

Current Sensor

Product Series: STK-BS9

Part number: STK-50BS9&
STK-100BS9&
STK-200BS9&
STK-300BS9&
STK-400BS9&
STK-500BS9&
STK-600BS9

Version: Ver 1.1



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1. Summary

STK-BS9 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
- Inverter
- Electric welder power supply
- Switched model power supplies (SMPS)

General parameter

Parameter	Symbol	Unit	Value
Working temperature	T_A	°C	-40 ~ 105
Storage temperature	T_stg	°C	-40 ~ 105
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 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	
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-50BS9	50 A	150 A
STK-100BS9	100 A	300 A
STK-200BS9	200 A	600 A
STK-300BS9	300 A	900 A
STK-400BS9	400 A	900 A
STK-500BS9	500 A	900 A
STK-600BS9	600 A	900 A

2. Electrical data of STK-BS9

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

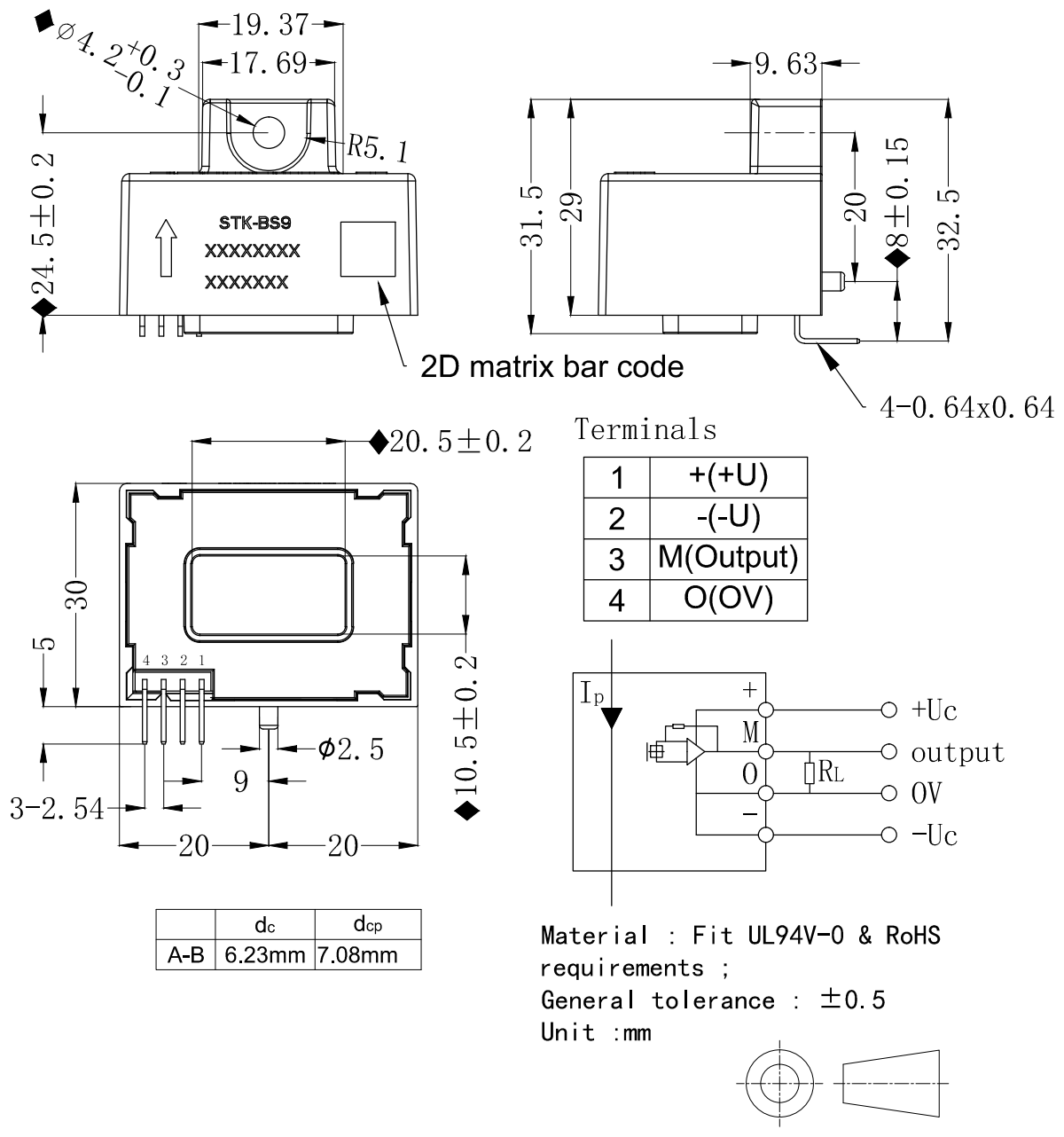
Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary nominal current	I_{PN}	A		50		STK-50BS9
				100		STK-100BS9
				200		STK-200BS9
				300		STK-300BS9
				400		STK-400BS9
				500		STK-500BS9
				600		STK-600BS9
Current range	I_{PM}	A	-150		150	STK-50BS9
			-300		300	STK-100BS9
			-600		600	STK-200BS9
			-900		900	STK-300BS9
			-900		900	STK-400BS9
			-900		900	STK-500BS9
			-900		900	STK-600BS9
Supply voltage	V_{CC}	V		$\pm 15 \pm 5\%$		
Current consumption	I_{CC}	mA		± 15		
Rated output voltage	V_{FS}	V	± 3.96	± 4	± 4.04	$(V_{out} @ \pm I_{PN}) - V_{off}$
Internal output resistance	R_{out}	Ω		100		V_{out}
Quiescent voltage	V_{off}	V	-0.05	0	0.05	$V_{out} @ 0\text{A}$
Theoretical gain	G_{th}	mV/A		80		STK-50BS9
				40		STK-100BS9
				20		STK-200BS9
				13.33		STK-300BS9
				10		STK-400BS9
				8		STK-500BS9
				6.67		STK-600BS9
Rated linearity error	Non-L	% I_{PN}		± 1		$\pm I_{PN} @ 25^{\circ}\text{C}$
Step response time	t_{res}	μs			3	All @90% of I_{PN}
Frequency bandwidth (-3dB)	BW	kHz		50		STK-50BS9 RC circuit
				70		STK-100BS9 RC circuit



STK-BS9 series current sensor

			90	STK-200BS9 RC circuit
			100	STK-300BS9 RC circuit
			150	Others RC circuit
Output voltage noise DC ~ 14 kHz	Vnoise	mVpp	30	STK-50BS9
			10	Others
Accuracy @T _A	X	% of I _{PN}	±1	@ 25°C
			±2	All

3. Dimension & Pin definitions



Mechanical characteristics:

- General tolerance ±0.5 mm