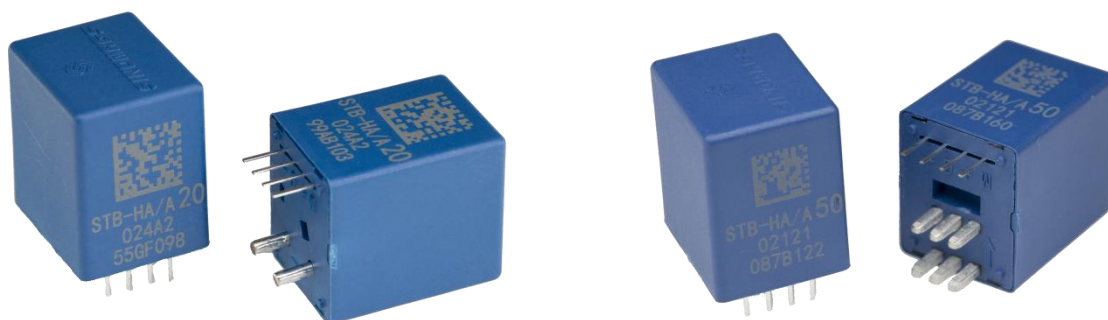


CURRENT SENSOR

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 _A	°C	-40 ~ 85
Storage temperature	T _{stg}	°C	-40 ~ 105
Mass	m	g	13

Absolute parameters

Parameters	Symbol	Unit	Value
Supply voltage	V _{cc_max}	V	±18
ESD rating (HBM)	U _{ESD_HBM}	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 _{PN} (A)	Primary current measuring rang I _{PM} (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 ($0 \dots \pm I_{PN}$)	ϵ_L	% of I_{PN}		± 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°C
Thermal drift of offset	TCV_{OE}	% of I_{PN}		± 1		All series
Thermal drift of gain	TCV_O	%		± 1.5		All series
Step response time	t_r	μs		1.5		All series
Frequency bandwidth (-3dB)	BW	kHz		150		All series

3. Frequency band width

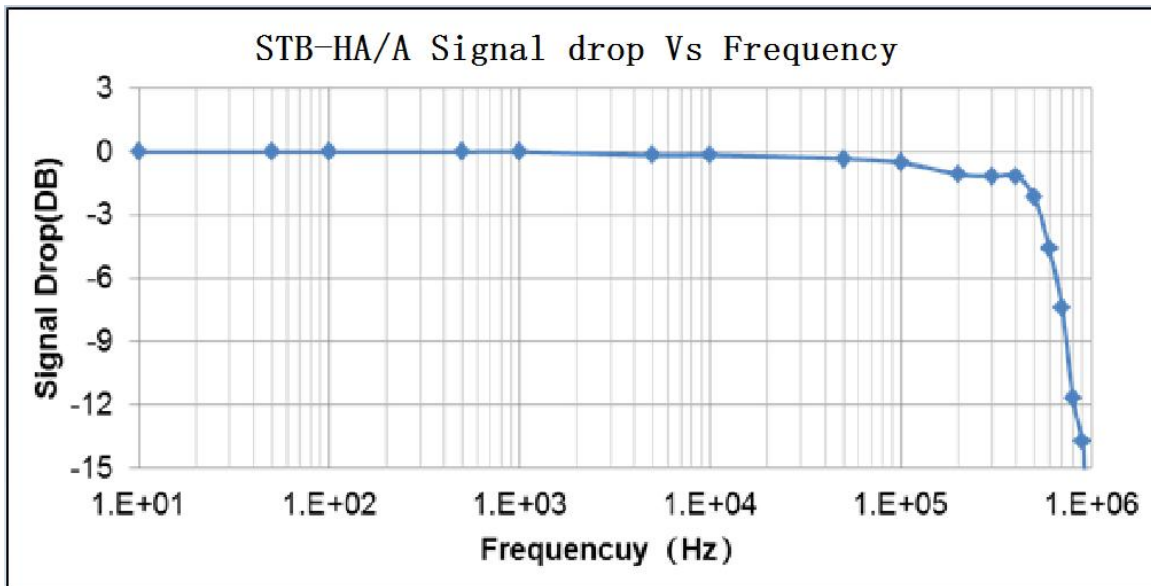


Fig.1 the band width of STB-xxHA/A series current sensors.

