

CURRENT SENSOR

PRODUCT SERIES: STB-LF6

PRODUCT PART NUMBER: STB-1000LF6

VERSION: Ver 1.3



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1. Description

STB-LF6 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

- Industrial
- Windmill inverters
- Test measurement
- UPS
- Power supplies for welding applications
- AC variable speed and servo motor drives
- Static converters for DC motor drives
- Battery supplied applications
- Switched Mode Power Supplies (SMPS)

General

parameters

Parameter	Symbol	Unit	Value
Sensor operating temperature	T_A	°C	-40 ~ 85
Storage temperature	T_S	°C	-45 ~ 90
Mass	m	g	480

Absolute parameters

Parameters	Symbol	Unit	Value
Supply voltage (-40°C...85°C)	$V_{CC_{max}}$	V	±25.2
Primary conductor temperature	$T_{B_{max}}$	°C	100
Maximum steady state primary current (-40°C...85°C)	$I_{PN_{max}}$	A	3000

Isolation parameters

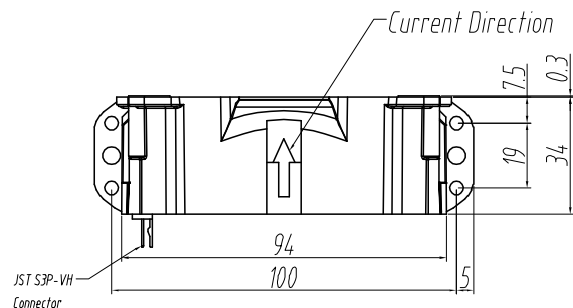
Parameter	Symbol	Unit	Value	Remark
RMS voltage for AC test 50Hz/1 min	U_d	kV	3.8	
Impulse withstand voltage 1.2/50μs	U_W	kV	14.5	
Case material	-	-	V0	According to UL 94
Comparative tracking index	CTI		600	
Application example			1000V CAT III, PD2	Reinforced insulation, non uniform field according to EN 50178, IEC 61010
			1000V CAT III, PD2	Basic insulation, non uniform field according to EN 50178, IEC 61010

2. Electrical parameters

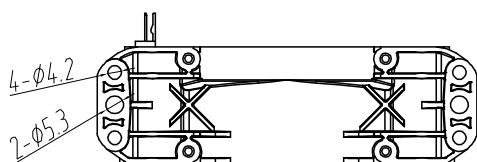
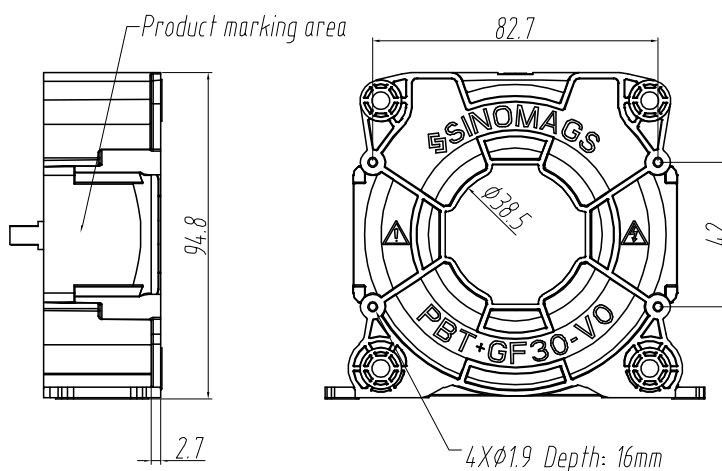
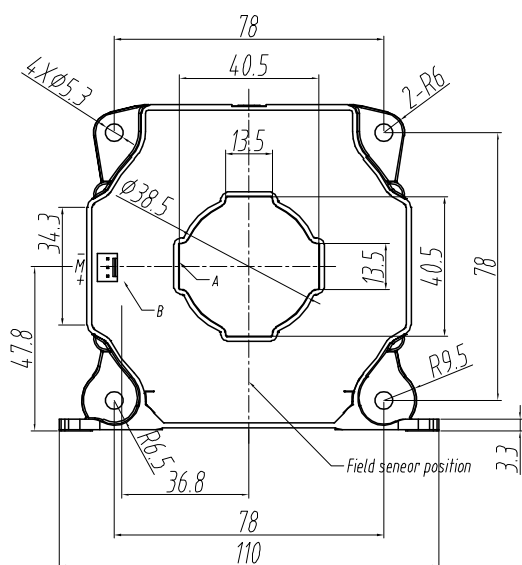
Condition: $T_A = 25\text{ }^\circ\text{C}$, $V_{CC} = \pm 15\text{ V}$, $R_M = 1\text{ }\Omega$, unless otherwise noted.

