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SINOMAGS 希磁科技

CURRENT SENSOR

PRODUCT SERIES： STB-LF6D

PRODUCT PART NUMBER：
STB-1000LF6D
STB-1000LF6D-A
STB-1200LF6D-A/SP10
STB-1188LF6D-A/SP25
STB-1000LF6D-B/SPA1
STB-1188LF6D/SPA6
STB-1000LF6D/ZJ

VERSION： Ver 1.8

Sinomags Technology Co., Ltd.
Web site: www.sinomags.com

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1. Description

STB-LF6D 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

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

General parameters

Parameter	Symbol	Unit	Value
Sensor operating temperature	T_A	˚C	STB-LF6D:-40~85 STB-LF6D-A:-40~85 STB-LF6D-A/SP25:-10~70 STB-LF6D-A/SP25:-10~75 STB-LF6D-B/SPA1:-40~85 STB-LF6D/SPA6:-40~70
Storage temperature	T_S	˚C	STB-LF6D:-45~100 STB-LF6D-A:-45~100 STB-LF6D-A/SP10:-25~85 STB-LF6D-A/SP25:-25~85 STB-LF6D-B/SPA1:-50~90 STB-LF6D/SPA6:-50~90
Mass	m	g	

Absolute parameters

Parameters	Symbol	Unit	Value
Supply voltage (-40˚C…85˚C)	Vcc_{max}	V	±25.2
Primary conductor temperature	$T_{B_{max}}$	˚C	100
Maximum steady state primary current (-40˚C…85˚C)	$I_{PN_{max}}$	A	STB-LF6D:1000 STB-LF6D-A:1000 STB-LF6D-A/SP25:1200 STB-LF6D-A/SP25:1188 STB-LF6D-B/SPA1:1000 STB-LF6D/SPA6:1188

STB-1000LF6D Isolation parameters

Parameter	Symbol	Unit	Value	Remark
RMS voltage for AC test 50Hz/1 min	U_d	kV	3.8	
Impulse withstand voltage 1.2/50μs	U_W	kV	15.6	

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Clearance (pri.-sec.)	d_{cl}	mm	19.0	Shortest distance through air
Creepage distance(pri.-sec.)	d_{cp}	mm	20.1	Shortest path along device body
Case material	-	-	V0	According to UL 94
Comparative tracking index	CTI		600	
Application example			2600	Basic insulation according to IEC 61800-5-1 CAT III, PD2
			1000	Reinforced insulation according to IEC 61800-5-1 CAT III, PD2

STB-1000LF6D-A　STB-1000LF6D-A/SP10 Isolation parameters

Parameter	Symbol	Unit	Value	Remark
RMS voltage for AC test 50Hz/1 min	U_d	kV	3	
Impulse withstand voltage 1.2/50μs	U_W	kV	14.1	
Clearance (pri.-sec.)	d_{cl}	mm	16.6	Shortest distance through air
Creepage distance(pri.-sec.)	d_{cp}	mm	17.4	Shortest path along device body
Case material	-	-	V0	According to UL 94
Comparative tracking index	CTI		175	

STB-1188LF6D-A/SP25 Isolation parameters

Parameter	Symbol	Unit	Value	Remark
RMS voltage for AC test 50Hz/1 min	U_d	kV	3	
Impulse withstand voltage 1.2/50μs	U_W	kV	14.1	
Clearance (pri.-sec.)	d_{cl}	mm	16.6	Shortest distance through air
Creepage distance(pri.-sec.)	d_{cp}	mm	17.4	Shortest path along device body
Case material	-	-	V0	According to UL 94
Comparative tracking index	CTI		175	

STB-1000LF6D-B/SPA1 Isolation parameters

Parameter	Symbol	Unit	Value	Remark
RMS voltage for AC test 50Hz/1 min	U_d	kV	3.8	
Impulse withstand voltage 1.2/50μs	U_W	kV	10	
Clearance (pri.-sec.)	d_{cl}	mm	11.3	Shortest distance through

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				air
Creepage distance(pri.-sec.)	d_{cp}	mm	24.6	Shortest path along device body
Case material	-	-	V0	According to UL 94
Comparative tracking index	CTI		600	
Insulation resistance	R_{IS}	MΩ	200	Measured at 500 V DC

