



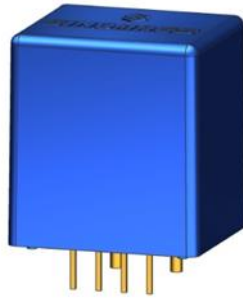
# CURRENT SENSOR

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PRODUCT SERIES: STB-50HA7

PRODUCT PART NUMBER: STB-50HA7

REVISION: Ver 1.1



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Web site: [www.sinomags.com](http://www.sinomags.com)

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## 1. Description

STB-50HA7 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
50	±150	1.5 x 1.6 x 1T	STB-50-HA7

## 2. STB-50HA7 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		$18 + I_p * N_p / N_s$		$N_s: 1800$
Linearity (0... $\pm I_{PN}$ )	$\epsilon_L$	% of $I_{PN}$		$\pm 0.5$		All series
Electrical offset voltage	$V_{OE}$	mV	-40	0	40	$I_{PN} = 0\text{ A}$
Thermal drift of offset	$TCV_{OE}$	% of $I_{PN}$		$\pm 1$		All series
Thermal drift of gain	$TCV_O$	% of $I_{PN}$		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

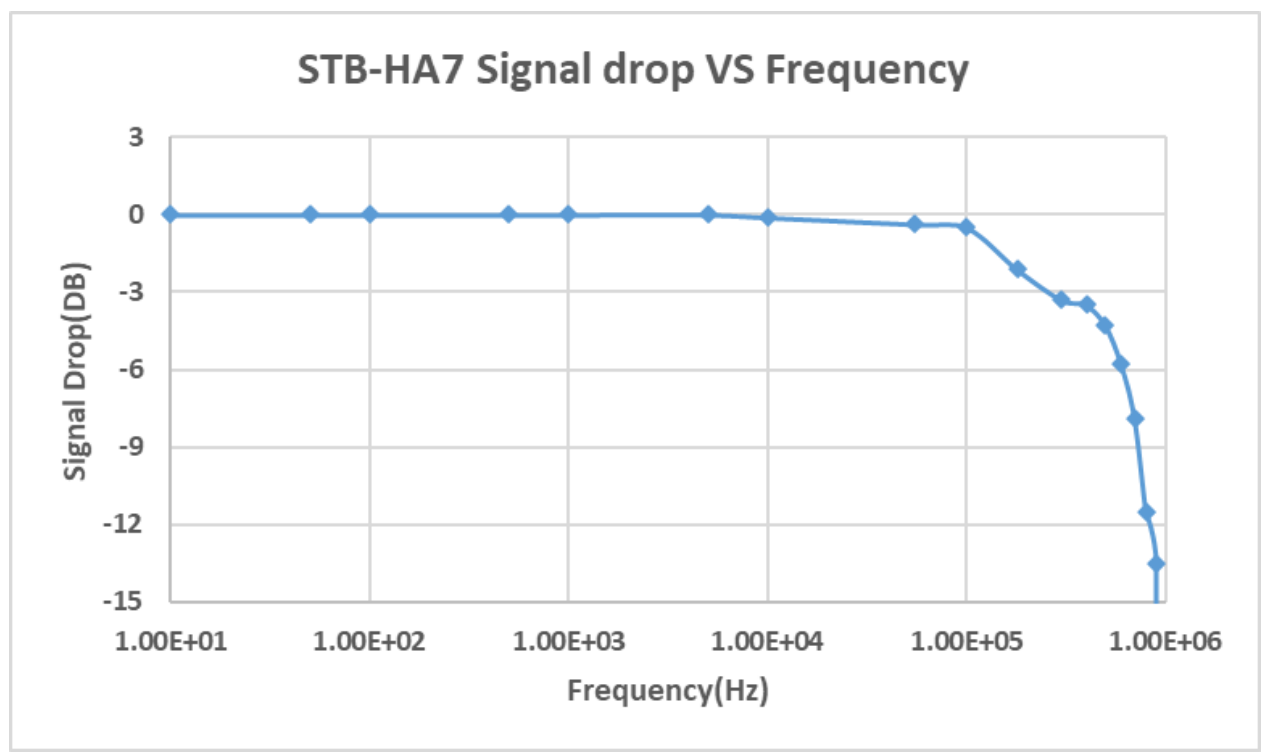


Fig.1 the band width of STB-50HA7 series current sensors.

