

# CURRENT SENSOR

PRODUCT SERIES: STB-LF4  
STB-300LF4  
PRODUCT PART NUMBER: STB-300LF4-A  
STB-300LF4-B  
VERSION: Ver 1.2



Sinomags Technology Co., Ltd.

Web site: [www.sinomags.com](http://www.sinomags.com)

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## 1. Description

STB-LF4 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 and measurement
- UPS
- AC variable speed and servo motor drives
- Static converters for DC motor drives
- Switched model power supplies (SMPS)

### General parameters

Parameter	Symbol	Unit	Value
Sensor operating temperature	$T_A$	°C	-40 ~ 85
Storage temperature	$T_S$	°C	-40 ~ 85
Mass	m	g	STB-300LF4: 95 STB-300LF4-A: 95 STB-300LF4-B: 95

### Absolute parameters

Parameters	Symbol	Unit	Value
Supply voltage (-40°C...85°C)	$V_{CCmax}$	V	STB-300LF4: ±21V STB-300LF4-A: ±26V STB-300LF4-B: ±21V
Maximum primary conductor temperature	$T_{Bmax}$	°C	100
Maximum steady state primary current (-40°C...85°C)	$I_{PNmax}$	A	1000

### Ratings

Parameter	Unit	Value
Primary involved potential	V AC/DC	1500
Maximum surrounding air temperature	°C	85
Primary current	A	0...300

### 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	10	
Clearance distance (pri. -sec)	dCl	mm	10.6	Shortest distance through air
Creepage distance (pri. -sec)	dCp	mm	11.1	Shortest path along device body
Case material	-	-	V0	According to UL 94
Comparative tracking index	CTI		175	

## Mechanical characteristics

- General tolerance  $\pm 0.5$  mm
- Transducer fastening
  - Vertical position
    - 2 holes  $\varnothing 4.3$  mm
    - 2 M4 steel screws
    - Recommended fastening torque 3.2 N·m
    - or
      - 4 holes  $\varnothing 1.9$  mm,
      - depth: 7 mm
      - 4 PTKA 25 screws
      - length: 6 mm
    - Recommended fastening torque 0.7 N·m
  - Horizontal position
    - 4 holes  $\varnothing 4.3$  mm
    - 4 M4 steel screws
    - Recommended fastening torque 3.2 N·m
    - or
      - 4 holes  $\varnothing 1.9$  mm
      - crossing
      - 4 PTKA 25 screws,
      - length: 10 mm
    - Recommended fastening torque 0.75 N·m
- Primary through-hole  $\varnothing 20.1$  mm
- Connection of secondary
  - Molex 6410 3 Tin plated pins (STB-300LF4)
  - JST B 3P VH (STB-300LF4-A)
  - Molex Mini-Fit 5566 (STB-300LF4-B)

## 2. STB-300LF4 parameters

Condition:  $V_{CC} = \pm 12V \sim \pm 20V$ ,  $T_A = 25^\circ C$ , unless specified.

Parameters	Symbol	Unit	Min	Typ	Max	Remark
Primary nominal RMS current	$I_{PN}$	A			300	
Primary current measuring range	$I_{PM}$	A	-500		500	
Measuring resistance	$R_M$	$\Omega$	0		40	$V_{CC} = \pm 15V$ $@I_{PN} 25^\circ C$
Secondary nominal RMS current	$I_{SN}$	A	-0.15		0.15	
Turns ratio	$N_S$	NT		2000		
Resistance of secondary winding	$R_S$	$\Omega$			20	$@T_a = 70^\circ C$
					22	$@T_a = 85^\circ C$
Supply voltage	$V_{CC}$	V	$\pm 12$		$\pm 20$	
Current consumption	$I_{CC}$	mA		$15 + I_S$		$V_{CC} = \pm 15V$
Norminal sensitivity	$S_N$	mA/A		0.5		
Offset current	$I_{OE}$	mA	-0.2		0.2	$@I_p = 0, T_a = 25^\circ C$
Magnetic offset current @ $I_p = 0$ and specified RM after an overload of $3 \times I_{PN}$	$I_{OM}$	mA			0.2	
Offset current temperature drift	$I_{OT}$	mA	$\pm 0.1$		$\pm 0.3$	$-10^\circ C \sim 70^\circ C$
			$\pm 0.2$		$\pm 0.7$	$-40^\circ C \sim 85^\circ C$
Total error at $I_{PN}$	$\epsilon_{tot}$	% of $I_{PN}$	-0.5		0.5	$-40^\circ C \dots 85^\circ C$
Linearity error	$\epsilon_L$	% of $I_{PN}$			0.1	
Delay time @ 10 % of $I_{PN}$	$t_{d10}$	$\mu s$			0.5	@10% of $I_{pn}$
Delay time @ 90 % of $I_{PN}$	$t_{d90}$	$\mu s$			1	@90% of $I_{pn}$
Frequency bandwidth (-1dB)	BW	kHz		100		