STB-1188LF6D/SPA6 Isolation parameters

Parameter	Symbol	Unit	Value	Remark
RMS voltage for AC test 50Hz/1 min	U_d	kV	6.8	
Impulse withstand voltage 1.2/50μs	U_W	kV	14.5	
Clearance (pri.-sec.)	d_{cl}	mm	17.6	Shortest distance through air
Creepage distance(pri.-sec.)	d_{cp}	mm	27.6	Shortest path along device body
Case material	-	-	V0	According to UL 94
Comparative tracking index	CTI		600	

STB-1000LF6D/ZJ Isolation parameters

Parameter	Symbol	Unit	Value	Remark
RMS voltage for AC test 50Hz/1 min	U_d	kV	4	
Impulse withstand voltage 1.2/50μs	U_W	kV	14.1	
Clearance (pri.-sec.)	d_{cl}	mm	14.2	Shortest distance through air
Creepage distance(pri.-sec.)	d_{cp}	mm	32.4	Shortest path along device body
Case material	-	-	V0	According to UL 94
Comparative tracking index	CTI		175	

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2. STB-1000LF6D Electrical parameters

Condition: T_A = 25 °C, V_{CC} = ±24 V, R_M = 1 Ω, unless otherwise noted.

Parameters	Symbol	Unit	Min	Type	Max	Remark
Primary nominal rms current	I_{PN}	A			1000	
Primary current measuring range	I_{PM}	A	-1500		1500	With V_{CC} = ± 22.8V; T_A=85℃; Duration 100us
Measuring resistance	R_M	Ω	0			Max value of R_M is given in Figure 1
Secondary nominal RMS current	I_{SN}	mA			200	I_{PN}
Turns ratio	N_S	NT		5000		
Resistance of secondary winding	R_S	Ω			40	T_A=25℃
Output range	I_S	A	-0.54		0.54	
Supply voltage	V_{CC}	V	±14.25		±25.2	
Current consumption	I_{CC}	mA		23+I_S 37+I_S		V_{CC}=±14.25V V_{CC}=±25.2V
Nominal sensitivity	S_N	mA/A		0.2		
Offset current	I_O	mA	-0.4		0.4	I_P = 0A, T_A= 25 °C
Magnetic offset current	I_{OM}	mA	-0.2		0.2	After 3* I_{PN}
Offset current temperature drift	I_{OT}	mA	-0.8		0.8	-40℃…85℃
Overall accuracy at I_{PN}	X_G	% of I_{PN}	-0.4		0.4	-40℃…85℃
Linearity error	ε_L	% of I_{PN}	-0.1		0.1	-40℃…85℃
Sensitivity error	ε_S	% of I_{PN}	-0.15		0.15	
Delay time @ 10 % of I_{PN}	$t_{d\,10}$	μs		＜0.5		0 to 1 kA,200A/μs
Delay time @ 90 % of I_{PN}	$t_{d\,90}$	μs		＜0.5		0 to 1 kA,200A/μs
Frequency bandwidth	BW	kHz	150			-3dB

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3. STB-1000LF6D-A Electrical parameters

Condition: T_A = 25 °C, V_{CC} = ±24 V, R_M = 1 Ω, unless otherwise noted.

Parameters	Symbol	Unit	Min	Type	Max	Remark
Primary nominal current rms	I_{PN}	A_{RMS}	0		1000	
Primary current, measuring range	I_{PM}	A_{peak}	-2100		2100	V_{CC}=±24V, Duration 100us
Measuring resistance	R_M	Ω	0			Max value of R_M is given in Figure 1
Secondary nominal RMS current	I_{SN}	A	0		0.2	I_{PN}
Secondary current	I_S	A	-0.42		0.42	I_{PM}
Turns ratio	N_S	NT		5000		
Resistance of secondary winding	R_S	Ω			40	T_A=25℃
Supply voltage	V_{CC}	V	±15		±24	±5%
Current consumption	I_{CC}	mA				V_{CC}=±24V
Offset current	I_O	mA	-0.4		0.4	I_P = 0A, T_A= 25 °C
Magnetic offset current	I_{OM}	mA	-0.2		0.2	After 3* I_{PN}
Offset current temperature drift	I_{OT}	mA	-0.4		0.4	-10℃…70℃
			-0.8		0.8	-40℃…85℃
Overall accuracy at I_{PN}	X_G	% of I_{PN}	-0.4		0.4	25℃
Linearity error	ε_L	% of I_{PN}	-0.15		0.15	
Delay time @ 90 % of I_{PN}	$t_{d\,90}$	μs			1	d_i/d_t＞100A/μs
Frequency bandwidth	BW	kHz			100	-1dB

