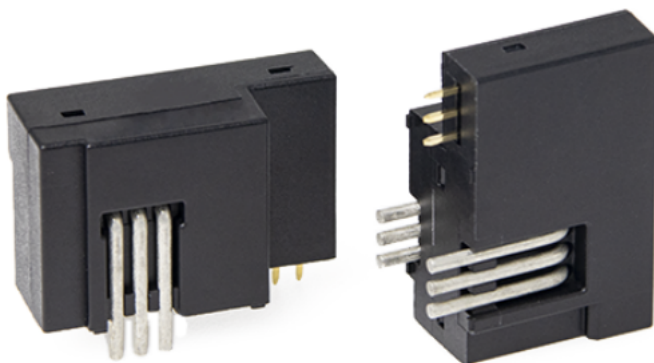


CURRENT SENSOR

PRODUCT SERIES: STB-LA/DF
STB-25LA/DF
PRODUCT PART NUMBER: STB-50LA/DF
STB-100LA/DF
VERSION: Ver 1.1



Sinomags Technology Co., Ltd.

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1. Description

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

Typical application

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

General parameters

Parameter	Symbol	Unit	Value
Working environment temperature	T_A	°C	-40 ~ 85
Storage temperature	T_s	°C	-40 ~ 90
Mass	m	g	13

Absolute parameters

Parameters	Symbol	Unit	Value
Supply voltage	V_C	V	±18
Maximum primary current	I_P	A	10*I _{pn}
ESD rating (HBM)	U_{ESD}	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	5	
Impulse withstand voltage 1.2/50μs	$\hat{U}_w$	kV	8	
Clearance distance (pri. -sec)	dCl	mm	10.2	Shortest distance through air
Creepage distance (pri. -sec)	dCp	mm	10.2	Shortest path along device body
Case material			V0	According to UL 94

2. Electrical parameters (STB-25LA/DF)

Condition: $V_C = \pm 15V$, $T_A = 25^\circ C$, unless specified.

Parameters	Symbol	Unit	Min.	Typ.	Max.	Remark
Primary nominal rms current	I_{PN}	A		25		
Primary current measuring range	I_{Pmax}	A		55		
Supply voltage	V_C	V	± 12		± 15	allowable error 5%
Turns ratio	N_S	NT		1000		
Secondary coil resistance	R_S	Ω			145	$T_A = 85^\circ C$
Measuring resistance	R_m	Ω	0		200	$V_C = \pm 12V$
			16		400	$V_C = \pm 15V$
Secondary nominal RMS current	I_{SN}	mA		25		
Current consumption	I_C	mA		$19 + I_S$		$I_S = ABS(I_P / N_S)$
Accuracy	X	%	-0.5		0.5	I_{PN} $T_A = 25^\circ C$
Temperature drift of X	X_{Ti}	%	-0.1		0.1	$T_A = -40 \dots +85^\circ C$
Linearity error	ε_L	%	-0.1		0.1	I_{PN}
Offset current	I_O	mA	-0.08	0.02	0.08	$I_P = 0 A$ $T_A = 25^\circ C$
Offset current temperature drift I_O	I_{OT}	mA		0.03		$-40^\circ C \sim 85^\circ C$
Long term drift Offset current I_O	I_{Ot}	mA		0.03		
Hysteresis current @ $I_P = 0 A$	I_{OH}	mA		0.02	0.05	caused by primary current $3 \times I_{PN}$
Offset current (including I_O , I_{Ot} , I_{OT})	I_{oges}	mA			0.1	
Reaction time	t_{ra}	μs		0.3		10% of I_{PN}
Response time	t_r	μs		0.5		90% of I_{PN}
Frequency bandwidth	BW	kHz		200		

3. Electrical parameters (STB-50LA/DF)

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

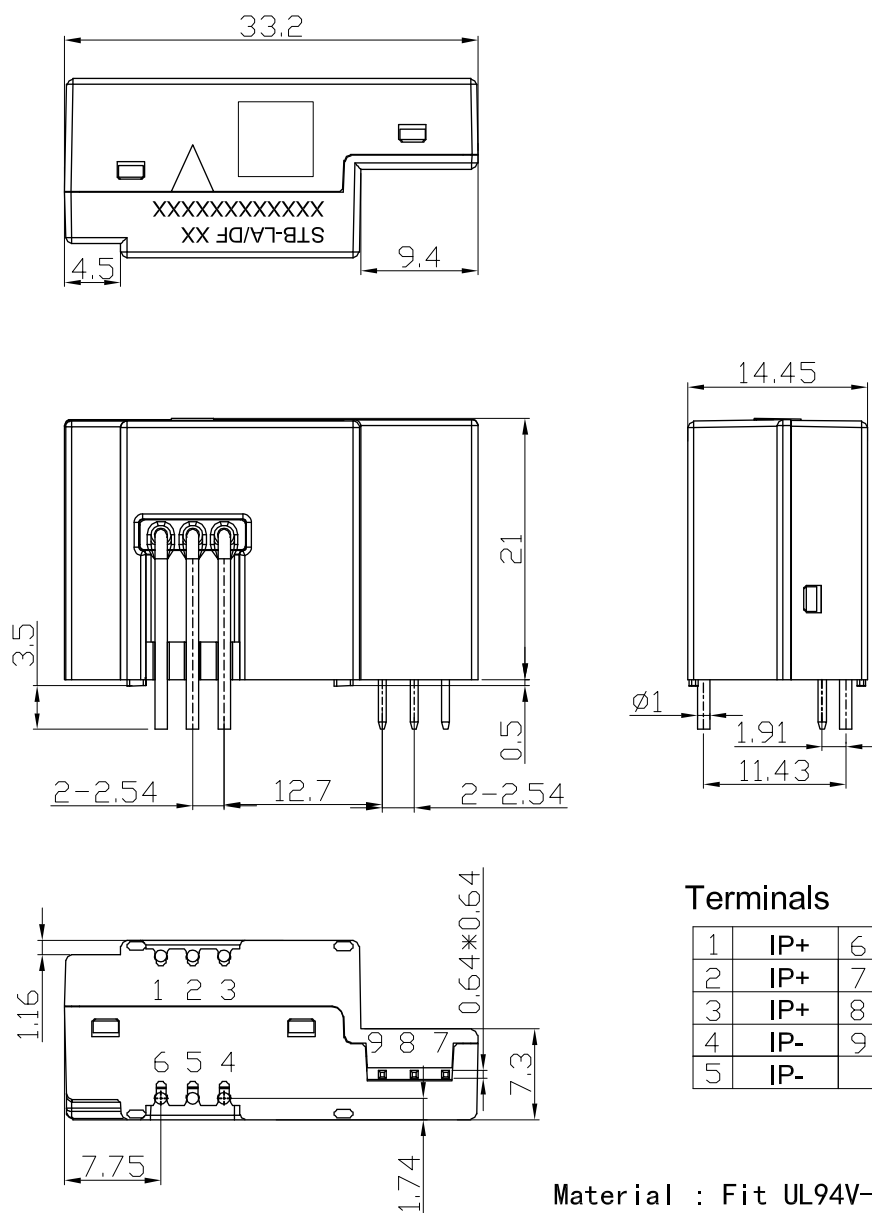
Parameters	Symbol	Unit	Min.	Typ.	Max.	Remark
Primary nominal rms current	I_{PN}	A		50		
Primary current measuring range	I_{Pmax}	A	-145		145	
Supply voltage	V_C	V	± 12		± 15	allowable error 5%
Turns ratio	N_S	NT		2000		
Secondary coil resistance	R_S	Ω			145	$T_A = 85^\circ C$
Measuring resistance	R_m	Ω	0		200	$V_C = \pm 12V$
			16		400	$V_C = \pm 15V$
Secondary nominal RMS current	I_{SN}	mA		25		
Current consumption	I_C	mA		$19 + I_S$		$I_S = \text{ABS}(I_P / N_S)$
Accuracy	X	%	-0.5		0.5	$I_{PN} \quad T_A = 25^\circ C$
Temperature drift of X	X_{Ti}	%	-0.1		0.1	$T_A = -40 \dots +85^\circ C$
Linearity error	ε_L	%	-0.1		0.1	I_{PN}
Offset current	I_O	mA	-0.08	0.02	0.08	$I_P = 0 \text{ A} \quad T_A = 25^\circ C$
Offset current temperature drift I_O	I_{OT}	mA		0.03		$-40^\circ C \sim 85^\circ C$
Long term drift Offset current I_O	I_{Ot}	mA		0.03		
Hysteresis current @ $I_P = 0 \text{ A}$	I_{OH}	mA		0.02	0.05	caused by primary current $3 \times I_{PN}$
Offset current (including I_O, I_{Ot}, I_{OT})	I_{oges}	mA			0.1	
Reaction time	t_{ra}	μs		0.3		10% of I_{PN}
Response time	t_r	μs		0.5		90% of I_{PN}
Frequency bandwidth	BW	kHz		200		

