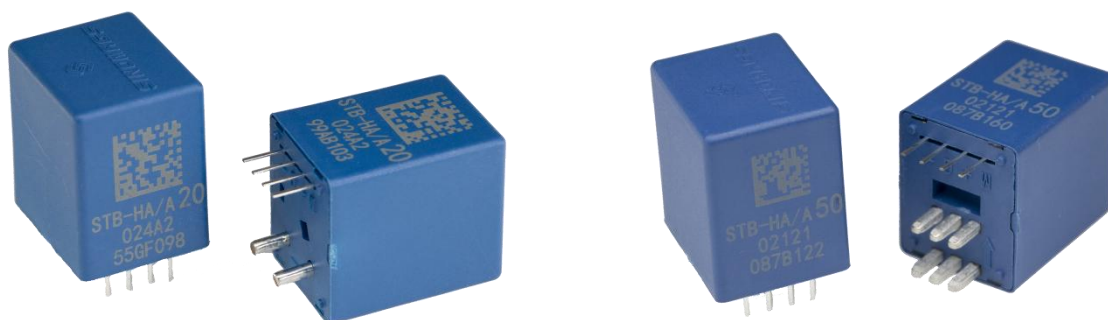


## CURRENT SENSOR

PRODUCT SERIES: STB-HA/A

PRODUCT PART NUMBER: STB-10HA/A, STB-15HA/A  
STB-20HA/A, STB-25HA/A  
STB-30HA/A, STB-50HA/A  
STB-60HA/A

VERSION: Ver 5.3



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## 1. Description

STB-HA/A series current sensors are based on close loop principle with TMR technology. The sensor can detect those current with DC, AC, pulse and irregular wave shape.

### Typical application

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

### General parameters

Parameter	Symbol	Unit	Value
Working temperature	T <sub>A</sub>	°C	-40 ~ 85
Storage temperature	T <sub>stg</sub>	°C	-40 ~ 105
Mass	m	g	13

### Absolute parameters

Parameters	Symbol	Unit	Value
Supply voltage	V <sub>cc_max</sub>	V	±18
ESD rating (HBM)	U <sub>ESD_HBM</sub>	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.

### Electrical data

Primary nominal rms current I <sub>PN</sub> (A)	Primary current measuring rang I <sub>PM</sub> (A)	Primary conductor diameter x turns (mm)	Type
10	±30	1.6d x 2T	STB-10HA/A
15	±45	1.6d x 2T	STB-15HA/A
20	±60	1.6d x 1T	STB-20HA/A
25	±75	1.6d x 1T	STB-25HA/A
30	±90	1.6d x 1T	STB-30HA/A
50	±150	1.2 x 1.3x 1T	STB-50HA/A
60	±180	1.2 x 1.3x 1T	STB-60HA/A

## 2. STB-xxHA/A parameters

Condition:  $V_{CC} = \pm 15.0 \text{ V}$ ,  $N_P = 1$ ,  $R_L = 10 \text{ k}\Omega$ ,  $T_A = 25^\circ\text{C}$ , unless specified.

Parameters	Symbol	Unit	Min.	Typ.	Max.	Remark
Output Voltage	$V_{out}$	V	3.96	4	4.04	All series
Supply Voltage	$V_C$	V		$\pm 15 \pm 5\%$		All series
Current consumption	$I_C$	mA		$18 + I_P \cdot N_P / N_S$		STB-10HA/A $N_S: 1000$ STB-15HA/A $N_S: 1000$ STB-20HA/A $N_S: 1000$ STB-25HA/A $N_S: 1000$ STB-30HA/A $N_S: 1000$ STB-50HA/A $N_S: 1000$ STB-60HA/A $N_S: 1000$
Linearity ( $0 \dots \pm I_{PN}$ )	$\epsilon_L$	% of $I_{PN}$		$\pm 0.5$		All series
Electrical offset voltage	$V_{OE}$	mV	-40	0	40	$I_{PN} = 0\text{A}$
Accuracy @ RT	X	% of $I_{pn}$	-0.8		0.8	@ $25^\circ\text{C}$
Thermal drift of offset	$TCV_{OE}$	% of $I_{PN}$		$\pm 1$		All series
Thermal drift of gain	$TCV_O$	%		$\pm 1.5$		All series
Step response time	$t_r$	$\mu\text{s}$		1.5		All series
Frequency bandwidth (-3dB)	BW	kHz		150		All series

