

CURRENT SENSOR

PRODUCT SERIES: STB-LF9

PRODUCT PART NUMBER: STB-300LF9-A
STB-300LF9-A1
STB-300LF9-A2
STB-300LF9-B

VERSION: Ver 1.5



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1. Description

STB-LF9 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
- Test and measurement
- Switched model power supplies (SMPS)
- UPS

General parameters

Parameter	Symbol	Unit	Value
Sensor operating temperature	T_A	°C	-40 ~ 85
Storage temperature	T_S	°C	-40 ~ 90
Mass	m	g	
Supply voltage (-40°C...105°C)	V_{CC}	V	± 15

Absolute parameters

Parameters	Symbol	Unit	Value
Maximum supply voltage (-40°C...105°C)	$V_{CC_{max}}$	V	± 16
Maximum primary conductor temperature	$T_{B_{max}}$	°C	100

Ratings

Parameter	Unit	Value
Primary involved potential	V AC/DC	1000
Maximum surrounding air temperature	°C	70
Primary current	A	0...1000

Isolation parameters

Parameter	Symbol	Unit	Value	Remark
RMS voltage for AC test 50Hz/1 min	U_d	kV	3	
Shell material	-	-	PA66	
Encapsulating material	-	-	Polyurethane AB adhesive	
Impulse withstand voltage 1.2/50μs	U_W	kV	3	
Case material	-	-	V0	According to UL 94