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4. STB-1200LF6D-A/SP10 Electrical parameters

Condition: T_A = 25 °C, V_{CC} = ±24 V, R_M = 1 Ω, unless otherwise noted.

Parameters	Symbol	Unit	Min	Type	Max	Remark
Primary nominal current rms	I_{PN}	A_{RMS}	0		1200	
Primary current, continuous, cycle 10 s/1 min	I_{P10s}	A_{RMS}			1450/950	
Primary current, Non-repetitive overload, 100 us	I_{Ppeak}	A_{peak}			2700	
Measuring resistance	R_M	Ω	2		2.2	I_{Ppeak} V_{CC}=±22.8
Secondary nominal RMS current	I_{SN}	mA	0		400	I_{PN}
Turns ratio	N_S	NT		3000		
Resistance of secondary winding	R_S	Ω			16	T_A=25℃
Supply voltage	V_{CC}	V	±15		±24	±5%
Current consumption	I_{CC}	mA		25		V_{CC}=±24V
Offset current	I_O	mA	-0.4		0.4	I_P = 0A, T_A= 25 °C
Magnetic offset current	I_{OM}	mA	-0.2		0.2	After 3* I_{PN}
Offset current temperature drift	I_{OT}	mA		±0.4	±0.7	-10℃…70℃
Overall accuracy at I_{PN}	X_G	% of I_{PN}	-0.4		0.4	25℃
Linearity error	ε_L	% of I_{PN}	-0.15		0.15	
Delay time @ 90 % of I_{PN}	$t_{d\,90}$	μs			1	d_i/d_t＞100A/μs
Frequency bandwidth	BW	kHz	100			-3B

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5. STB-1188LF6D-A/SP25 Electrical parameters

Condition: T_A = 25 °C, V_{CC} = ±24 V, R_M = 1 Ω, unless otherwise noted.

Parameters	Symbol	Unit	Min	Type	Max	Remark
Primary nominal current rms	I_{PN}	A_{RMS}	0		1188	
Primary current, measuring range	I_{PM}	A_{peak}	-3400		3400	V_{cc}=±24V, Duration 100us
Measuring resistance	R_M	Ω	0		37	V_{cc} = ±24 V ; I=1188A
			0		30	V_{cc} = ±24 V ; I=1412A
			1		1	V_{cc} = ±24 V ; I=3400A
Secondary nominal RMS current	I_{SN}	mA	0		396	I_{PN}
Secondary current	I_S	mA			1133	I_{PM}
Turns ratio	N_S	NT		3000		
Resistance of secondary winding	R_S	Ω			16	T_A=25℃
Supply voltage	V_{CC}	V	±15		±24	±5%
Current consumption	I_{CC}	mA		25		V_{CC}=±24V
Offset current	I_O	mA	-0.4		0.4	I_P = 0A, T_A= 25 °C
Magnetic offset current	I_{OM}	mA	-0.2		0.2	After 3* I_{PN}
Offset current temperature drift	I_{OT}	mA		±0.4	±0.7	-10℃…70℃
Overall accuracy at I_{PN}	X_G	% of I_{PN}	-0.4		0.4	25℃
Linearity error	ε_L	% of I_{PN}	-0.1		0.1	
Delay time @ 90 % of I_{PN}	$t_{d\,90}$	μs			1	d_i/d_t＞100A/μs
Frequency bandwidth	BW	kHz			150	-1dB

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6. STB-1000LF6D-B/SPA1 Electrical parameters

Condition: T_A = 25 °C, V_{CC} = ±24 V, R_M = 1 Ω, unless otherwise noted.

