

CURRENT SENSOR

PRODUCT SERIES: STB-CAS/FA

STB-6CAS/FA

STB-15CAS/FA

STB-25CAS/FA

STB-50CAS/FA

STB-6CAS/R/FA

STB-15CAS/R/FA

PRODUCT PART NUMBER: STB-25CAS/R/FA

STB-50CAS/R/FA

STB-6CAS/K/FA

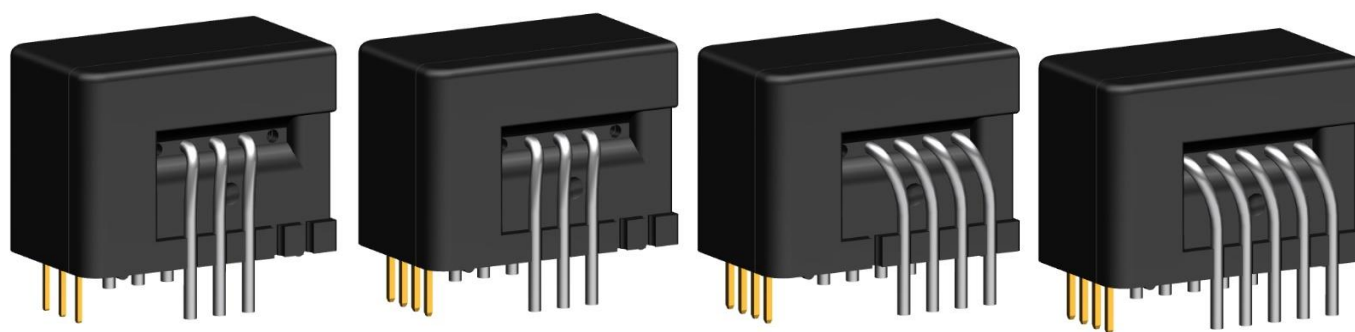
STB-15CAS/K/FA

STB-25CAS/K/FA

STB-50CAS/K/FA

STB-75CAS/K/FA

REVISION: Ver 1.1



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Web site: www.sinomags.com

CONTENT

1.	Description.....	2
2.	STB-6CAS/FA parameters.....	3
3.	STB-15CAS/FA parameters	4
4.	STB-25CAS/FA parameters	5
5.	STB-50CAS/FA parameters	6
6.	STB-6CAS/R/FA parameters.....	7
7.	STB-15CAS/R/FA parameters	8
8.	STB-25CAS/R/FA parameters	9
9.	STB-50CAS/R/FA parameters	10
10.	STB-6CAS/K/FA parameters.....	11
11.	STB-15CAS/K/FA parameters.....	12
12.	STB-25CAS/K/FA parameters.....	13
13.	STB-50CAS/K/FA parameters.....	14
14.	STB-75CAS/K/FA parameters.....	15
15.	Step response time	16
16.	Dimensions: STB-CAS/FA	17
17.	Dimensions: STB-CAS/R/FA	18
18.	Dimensions: STB-6..50CAS/K/FA	19
19.	Dimensions: STB-75CAS/K/FA.....	20

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	°C	-40 ~ 105
Storage temperature	T_stg	°C	-40 ~ 105
Mass	m	g	10.5
			10.2
			10

Absolute maximum parameters

Parameters	Symbol	Unit	Value
Maximum supply voltage	Vc 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	Ud	kV	4	
Impulse withstand voltage 1.2/50µs	Ūw	kV	6	
Clearance distance (pri. -sec)	dCl	mm	7.5	Shortest distance through air
Creepage distance (pri. -sec)	dCp	mm	7.5	Shortest path along device body
Electrical clearance	dCe	mm	6.2	When mounted on PCB with recommended layout
Case material			V0 according to UL 94	
Comparative tracking index	CTI	V	600	

2. STB-6CAS/FA parameters

Condition: $V_{cc} = 5.0\text{ V}$, $NP = 1$, $R_L = 10\text{ K}\Omega$, $T_A = 25^\circ\text{C}$, unless specified.

Parameters	Symbol	Unit	Min.	Typ.	Max.	Remark
Primary nominal RMS current	I_{pn}	A		6		
Primary current, measuring range	I_{pm}	A	-20		20	
Number of primary turns	NP	-		1,2,3		
Supply voltage	V_c	V	4.75	5	5.25	
Current consumption	I_c	mA		15 + $IP*NP/NS*1000$		NS =1731
Output voltage @ $I_p=0A$	V_{out}	V		2.5		
Output voltage	V_{out}	V	0.375		4.625	
Electrical offset voltage	V_{OE}	mV	-10.4		10.4	100 % tested $V_{out} - 2.5V @ 0\text{ A}$
Temperature coefficient of V_{out} @ $I_P = 0\text{ A}$	TCV _{out}	ppm/K		± 10	± 80	ppm/K of 2.5V (-40 °C ... 105 °C)
Theoretical sensitivity	G_{th}	mV/A		104.2		0.625V @ I_{pn}
Sensitivity error	ξ_G	%	-0.7		0.7	100 % tested
Temperature coefficient of G	TCG	ppm/K			± 40	-40 °C ... 105 °C
Linearity error 0 ~ I_{pn}	ξ_L	% of I_{pn}		0.3		Tested @25°C
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		400		
Noise	V_{noise}	mVpp		5		
DC ~ 10 kHz			6			
DC ~ 100 kHz						
Accuracy @ RT	X	% of I_{pn}			0.8	@ 25°C
Accuracy @ $T_A = 85^\circ\text{C}$ (105 °C)	X _{TRange}	% of I_{pn}			1.4(1.6)	-40°C ~ 105°C

3. STB-15CAS/FA parameters

Condition: $V_{cc} = 5.0\text{ V}$, $NP = 1$, $R_L = 10\text{ K}\Omega$, $T_A = 25^\circ\text{C}$, unless specified.