### 3. STB-300LF4-A parameters

Condition:  $V_{CC} = \pm 22.8 \sim \pm 25.2V$ ,  $T_A = 25^\circ C$ , unless specified.

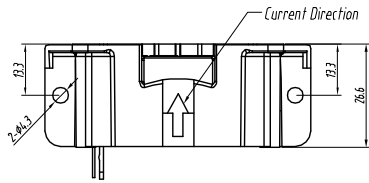
Parameters	Symbol	Unit	Min	Typ	Max	Remark
Primary nominal RMS current	$I_{PN}$	A			300	
Primary current measuring range	$I_{PM}$	A	-860		860	
Measuring resistance	$R_M$	$\Omega$	0		40	$V_{CC} = \pm 22.8V$ $@I_{PN} 25^\circ C$
Secondary nominal RMS current	$I_{SN}$	A	-0.12		0.12	
Turns ratio	$N_S$	NT		2500		
Resistance of secondary winding	$R_S$	$\Omega$			27	$@T_a = 70^\circ C$
					29	$@T_a = 85^\circ C$
Supply voltage	$V_{CC}$	V	$\pm 22.8$		$\pm 25.2$	
Current consumption	$I_{CC}$	mA		$19 + I_S$		$V_{CC} = \pm 22.8V$
Norminal sensitivity	$S_N$	mA/A		0.4		
Offset current	$I_{OE}$	mA	-0.17		0.17	$@I_p = 0, T_a = 25^\circ C$
Magnetic offset current @ $I_p = 0$ and specified RM after an overload of $3 \times I_{PN}$	$I_{OM}$	mA			0.15	
Offset current temperature drift	$I_{OT}$	mA	-0.25		$\pm 0.25$	$-10^\circ C \sim 70^\circ C$
Total error at $I_{PN}$	$\varepsilon_{tot}$	% of $I_{PN}$	-0.47		0.47	$-40^\circ C \dots 85^\circ C$
Linearity error	$\varepsilon_L$	% of $I_{PN}$	-0.1		0.1	
Delay time @ 10 % of $I_{PN}$	$t_{d10}$	$\mu s$			0.5	@10% of $I_{pn}$
Delay time @ 90 % of $I_{PN}$	$t_{d90}$	$\mu s$			1	@90% of $I_{pn}$
Frequency bandwidth (-1dB)	BW	kHz		100		

#### 4. STB-300LF4-B parameters

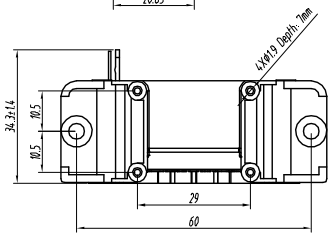
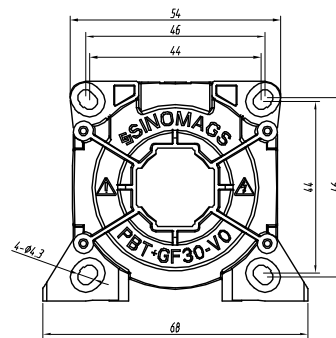
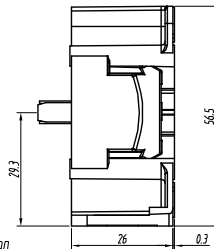
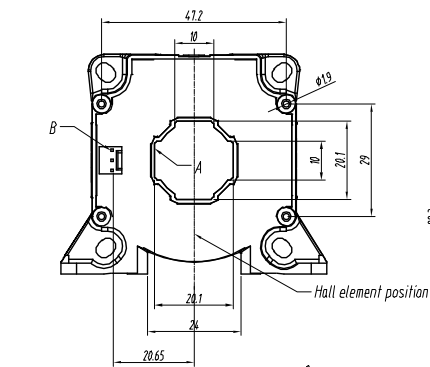
Condition:  $V_{CC} = \pm 12 \sim \pm 20V$ ,  $T_A = 25^\circ C$ , unless specified.

