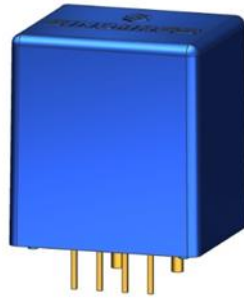


CURRENT SENSOR

PRODUCT SERIES: STB-HA1

PRODUCT PART NUMBER: STB-25HA1

REVISION: Ver 1.1



Sinomags Technology Co., Ltd.

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1. Description

STB-HA1 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}	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
25	±75	1.8d x 1T	STB-25-HA1

2. STB-25HA1 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	
Supply Voltage	V_C	V		$\pm 15 \pm 5\%$		
Current consumption	I_C	mA		$18 + I_P \cdot N_P / N_S$		$N_S: 1250$
Linearity ($0 \dots \pm I_{PN}$)	ϵ_L	% of I_{PN}		± 0.5		
Electrical offset voltage	V_{OE}	mV	-40	0	40	$I_{PN} = 0\text{ A}$
Thermal drift of offset	TCV_{OE}	% of I_{PN}		± 1		
Thermal drift of gain	TCV_O	% of I_{PN}		1.5		
Step response time	t_r	μs		1.5		
Frequency bandwidth (-3dB)	BW	kHz		150		
Output impedance	R_o	Ω		27		

3. Frequency band width

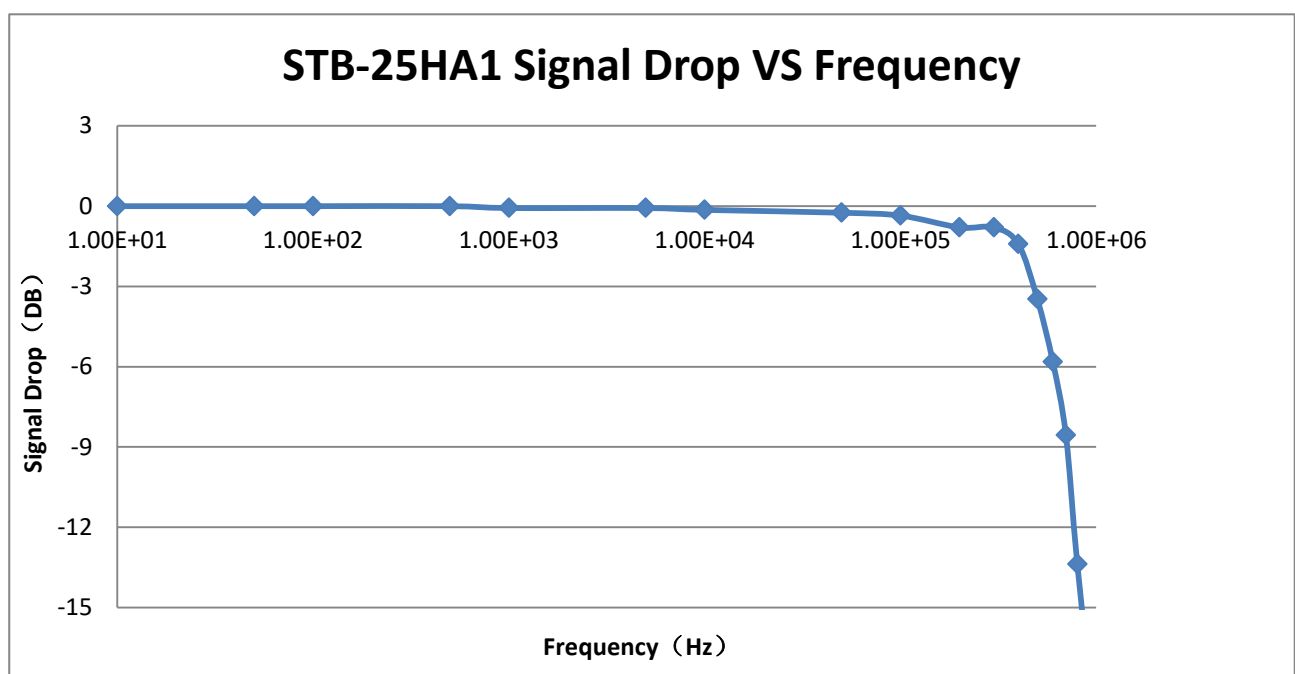


Fig.1 the band width of STB-25HA1 current sensors.