Parameters	Symbol	Unit	Min.	Typ.	Max.	Remark
Primary nominal RMS current	I_{pn}	A		15		
Primary current, measuring range	I_{pm}	A	-51		51	
Number of primary turns	NP	-		1,2,3		
Supply voltage	V_c	V	4.75	5	5.25	
Current consumption	I_c	mA		15 + $IP*NP/NS*1000$		NS =1731
Output voltage@ $I_p=0A$	V_{out}	V		2.5		
Output voltage	V_{out}	V	0.375		4.625	
Electrical offset voltage	V_{OE}	mV	-7.1		7.1	100 % tested $V_{out} - 2.5V @ 0\text{ A}$
Temperature coefficient of $V_{out} @ I_P = 0\text{ A}$	TCV _{out}	ppm/K		± 7.5	± 70	ppm/K of 2.5V (-40 °C ... 105 °C)
Theoretical sensitivity	G_{th}	mV/A		41.67		0.625V @ I_{pn}
Sensitivity error	ξ_G	%	-0.7		0.7	100 % tested
Temperature coefficient of G	TCG	ppm/K			± 40	-40 °C ... 105 °C
Linearity error 0 ~ I_{pn}	ξ_L	% of I_{pn}		0.3		Tested @25°C
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		400		
Noise	V_{noise}	mVpp				
DC ~ 10 kHz						
DC ~ 100 kHz	6					
Accuracy @ RT	X	% of I_{pn}			0.8	@ 25°C
Accuracy @ $T_A = 85^\circ\text{C}$ (105 °C)	X _{TRange}	% of I_{pn}			1.2(1.3)	-40°C ~ 105°C

4. STB-25CAS/FA parameters

Condition: $V_{CC} = 5.0\text{ V}$, $N_P = 1$, $R_L = 10\text{ k}\Omega$, $T_A = 25^\circ\text{C}$, unless specified.

Parameters	Symbol	Unit	Min.	Typ.	Max.	Remark
Primary nominal RMS current	I_{pn}	A		25		
Primary current, measuring range	I_{pm}	A	-85		85	
Number of primary turns	N_P	-		1,2,3		
Supply voltage	V_c	V	4.75	5	5.25	
Current consumption	I_c	mA		15 + $I_P \cdot N_P / N_S \cdot 1000$		$N_S = 1731$
Output voltage @ $I_p = 0\text{ A}$	V_{out}	V		2.5		
Output voltage	V_{out}	V	0.375		4.625	
Electrical offset voltage	V_{OE}	mV	-6.25		6.25	100 % tested $V_{out} - 2.5\text{ V} @ 0\text{ A}$
Temperature coefficient of $V_{out} @ I_P = 0\text{ A}$	TCV_{out}	ppm/K		± 6.5	± 60	ppm/K of 2.5V ($-40^\circ\text{C} \dots 105^\circ\text{C}$)
Theoretical sensitivity	G_{th}	mV/A		25		0.625V @ I_{pn}
Sensitivity error	ξ_G	%	-0.7		0.7	100 % tested
Temperature coefficient of G	TCG	ppm/K			± 40	$-40^\circ\text{C} \dots 105^\circ\text{C}$
Linearity error 0 ~ I_{pn}	ξ_L	% of I_{pn}		0.3		Tested @ 25°C
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		400		
Noise	V_{noise}	mVpp		5		
DC ~ 10 kHz				6		
DC ~ 100 kHz						
Accuracy @ RT	X	% of I_{pn}			0.8	@ 25°C
Accuracy @ $T_A = 85^\circ\text{C}$ (105°C)	X_{TRange}	% of I_{pn}			1.15(1.25)	$-40^\circ\text{C} \sim 105^\circ\text{C}$

5. STB-50CAS/FA parameters

Condition: $V_{cc} = 5.0\text{ V}$, $N_p = 1$, $R_L = 10\text{ k}\Omega$, $T_A = 25^\circ\text{C}$, unless specified.

