

CURRENT SENSOR

PRODUCT SERIES: STB-LF/5-S

PRODUCT PART NUMBER: STB-622LF/5-S

VERSION: Ver 1.0



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1. Description

STB-LF5 series current sensors are based on close loop principle. The sensor can detect the current with DC, AC, pulse and irregular wave shape with current output.

Typical application

- Windmill inverters
- AC variable speed and servo motor drives
- Uninterruptible Power supplies(UPS)
- Power supplies for welding applications
- Test and measurement
- Battery supplied applications
- Switched Mode Power Supplies(SMPS)
- Static converts for DC motor drives

General parameters

Parameter	Symbol	Unit	Value
Sensor operating temperature	T_A	$^{\circ}\text{C}$	-10 ~ 70
Storage temperature	T_S	$^{\circ}\text{C}$	-25 ~ 85
Mass	m	g	230

Absolute parameters

Parameters	Symbol	Unit	Value
Supply voltage (-10 $^{\circ}\text{C}$...70 $^{\circ}\text{C}$)	V_{CC_max}	V	± 25.2
Maximum primary conductor temperature	T_{B_max}	$^{\circ}\text{C}$	100

Ratings

Parameter	Unit	Value
Primary involved potential	V AC/DC	1700
Maximum surrounding air temperature	$^{\circ}\text{C}$	85

Isolation parameters

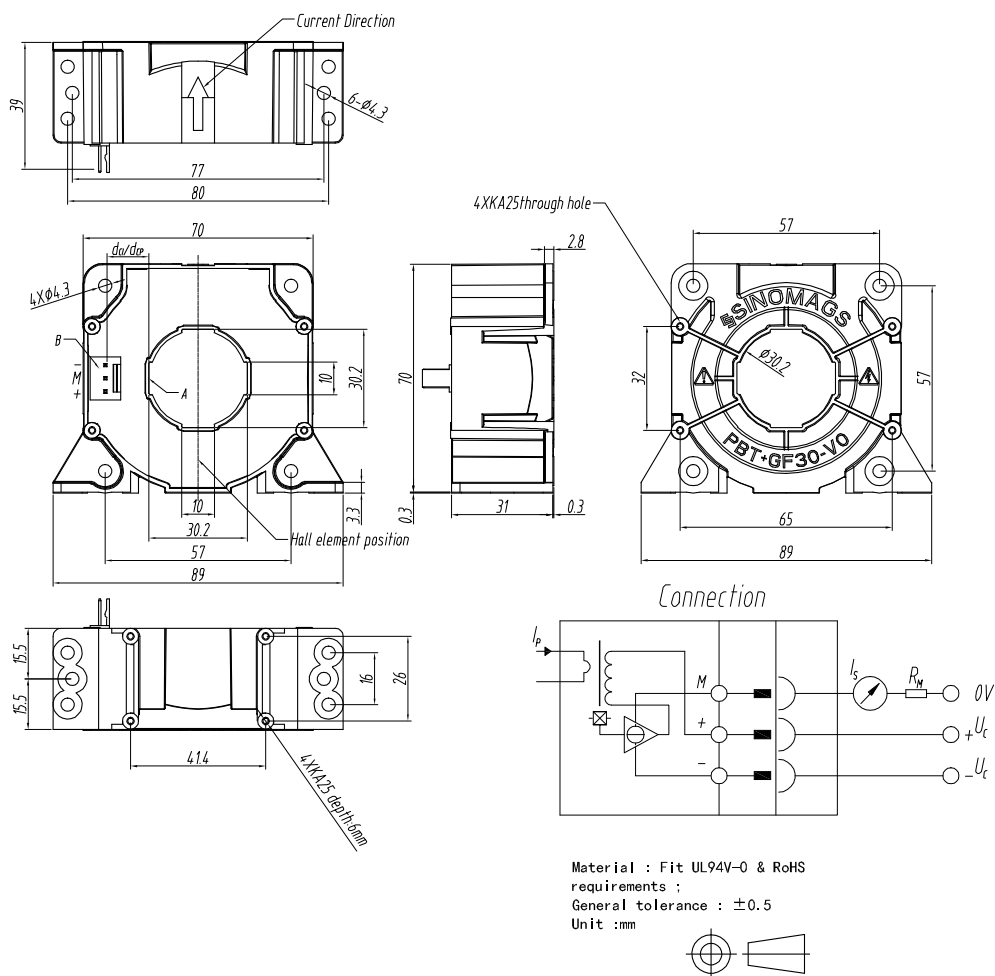
Parameter	Symbol	Unit	Value	Remark
RMS voltage for AC test 50Hz/1 min	U_d	kV	3	
Impulse withstand voltage 1.2/50 μs	$\hat{U}_w$	kV	10.8	
Clearance distance (pri. -sec)	dCl	mm	12.25	Shortest distance through air
Creepage distance (pri. -sec)	dCp	mm	13.3	Shortest path along device body
Case material	-	-	V0	According to UL 94 Shell material: PBT Adhesive material: Polyurethane
Comparative tracking index	CTI		175	
Insulation resistance	S	M Ω	>2000	

2. Electrical parameters

Condition: $V_{CC} = \pm 24V$, $T_A = 25^\circ C$, unless specified.

Parameters	Symbol	Unit	Min	Typ	Max	Remark
Primary nominal RMS current	I_{PN}	A		622		
Primary current measuring range	I_{PM}	A	-1700		1700	
Measuring resistance	R_M	Ω	2.5		115	@ $\pm 622A$ with $\pm 24V$
	R_M	Ω	2.5		60	@ $\pm 825A$ with $\pm 24V$
	R_M	Ω	2.5		5	@ $\pm 1700A$ with $\pm 24V$
Secondary nominal RMS current	I_{SN}	mA	-0.156		0.156	
Turns ratio	N_s	NT		4000		
Resistance of secondary winding	R_s	Ω			43	@ $T_a=70^\circ C$
Supply voltage	V_{CC}	V		± 24		
Current consumption	I_{CC}	mA		$33 + I_s$		@ $\pm 24V$
Offset current	I_O	mA			± 0.4	$I_p=0@25^\circ C$
Offset current temperature drift	I_{OT}	A	± 0.3		± 0.6	$-10^\circ C-70^\circ C$
Total error at I_{PN}	ξ_{tol}	% of I_{PN}	-0.6		0.6	
Linearity error	ξ_L	% of I_{PN}	-0.1		0.1	
di/dt accurately followed	di/dt	A/ μs		100		
Response time @ 90 % of I_{PN}	$t_{ra 90}$	μs			1	
Frequency bandwidth (-1dB)	BW	kHz		100		-3dB, small signal bandwidth

3. Dimensions:



Mechanical characteristics

- General tolerance ± 0.5 mm
- Transducer fastening
 - Vertical or flat lying position 4 or 6 holes $\varnothing 4.3$ mm
4 or 6 steel screws M4
 - Recommended fastening torque 3.2 Nm or 2.36 Lb.-Ft
 - or vertical position 4 holes $\varnothing 1.9$ mm
depth : 6mm
4 screws PTKA 25.
Length:6mm
 - Recommended fastening torque 0.7Nm or 0.52 Lb.-Ft
 - or flat lying position 4 holes $\varnothing 1.9$ mm, crossing
4 screws PTKA 25,
Length : 10mm
- Primary through-hole for bar 30mm $\times$ 10mm
- Or $\varnothing 30.2$ mm
- Connection of secondary JST B 3P-VH