4. Step response time

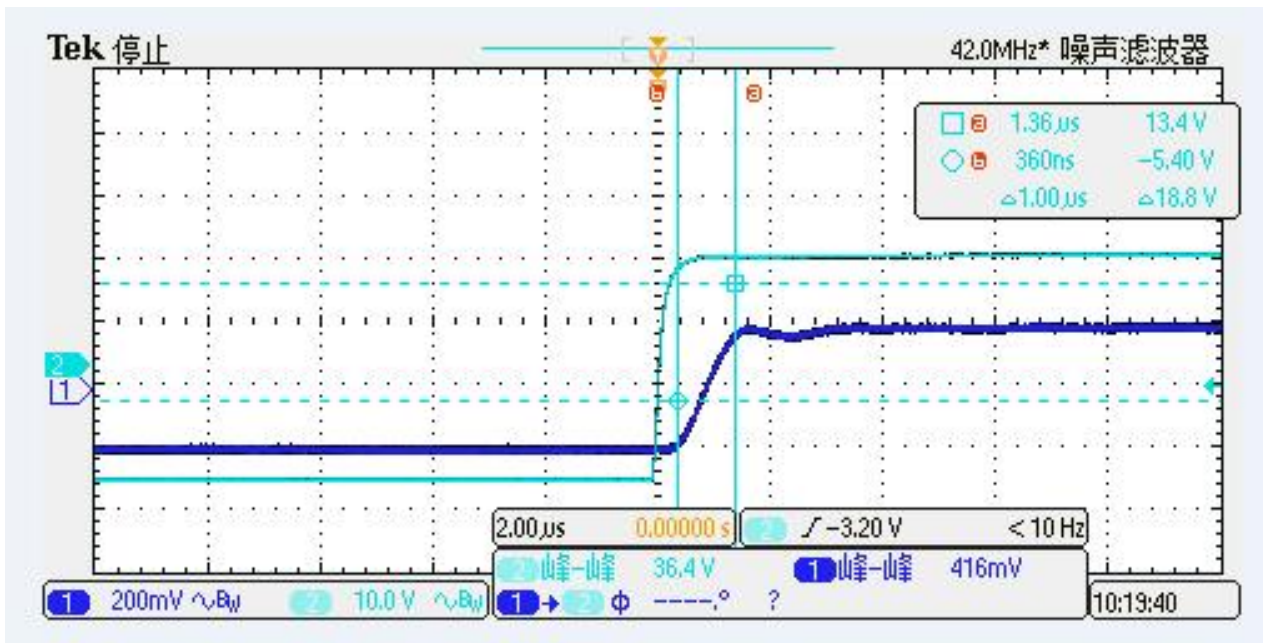
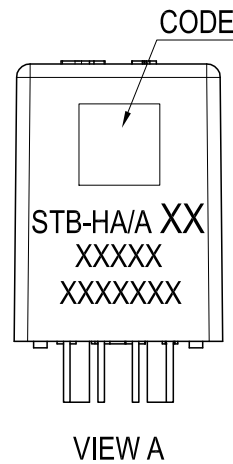
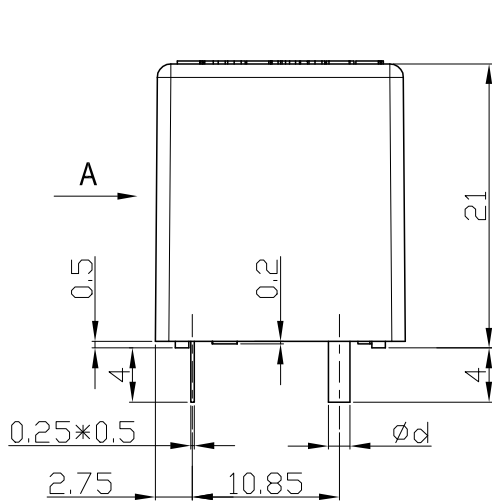
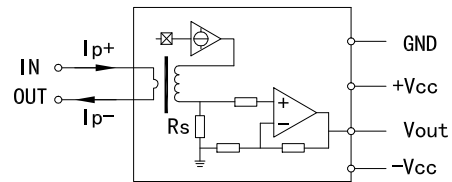


Fig.2 the step response time of STB-xxHA/A current sensors. The light blue is primary current, while the dark blue is output signal of current sensor. The step response time is less than 1.5 μs.