Parameters	Symbol	Unit	Min.	Typ.	Max.	Remark
Primary nominal RMS current	I_{pn}	A		50		
Primary current, measuring range	I_{pm}	A	-150		150	
Number of primary turns	NP			1,2,3		
Supply voltage	V_c	V	4.75	5	5.25	
Current consumption	I_c	mA		15 + $IP \cdot NP / NS \cdot 1000$		NS =966
Output voltage@ $I_p=0A$	V_{out}	V		2.5		
Output voltage	V_{out}	V	0.375		4.625	
Electrical offset voltage	V_{OE}	mV	-5.8		5.8	100 % tested $V_{out} - 2.5V @ 0\text{ A}$
Temperature coefficient of $V_{out} @ I_P = 0\text{ A}$	TCV _{out}	ppm/K		± 6	± 60	ppm/K of 2.5V (-40 °C ... 105 °C)
Theoretical sensitivity	G_{th}	mV/A		12.5		0.625V @ I_{pn}
Sensitivity error	ξ_G	%	-0.7		0.7	100 % tested
Temperature coefficient of G	TCG	ppm/K			± 40	-40 °C ... 105 °C
Linearity error 0 ~ I_{pn}	ξ_L	% of I_{pn}		0.3		Tested @25°C
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		400		
Noise DC ~ 10 kHz DC ~ 100 kHz	V_{noise}	mVpp		5 6		
Accuracy @ RT	X	% of I_{pn}			0.8	@ 25°C
Accuracy @ $T_A = 85^\circ\text{C}$ (105 °C)	X _{TRange}	% of I_{pn}			1.1(1.3)	-40°C ~ 105°C

6. STB-6CAS/R/FA parameters

Condition: $V_{cc} = 5.0\text{ V}$, $N_p = 1$, $R_L = 10\text{ k}\Omega$, $T_A = 25^\circ\text{C}$, unless specified.

Parameters	Symbol	Unit	Min.	Typ.	Max.	Remark
Primary nominal RMS current	I_{pn}	A		6		
Primary current, measuring range	I_{pm}	A	-20		20	
Number of primary turns	NP	-		1,2,3		
Supply voltage	V_c	V	4.75	5	5.25	
Current consumption	I_c	mA		15 + $IP \cdot NP / NS \cdot 1000$		NS = 1731
Reference voltage @ $I_p = 0\text{ A}$	V_{ref}	V	2.495	2.5	2.505	
External reference voltage	V_{ref}	V	0		4	
Output voltage @ I_{pn}	V_{out}	V		$V_{ref} \pm 0.625$		
Output voltage @ I_{pm}	V_{OM}	V		$V_{ref} \pm 2.084$		
Temperature coefficient of V_{ref}	TCV _{ref}	ppm/K		± 5	± 50	Internal reference
Electrical offset voltage	V_{OE}	mV	-5.3		5.3	100 % tested $V_{out} - V_{ref} @ 0\text{ A}$
Temperature coefficient of $V_{out} @ I_P = 0\text{ A}$	TCV _{out}	ppm/K		± 6	± 14	ppm/K of 2.5V (-40 °C ... 105 °C)
Theoretical sensitivity	G_{th}	mV/A		104.2		0.625V @ I_{pn}
Sensitivity error	ξ_G	%	-0.7		0.7	100 % tested
Temperature coefficient of G	TCG	ppm/K			± 40	-40 °C ... 105 °C
Linearity error 0 ~ I_{pn}	ξ_L	% of I_{pn}		0.3		Tested @ 25 °C
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		400		
Noise	V_{noise}	mVpp		5		
DC ~ 10 kHz			6			
DC ~ 100 kHz						
Accuracy @ RT	X	% of I_{pn}			0.8	@ 25 °C
Accuracy @ $T_A = 85\text{ }^\circ\text{C}$ (105 °C)	X _{TRange}	% of I_{pn}			1.4(1.6)	-40 °C ~ 105 °C

7. STB-15CAS/R/FA parameters

Condition: $V_{cc} = 5.0\text{ V}$, $NP = 1$, $R_L = 10\text{ k}\Omega$, $T_A = 25^\circ\text{C}$, unless specified.

Parameters	Symbol	Unit	Min.	Typ.	Max.	Remark
Primary nominal RMS current	I_{pn}	A		15		
Primary current, measuring range	I_{pm}	A	-51		51	
Number of primary turns	NP	-		1,2,3		
Supply voltage	V_c	V	4.75	5	5.25	
Current consumption	I_c	mA		15 + $IP*NP/NS*1000$		NS =1731
Reference voltage@ $I_p=0A$	V_{ref}	V	2.495	2.5	2.505	
External reference voltage	V_{ref}	V	0		4	
Output voltage @ I_{pn}	V_{out}	V		$V_{ref} \pm 0.625$		
Output voltage @ I_{pm}	V_{OM}	V		$V_{ref} \pm 2.125$		
Temperature coefficient of V_{ref}	TCV _{ref}	ppm/K		± 5	± 50	Internal reference
Electrical offset voltage	V_{OE}	mV	-2.21		2.21	100 % tested $V_{out} - V_{ref}@ 0\text{ A}$
Temperature coefficient of $V_{out}@ I_P = 0\text{ A}$	TCV _{out}	ppm/K		± 2.3	± 6	ppm/K of 2.5V (-40 °C ...105 °C)
Theoretical sensitivity	G_{th}	mV/A		41.67		0.625V @ I_{pn}
Sensitivity error	ξ_G	%	-0.7		0.7	100 % tested
Temperature coefficient of G	TCG	ppm/K			± 40	-40 °C ... 105 °C
Linearity error 0 ~ I_{pn}	ξ_L	% of I_{pn}		0.3		Tested @25°C
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		400		
Noise	V_{noise}	mVpp			5	
DC ~ 10 kHz					6	
DC ~ 100 kHz						
Accuracy @ RT	X	% of I_{pn}			0.8	@ 25°C
Accuracy @ $T_A = 85^\circ\text{C}$ (105 °C)	X_TRan ge	% of I_{pn}			1.2(1.3)	-40°C ~ 105°C

8. STB-25CAS/R/FA parameters

Condition: $V_{cc} = 5.0\text{ V}$, $N_p = 1$, $R_L = 10\text{ k}\Omega$, $T_A = 25^\circ\text{C}$, unless specified.

