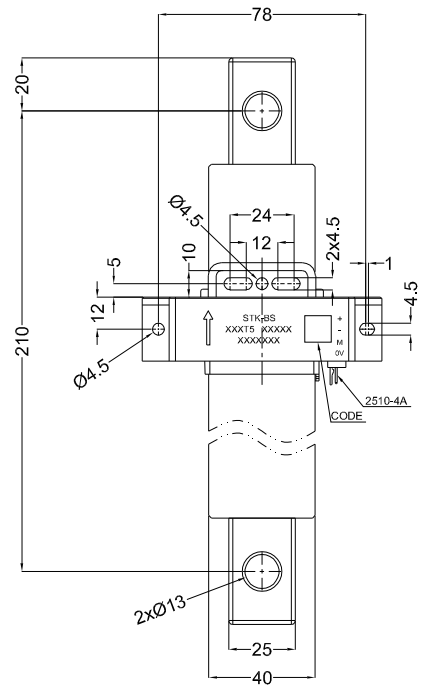
## 2. Electrical Data

Condition: T<sub>A</sub> = 25°C, V<sub>cc</sub> = ±12~±15V

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary nominal current	I <sub>PN</sub>	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 <sub>PM</sub>	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 <sub>cc</sub>	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 <sub>cc</sub>	mA		±20		All
Quiescent voltage V <sub>out</sub> @ 0 A	V <sub>off</sub>	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

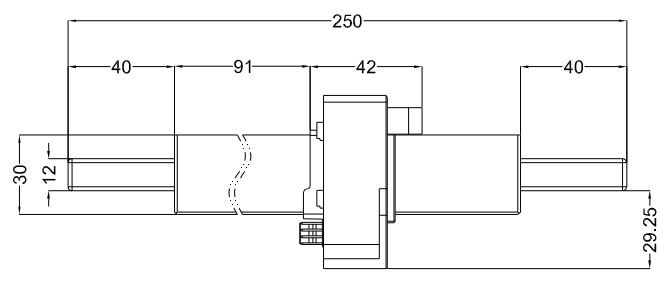
						STK-2184BS/T5
Peak output voltage ( $V_{out} @ \pm I_{PN}$ ) – $V_{off}$ @ $R_L=10k\Omega$	$V_{FS}$	V		$\pm 4$		STK-163BS/T5 STK-233BS/T5 STK-320BS/T5 STK-481BS/T5 STK-728BS/T5 STK-1092BS/T5 STK-1456BS/T5 STK-2097BS/T5 STK-2184BS/T5
Internal output resistance	$R_{out}$	$\Omega$		100		$V_{out}$
Theoretical 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
			18.32		STK-2184BS/T5	
Rated linearity error	Non-L	% $I_{PN}$	-1		1	$\pm I_{PN}$
Step response time	$t_{res}$	$\mu s$			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

### 3. Dimension & Pin Definitions

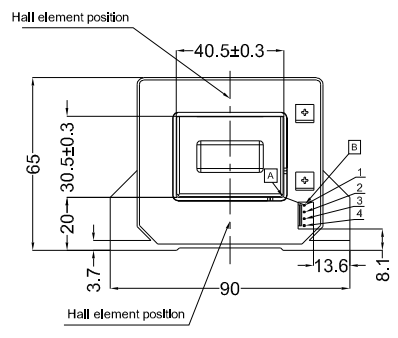
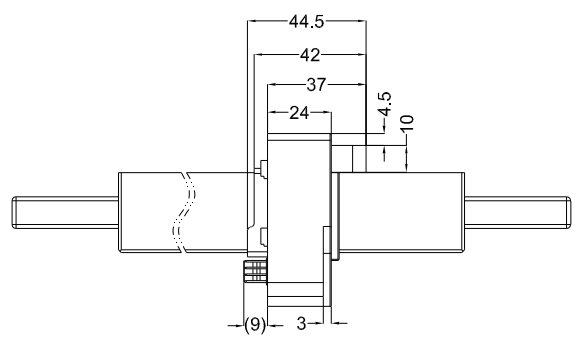


Terminals

1	+
2	-
3	M
4	0V



Current Direction



Material : Fit UL94V-0 & RoHS requirements ;  
General tolerance : ±0.5  
Unit :mm

	dcl	dcp
A-B	7.9mm	16mm