2. STB-300LF9-A& STB-300LF9-A1& STB-300LF9-A2 Electrical parameters

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

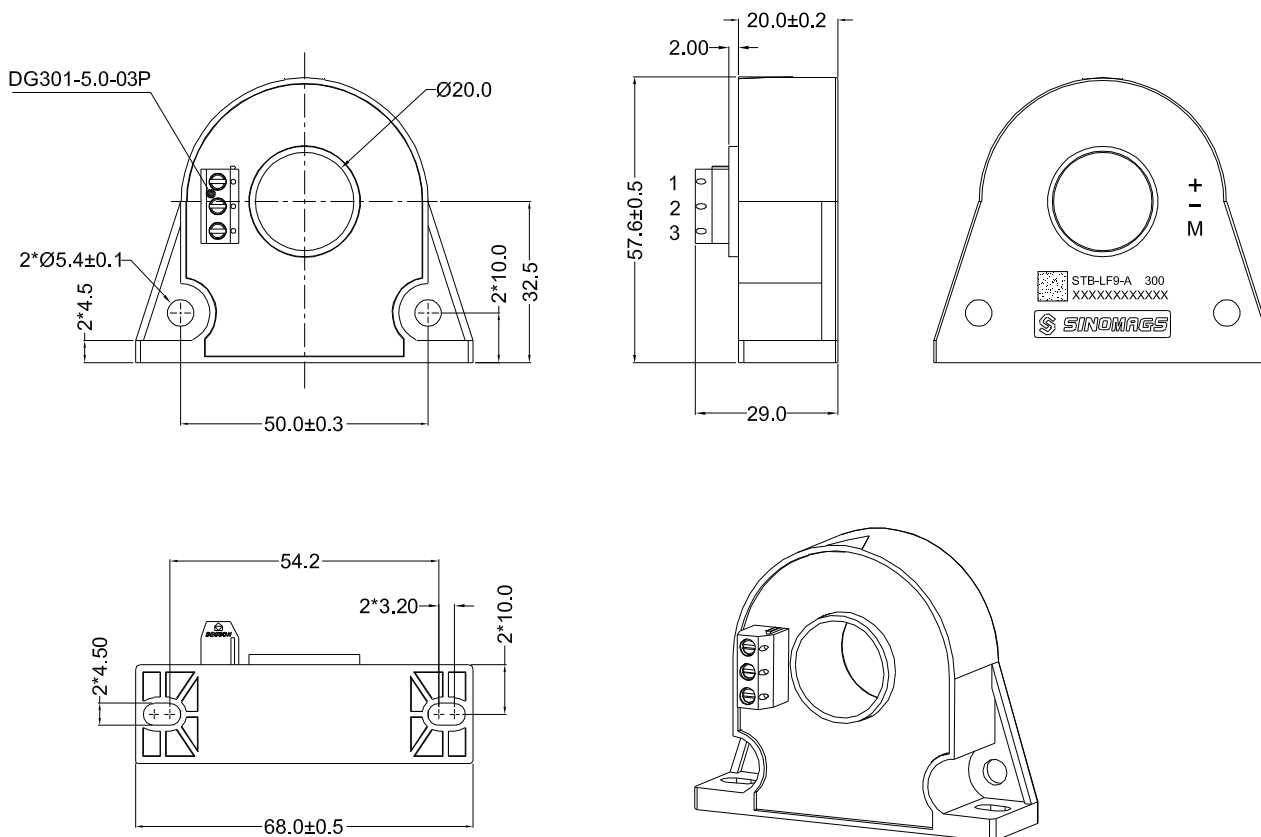
Parameters	Symbol	Unit	Min	Typ	Max	Remark
RMS Primary nominal current	I_{PN}	A		300		
Primary current measuring range	I_{PM}	A	-500		500	$V_{CC} = \pm 15V$
Measuring resistance	R_M	Ω	0		26.67	$I_{PN} V_{CC} = \pm 15V$
					10	$I_{PM} V_{CC} = \pm 15V$
Secondary nominal current	I_{SN}	A	-0.15		0.15	I_{PN}
Secondary current measuring range	I_S	A	-0.25		0.25	I_{PM}
Supply voltage	V_{CC}	V	± 14.25	± 15	± 15.75	
Current consumption	I_{CC}	mA		$16 + I_S$		$I_S = I_P / N_S$
Turns ratio	N_S	NT		2000		
Nominal sensitivity	S_N	mA/A		0.5		
Offset current	I_{OE}	mA	-0.2		0.2	
Offset current temperature drift	I_{OT}	mA	-0.4		0.4	$-40^\circ C \sim 90^\circ C$
Linearity error	ε_L	% of I_{PN}	-0.1		0.1	
Delay time @ 10 % of I_{PN}	t_{d10}	μs			1	10% of I_{PN}
Delay time @ 90 % of I_{PN}	t_{d90}	μs			1	90% of I_{PN}
-3 dB band width	BW	kHz			100	
Accuracy@ I_{PN}	X	%	-0.3		0.3	$T_A = 25^\circ C$
Total error at I_{PN}	ε_{tot}	% of I_{PN}	-0.3		0.3	$-40^\circ C \dots 90^\circ C$

3. STB-300LF9-B Electrical parameters

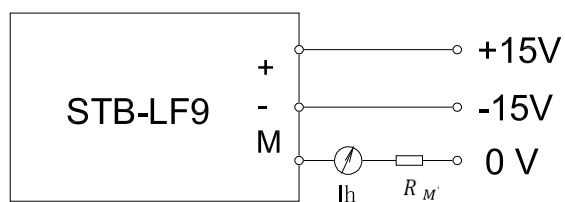
Condition: $V_{CC} = \pm 15V$, $T_A = 25^\circ C$ unless specified

Parameters	Symbol	Unit	Min	Typ	Max	Remark
RMS Primary nominal current	I_{PN}	A		300		
Primary current measuring range	I_{PM}	A	-700		700	
Measuring resistance	R_M	Ω	0		26.67	$I_{PN} V_{CC} = \pm 15V$
					10	$I_{PM} V_{CC} = \pm 20V$
Secondary nominal current	I_{SN}	A	-0.15		0.15	I_{PN}
Secondary current measuring range	I_S	A	-0.35		0.35	I_{PM}
Supply voltage	V_{CC}	V	± 15		± 20	5% error
Current consumption	I_{CC}	mA		$16 + I_S$		$I_S = I_P / N_S$
Turns ratio	N_S	NT		2000		
Nominal sensitivity	S_N	mA/A		0.5		
Offset current	I_{OE}	mA	-0.2		0.2	
Offset current temperature drift	I_{OT}	mA	-0.4		0.4	$-40^\circ C \sim 90^\circ C$
Linearity error	ε_L	% of I_{PN}	-0.1		0.1	
Delay time @ 10 % of I_{PN}	t_{d10}	μs			1	10% of I_{PN}
Delay time @ 90 % of I_{PN}	t_{d90}	μs			1	90% of I_{PN}
-3 dB band width	BW	kHz			100	
Accuracy@ I_{PN}	X	%	-0.3		0.3	$T_A = 25^\circ C$
Total error at I_{PN}	ε_{tot}	% of I_{PN}	-0.3		0.3	$-40^\circ C \dots 90^\circ C$