Parameters	Symbol	Unit	Min.	Typ.	Max.	Remark
Primary nominal RMS current	I_{pn}	A		25		
Primary current, measuring range	I_{pm}	A	-85		85	
Number of primary turns	NP	-		1,2,3		
Supply voltage	V_c	V	4.75	5	5.25	
Current consumption	I_c	mA		15 + $IP \cdot NP / NS \cdot 1000$		NS =1731
Reference voltage@ $I_p=0A$	V_{ref}	V	2.495	2.5	2.505	
External reference voltage	V_{ref}	V	0		4	
Output voltage @ I_{pn}	V_{out}	V		$V_{ref} \pm 0.625$		
Output voltage @ I_{pm}	V_{OM}	V		$V_{ref} \pm 2.125$		
Temperature coefficient of V_{ref}	TCV _{ref}	ppm/K		± 5	± 50	Internal reference
Electrical offset voltage	V_{OE}	mV	-1.35		1.35	100 % tested $V_{out} - V_{ref} @ 0\text{ A}$
Temperature coefficient of $V_{out} @ I_P = 0\text{ A}$	TCV _{out}	ppm/K		± 1.4	± 4	ppm/K of 2.5V (-40 °C ... 105 °C)
Theoretical sensitivity	G_{th}	mV/A		25		0.625V @ I_{pn}
Sensitivity error	ξ_G	%	-0.7		0.7	100 % tested
Temperature coefficient of G	TCG	ppm/K			± 40	-40 °C ... 105 °C
Linearity error 0 ~ I_{pn}	ξ_L	% of I_{pn}		0.3		Tested @25°C
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		400		
Noise	V_{noise}	mVpp		5		
DC ~ 10 kHz			6			
DC ~ 100 kHz						
Accuracy @ RT	X	% of I_{pn}			0.8	@ 25°C
Accuracy @ $T_A = 85^\circ\text{C}$ (105 °C)	X _{TRange}	% of I_{pn}			1.15(1.25)	-40 °C ~ 105 °C

9. STB-50CAS/R/FA parameters

Condition: $V_{cc} = 5.0\text{ V}$, $N_p = 1$, $R_L = 10\text{ k}\Omega$, $T_A = 25^\circ\text{C}$, unless specified.

Parameters	Symbol	Unit	Min.	Typ.	Max.	Remark
Primary nominal RMS current	I_{pn}	A		50		
Primary current, measuring range	I_{pm}	A	-150		150	
Number of primary turns	NP	-		1,2,3		
Supply voltage	V_c	V	4.75	5	5.25	
Current consumption	I_c	mA		15 + $IP*NP/NS*1000$		NS =966
Reference voltage@ $I_p=0A$	V_{ref}	V	2.495	2.5	2.505	
External reference voltage	V_{ref}	V	0		4	
Output voltage @ I_{pn}	V_{out}	V		$V_{ref} \pm 0.625$		
Output voltage @ I_{pm}	V_{OM}	V		$V_{ref} \pm 1.875$		
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 $V_{out} - V_{ref} @ 0\text{ A}$
Temperature coefficient of $V_{out} @ I_P = 0\text{ A}$	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	ξ_G	%	-0.7		0.7	100 % tested
Temperature coefficient of G	TCG	ppm/K			± 40	-40 °C ... 105 °C
Linearity error 0 ~ I_{pn}	ξ_L	% of I_{pn}		0.3		Tested @25°C
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		400		
Noise	V_{noise}	mVpp		5		
DC ~ 10 kHz				6		
DC ~ 100 kHz						
Accuracy @ RT	X	% of I_{pn}			0.8	@ 25°C
Accuracy @ $T_A = 85^\circ\text{C}$ (105 °C)	X_{TRange}	% of I_{pn}			1.1(1.3)	-40°C ~ 105°C

10. STB-6CAS/K/FA parameters

Condition: $V_{cc} = 5.0\text{ V}$, $NP = 1$, $R_L = 10\text{ k}\Omega$, $T_A = 25^\circ\text{C}$, unless specified.

