

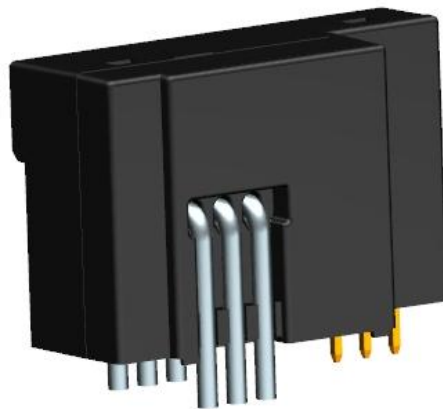
# CURRENT SENSOR

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PRODUCT SERIES: STB-LA/DH

PRODUCT PART NUMBER: STB-50LA/DH

VERSION: Ver 2.2



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## CONTENT

1.	Description .....	2
2.	Electrical parameters (STB-50LA/DH) .....	3
3.	Dimensions: STB-50LA/DH .....	4
4.	PCB footprint (STB-50LA/DH) .....	5

## 1. Description

STB-LA/DH series current sensors are based on close loop principle with TMR technology. 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
Sensor operating limit temperature	T_L	°C	-40 ~ 105
Storage temperature	T_stg	°C	-40 ~ 105
Mass	m	g	20

### Absolute parameters

Parameters	Symbol	Unit	Value
Supply voltage	Vcc_max	V	±18
Maximum primary current	I_p_max	A	10*I <sub>pn</sub>
ESD rating (HBM)	U_ESD_HBM	kV	4
High temperature humidity	T_HAST		85°C&85%RH (1000h)

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

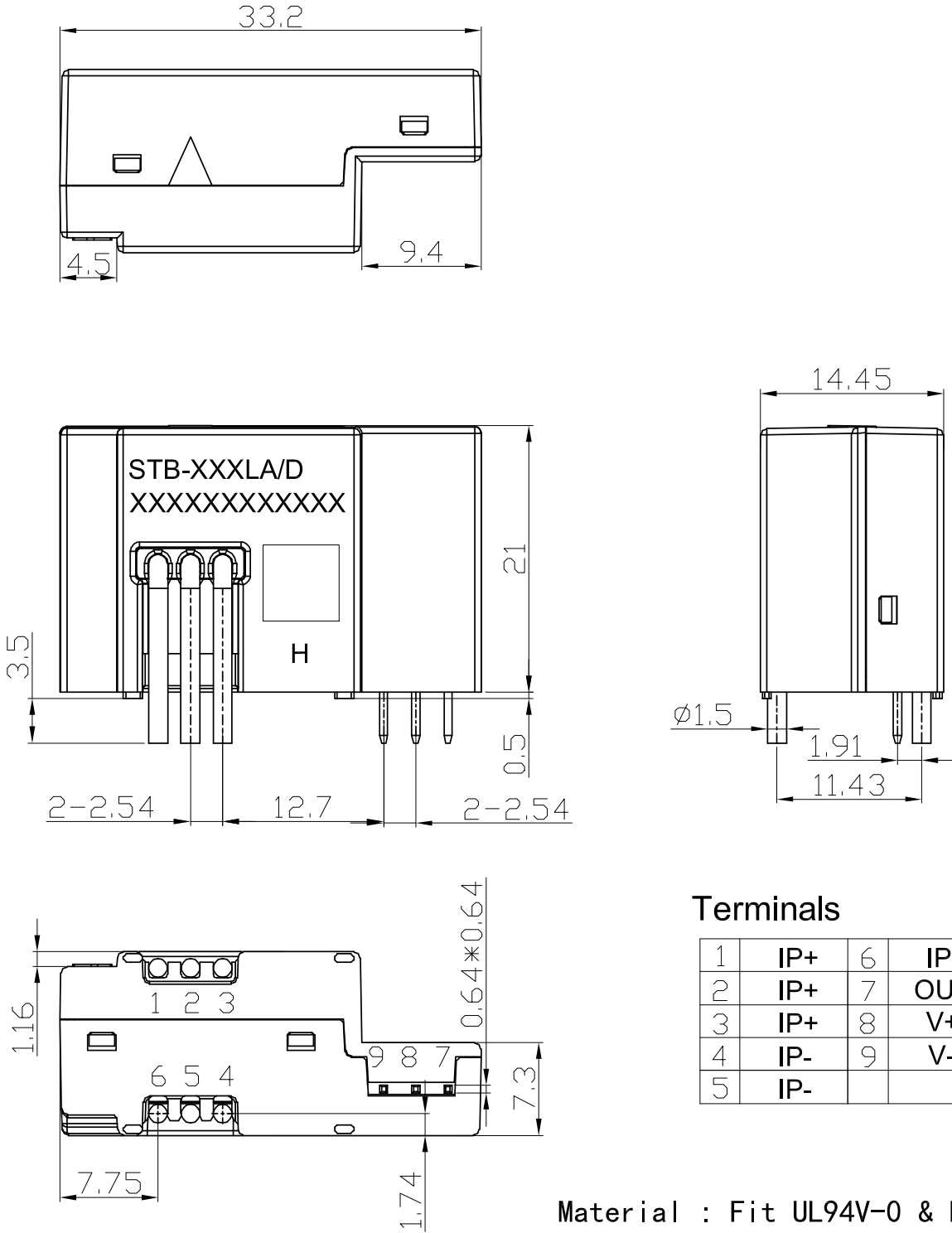
Parameter	Symbol	Unit	Value	Remark
RMS voltage for AC test 50Hz/1 min	Ud	kV	4	
Impulse withstand voltage 1.2/50µs	Ūw	kV	8	
Clearance distance (pri. -sec)	dCl	mm	10.2	Shortest distance through air
Creepage distance (pri. -sec)	dCp	mm	10.2	Shortest path along device body
Case material			V0	According to UL 94

## 2. Electrical parameters (STB-50LA/DH)

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	$I_{pm}$	A		128		@ $V_C = \pm 12V$ , $R_M = 10\ \Omega$ @ $V_C = \pm 15V$ , $R_M = 22\ \Omega$
Supply voltage	$V_{cc}$	V	$\pm 12$		$\pm 15$	
Turns ratio	$N_s$	NT		1000		
Secondary coil resistance	$R_s$	$\Omega$		80		@ $T_A = 85^\circ C$
Measuring resistance	$R_m$	$\Omega$	10		400	
Secondary nominal r.m.s. current	$I_{sn}$	mA		50		
Current consumption	$I_{cc}$	mA		$10 + I_s$		$I_s = ABS(I_p / N_s)$
Accuracy $T_A = 25^\circ C$	X	%			$\pm 0.3$	within $I_{pn}$
Linearity error within $I_{pn}$	$\xi_L$	% of $I_{pn}$			$\pm 0.20$	
offset	$I_{OE}$	mA			$\pm 0.15$	@ $I_p = 0\ A$
Offset current temperature drift	$I_{OT}$	mA		$\pm 0.15$	$\pm 0.30$	$-40^\circ C \sim 85^\circ C$
Reaction time @ 10 % of $I_p$	$t_{ra}$	$\mu s$		0.5		@ 10% of $I_{pn}$
Step response time @ 90 % of $I_p$	$t_{res}$	$\mu s$		0.5		@ 90% of $I_{pn}$
-3 dB band width	BW	kHz		150		

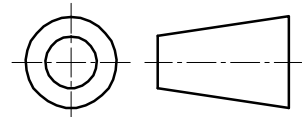
### 3. Dimensions: STB-50LA/DH



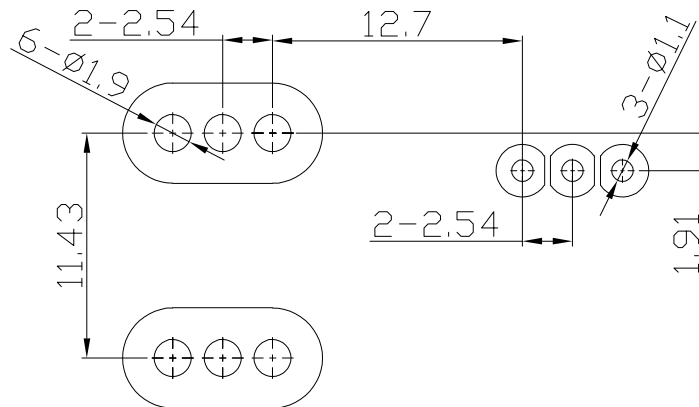
#### Terminals

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 :  $\pm 0.5$   
 Unit :mm



#### 4. PCB footprint (STB-50LA/DH)



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.