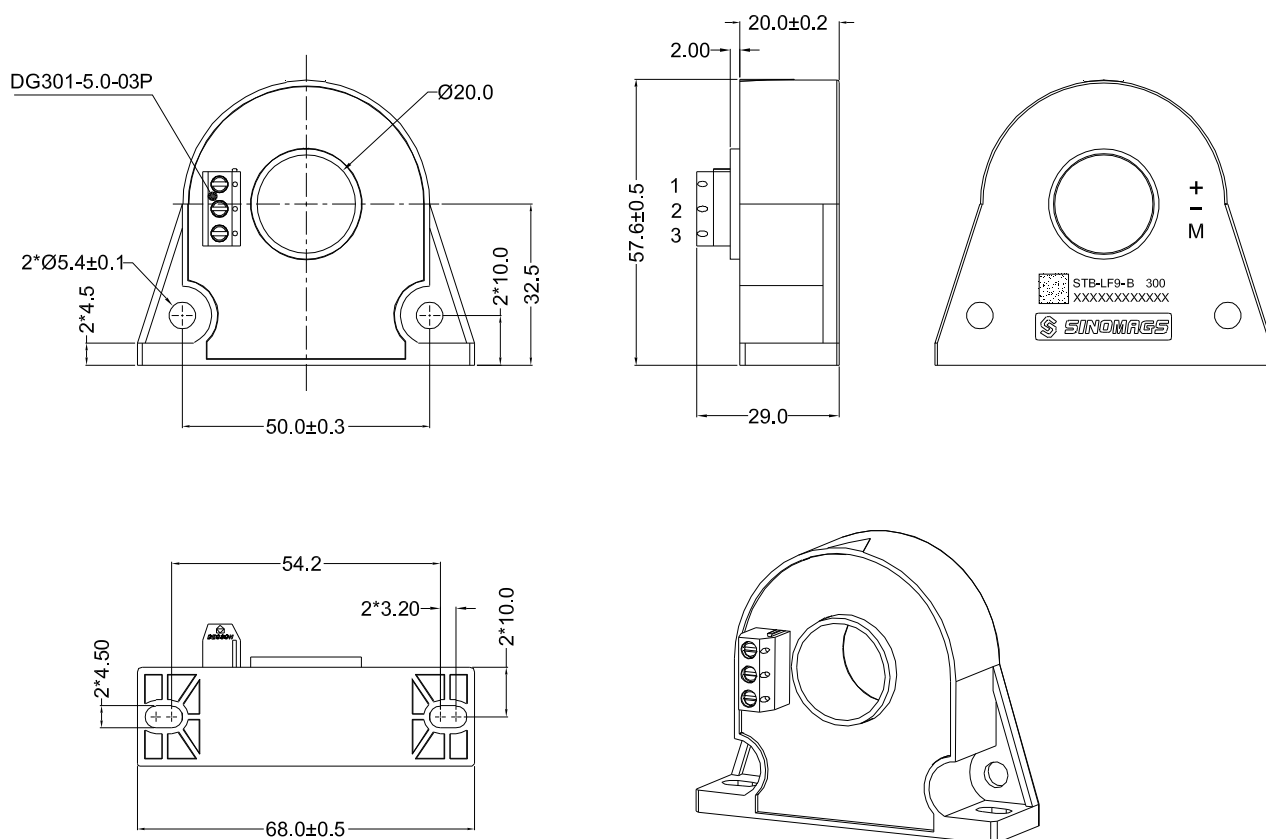
4. STB-300LF9-A Dimensions:



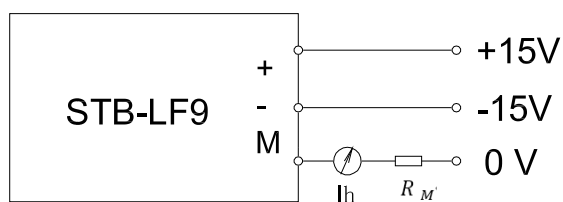
Terminal pin	Function
1	+15V
2	-15V
3	M



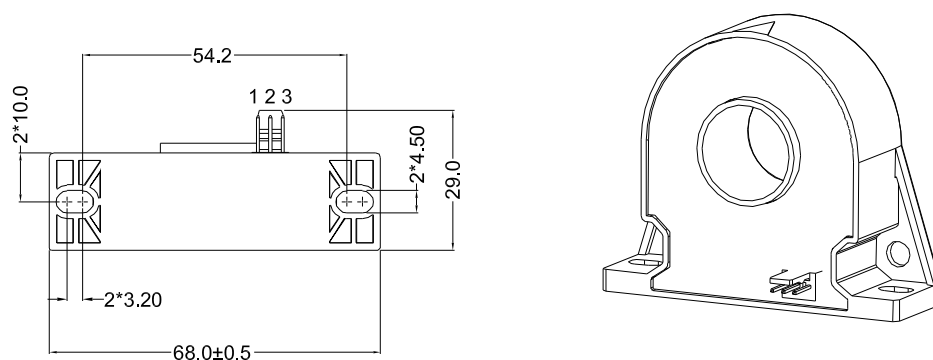
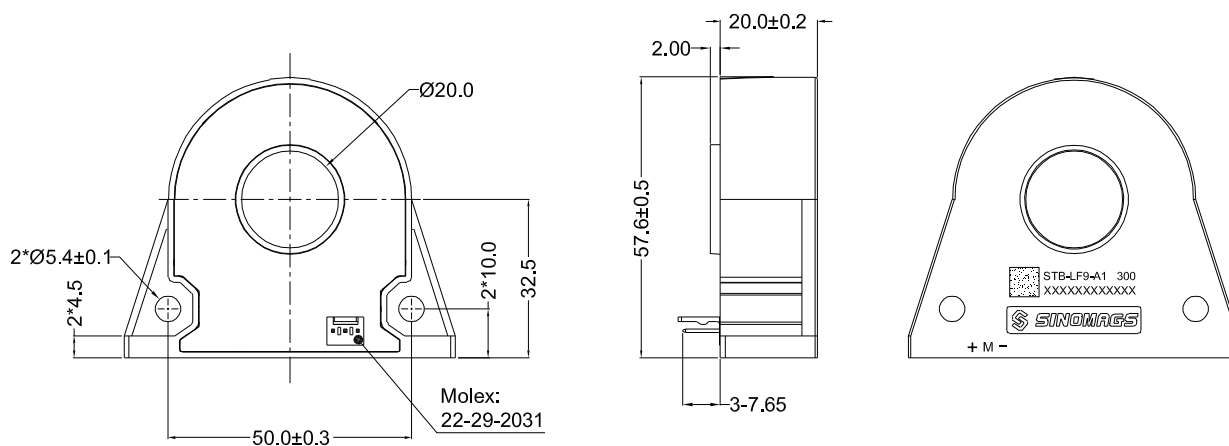
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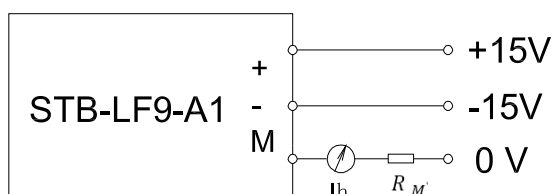
Terminal pin	Function
1	+15V
2	-15V
3	M