Parameters	Symbol	Unit	Min.	Typ.	Max.	Remark
Primary nominal RMS current	I_{pn}	A		6		
Primary current, measuring range	I_{pm}	A	-20		20	
Number of primary turns	NP	-		1,2,4		
Supply voltage	V_c	V	4.75	5	5.25	
Current consumption	I_c	mA		15 + $IP*NP/NS*1000$		NS =1731
Reference voltage@ $I_p=0A$	V_{ref}	V	2.495	2.5	2.505	
External reference voltage	V_{ref}	V	0		4	
Output voltage @ I_{pn}	V_{out}	V		$V_{ref} \pm 0.625$		
Output voltage @ I_{pm}	V_{OM}	V		$V_{ref} \pm 2.084$		
Temperature coefficient of V_{ref}	TCV _{ref}	ppm/K		± 5	± 50	Internal reference
Electrical offset voltage	V_{OE}	mV	-5.3		5.3	100 % tested $V_{out} - V_{ref}@ 0\text{ A}$
Temperature coefficient of $V_{out}@I_P = 0\text{ A}$	TCV _{out}	ppm/K		± 6	± 14	ppm/K of 2.5V (-40 °C ...105 °C)
Theoretical sensitivity	G_{th}	mV/A		104.2		0.625V @ I_{pn}
Sensitivity error	ξ_G	%	-0.7		0.7	100 % tested
Temperature coefficient of G	TCG	ppm/K			± 40	-40 °C ... 105 °C
Linearity error 0 ~ I_{pn}	ξ_L	% of I_{pn}		0.3		Tested @25°C
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		400		
Noise	V_{noise}	mVpp		5		
DC ~ 10 kHz				6		
DC ~ 100 kHz						
Accuracy @ RT	X	% of I_{pn}			0.8	@ 25°C
Accuracy @ $T_A = 85^\circ\text{C}$ (105 °C)	X _{TRange}	% of I_{pn}			1.4(1.6)	-40°C ~ 105°C

11. STB-15CAS/K/FA parameters

Condition: $V_{cc} = 5.0\text{ V}$, $NP = 1$, $R_L = 10\text{ k}\Omega$, $T_A = 25^\circ\text{C}$, unless specified.

Parameters	Symbol	Unit	Min.	Typ.	Max.	Remark
Primary nominal RMS current	I_{pn}	A		15		
Primary current, measuring range	I_{pm}	A	-51		51	
Number of primary turns	NP	-		1,2,4		
Supply voltage	V_c	V	4.75	5	5.25	
Current consumption	I_c	mA		15 + $IP*NP/NS*1000$		NS =1731
Reference voltage@ $I_p=0A$	V_{ref}	V	2.495	2.5	2.505	
External reference voltage	V_{ref}	V	0		4	
Output voltage @ I_{pn}	V_{out}	V		$V_{ref} \pm 0.625$		
Output voltage @ I_{pm}	V_{OM}	V		$V_{ref} \pm 2.125$		
Temperature coefficient of V_{ref}	TCV _{ref}	ppm/K		± 5	± 50	Internal reference
Electrical offset voltage	V_{OE}	mV	-2.21		2.21	100 % tested $V_{out} - V_{ref}@ 0\text{ A}$
Temperature coefficient of $V_{out}@I_P = 0\text{ A}$	TCV _{out}	ppm/K		± 2.3	± 6	ppm/K of 2.5V (-40 °C ...105 °C)
Theoretical sensitivity	G_{th}	mV/A		41.67		0.625V @ I_{pn}
Sensitivity error	ξ_G	%	-0.7		0.7	100 % tested
Temperature coefficient of G	TCG	ppm/K			± 40	-40 °C ... 105 °C
Linearity error 0 ~ I_{pn}	ξ_L	% of I_{pn}		0.3		Tested @25°C
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		400		
Noise	V_{noise}	mVpp				
DC ~ 10 kHz				5		
DC ~ 100 kHz				6		
Accuracy @ RT	X	% of I_{pn}			0.8	@ 25°C
Accuracy @ $T_A = 85^\circ\text{C}$ (105 °C)	X_{TRange}	% of I_{pn}			1.2(1.3)	-40°C ~ 105°C

12. STB-25CAS/K/FA parameters

Condition: $V_{cc} = 5.0\text{ V}$, $NP = 1$, $R_L = 10\text{ k}\Omega$, $T_A = 25^\circ\text{C}$, unless specified.

Parameters	Symbol	Unit	Min.	Typ.	Max.	Remark
Primary nominal RMS current	I_{pn}	A		25		
Primary current, measuring range	I_{pm}	A	-85		85	
Number of primary turns	NP	-		1,2,4		
Supply voltage	V_c	V	4.75	5	5.25	
Current consumption	I_c	mA		15 + $IP*NP/NS*1000$		NS =1731
Reference voltage@ $I_p=0A$	V_{ref}	V	2.495	2.5	2.505	
External reference voltage	V_{ref}	V	0		4	
Output voltage @ I_{pn}	V_{out}	V		$V_{ref} \pm 0.625$		
Output voltage @ I_{pm}	V_{OM}	V		$V_{ref} \pm 2.125$		
Temperature coefficient of V_{ref}	TCV _{ref}	ppm/K		± 5	± 50	Internal reference
Electrical offset voltage	V_{OE}	mV	-1.35		1.35	100 % tested $V_{out} - V_{ref} @ 0\text{ A}$
Temperature coefficient of $V_{out} @ I_P = 0\text{ A}$	TCV _{out}	ppm/K		± 1.4	± 4	ppm/K of 2.5V (-40 °C ... 105 °C)
Theoretical sensitivity	G_{th}	mV/A		25		0.625V @ I_{pn}
Sensitivity error	ξ_G	%	-0.7		0.7	100 % tested
Temperature coefficient of G	TCG	ppm/K			± 40	-40 °C ... 105 °C
Linearity error 0 ~ I_{pn}	ξ_L	% of I_{pn}		0.3		Tested @25°C
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		400		
Noise	V_{noise}	mVpp		5		
DC ~ 10 kHz			6			
DC ~ 100 kHz						
Accuracy @ RT	X	% of I_{pn}			0.8	@ 25°C
Accuracy @ $T_A = 85^\circ\text{C}$ (105 °C)	X _{TRange}	% of I_{pn}			1.15(1.25)	-40 °C ~ 105°C

