

CURRENT SENSOR

PRODUCT SERIES: STB-LF7

PRODUCT PART NUMBER: STB-180LF7

VERSION: Ver 1.2



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CONTENT

1.	Description	2
2.	Electrical parameters.....	3
3.	Dimensions:	4

1. Description

STB-LF7 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

General parameters

Parameter	Symbol	Unit	Value
Sensor operating temperature	T_A	°C	-40 ~ 85
Storage temperature	T_S	°C	-40~ 105
Mass	m	g	36

Absolute parameters

Parameters	Symbol	Unit	Value
Supply voltage (-15°C...85°C)	$V_{CC_{max}}$	V	±15.75
Maximum primary conductor temperature	$T_{B_{max}}$	°C	85

Ratings

Parameter	Unit	Value
Primary involved potential	V AC/DC	540
Maximum surrounding air temperature	°C	85

Isolation parameters

Parameter	Symbol	Unit	Value	Remark
RMS voltage for AC test 50Hz/1 min	U_d	kV	2.5	
Case material	-	-	V0	According to UL 94 PBT+30%GF (RoHS and REACH compliant)
Comparative tracking index	CTI		600	
Insulation resistance	I_R	MΩ	>2000	1000V

2. STB-180LF7 Electrical parameters

Condition: $V_{CC} = \pm 15V$, $T_A = 25^\circ C$, $R_M = 1.5 \sim 50 \Omega$ unless specified.

Parameters	Symbol	Unit	Min	Typ	Max	Remark
Primary nominal RMS current	I_{PN}	A		180		
Primary current measuring range	I_{PM}	A	-540		540	$V_{CC} = \pm 15V$
Secondary nominal RMS current	I_{SN}	mA		$I_o \pm 45$		
Measuring resistance @ ± 180 A max	R_M	Ω	1.5		50	$V_{CC} = \pm 15V$
Resistance of secondary winding	R_S	Ω		58		
Supply voltage	V_{CC}	V	± 14.25	15	± 15.75	
Current consumption	I_{CC}	mA		$13 + I_S$		
Turns ratio	N_S	NT		4000		
Nominal sensitivity	S_N	mA/A		0.25		
Offset current	I_o	mA			± 0.20	$I_P = 0, T_A = 25^\circ C$
Offset current temperature drift	I_{OT}	mA			± 0.6	$-40^\circ C \dots 85^\circ C$
Linearity error	ϵ_L	% of I_{PN}	-0.3		0.3	
Reaction time	t_{ra}	μs			0.5	10% of I_{PN}
Response time	t_r	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}	ϵ_{tot}	% of I_{PN}	-1.2		1.2	$-40^\circ C \dots 85^\circ C$

3. Dimensions:

