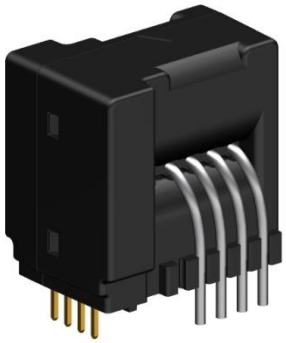
SINOMAGS
希 磁 科 技

CURRENT SENSOR

PRODUCT SERIES: STB-CAS/F

PRODUCT PART NUMBER: STB-50CAS/K/F2

REVISION: Ver 1.0



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CONTENT

1. Description

For the electronic measurement of current: DC, AC, pulsed..., with galvanic separation between the primary and the secondary circuit.

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	℃	-40 ~ 105
Storage temperature	T_S	℃	-40 ~ 105
Mass	m	g	11

Absolute maximum parameters

Parameters	Symbol	Unit	Value
Maximum supply voltage	$V_{CC_{max}}$	V	7
Maximum ESD rating (HBM)	$U_{ESD_{max}}$	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.

Isolation parameters

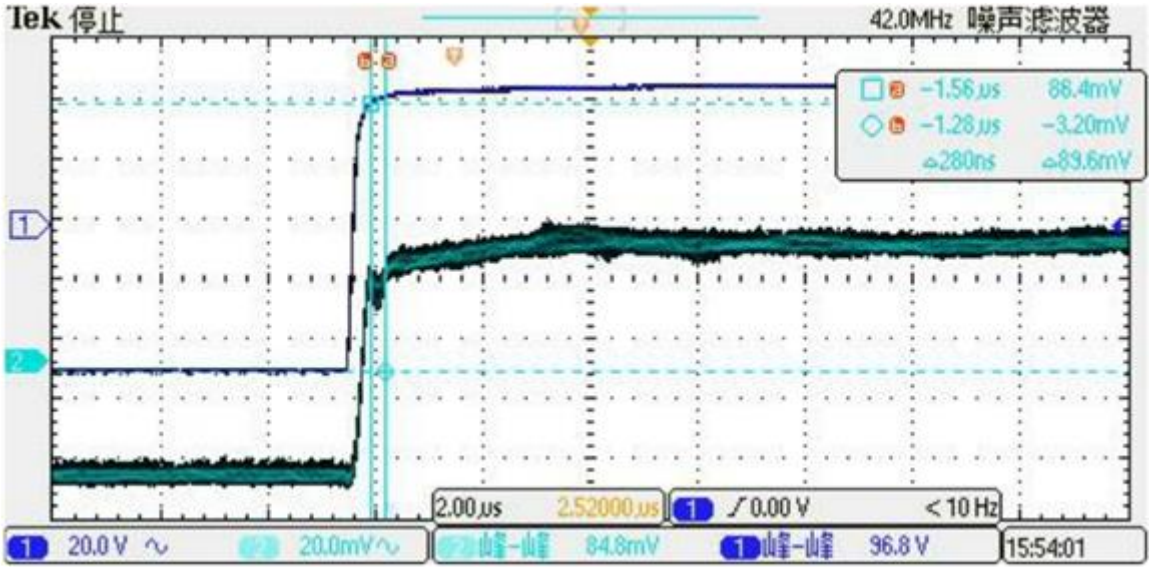
Parameter	Symbol	Unit	Value	Remark
RMS voltage for AC test 50Hz/1 min	U_D	KV	4	
Impulse withstand voltage 1.2/50μs	$\hat{U}_W$	KV	6	
Clearance distance (pri. -sec)	dCl	mm	9.5	Shortest distance through air
Creepage distance (pri. -sec)	dCp	mm	9.5	Shortest path along device body
Electrical clearance	dCe	mm	6.1	When mounted on PCB with recommended layout
Case material			V0 according to UL 94	
Comparative tracking index	CTI	V	600	

2. STB-50CAS/K/F2 parameters

Condition: V_{CC}=5.0 V, N_P = 1, R_L = 10 KΩ, T_A = 25℃, unless specified.