13. STB-50CAS/K/FA parameters

Condition: $V_{cc} = 5.0\text{ V}$, $NP = 1$, $R_L = 10\text{ k}\Omega$, $T_A = 25^\circ\text{C}$, unless specified.

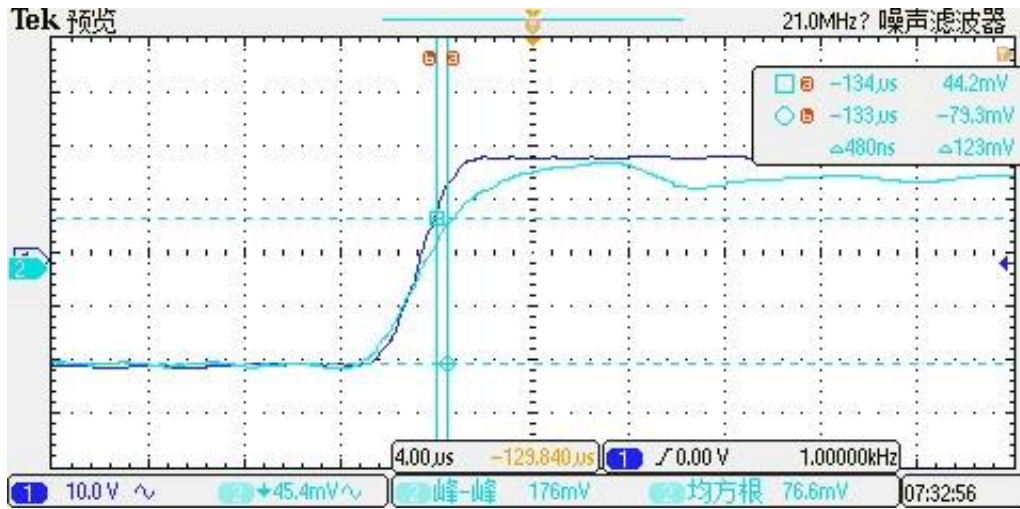
Parameters	Symbol	Unit	Min.	Typ.	Max.	Remark
Primary nominal RMS current	I_{pn}	A		50		
Primary current, measuring range	I_{pm}	A	-150		150	
Number of primary turns	NP	-		1,2,4		
Supply voltage	V_c	V	4.75	5	5.25	
Current consumption	I_c	mA		15 + $IP*NP/NS*1000$		NS =966
Reference voltage@ $I_p=0A$	V_{ref}	V	2.495	2.5	2.505	
External reference voltage	V_{ref}	V	0		4	
Output voltage @ I_{pn}	V_{out}	V		$V_{ref} \pm 0.625$		
Output voltage @ I_{pm}	V_{OM}	V		$V_{ref} \pm 1.875$		
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 $V_{out} - V_{ref}@ 0\text{ A}$
Temperature coefficient of $V_{out}@I_P = 0\text{ A}$	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	ξ_G	%	-0.7		0.7	100 % tested
Temperature coefficient of G	TCG	ppm/K			± 40	-40 °C ... 105 °C
Linearity error 0 ~ I_{pn}	ξ_L	% of I_{pn}		0.3		Tested @25°C
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		400		
Noise	V_{noise}	mVpp		5		
DC ~ 10 kHz				6		
DC ~ 100 kHz						
Accuracy @ RT	X	% of I_{pn}			0.8	@ 25°C
Accuracy @ $T_A = 85^\circ\text{C}$ (105 °C)	X _{TRange}	% of I_{pn}			1.1(1.3)	-40°C ~ 105°C

14. STB-75CAS/K/FA parameters

Condition: $V_{CC} = 5.0\text{ V}$, $N_P = 1$, $R_L = 10\text{ k}\Omega$, $T_A = 25^\circ\text{C}$, unless specified.

