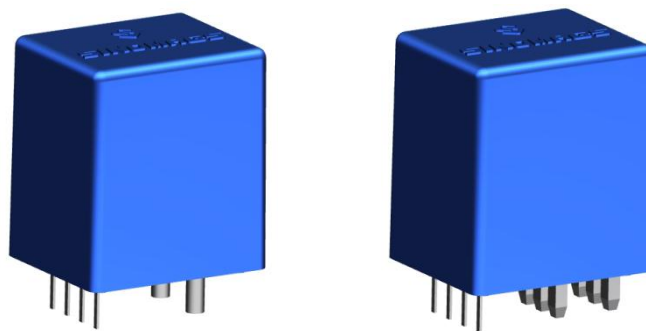


CURRENT SENSOR

PRODUCT SERIES: STB-HA

PRODUCT PART NUMBER: STB-03HA/A, STB-05HA/A, STB-10HA/A,
STB-15HA/A, STB-20HA/A, STB-25HA/A,
STB-50HA/A,

VERSION: Ver 5.0



Sinomags Technology Co., Ltd.

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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
3	±9	0.6d x 6T	STB-03-HA/A
5	±15	0.8d x 4T	STB-05-HA/A
10	±30	1.1d x 2T	STB-10-HA/A
15	±45	1.4d x 2T	STB-15-HA/A
20	±60	1.6d x 1T	STB-20-HA/A
25	±75	1.6d x 1T	STB-25-HA/A
50	±150	1.2 x 1.3x 1T	STB-50-HA/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-03-HA/A N_S : 1000 STB-05-HA/A N_S : 1000 STB-10-HA/A N_S : 1000 STB-15-HA/A N_S : 1000 STB-20-HA/A N_S : 1000 STB-25-HA/A N_S : 1000 STB-50-HA/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	$I_{PN} = 0\text{A}$
Thermal drift of offset	TCV_{OE}	% of I_{PN}		± 1		All series
Thermal drift of gain	TCV_O	% of I_{PN}		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

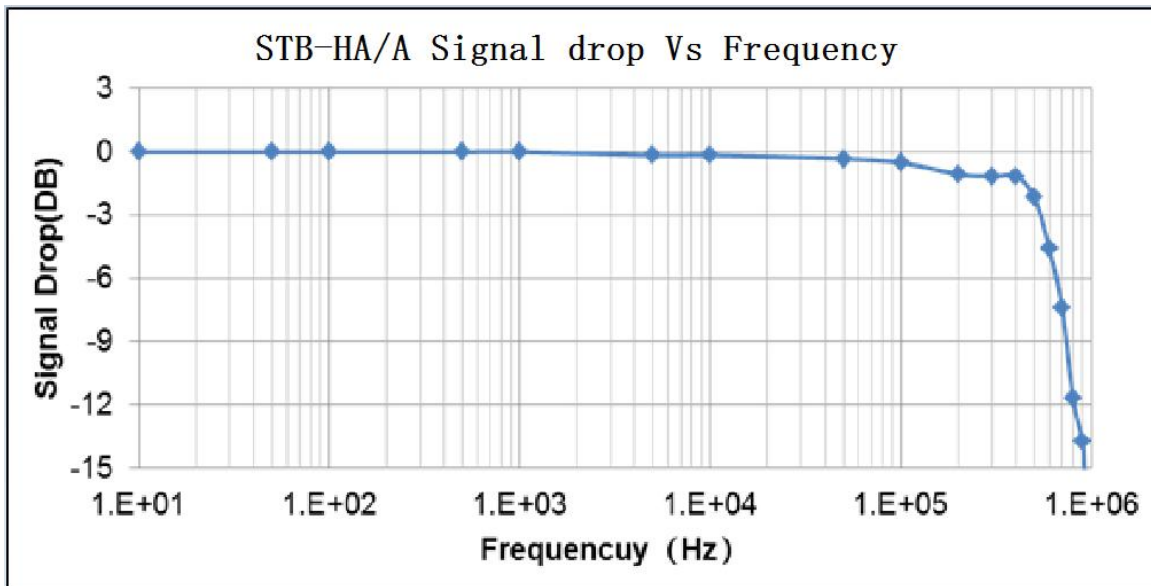


Fig.1 the band width of STB-xxHA/A series current sensors.