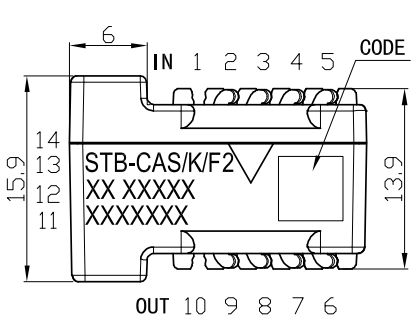
Parameters	Symbol	Unit	Min.	Typ.	Max.	Remark
Primary nominal RMS current	I_{PN}	A		50		
Primary current, measuring range	I_{PM}	A	-150		150	
Number of primary turns	NP			1,2,4		
Supply voltage	V_{CC}	V	4.75	5	5.25	
Current consumption	I_C	mA		15 + I_P*N_P/N_S*1000		N_S =1200
Reference voltage @I_P =0A	V_{ref}	V	2.495	2.5	2.505	
External reference voltage			0		4	
Output voltage @ I_{PN}	V_{out}	V		V_{ref} ± 0.625		
Output voltage @ I_{PM}	V_{OM}	V		V_{ref} ± 1.875		
Temperature coefficient of V_{ref}	TCV_{ref}	ppm/K		±5	±50	Internal reference
Electrical offset voltage	V_{oe}	mV	-0.725		0.725	100 % tested V_{out} – V_{ref}@ 0 A
Temperature coefficient of V_{out} @ I_P = 0 A	TCV_{out}	ppm/K		±0.7	±3	ppm/K of 2.5V (-40 °C …105 °C)
Theoretical sensitivity	G_{th}	mV/A		12.5		0.625V @ I_{PN}
Sensitivity error	ε_G	%	−0.7		0.7	100 % tested
Temperature coefficient of G	TCG	ppm/K			±40	−40 °C … 105 °C
Linearity error 0 ~ I_{PN}	ε_L	% of I_{PN}		0.3		Tested @25℃
Reaction time @ 10 % of I_{PN}	t_{ra}	µs			0.3	
Response time @ 90 % of I_{PN}	t_r	µs			0.3	
-3 dB band width	BW	kHz		300		R_L= 1 KΩ
Noise DC ~ 10 kHz DC ~ 100 kHz	V_{noise}	mV		 5 6		
Accuracy	X	% of I_{PN}			0.8	T_A = 25℃
					1.1(1.3)	T_A =−40℃ ~ 105℃

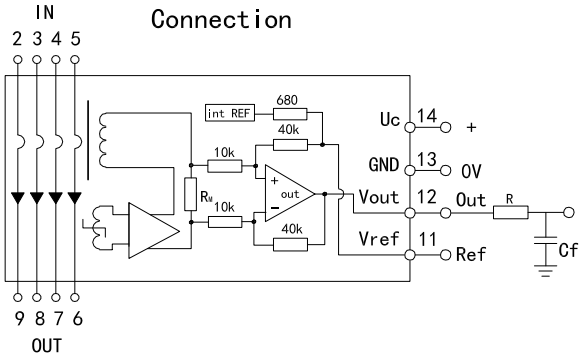
3. Step response time

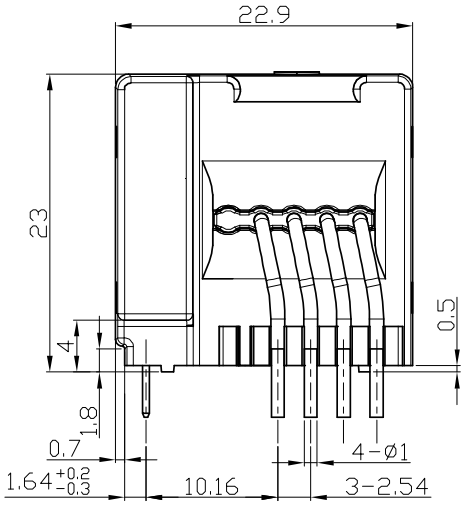


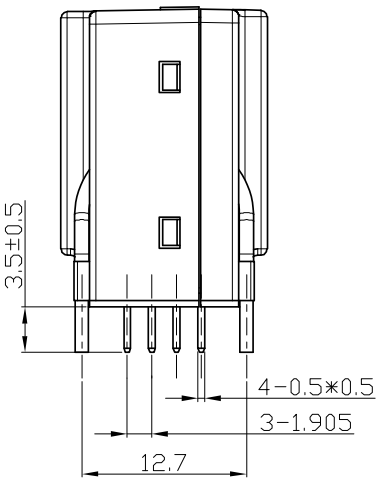
The step response time of STB-xxCAS/F current sensors. The blue is primary current, while the green is output signal of current sensor. The step response time is less than 0.3 µs

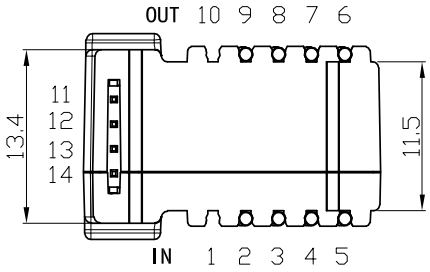
4. Dimensions: STB-50CAS/K/F2

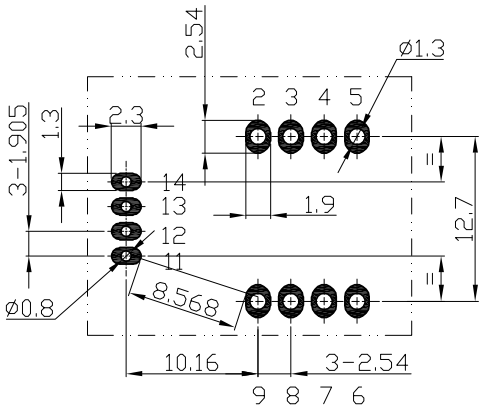












Number of primary turns N_P	Recommended connections
1	9 8 7 6 OUT IN 2 3 4 5
2	9 8 7 6 OUT IN 2 3 4 5
4	9 8 7 6 OUT IN 2 3 4 5

Material : Fit UL94V-0 & RoHS requirements ;
General tolerance : ±0.5
Unit :mm