### 3. Frequency band width

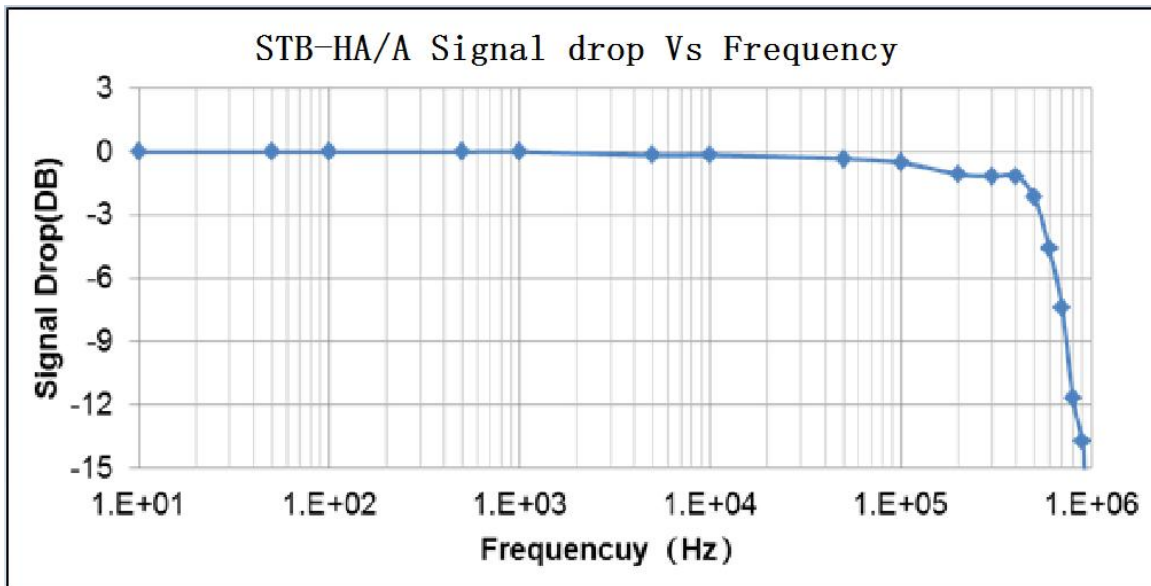


Fig.1 the band width of STB-xxHA/A series current sensors.