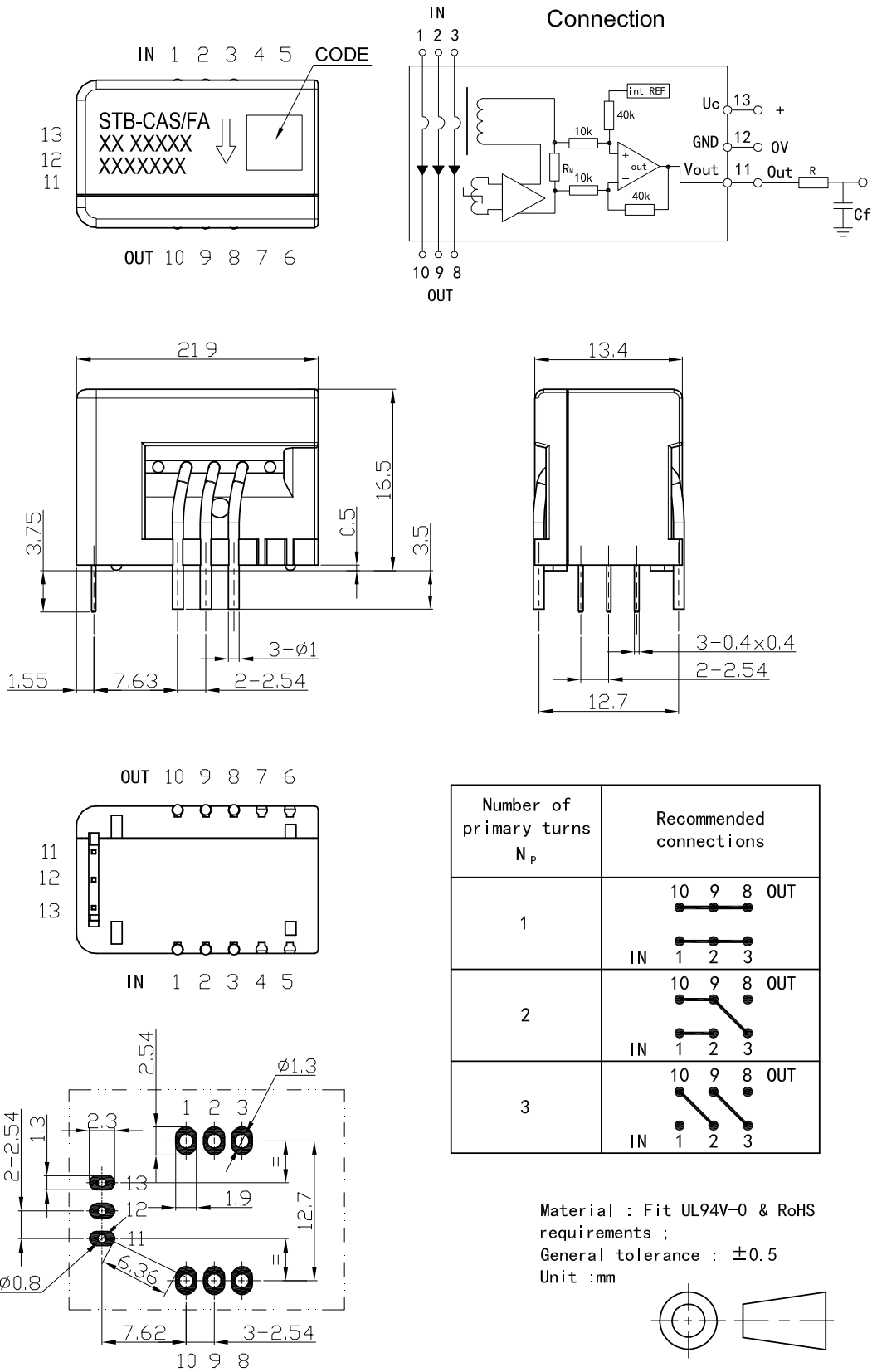
Parameters	Symbol	Unit	Min.	Typ.	Max.	Remark
Primary nominal RMS current	I_{pn}	A		75		
Primary current, measuring range	I_{pm}	A	-220		220	With $V_c = 5\text{V}$, $T_A = 25^\circ\text{C}$, $R_L = 10\text{ k}\Omega$.
Primary current, measuring range	I_{pm}	A	-180		180	With $V_c = 4.75\text{ V}$, $T_A = 85^\circ\text{C}$, $R_L = 10\text{ k}\Omega$.
Number of primary turns	N_P	-		1,4,5		
Supply voltage	V_c	V	4.75	5	5.25	
Current consumption	I_c	mA		$15 + \frac{I_P \cdot N_P}{N_S} \cdot 1000$		$N_S = 966$
Reference voltage@ $I_p=0\text{A}$	V_{ref}	V	2.495	2.5	2.505	
External reference voltage	V_{ref}	V	0		4	
Output voltage @ I_{pn}	V_{out}	V		$V_{ref} \pm 0.46875$		
Output voltage @ I_{pm}	V_{OM}	V		$V_{ref} \pm 1.375$		With $V_c = 5\text{V}$, $T_A = 25^\circ\text{C}$, $R_L = 10\text{ k}\Omega$.
Temperature coefficient of V_{ref}	TCV_{ref}	ppm/K		± 5	± 50	Internal reference
Electrical offset voltage	V_{OE}	mV	-0.5		0.5	100 % tested $V_{out} - V_{ref} @ 0\text{ A}$
Temperature coefficient of $V_{out} @ I_P = 0\text{ A}$	TCV_{out}	ppm/K		± 0.7	± 3	ppm/K of 2.5V ($-40^\circ\text{C} \dots 105^\circ\text{C}$)
Theoretical sensitivity	G_{th}	mV/A		6.25		0.46875V @ I_{pn}
Sensitivity error	ξ_G	%	-0.7		0.7	100 % tested
Temperature coefficient of G	TCG	ppm/K			± 40	$-40^\circ\text{C} \dots 105^\circ\text{C}$
Linearity error 0 ~ I_{pn}	ξ_L	% of I_{pn}		0.3		Tested @ 25°C
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		400		
Noise	V_{noise}	mVpp		5		
DC ~ 10 kHz				6		
DC ~ 100 kHz						
Accuracy @ RT	X	% of I_{pn}			0.8	@ 25°C
Accuracy @ $T_A = 85^\circ\text{C}$ (105°C)	X_{TRange}	% of I_{pn}			1.1(1.3)	$-40^\circ\text{C} \sim 105^\circ\text{C}$