#### 4. Step response time

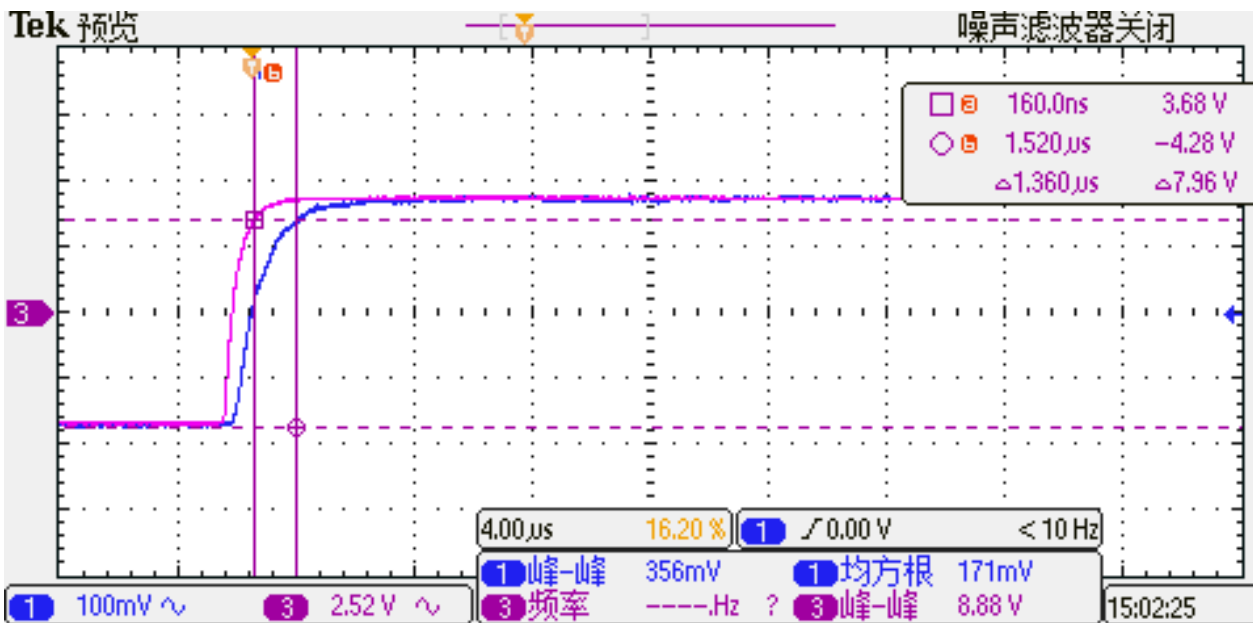
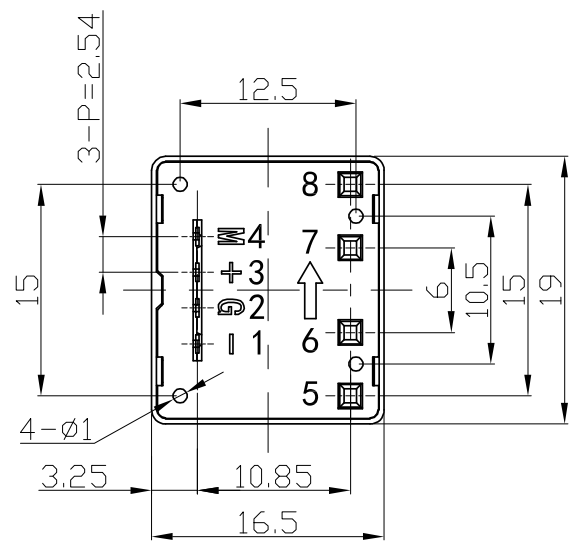
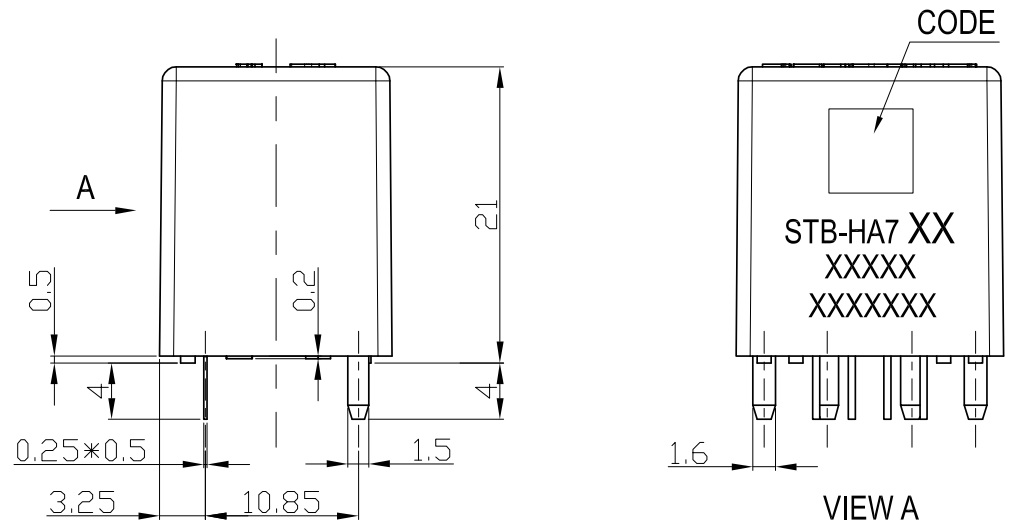
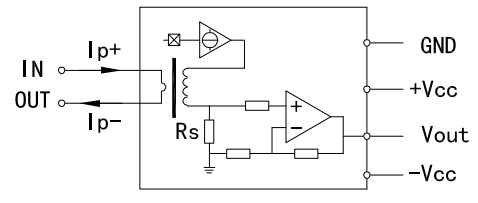


Fig.2 the step response time of STB-50HA7 current sensors. The purple is primary current, while the dark blue is output signal of current sensor. The step response time is less than 1.5  $\mu\text{s}$ .

### 5. STB-50HA7: Dimensions & Pins & Footprint

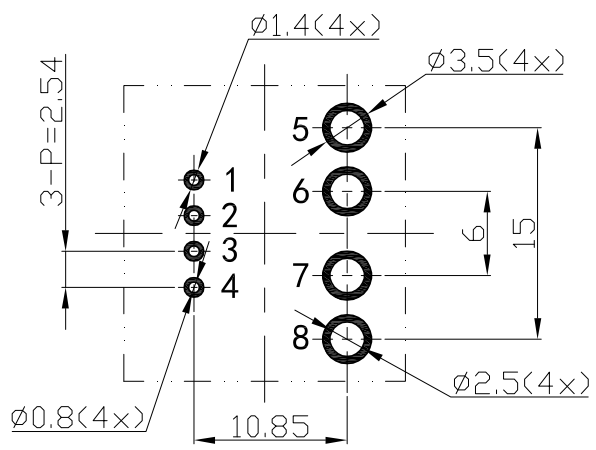


Electrical diagrams:



50HA7 Terminals:

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



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

