

## CURRENT SENSOR

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PRODUCT SERIES: STB-LF/3

PRODUCT PART NUMBER: STB-366LF/3

VERSION: Ver 1.2



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## CONTENT

1.	Description .....	2
2.	Electrical parameters .....	3
3.	Dimensions: .....	4

## 1. Description

STB-LF3 series current sensors are based on close loop principle. The sensor can detect the current with DC, AC, pulse and irregular wave shape with current output.

### Typical application

- Static converters for DC motor drives
- AC variable speed and servo motor drives
- Power supplies for welding applications
- Switched model power supplies (SMPS)
- UPS
- Battery supplied applications

### General parameters

Parameter	Symbol	Unit	Value
Sensor operating temperature	$T_A$	$^{\circ}\text{C}$	-10 ~ 70
Storage temperature	$T_S$	$^{\circ}\text{C}$	-40 ~ 85
Mass	$m$	g	95

### Absolute parameters

Parameters	Symbol	Unit	Value
Supply voltage (-40 $^{\circ}\text{C}$ ...85 $^{\circ}\text{C}$ )	$V_{cc\_max}$	V	$\pm 15.9$
Maximum primary conductor temperature	$T_{B\_max}$	$^{\circ}\text{C}$	100

### Ratings

Parameter	Unit	Value
Primary involved potential	V AC/DC	1500
Maximum surrounding air temperature	$^{\circ}\text{C}$	85

### Isolation parameters

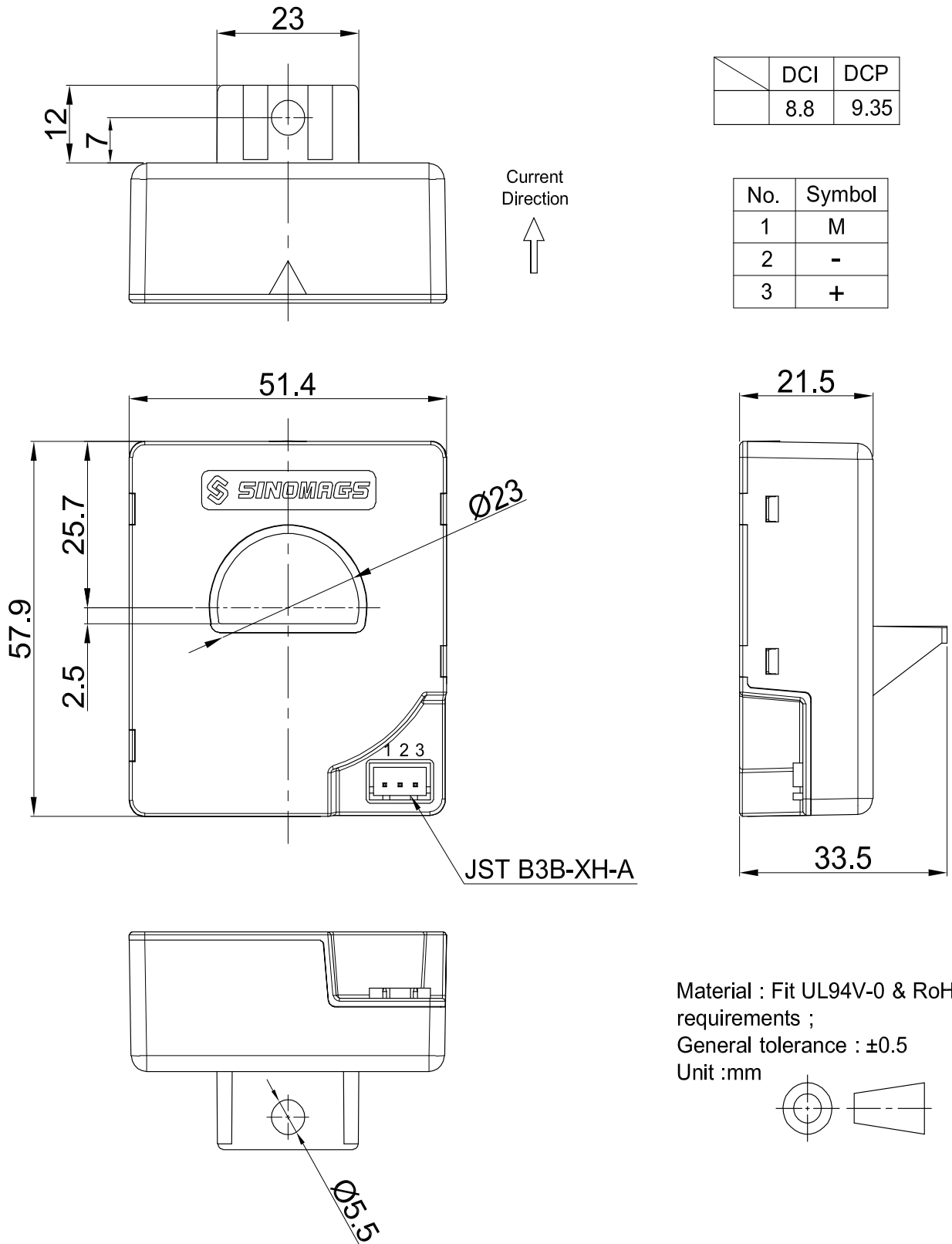
Parameter	Symbol	Unit	Value	Remark
RMS voltage for AC test 50Hz/1 min	$U_d$	kV	3	
Impulse withstand voltage 1.2/50 $\mu\text{s}$	$\hat{U}_w$	kV	>8	
RMS Voltage for partial discharge extinction @ 10pC	$U_e$	kV	>2	
Clearance distance (pri. -sec)	dCl	mm	8.8	Shortest distance through air
Creepage distance (pri. -sec)	dCp	mm	9.35	Shortest path along device body
Case material	-	-	V0	According to UL 94 Shell material: PA66 Adhesive material: Polyurethane
Comparative tracking index	CTI		>600	
Insulation resistance	S	$\text{M}\Omega$	>2000	

