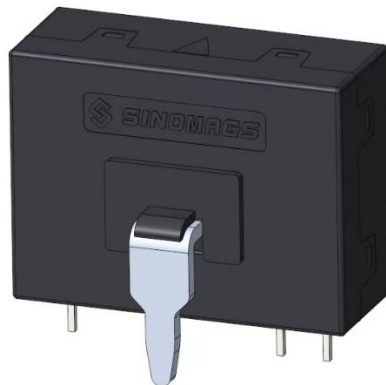


CURRENT SENSOR

PRODUCT SERIES: STB-LA/B

PRODUCT PART NUMBER: STB-100LA/B

VERSION: Ver 1.0



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1. Description

STB-LA/B series current sensors are based on close loop principle technology. The sensor can detect the current with DC, AC, pulse and irregular wave shape.

Typical application

- Solar inverter
- Direct-current dynamo
- Uninterruptible Power Supplies (UPS)
- Switched model power supplies (SMPS)
- Variable frequency converter

General parameters

Parameter	Symbol	Unit	Value	Remark
Working environment temperature	T_A	°C	-40 ~ 90	
Sensor operating limit temperature	T_{SL}	°C	-40 ~ 85	
Limit temperature of primary conductor	T_{LP}	°C	105	STB-100LA/B
Mass	m	g	15	STB-100LA/B

Absolute parameters

Parameters	Symbol	Unit	Value
Supply voltage	V_{CCmax}	V	± 18
Maximum primary current	I_{PNmax}	A	5*I _{PN}
ESD rating (HBM)	U_ESD_HBM	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 parameters

Parameter	Symbol	Unit	Value	Remark
RMS voltage for AC test 50Hz/1 min	U_d	kV	1.8	
Impulse withstand voltage 1.2/50µs	U_W	kV	8	
Clearance distance (pri. -sec)	dCl	mm	12	Shortest distance through air
Creepage distance (pri. -sec)	dCp	mm	12	Shortest path along device body

2. Electrical parameters (STB-100LA/B)

Condition: $V_{CC} = \pm 15V$, $T_A = 25^\circ C$, unless specified.

Parameters	Symbol	Unit	Min.	Typ.	Max.	Remark
Primary nominal rms current	I_{PN}	A		100		
Measuring resistance	R_M	Ω	0		200	$V_{CC} = \pm 12V$
			5		400	$V_{CC} = \pm 15V$
Primary current measuring range	I_{PM}	A	-188		188	$V_{CC} = \pm 12V$, $R_M = 5 \Omega$ ($T_{max} = 10sec$)
			-236		236	$V_{CC} = \pm 15V$, $R_M = 5 \Omega$ ($T_{max} = 10sec$)
Secondary nominal current	I_{SN}	mA		50		
Turns ratio	K_N			1:2000		
Supply voltage	V_{CC}	V	± 11.4	± 12 or ± 15	± 15.75	
Consumption current	I_{CC}	mA		$17 + I_S$		$I_S = I_P / K_N$
Offset current	I_O	mA		0.02	0.05	$I_P = 0$ $T_A = 25^\circ C$
	I_{Oges}				0.07	including I_O, I_{Ot}, I_{OT}
Long term drift Offset current I_O	I_{Ot}	mA	0.025			
Offset current temperature drift I_O	I_{OT}	mA	0.025			$T_A = -40^\circ C \sim 85^\circ C$
Hysteresis current (caused by primary current $3 \times I_{PN}$)	I_{OH}	mA	0.025	0.05		$I_P = 0$
Supply voltage rejection ratio	$\Delta I_O / \Delta V_C$	mA/V			0.01	
Linearity error within I_{PN}	ε_L	% of I_{PN}			0.1	
Delay time	$\Delta t (I_{Pmax})$	ns		200		$d_i / d_t = 100A / \mu s$
Response time	t_r	μs		1		
-3 dB band width	BW	K_{HZ}		200		
Accuracy	X	%		0.1	0.5	@ $I_{PN} T_A = 25^\circ C$
Temperature drift of X	X_{Ti}	%			0.1	$T_A = -40 \dots 85^\circ C$
Resistance of secondary coil	R_S	Ω			114	$T_A = 85^\circ C$
Primary coil resistance per turn	R_p	m Ω		0.1		$T_A = 25^\circ C$

3. Dimensions: STB-100LA/B