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	

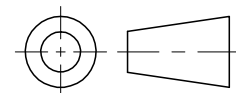
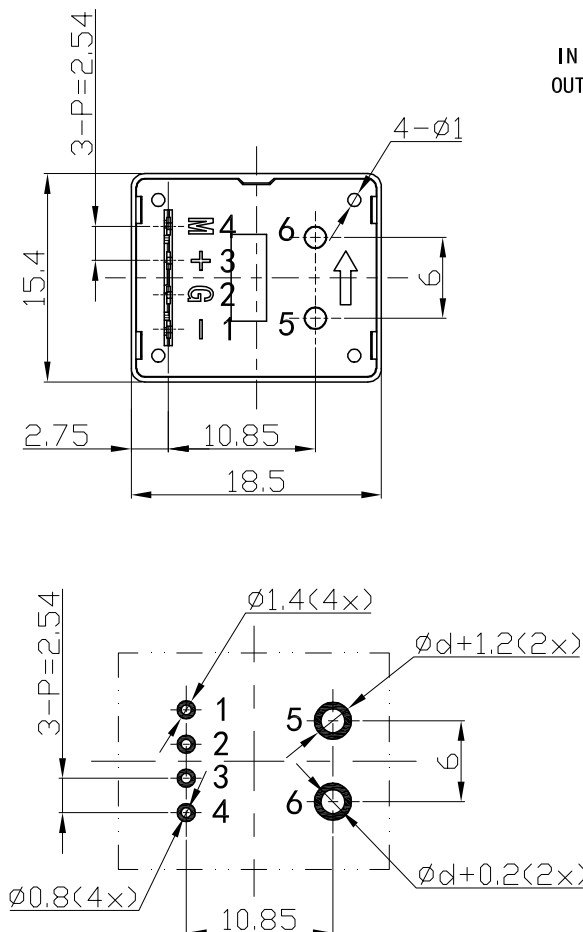
10HA/A~30HA/A Terminals:

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

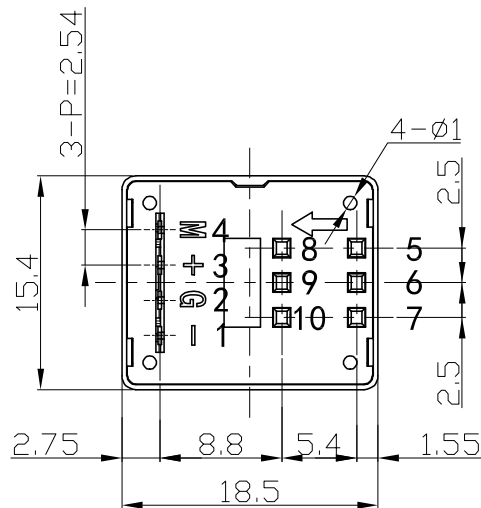
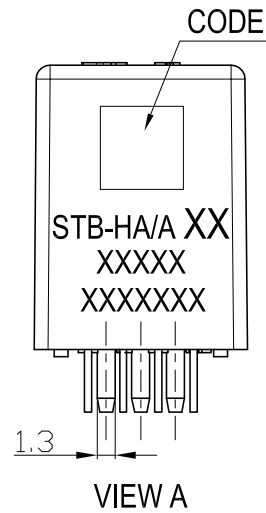
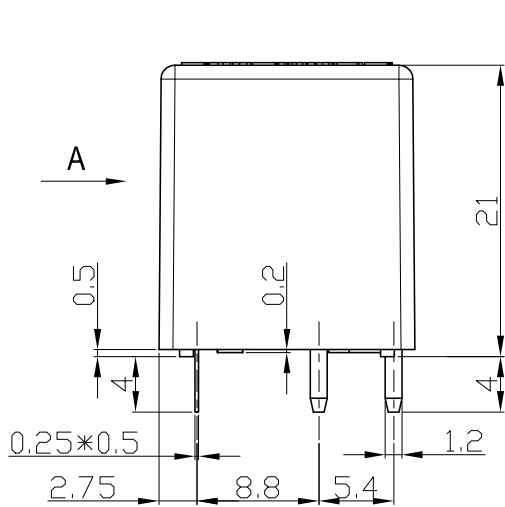
Material : Fit UL94V-0 & RoHS requirements ;

General tolerance : ± 0.5

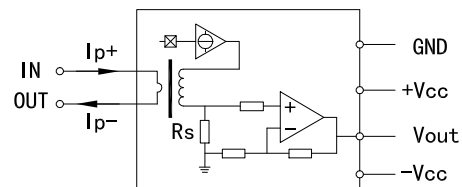
Unit :mm



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

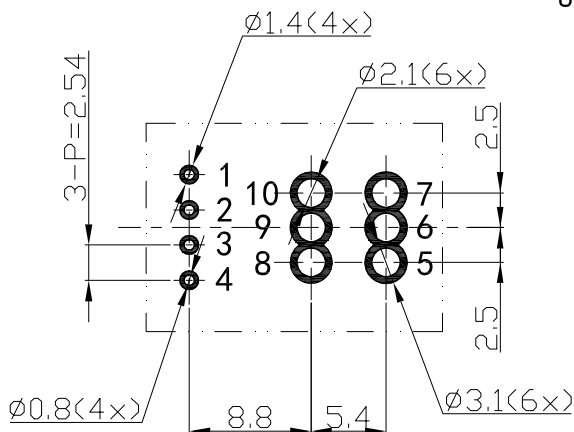


Electrical diagrams:



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 : ± 0.5
Unit : mm