## 2. Electrical parameters

Condition:  $V_{cc} = \pm 15V$ ,  $T_A = 25^\circ C$ ,  $R_M = 3\ \Omega$  unless specified.

Parameters	Symbol	Unit	Min	Typ	Max	Remark
Primary nominal RMS current	$I_{PN}$	A		366		
Primary current measuring range	$I_{PM}$	A	-950		950	$V_{cc} = \pm 15V$
Measuring resistance@ $\pm 366$ A max	$R_M$	$\Omega$	3		49	$V_{cc} = \pm 15V$
Measuring resistance@ $\pm 950$ A max	$R_M$	$\Omega$	3		3	$V_{cc} = \pm 15V$
Secondary nominal RMS current	$I_{SN}$	A		0.183		
Resistance of secondary winding	$R_S$	$\Omega$		23		Secondary coil resistance @ $T_A = 70^\circ C$
Supply voltage	$V_{cc}$	V	$\pm 14.1$	15	$\pm 15.9$	
Current consumption	$I_{cc}$	mA		$26 + I_s$		
Turns ratio	$N_s$	NT		2000		
Offset current	$I_O$	mA			$\pm 0.20$	Offset current @ $I_P = 0$ , $T_A = 25^\circ C$
Residual current 1) @ $I_P = 0$ , after an overload of $3 \times I_{PN}$	$I_{OM}$	mA			$\pm 0.20$	
Offset current temperature drift	$I_{OT}$	mA		$\pm 0.1$	$\pm 0.30$	$-10^\circ C \dots +70^\circ C$
Linearity error	$\xi_L$	% of $I_{PN}$			0.1	
Delay time @ 10 % of $I_{PN}$	$t_{ra\ 10}$	$\mu s$			0.5	@10% of $I_{pn}$
Delay time @ 90 % of $I_{PN}$	$t_{ra\ 90}$	$\mu s$			1	@90% of $I_{pn}$
di/dt accurately followed	di/dt	A/ $\mu s$	100			
Frequency bandwidth	BW	kHz		100		-1 dB band width
Total error at $I_{PN}$	$\xi_{tol}$	% of $I_{PN}$	-0.42		0.42	$-10^\circ C \dots +70^\circ C$

### 3. Dimensions:



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**Mechanical characteristics**

- General tolerance  $\pm 0.5$  mm
- Transducer fastening hole  $\varnothing 5.5$  mm  
steel screw M5  
Recommended fastening torque 3.4 Nm 2.5 Lb.-Ft.
- Primary through-hole  $\varnothing 23$  mm
- Connection of secondary JST B3B-XH-A