4. Step response time

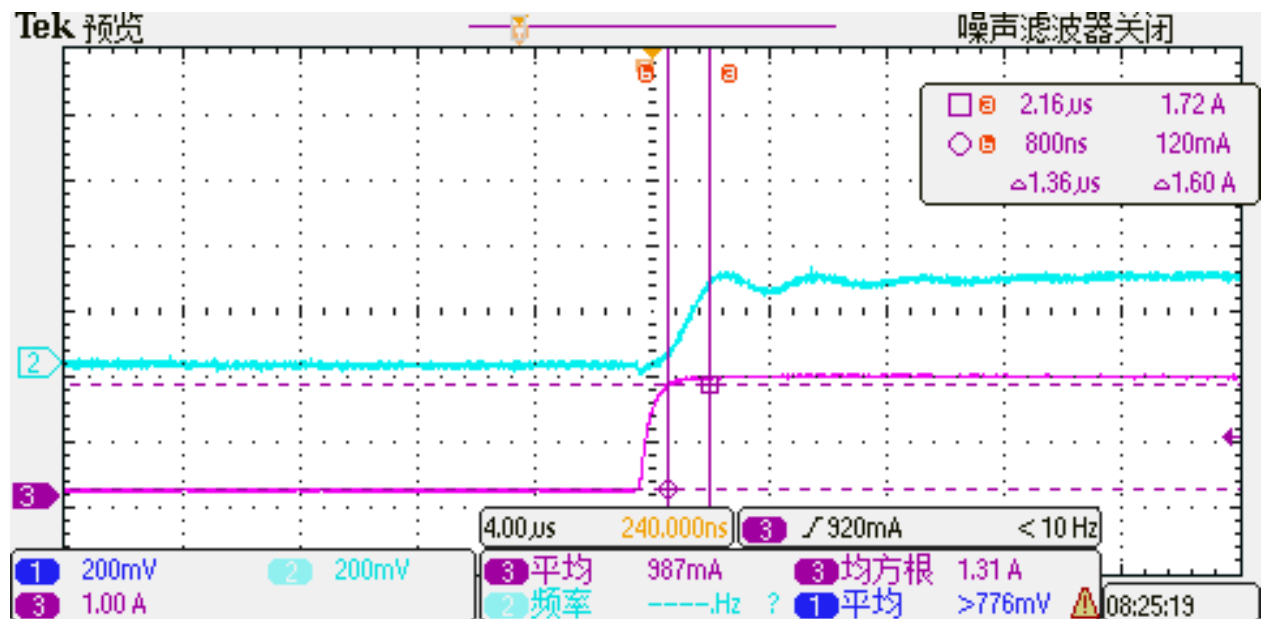
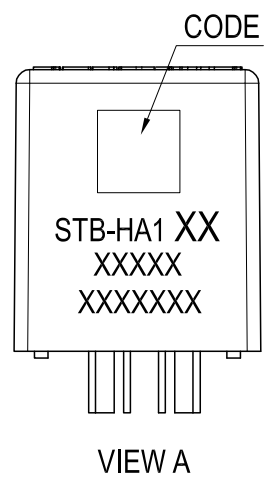
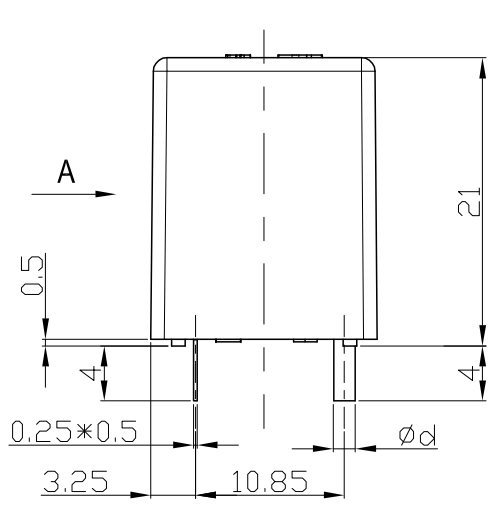
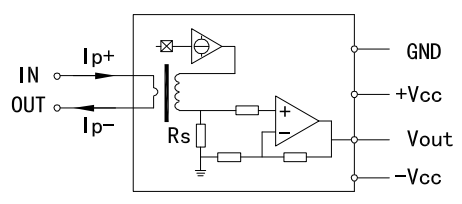


Fig.2 the step response time of STB-25HA1 current sensors. The dark purple is primary current, while the dark blue is output signal of current sensor. The step response time is less than 1.5 μ s.

5. STB-25HA1: Dimensions & Pins & Footprint



Electrical diagrams:



Terminal:

STB	03HA1	05HA1	10HA1	15HA1
d	0.6	0.8	1.1	1.6
STB	20HA1	25HA1	30HA1	40HA1
d	1.8	1.8	1.8	1.8

03HA1~40HA1 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