4. Electrical parameters (STB-100LA/DF)

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		
Primary current measuring range	I_{Pmax}	A	-175		175	
Supply voltage	V_C	V	± 12		± 15	allowable error 5%
Turns ratio	N_S	NT		2000		
Secondary coil resistance	R_S	Ω			145	$T_A = 85^\circ C$
Measuring resistance	R_m	Ω	0		200	$V_C = \pm 12V$
			16		400	$V_C = \pm 15V$
Secondary nominal RMS current	I_{SN}	mA		50		
Current consumption	I_C	mA		$19 + I_S$		$I_S = \text{ABS}(I_P / N_S)$
Accuracy	X	%	-0.5		0.5	$I_{PN} \quad T_A = 25^\circ C$
Temperature drift of X	X_{Ti}	%	-0.1		0.1	$T_A = -40 \dots +85^\circ C$
Linearity error	ε_L	%	-0.1		0.1	I_{PN}
Offset current	I_O	mA	-0.08	0.02	0.08	$I_P = 0 \text{ A} \quad T_A = 25^\circ C$
Offset current temperature drift I_O	I_{OT}	mA		0.03		$-40^\circ C \sim 85^\circ C$
Long term drift Offset current I_O	I_{Ot}	mA		0.03		
Hysteresis current @ $I_P = 0 \text{ A}$	I_{OH}	mA		0.02	0.05	caused by primary current $3 \times I_{PN}$
Offset current (including I_O , I_{Ot} , I_{OT})	I_{oges}	mA			0.1	
Reaction time	t_{ra}	μs		0.3		10% of I_{PN}
Response time	t_r	μs		0.5		90% of I_{PN}
Frequency bandwidth	BW	kHz		200		

5. Dimensions: STB-25LA/DF



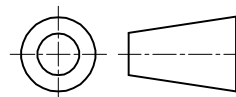
Terminals

1	IP+	6	IP-
2	IP+	7	OUT
3	IP+	8	V+
4	IP-	9	V-
5	IP-		

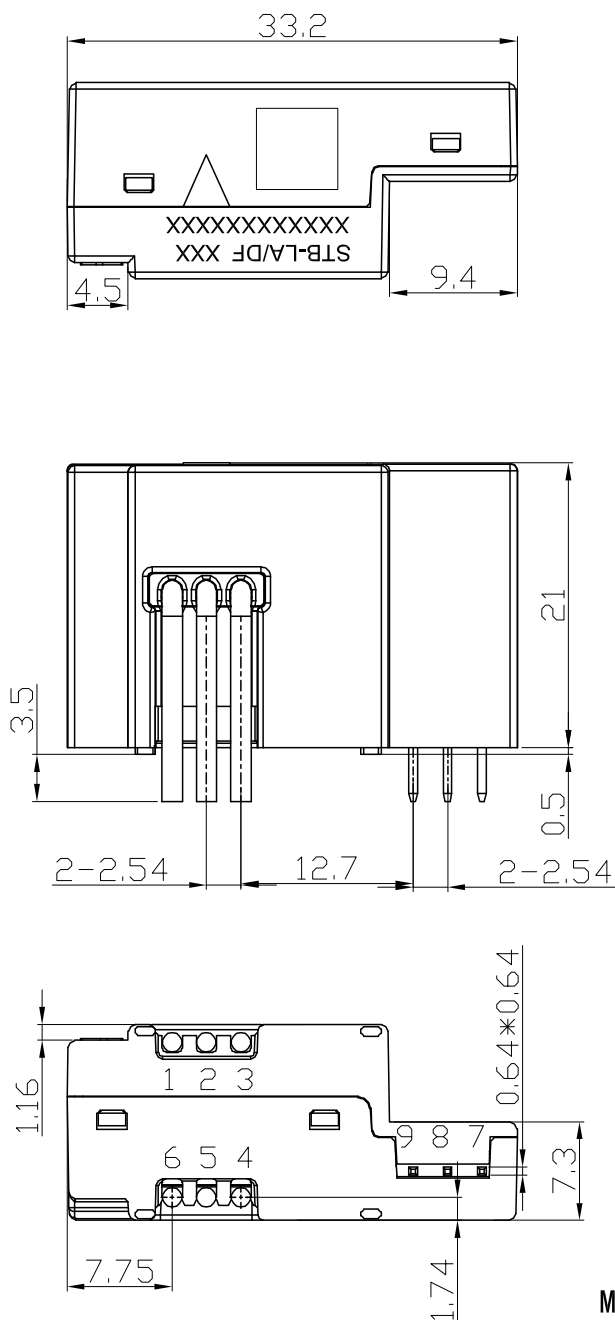
Material : Fit UL94V-0 & RoHS requirements ;