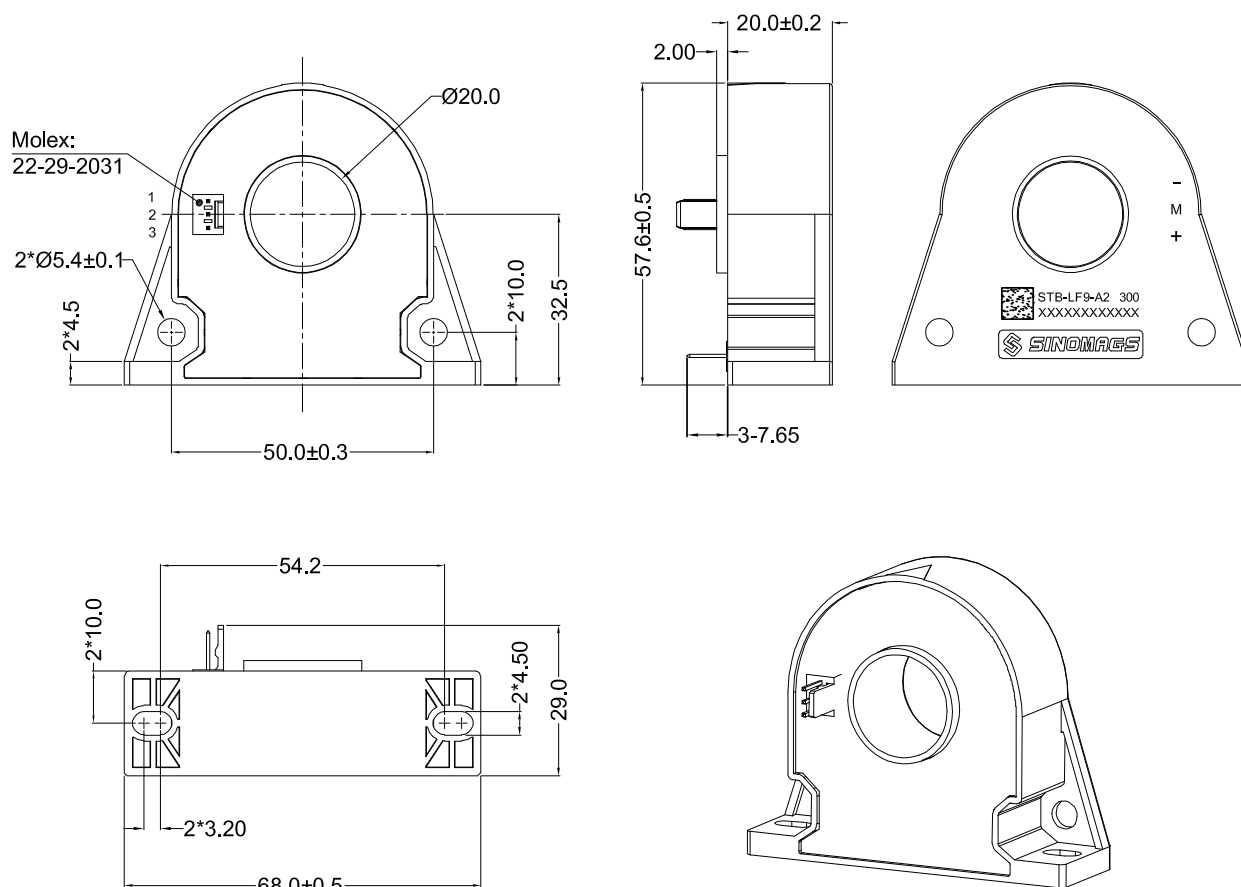
6. STB-300LF9-A1 Dimensions:



Terminal pin	Function
1	-15V
2	M
3	+15V



7. STB-300LF9-A2 Dimensions:



Terminal pin	Function
1	-15V
2	M
3	+15V