Parameters	Symbol	Unit	Min	Type	Max	Remark
Primary nominal current rms	I_{PN}	A_{RMS}	0		1000	
Primary current, measuring range	I_{PM}	A_{peak}	-2300		2300	V_{CC}=±18V, Duration 100us
Measuring resistance	R_M	Ω	0		10	
Secondary nominal RMS current	I_{SN}	A	-0.25		0.25	
Secondary current	I_S	A	-0.575		0.575	
Turns ratio	N_S			4000		
Resistance of secondary winding	R_S	Ω			22	T_A=25℃
Supply voltage	V_{CC}	V	±14.25		±25.2	
Current consumption	I_{CC}	mA		17 21		V_{CC}=±15V V_{CC}=±24V
Offset current,referred to primary	I_O	A	-1		1	I_P = 0A, T_A= 25 °C
Magnetic offset current,referred to primary	I_{OM}	A		±1		After 3* I_{PN}
Offset current temperature drift,referred to primary	I_{OT}	A	-0.6		0.6	
Overall accuracy at I_{PN}	X_G	% of I_{PN}	-0.2 -0.4		0.2 0.4	25...70...85℃ -40...85℃
Sensitivity errror	ε_G	%	-0.15		0.15	
Linearity error	ε_L	% of I_{PN}	-0.15		0.15	
Output rms current noise referred primary	I_{no}	mA		50		1 Hz to 20kHz
Delay time @ 10 % of I_{PN}	t_{ra}	μs		＜0.5		0 to 1kA,200A//μs
Delay time @ 90 % of I_{PN}	$t_{d\,90}$	μs		＜0.5		0 to 1kA,200A//μs
Frequency bandwidth	BW	kHz		200		-3dB,small signal bandwidth

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7. STB-1188LF6D/SPA6 Electrical parameters

Condition: T_A = 25 °C, V_{CC} = ±24 V, R_M = 1 Ω, unless otherwise noted.

Parameters	Symbol	Unit	Min	Type	Max	Remark
Primary nominal current rms	I_{PN}	A_{RMS}	0		1188	
Primary current, measuring range	I_{PM}	A_{peak}	-3400		3400	Duration 100us
Measuring resistance	R_M	Ω	0			The value of $R_{M\,min}$ is 0Ω in AC or 15Ω in DC,Max value of R_M is given in Figure 1
Secondary nominal RMS current	I_{SN}	A	-0.396		0.396	
Secondary current	I_S	A	-1.13		1.13	
Turns ratio	N_S			3000		
Nominal sensitivity	S_N	mA/A		0.333		
Resistance of secondary winding	R_S	Ω			16	T_A=25℃
Supply voltage	V_{CC}	V	±22.8		±25.2	
Current consumption	I_{CC}	mA		28+I_S		
Offset current referred to primary	I_O	A	-1		1	I_P = 0A, T_A= 25 °C
Magnetic offset current referred to primary	I_{OM}	A		±1		After 3* I_{PN}
Offset current temperature drift referred to primary	I_{OT}	A	-0.6		0.6	
Overall accuracy at I_{PN}	X_G	% of I_{PN}	-0.2 -0.4		0.2 0.4	25...70℃ -40...70℃
Sensitivity error	ε_G	%	-0.15		0.15	
Linearity error	ε_L	% of I_{PN}	-0.15		0.15	
Output rms current noise referred primary	I_{no}	mA		50		1 Hz to 20kHz
Delay time @ 10 % of I_{PN}	$t_{d\,10}$	μs		＜0.5		0 to 1kA,200A/μs
Delay time @ 90 % of I_{PN}	$t_{d\,90}$	μs		＜0.5		0 to 1kA,200A/μs
Frequency bandwidth	BW	kHz		200		-3dB,small signal bandwidth

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8. STB-1000LF6D/ZJ Electrical parameters

