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2024-12-24

SINOMAGS
希 磁 科 技

Current Sensor

Product Series:	STK-BS1L
Part number:	STK-100BS1L&STK-150BS1L& STK-200BS1L&STK-300BS1L& STK-400BS1L&STK-500BS1L& STK-600BS1L
Version:	V1.0

Sinomags Technology Co., Ltd

Web site: www.sinomags.com

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1. Summary

STK-BS1L 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	℃	-40 ~ 105
Storage temperature	T_stg	℃	-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 a BS1L olute maximum ratings. Long-time working on the a BS1L 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	Ud	kV	4	
Clearance distance (pri. -sec)	dCl	mm	6.08	Shortest distance through air
Creepage distance (pri. -sec)	dCp	mm	6.08	Shortest path along device body
Case material			V0 according to UL 94	

Selection Guide

Product	**Primary nominal current**	**Current range**
STK-100BS1L	100 A	300 A
STK-200BS1L	200 A	600 A
STK-300BS1L	300 A	900 A
STK-400BS1L	400 A	900 A
STK-500BS1L	500 A	900 A
STK-600BS1L	600 A	900 A

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2. Electrical data of STK-BS1L

Condition：T_A = 25℃ Vcc = ±15 V

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary nominal current	I_{PN}	A		100		STK-100BS1L
				150		STK-150BS1L
				200		STK-200BS1L
				300		STK-300BS1L
				400		STK-400BS1L
				500		STK-500BS1L
				600		STK-600BS1L
Current range	I_{PM}	A	-300		300	STK-100BS1L
			-450		450	STK-150BS1L
			-600		600	STK-200BS1L
			-900		900	STK-300BS1L
			-900		900	STK-400BS1L
			-900		900	STK-500BS1L
			-900		900	STK-600BS1L
Supply voltage	Vcc	V		±15±5%		
Current consumption	Icc	mA	13	15	17	Icc@ forward direction
Rated output voltage	V_FS	V	±3.96	±4	±4.04	(Vout @ $\pm I_{PN}$) – Voff@ RL=10kΩ
Internal output resistance	R_out	Ω		100		Vout
load resistance	RL	kΩ		10		Recommended
Quiescent voltage	Voff	V	-0.04	0	0.04	Vout @ 0 A
Hysteresis error	V_{OH}	mV			±40	@0A→I_{PN}→0A
Theoretical gain	G_th	mV/A		40		STK-100BS1L
				26.67		STK-150BS1L
				20		STK-200BS1L
				13.33		STK-300BS1L
				10		STK-400BS1L
				8		STK-500BS1L
				6.67		STK-600BS1L
Rated linearity error	Non-L	% I_{PN}		±1		$\pm I_{PN}$ @ 25℃
Step response time	t_res	μs		4		STK-100BS1L @90% of I_{PN}
						STK-150BS1L @90% of I_{PN}

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						STK-200BS1L @90% of I_{PN}
						STK-300BS1L @90% of I_{PN}
				2		Others @90% of I_{PN}
Frequency bandwidth (-3dB)	BW	kHz		70		STK-100BS1L RC circuit
				80		STK-150BS1L RC circuit
				90		STK-200BS1L RC circuit
				100		STK-300BS1L RC circuit
				150		Others RC circuit
Output voltage noise DC ~ 14 kHz	Vnoise	mVpp		30		STK-50BS1L
				10		Others
Accuracy @T_A	X	% of I_{PN}		±1		@ 25℃
				±2		All
Temperature coefficient of V_{OE}	TCV_{OE}	mV/K		±1		@ -40℃~105℃
Temperature coefficient of V_{OUT}	TCV_{OUT}	%/K		±0.1		@ -40℃~105℃

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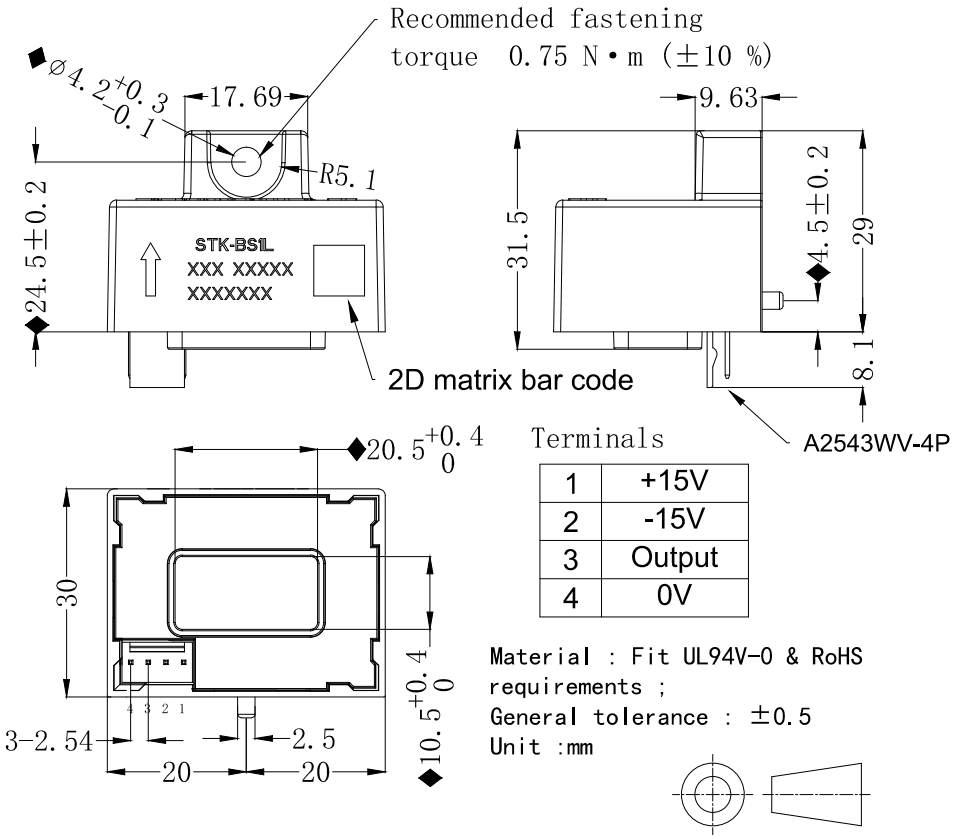
3. Dimension & Pin definitions



Terminals

1	+15V
2	-15V
3	Output
4	0V

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

Mechanical characteristics:

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