### 4. Step response time

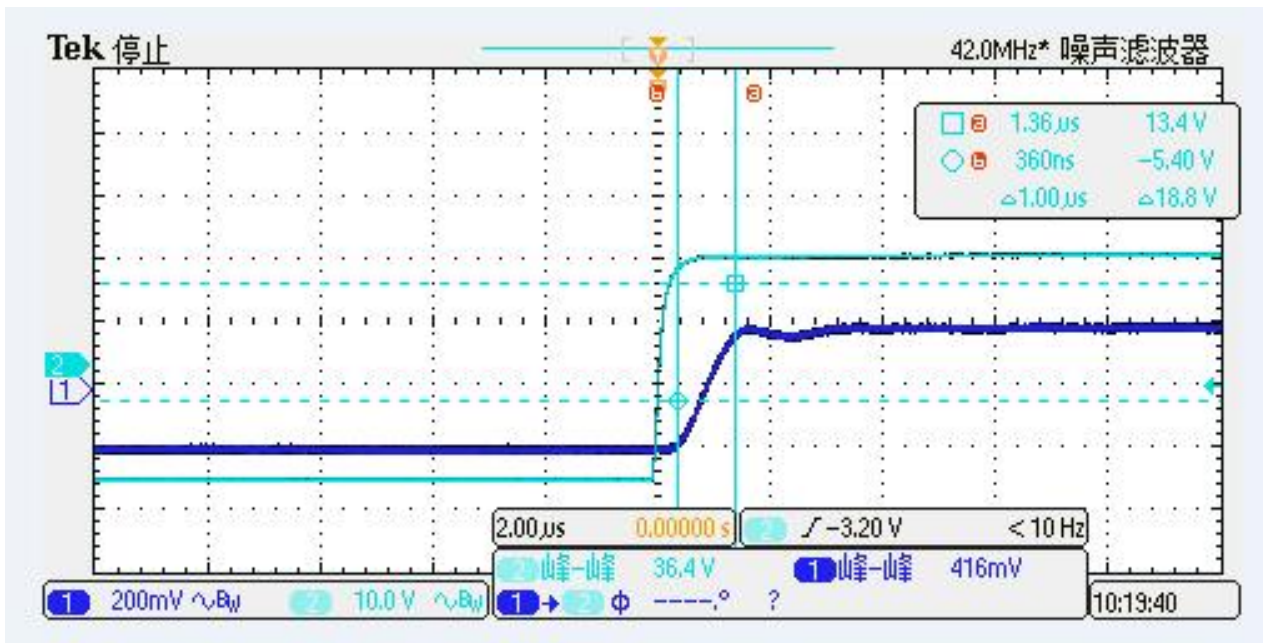
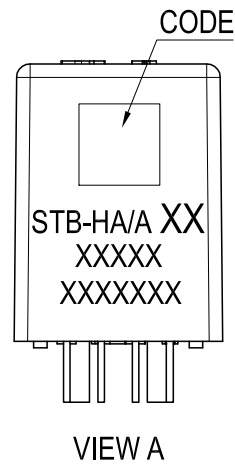
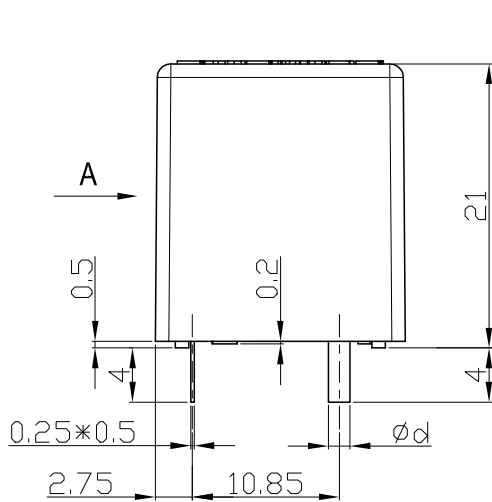
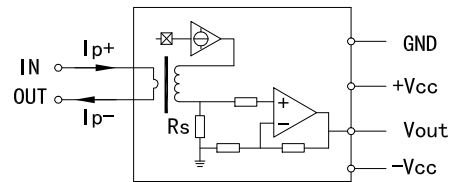


Fig.2 the step response time of STB-xxHA/A current sensors. The light blue is primary current, while the dark blue is output signal of current sensor. The step response time is less than 1.5 μs.

## 5. STB-10HA/A~STB-30HA/A: Dimensions & Pins & Footprint



Electrical diagrams:



Terminal:

STB	10HA/A	15HA/A	20HA/A
d	1.6x2T	1.6x2T	1.6x1T
STB	25HA/A	30HA/A	
d	1.6x1T	1.6x1T	

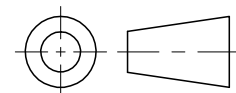
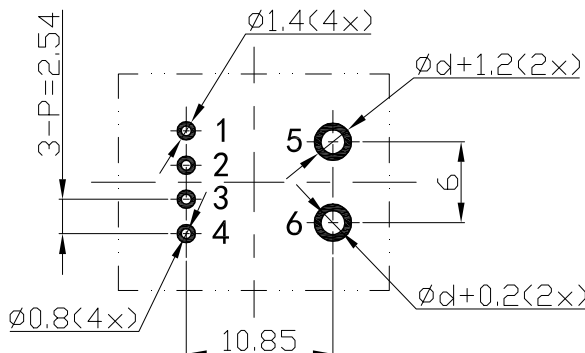
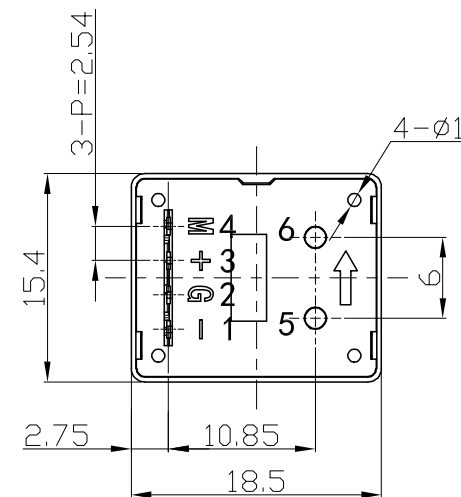
10HA/A~30HA/A Terminals:

- 1: -Vcc (-15V)
- 2: GND (0V)
- 3: +Vcc (+15V)
- 4: Vout
- 5: Primary input Current (+)
- 6: Primary input Current (-)

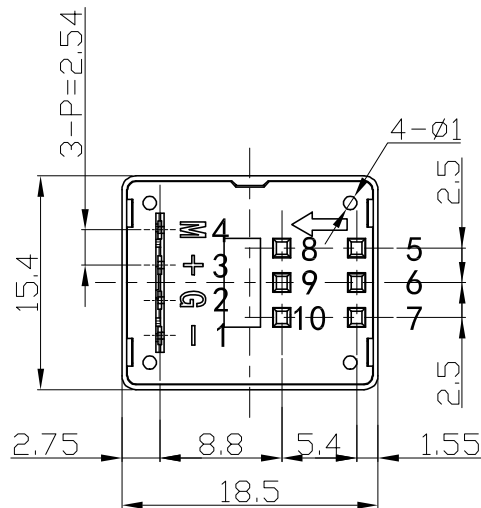
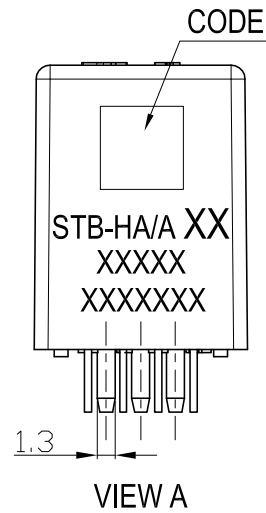
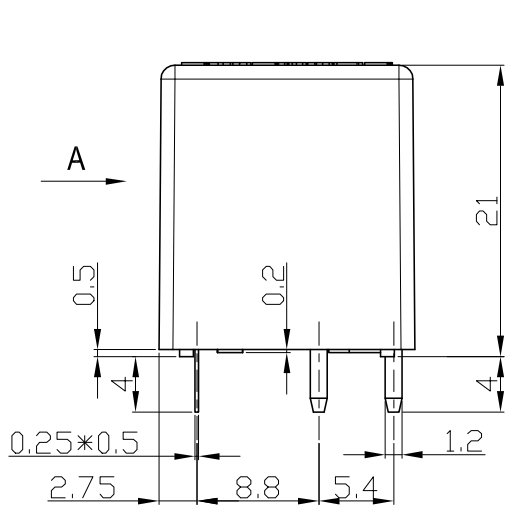
Material : Fit UL94V-0 & RoHS requirements ;

General tolerance :  $\pm 0.5$

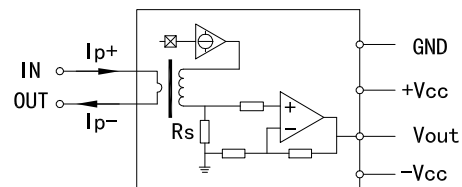
Unit :mm



## 6. STB-50HA/A~STB-60HA/A: Dimensions & Pins & Footprint

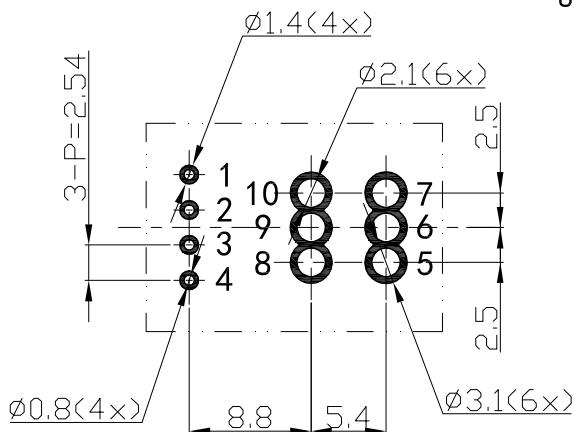


Electrical diagrams:



50HA/A~60HA/A Terminals:

- 1: -Vcc (-15V)
- 2: GND (0V)
- 3: +Vcc (+15V)
- 4: Vout
- 5/6/7: Primary input Current (+)
- 8/9/10: Primary input Current (-)



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

