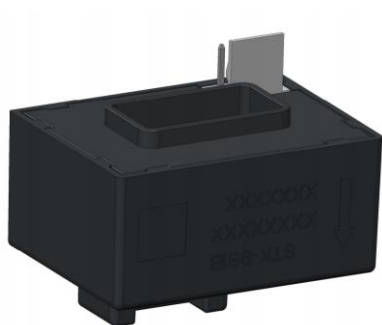


Current Sensor

Product Series: STK-BS1B

Part number: STK-100BS1B&STK-150BS1B&
STK-200BS1B&STK-300BS1B&
STK-400BS1B&STK-500BS1B&
STK-600BS1B

Version: V1.0 (常温版)



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1. Summary

STK-BS1B series current sensor is based on Hall 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
- Electric welder power supply
- Inverter
- Switched model power supplies (SMPS)

General parameter

Parameter	Symbol	Unit	Value
Working temperature	T_A	°C	-40 ~ 85
Storage temperature	T_stg	°C	-40 ~ 85
Mass	m	g	52.8

Absolute maximum rating

Parameter	Symbol	Unit	Value
Supply voltage (not-destructive)	V _C	V	±18
ESD rating (HBM)	U _{ESD}	kV	4

Remark: the unrecoverable damage may occur when the product works on the conditions over the a BS1B olute maximum ratings. Long-time working on the a BS1B olute 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	
Clearance distance (pri. -sec)	d _{Cl}	mm	6.08	Shortest distance through air
Creepage distance (pri. -sec)	d _{Cp}	mm	6.08	Shortest path along device body
Case material			V0 according to UL 94	

Selection Guide

Product	Primary nominal current	Current range
STK-100BS1B	100 A	300 A
STK-200BS1B	200 A	600 A
STK-300BS1B	300 A	900 A
STK-400BS1B	400 A	900 A
STK-500BS1B	500 A	900 A
STK-600BS1B	600 A	900 A