4. Step response time

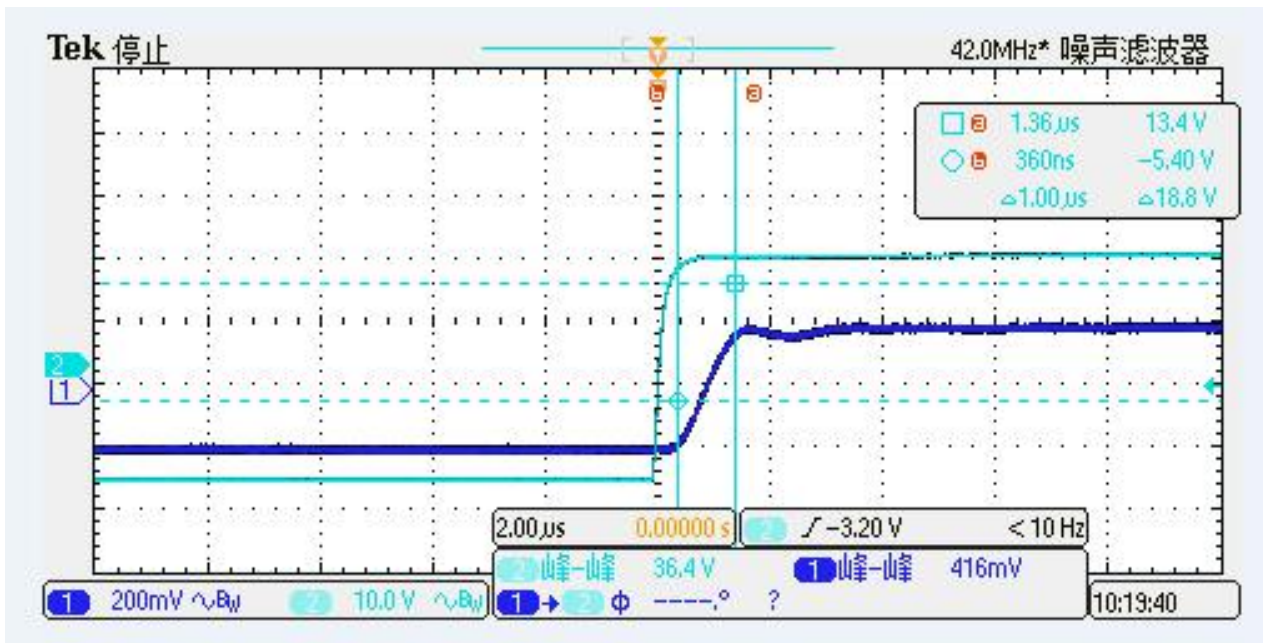
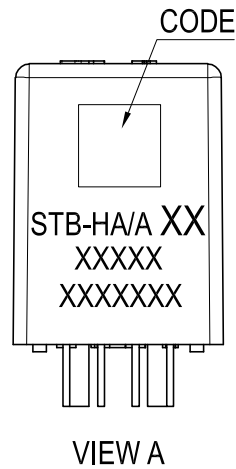
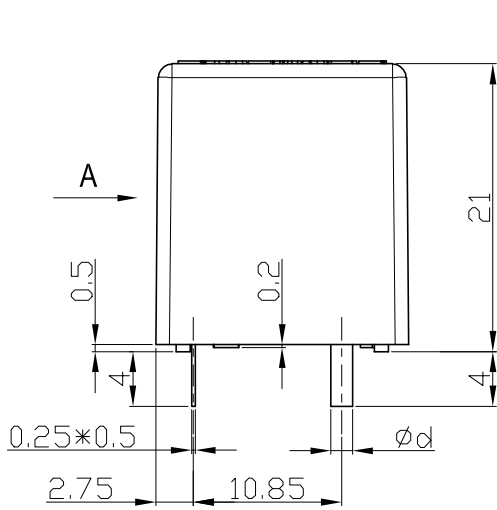
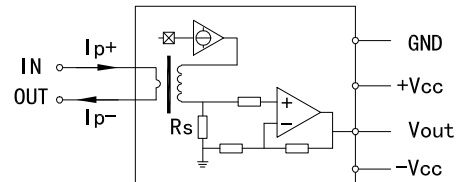


Fig.2 the step response time of STB-xxHA/A current sensors. The light blue is primary current, while the dark blue is output signal of current sensor. The step response time is less than 1.5 μs.