Parameters	Symbol	Unit	Min	Typ	Max	Remark
Primary nominal RMS current	$I_{PN}$	A			300	
Primary current measuring range	$I_{PM}$	A	-500		500	
Measuring resistance	$R_M$	$\Omega$	0		40	$V_{CC} = \pm 15V$ $@I_{PN} 25^\circ C$
Secondary nominal RMS current	$I_{SN}$	A	-0.15		0.15	
Turns ratio	$N_S$	NT		2000		
Resistance of secondary winding	$R_S$	$\Omega$			20	$@T_a = 70^\circ C$
					22	$@T_a = 85^\circ C$
Supply voltage	$V_{CC}$	V	$\pm 12$		$\pm 20$	
Current consumption	$I_{CC}$	mA		$15 + I_S$		$V_{CC} = \pm 15V$
Norminal sensitivity	$S_N$	mA/A		0.5		
Offset current	$I_{OE}$	mA	-0.2		0.2	$@I_P = 0, T_a = 25^\circ C$
Offset current temperature drift	$I_{OT}$	mA	-0.7		$\pm 0.7$	$-10^\circ C \sim 70^\circ C$
Total error at $I_{PN}$	$\varepsilon_{tot}$	% of $I_{PN}$	-0.47		0.47	$-40^\circ C \dots 85^\circ C$
Linearity error	$\varepsilon_L$	% of $I_{PN}$	-0.1		0.1	
Delay time @ 10 % of $I_{PN}$	$t_{d10}$	$\mu s$			0.5	@10% of $I_{pn}$
Delay time @ 90 % of $I_{PN}$	$t_{d90}$	$\mu s$			1	@90% of $I_{pn}$
Frequency bandwidth (-1dB)	BW	kHz		100		

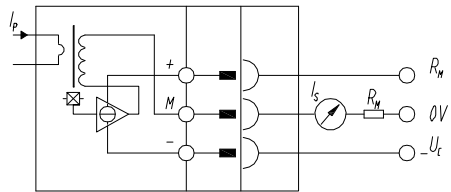
### 5. STB-300LF4 Dimensions:



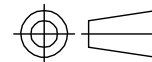
	$d_{CT}$	$d_{CP}$
A-B	10.6 mm	10.6 mm



Connection

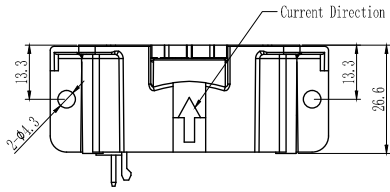


Material : Fit UL94V-0 & RoHS requirements ;  
General tolerance :  $\pm 0.5$   
Unit :mm

