

CURRENT SENSOR

PRODUCT SERIES: STB-LF/3

PRODUCT PART NUMBER: STB-366LF/3

VERSION: Ver 1.1



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1. Description

STB-LF3 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

- Static converters for DC motor drives
- AC variable speed and servo motor drives
- Power supplies for welding applications
- Switched model power supplies (SMPS)
- UPS
- Battery supplied applications

Mechanical characteristics

- General tolerance ± 0.5 mm
- Primary through-hole $\varnothing 23$ mm
- Transducer fastening hole $\varnothing 5.5$ mm steel screw M5 Recommended fastening torque 3.4 Nm 2.5 Lb.-Ft.
- Connection of secondary JST B3B-XH-A

General parameters

Parameter	Symbol	Unit	Value
Sensor operating temperature	T_A	$^{\circ}\text{C}$	-10 ~ 70
Storage temperature	T_S	$^{\circ}\text{C}$	-40 ~ 85
Mass	m	g	95

Absolute parameters

Parameters	Symbol	Unit	Value
Supply voltage (-40 $^{\circ}\text{C}$...85 $^{\circ}\text{C}$)	V_{cc_max}	V	± 15.9
Maximum primary conductor temperature	T_{B_max}	$^{\circ}\text{C}$	100

Ratings

Parameter	Unit	Value
Primary involved potential	V AC/DC	1500
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	8	
Clearance distance (pri. -sec)	dCl	mm	8.8	Shortest distance through air
Creepage distance (pri. -sec)	dCp	mm	9.35	Shortest path along device body
Case material	-	-	V0	According to UL 94
Comparative tracking index	CTI		600	

2. Electrical parameters

Condition: $V_{CC} = \pm 15V$, $T_A = 25^\circ C$, $R_M = 3\Omega$ unless specified.

Parameters	Symbol	Unit	Min	Typ	Max	Remark
Primary nominal RMS current	I_{PN}	A		366		
Primary current measuring range	I_{PM}	A	-950		950	$V_{CC} = \pm 15V$
Measuring resistance@ ± 366 A max	R_M	Ω	3		49	$V_{CC} = \pm 15V$
Measuring resistance@ ± 950 A max	R_M	Ω	3		3	$V_{CC} = \pm 15V$
Secondary nominal RMS current	I_{SN}	A		0.183		
Resistance of secondary winding	R_S	Ω		23		Secondary coil resistance @ $T_A = 70^\circ C$
Supply voltage	V_{CC}	V	± 14.1	15	± 15.9	
Current consumption	I_{CC}	mA		$26 + I_{S}$		
Turns ratio	N_S	NT		2000		
Offset current	I_O	mA			± 0.20	Offset current @ $I_P = 0$, $T_A = 25^\circ C$
Residual current 1) @ $I_P = 0$, after an overload of $3 \times I_{PN}$	I_{OM}	mA			± 0.20	
Offset current temperature drift	I_{OT}	mA		± 0.1	± 0.30	$-10^\circ C \dots +70^\circ C$
Linearity error	ξ_L	% of I_{PN}			0.1	
Delay time @ 10 % of I_{PN}	$t_{ra\ 10}$	μs			0.5	@10% of I_{pn}
Delay time @ 90 % of I_{PN}	$t_{ra\ 90}$	μs			1	@90% of I_{pn}
di/dt accurately followed	di/dt	A/ μs	100			
Frequency bandwidth	BW	kHz		100		-1 dB band width
Total error at I_{PN}	ξ_{tol}	% of I_{PN}	-0.42		0.42	$-10^\circ C \dots +70^\circ C$

3. Dimensions:

