

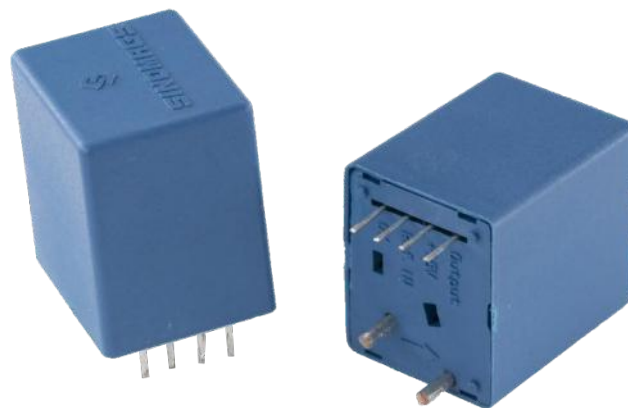
# CURRENT SENSOR

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PRODUCT SERIES: STB-xxHA-A3

PRODUCT PART NUMBER: STB-10HA/A3, STB-20HA/A3

VERSION: Ver 2.0



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## 1. Description

STB-HA/A3 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

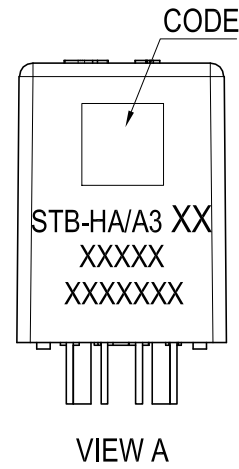
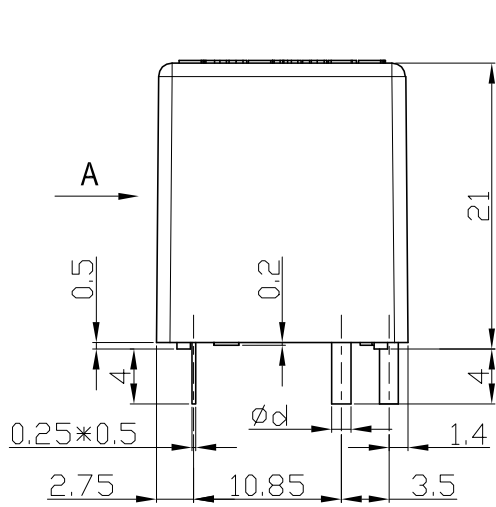
Primary nominal rms current $I_{PN}$ (A)	Primary current measuring rang $I_{PM}$ (A)	Primary conductor diameter x turns (mm)	Type
10	±30	1.3d x 2T	STB-10HA/A3
20	±60	1.6d x 1T	STB-20HA/A3

## 2. STB-10/20 HA/A3 parameters

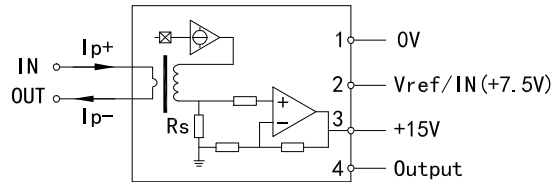
Condition:  $V_{CC} = 15.0\text{ V}$ ,  $N_P = 2$ ,  $R_L = 10\text{ k}\Omega$ ,  $T_A = 25^\circ\text{C}$ , unless specified.

Parameters	Symbol	Unit	Min.	Typ.	Max.	Remark
Output Voltage	$V_{out}$	V	$V_{oe}-1.64$	$V_{oe}\pm 1.66$	$V_{oe}+1.68$	All series
Supply Voltage	$V_C$	V		$15 \pm 5\%$		All series
Current consumption	$I_C$	mA		$10 + I_P \cdot N_P / N_S$		STB-10HA/A3 $N_S: 1000$ $N_P: 2$ STB-20HA/A3 $N_S: 1000$ $N_P: 1$
Linearity ( $0 \dots \pm I_{PN}$ )	$\epsilon_L$	% of $I_{PN}$		$\pm 0.5$		All series
Accuracy @ $I_{PN}$	X			$< \pm 1.2\%$		$T_A = 25^\circ\text{C}$ (excluding offset) of $I_{PN}$
Electrical offset voltage	$V_{OE}$	mV		$V_{ref} \pm 40$ (mv)		$I_{PN} = 0A$
Hysteresis offset voltage	$V_{OH}$			$< \pm 35\text{ mV}$		@ $I_P = 0$ , after an excursion of $3 \times I_{PN}$
Reference voltage-Input	$V_{ref}$	V	7.45	7.5	7.55	All series
Thermal drift of offset	$TCV_{OE}$	% of $I_{PN}$		$\pm 1.8$		$-40 \sim 85^\circ\text{C}$
Thermal drift of gain	$TCV_O$	%		$\pm 1.5$		$-40 \sim 85^\circ\text{C}$
Step response time	$t_r$	$\mu\text{s}$			3	All series
Frequency bandwidth (-3dB)	BW	kHz	50			All series

### 3. STB-10 HA/A3: Dimensions & Pins & Footprint



Electrical diagrams:



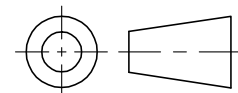
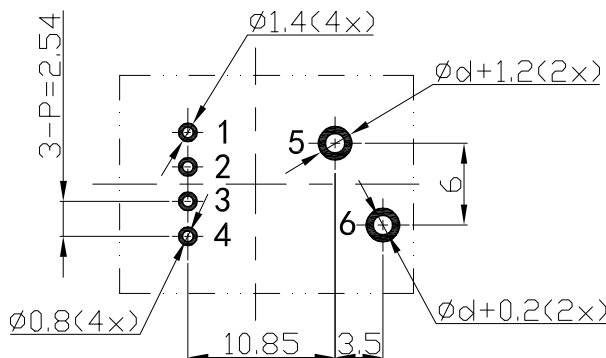
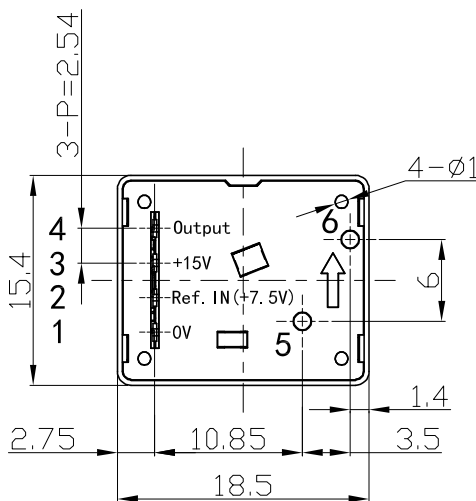
Terminal:

STB	10HA/A3
d	1.3x2T

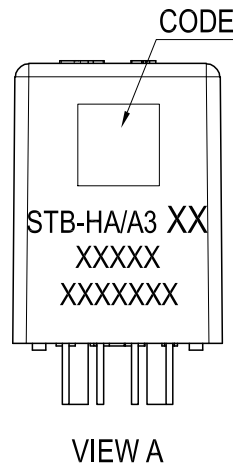
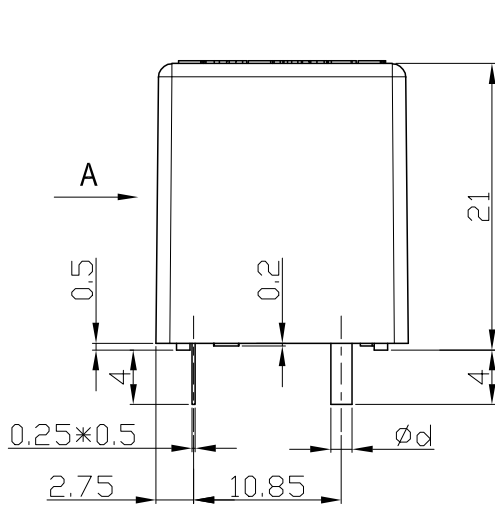
10HA/A3 Terminals:

- 1: 0V
- 2: Ref. IN(+7.5V)
- 3: +15V
- 4: Output
- 5: Input Current (+)
- 6: Input Current (-)

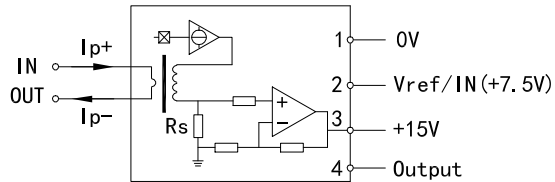
Material : Fit UL94V-0 & RoHS requirements ;  
General tolerance :  $\pm 0.5$   
Unit : mm



#### 4. STB-20 HA/A3: Dimensions & Pins & Footprint



Electrical diagrams:



Terminal :

STB	20HA/A3
d	1.6x1T

20HA/A3 Terminals :

- 1: 0V
- 2: Ref. IN(+7.5V)
- 3: +15V
- 4: Output
- 5: Input Current (+)
- 6: Input Current (-)

Material : Fit UL94V-0 & RoHS requirements ;

General tolerance :  $\pm 0.5$

Unit :mm