5. STB-03HA/A~STB-25HA/A: Dimensions & Pins & Footprint



Electrical diagrams:



Terminal:

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

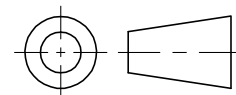
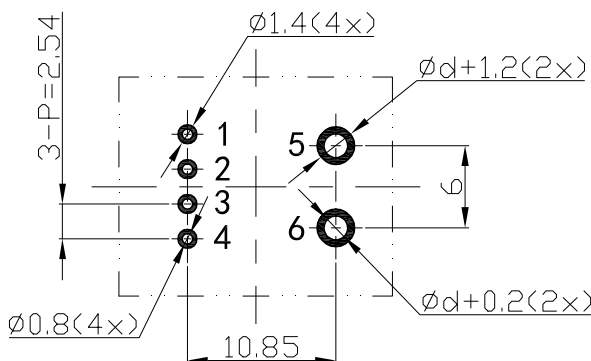
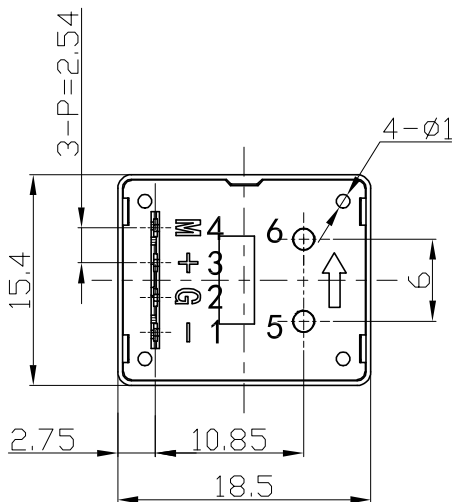
10HA/A~30HA/A Terminals:

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

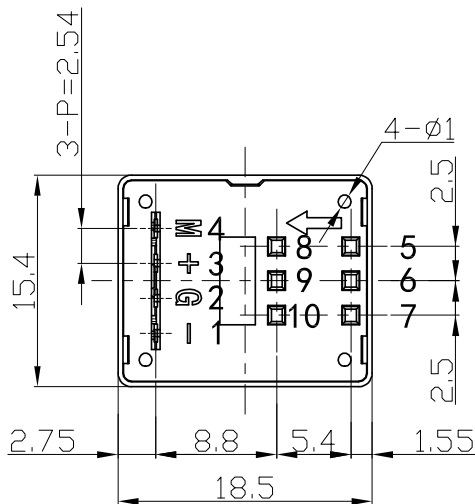
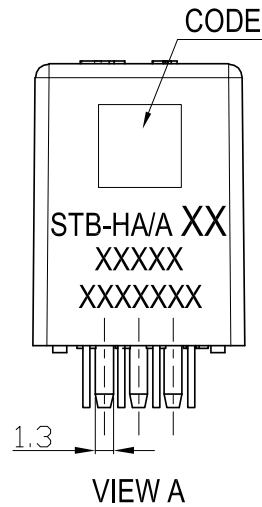
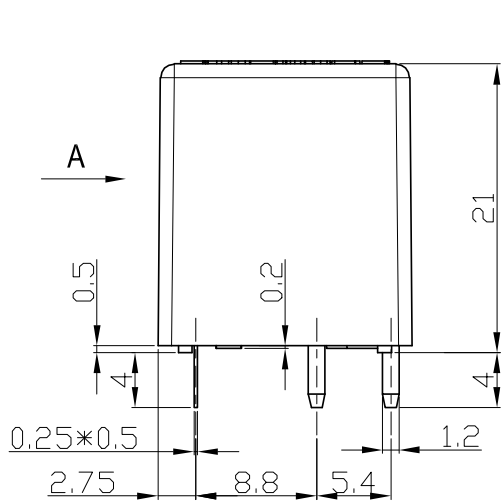
Material : Fit UL94V-0 & RoHS requirements ;

General tolerance : ± 0.5

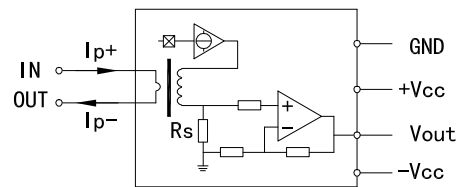
Unit :mm



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

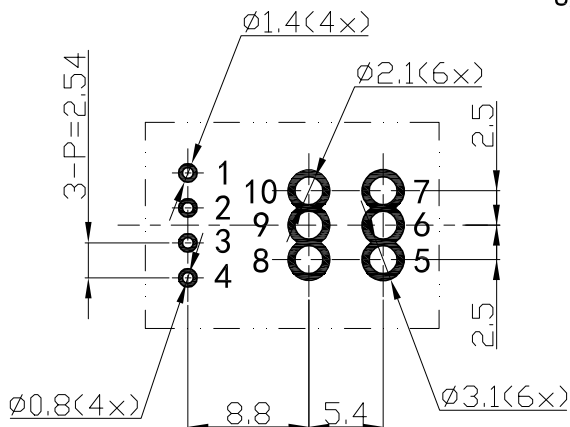


Electrical diagrams:



50HA 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