Parameters	Symbol	Unit	Min	Type	Max	Remark
Primary nominal rms current	I_{PN}	A			1000	
Primary current measuring range	I_{PM}	A	-1500		1500	
Measuring resistance	R_M	Ω	0		18	$V_{CC} = \pm 15\text{V}$, $I_P = \pm 1000\text{A}$, $T_A = 70\text{ }^\circ\text{C}$
			0		10	$V_{CC} = \pm 15\text{V}$, $I_P = \pm 1200\text{A}$, $T_A = 70\text{ }^\circ\text{C}$
			0		50	$V_{CC} = \pm 25\text{V}$, $I_P = \pm 1000\text{A}$, $T_A = 70\text{ }^\circ\text{C}$
			0		40	$V_{CC} = \pm 25\text{V}$, $I_P = \pm 1200\text{A}$, $T_A = 70\text{ }^\circ\text{C}$
			0		15	$V_{CC} = \pm 15\text{V}$, $I_P = \pm 1000\text{A}$, $T_A = 85\text{ }^\circ\text{C}$
			0		4	$V_{CC} = \pm 15\text{V}$, $I_P = \pm 1200\text{A}$, $T_A = 85\text{ }^\circ\text{C}$
			0		48	$V_{CC} = \pm 25\text{V}$, $I_P = \pm 1000\text{A}$, $T_A = 85\text{ }^\circ\text{C}$
			0		37	$V_{CC} = \pm 25\text{V}$, $I_P = \pm 1200\text{A}$, $T_A = 85\text{ }^\circ\text{C}$
Secondary nominal RMS current	I_{SN}	mA		200		I_{PN}
Turns ratio	N_S	NT		5000		
Output range	I_S	A	-0.42		0.42	
Supply voltage	V_{CC}	V	± 14.25		± 25.2	
Current consumption	I_{CC}	mA		$23+I_S$ $37+I_S$		$V_{CC} = \pm 14.25\text{V}$ $V_{CC} = \pm 25.2\text{V}$
Nominal sensitivity	S_N	mA/A		0.2		
Offset current	I_{OE}	mA	-0.4		0.4	$I_P = 0\text{A}$, $T_A = 25\text{ }^\circ\text{C}$
Magnetic offset current referred to primary	I_{OM}	mA	-0.2		0.2	After $3^* I_{PN}$
Offset current temperature drift	I_{OT}	mA	-0.5		0.5	$-40\text{ }^\circ\text{C} \dots 85\text{ }^\circ\text{C}$
Overall accuracy at I_{PN}	X_G	% of I_{PN}	-0.4		0.4	$-40\text{ }^\circ\text{C} \dots 85\text{ }^\circ\text{C}$
Linearity error	ε_L	% of I_{PN}	-0.15		0.15	$-40\text{ }^\circ\text{C} \dots 85\text{ }^\circ\text{C}$
Delay time @ 10 % of I_{PN}	t_{d10}	μs			0.5	10% of I_{PN}
Delay time @ 90 % of I_{PN}	t_{d90}	μs			1	90% of I_{PN}
Frequency bandwidth	BW	kHz		200		-3dB

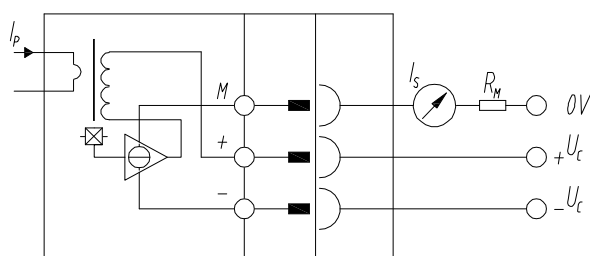
3. Dimensions:



	d_{CI}	d_{CP}
A-B	16.2 mm	18.0 mm



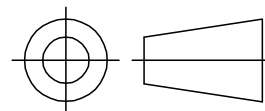
Connection



Material : Fit UL94V-0 & RoHS requirements ;

General tolerance : ± 0.5

Unit : mm



Mechanical characteristics

- General tolerance ± 0.5 mm
- Transducer fastening
 - Vertical position
 - 2 holes $\varnothing 5.3$ mm
 - 2 M5 steel screws
 - Recommended fastening torque 3.2 N·m ($\pm 10\%$)
 - Or
 - 4 holes $\varnothing 4.2$ mm,
 - 4 M4 steel screws
 - Recommended fastening torque 2.1 N·m ($\pm 10\%$)
 - Primary through-hole
 - Or $\varnothing 38$ mm
 - 40mm x 13 mm
 - Transducer fastening
 - Horizontal position
 - 4 holes $\varnothing 5.3$ mm
 - 4 M5 steel screws
 - Recommended fastening torque 3.2 N·m ($\pm 10\%$)
 - Connection of secondary Molex 6410