General tolerance : ± 0.5

Unit :mm



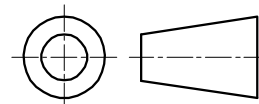
6. Dimensions: STB-50..100LA/DF



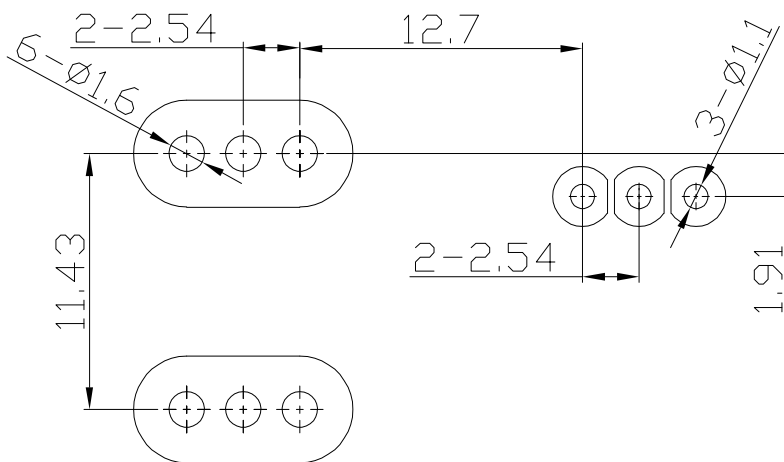
Terminals

1	IP+	6	IP-
2	IP+	7	OUT
3	IP+	8	V+
4	IP-	9	V-
5	IP-		

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



7. PCB footprint (STB-25LA/DF)

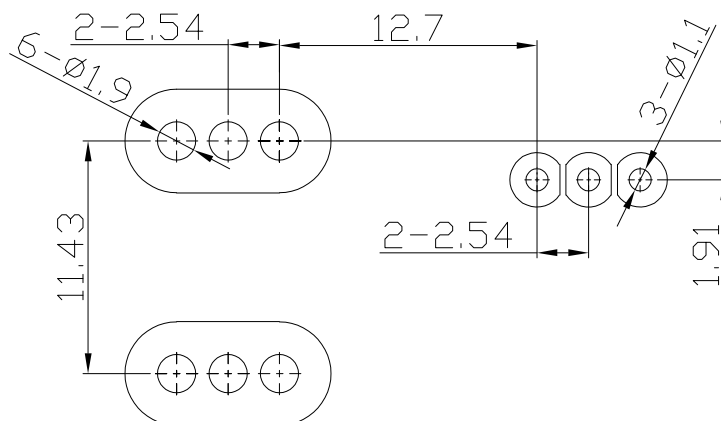


TOP side view

Assembly on PCB

- Recommended PCB hole diameter: 1.1mm for secondary pins,
- Maximum PCB thickness: 2.4 mm (can be customized per request).
- Wave soldering profile: maximum 260°C for 10 seconds.

8. PCB footprint (STB-50..100LA/DF)



TOP side view

Assembly on PCB

- Recommended PCB hole diameter: 1.1mm for secondary pins,
- Maximum PCB thickness: 2.4 mm (can be customized per request).
- Wave soldering profile: maximum 260°C for 10 seconds.