15. Step response time

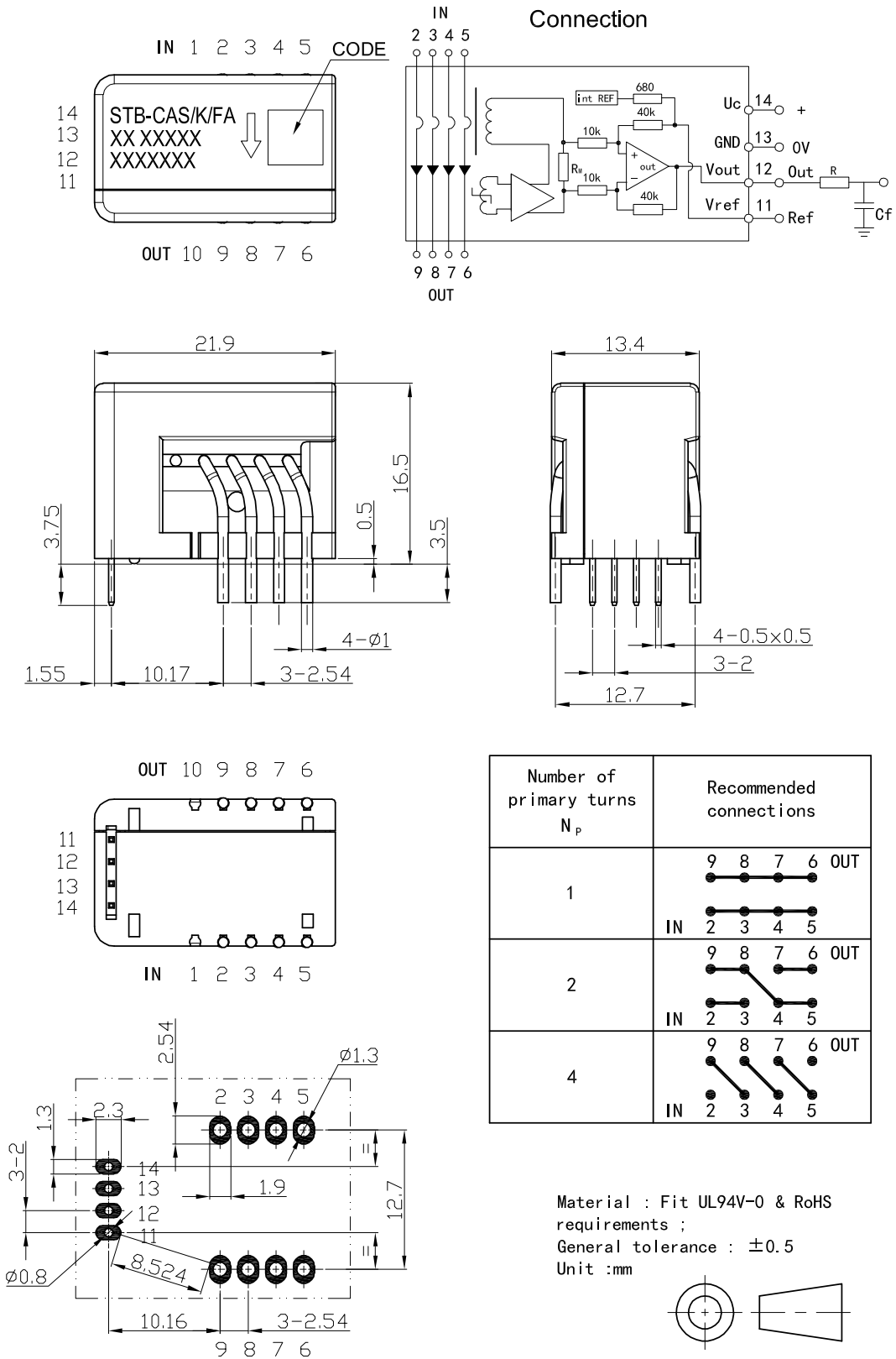


The step response time of STB-xxCAS/FA current sensors. The blue is primary current, while the green is output signal of current sensor. The step response time is less than 0.3 μs.

16. Dimensions: STB-CAS/FA



18. Dimensions: STB-6..50CAS/K/FA



19. Dimensions: STB-75CAS/K/FA