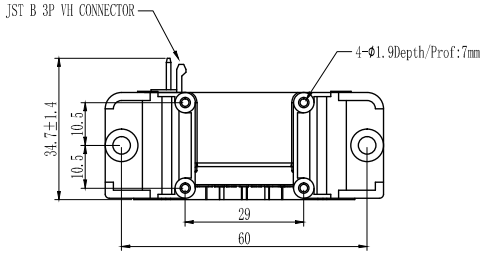
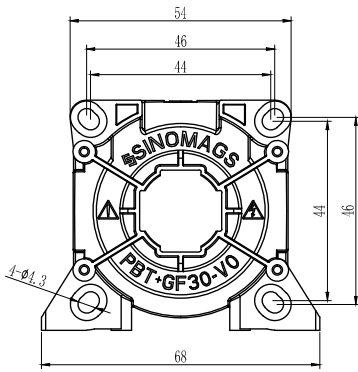
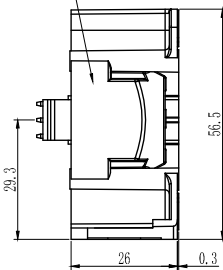
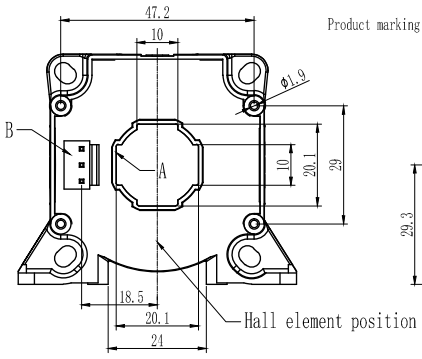




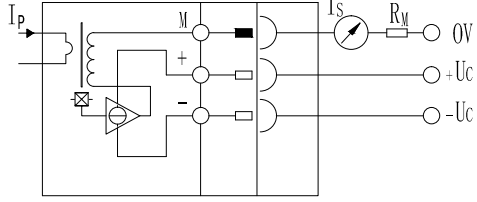
## 6. STB-300LF4-A Dimensions:



	$d_{Cl}$	$d_{CP}$
A-B	8 mm	9.5mm



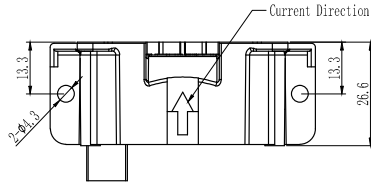
### Connection



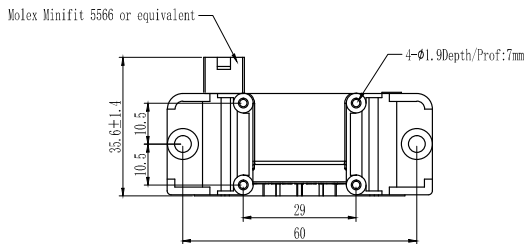
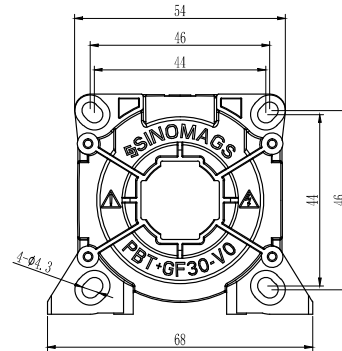
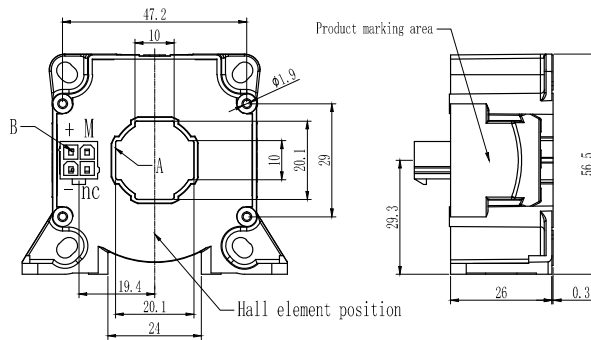
Material : Fit UL94V-0 & RoHS requirements ;  
 General tolerance :  $\pm 0.5$   
 Unit :mm



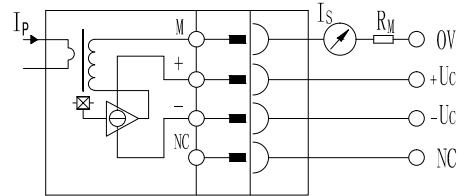
## 7. STB-300LF4-B Dimensions:



	$d_{CT}$	$d_{CP}$
A-B	10.5 mm	22mm



### Connection



Material : Fit UL94V-0 & RoHS  
 requirements ;  
 General tolerance :  $\pm 0.5$   
 Unit :mm