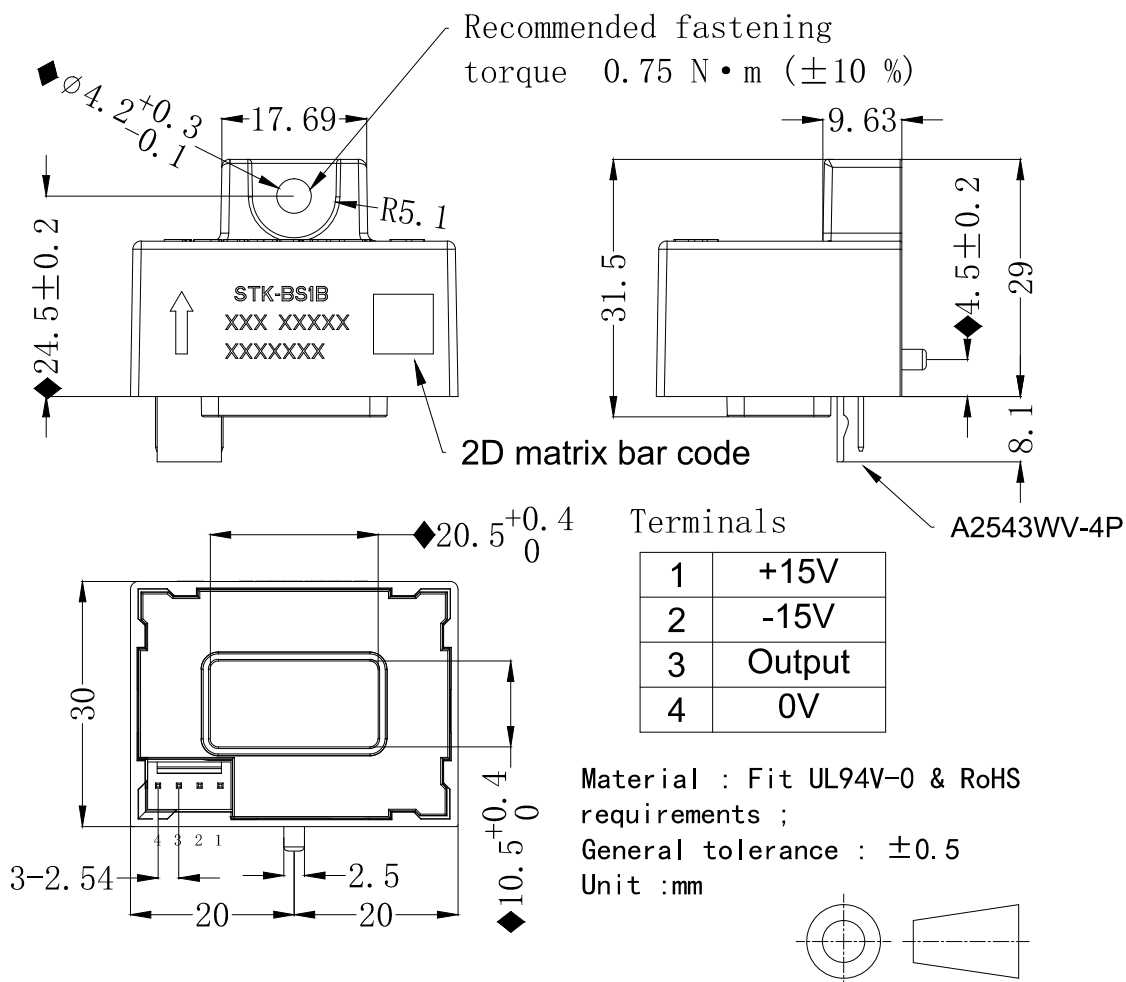
2. Electrical data of STK-BS1B

Condition: $T_A = 25^{\circ}\text{C}$ $V_{CC} = \pm 15\text{ V}$

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary nominal current	I_{PN}	A		100		STK-100BS1B
				150		STK-150BS1B
				200		STK-200BS1B
				300		STK-300BS1B
				400		STK-400BS1B
				500		STK-500BS1B
				600		STK-600BS1B
Current range	I_{PM}	A	-300		300	STK-100BS1B
			-450		450	STK-150BS1B
			-600		600	STK-200BS1B
			-900		900	STK-300BS1B
			-900		900	STK-400BS1B
			-900		900	STK-500BS1B
			-900		900	STK-600BS1B
Supply voltage	V_{CC}	V		$\pm 15 \pm 5\%$		
Current consumption	I_{CC}	mA	13	16	19	I_{CC} @ forward direction
			2	4	6	I_{CC} @ negative direction
Rated output voltage	V_{FS}	V		± 3.68		$(V_{out} @ \pm I_{PN}) - V_{off} @ R_L = 2.5\text{ k}\Omega$
Internal output resistance	R_{out}	Ω		100		V_{out}
load resistance	R_L	$\text{k}\Omega$		2.5		Recommended
Quiescent voltage	V_{off}	V	-0.04	0	0.04	$V_{out} @ 0\text{ A}$
Hysteresis error	V_{oH}	mV			± 40	@ $0\text{ A} \rightarrow I_{PN} \rightarrow 0\text{ A}$
Theoretical gain	G_{th}	mV/A		36.8		STK-100BS1B
				24.533		STK-150BS1B
				18.4		STK-200BS1B
				12.267		STK-300BS1B
				9.2		STK-400BS1B
				7.36		STK-500BS1B
				6.133		STK-600BS1B
Rated linearity error	Non-L	% I_{PN}		± 1		$\pm I_{PN} @ 25^{\circ}\text{C}$
Step response time	t_{res}	μs		4		STK-100BS1B @ 90% of I_{PN}

						STK-150BS1B @90% of I_{PN}
						STK-200BS1B @90% of I_{PN}
						STK-300BS1B @90% of I_{PN}
				2		Others @90% of I_{PN}
Frequency bandwidth (-3dB)	BW	kHz		70		STK-100BS1B RC circuit
				80		STK-150BS1B RC circuit
				90		STK-200BS1B RC circuit
				100		STK-300BS1B RC circuit
				150		Others RC circuit
Output voltage noise DC ~ 14 kHz	Vnoise	mVpp		30		STK-50BS1B
				10		Others
Accuracy @ T_A	X	% of I_{PN}		± 1		@ 25°C
				± 2		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



Mechanical characteristics:

- General tolerance ± 0.5 mm
- Recommended fastening torque 0.75 N·m ($\pm 10\%$)
- Mating connector P/N A2543WV-4P