Parameters	Symbol	Unit	Min	Type	Max	Remark
Primary nominal current rms	I_{PN}	A_{RMS}	0		1000	
Primary current, measuring range	I_{PM}	A_{peak}	-2100		2100	V_{CC}=±24V, Duration 100us
Measuring resistance	R_M	Ω	0			Max value of R_M is given in figure 1
Secondary nominal RMS current	I_{SN}	A	0		0.2	I_{PN}
Secondary current	I_S	A	-0.42		0.42	I_{PM}
Turns ratio	N_S	NT		5000		
Resistance of secondary winding	R_S	Ω			40	T_A=25℃
Supply voltage	V_{CC}	V	±15		±24	±5%
Current consumption	I_{CC}	mA				V_{CC}=±24V
Offset current	I_O	mA	-0.4		0.4	I_P = 0A, T_A= 25 °C
Magnetic offset current	I_{OM}	mA	-0.2		0.2	After 3* I_{PN}
Offset current temperature drift	I_{OT}	mA	-0.4		0.4	-10℃…70℃
			-0.8		0.8	-40℃…85℃
Overall accuracy at I_{PN}	X_G	% of I_{PN}	-0.4		0.4	25℃
Linearity error	ε_L	% of I_{PN}	-0.15		0.15	
Delay time @ 90 % of I_{PN}	$t_{d\,90}$	μs			1	d_i/d_t＞100A/μs
Frequency bandwidth	BW	kHz			100	-1dB

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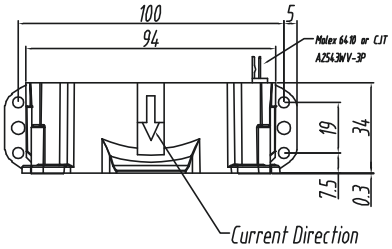
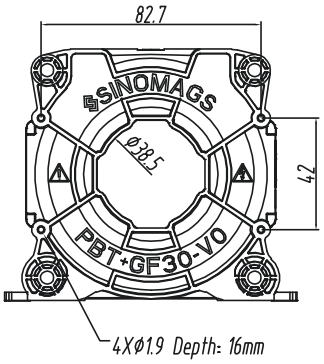
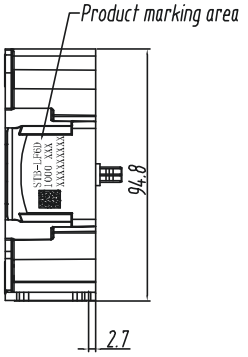
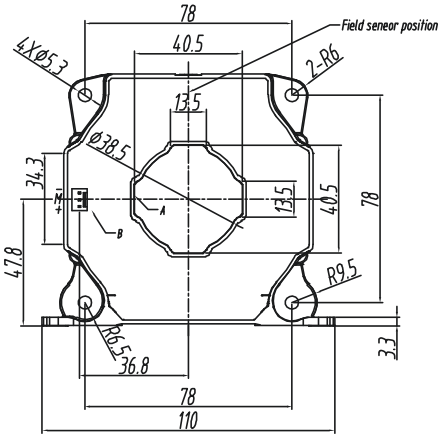
9. STB-1000LF6D Dimensions:

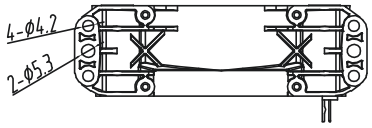


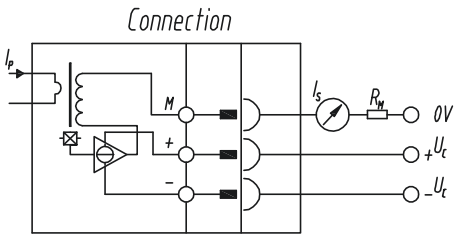
	d_{CI}	d_{CP}
A-B	19 .0mm	20.1mm



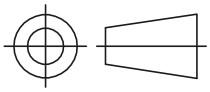








Material : Fit UL94V-0 & RoHS requirements ;
General tolerance : ±0.5
Unit :mm



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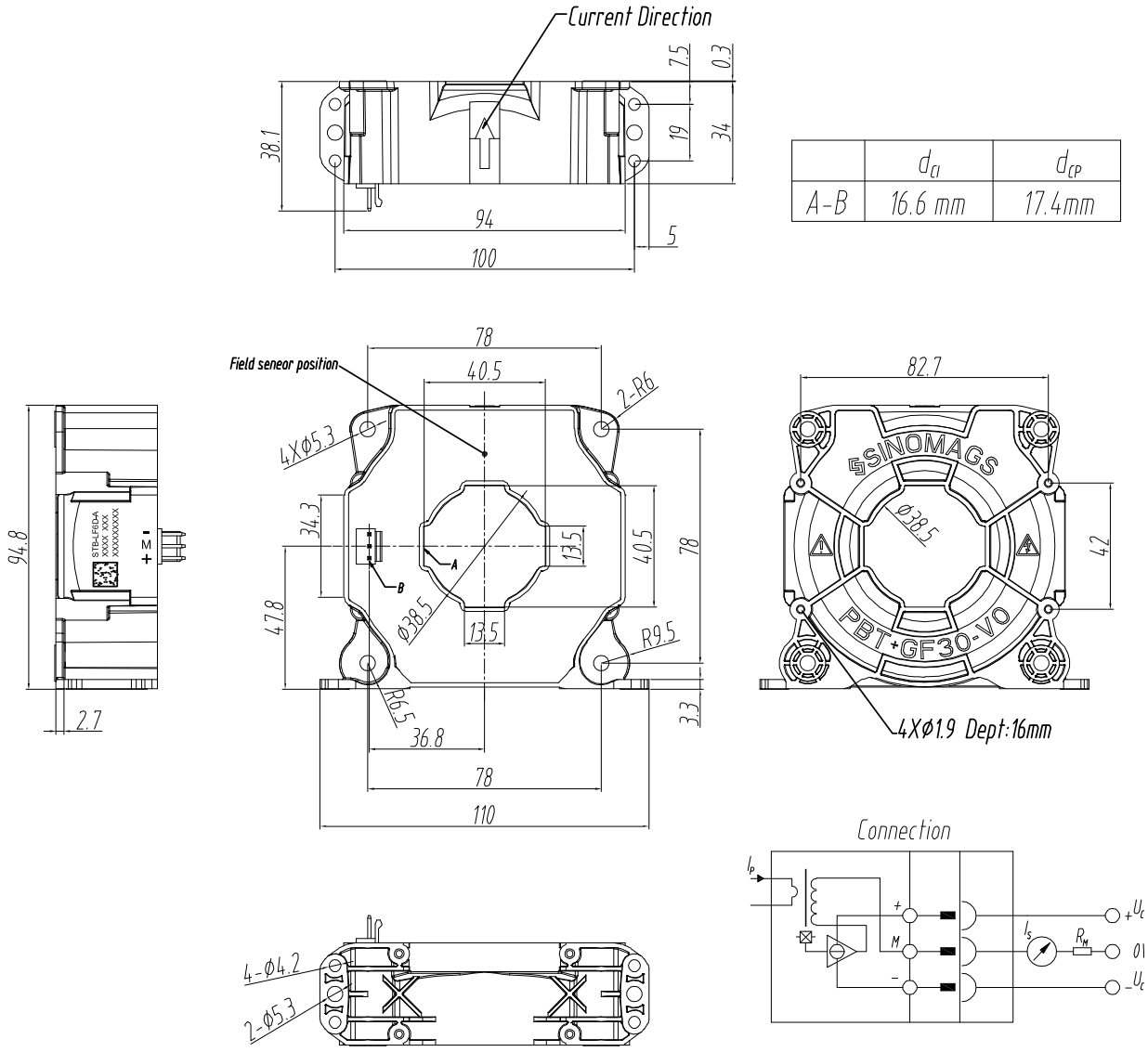
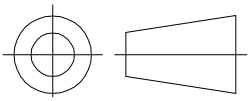
10. STB-1000LF6D-A Dimensions:



	d_{Cl}	d_{CP}
A-B	16.6 mm	17.4mm

Material : Fit UL94V-0 & RoHS requirements ;
General tolerance : ±0.5
Unit :mm



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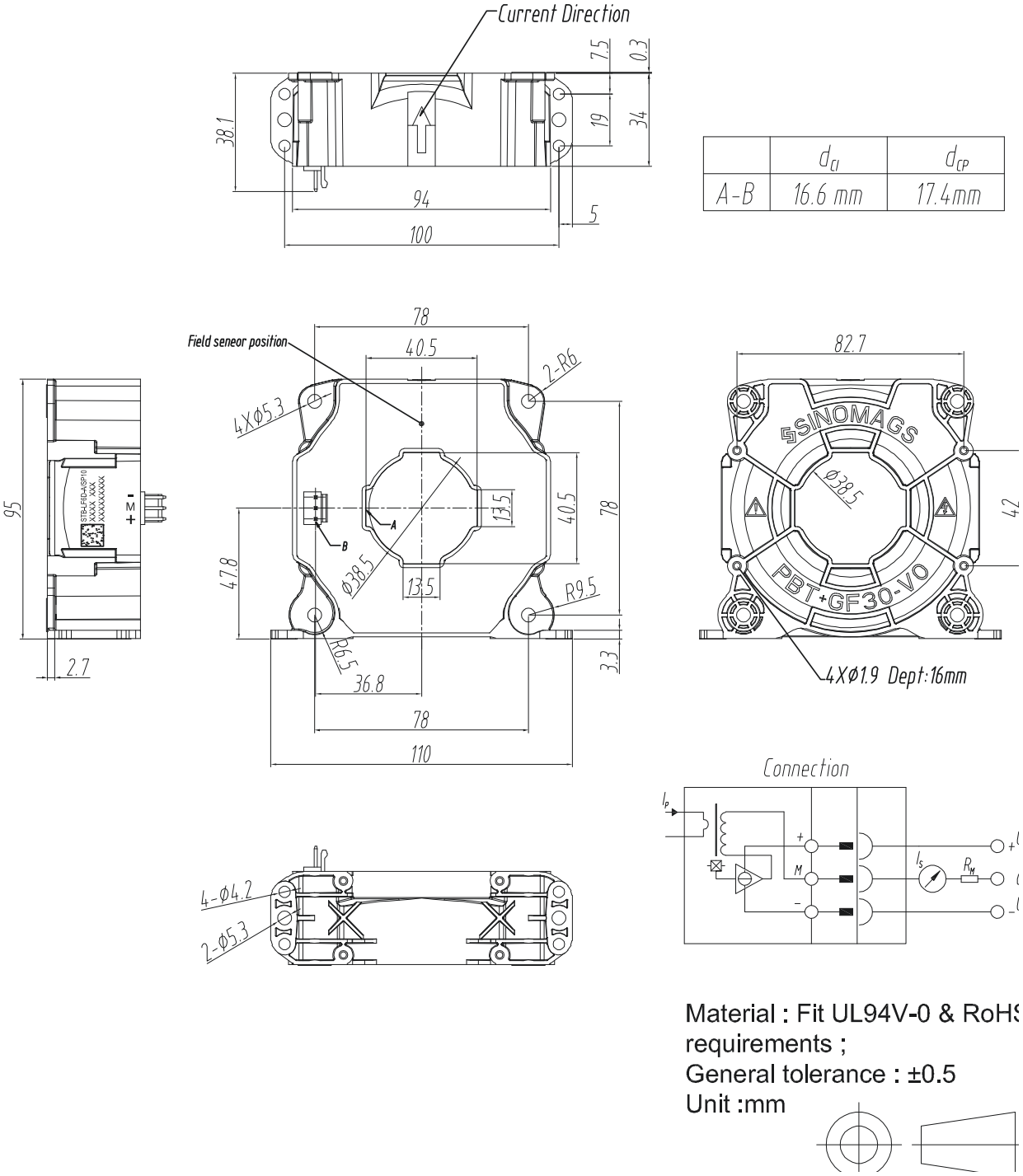
11. STB-1200LF6D-A/SP10 Dimensions:



	d_{CI}	d_{CP}
A-B	16.6 mm	17.4mm

Material : Fit UL94V-0 & RoHS requirements ;
General tolerance : ±0.5
Unit :mm

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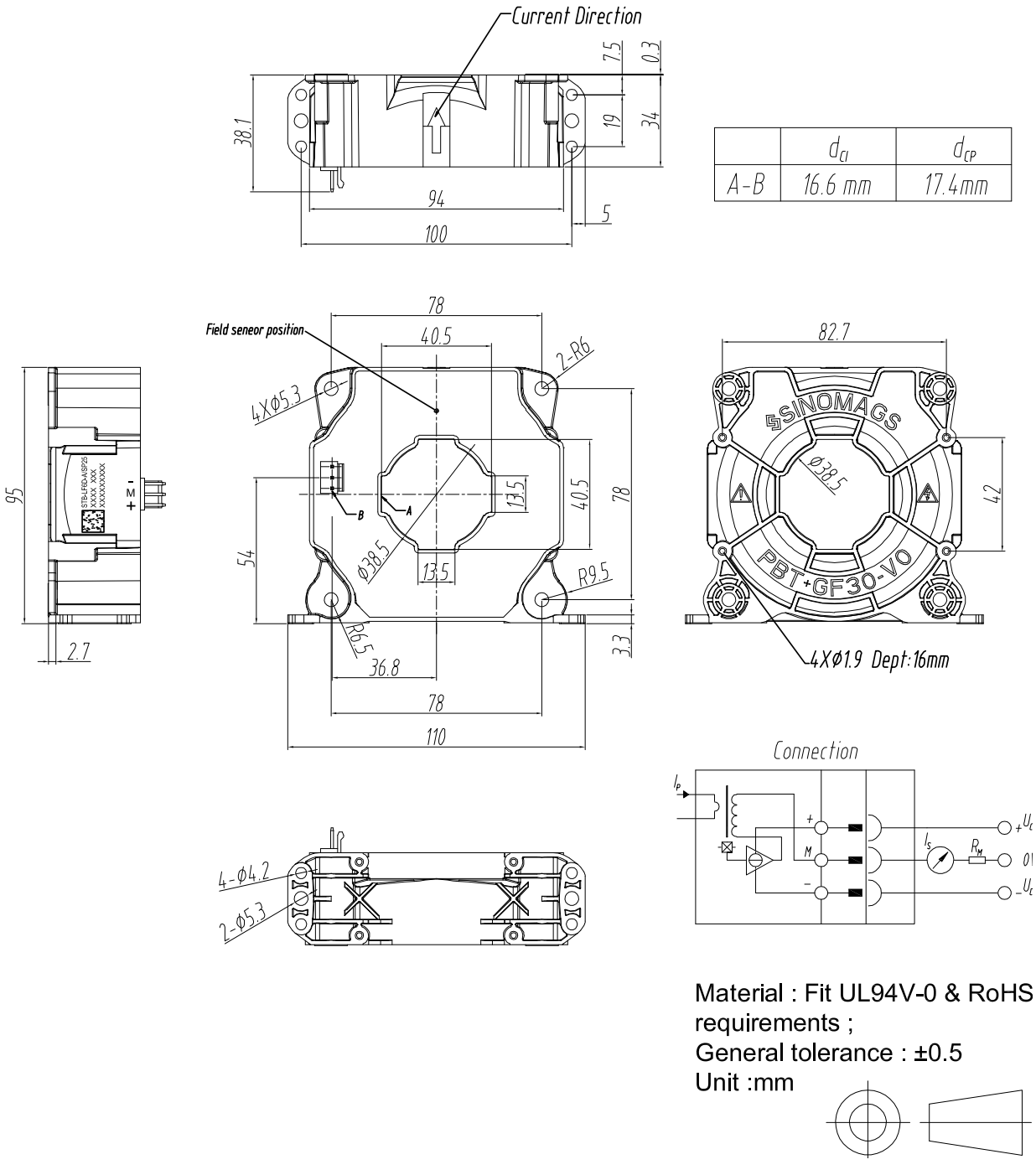
12. STB-1188LF6D-A/SP25 Dimensions:



	d_{CI}	d_{CP}
A-B	16.6 mm	17.4mm

Material : Fit UL94V-0 & RoHS requirements ;
General tolerance : ±0.5
Unit :mm

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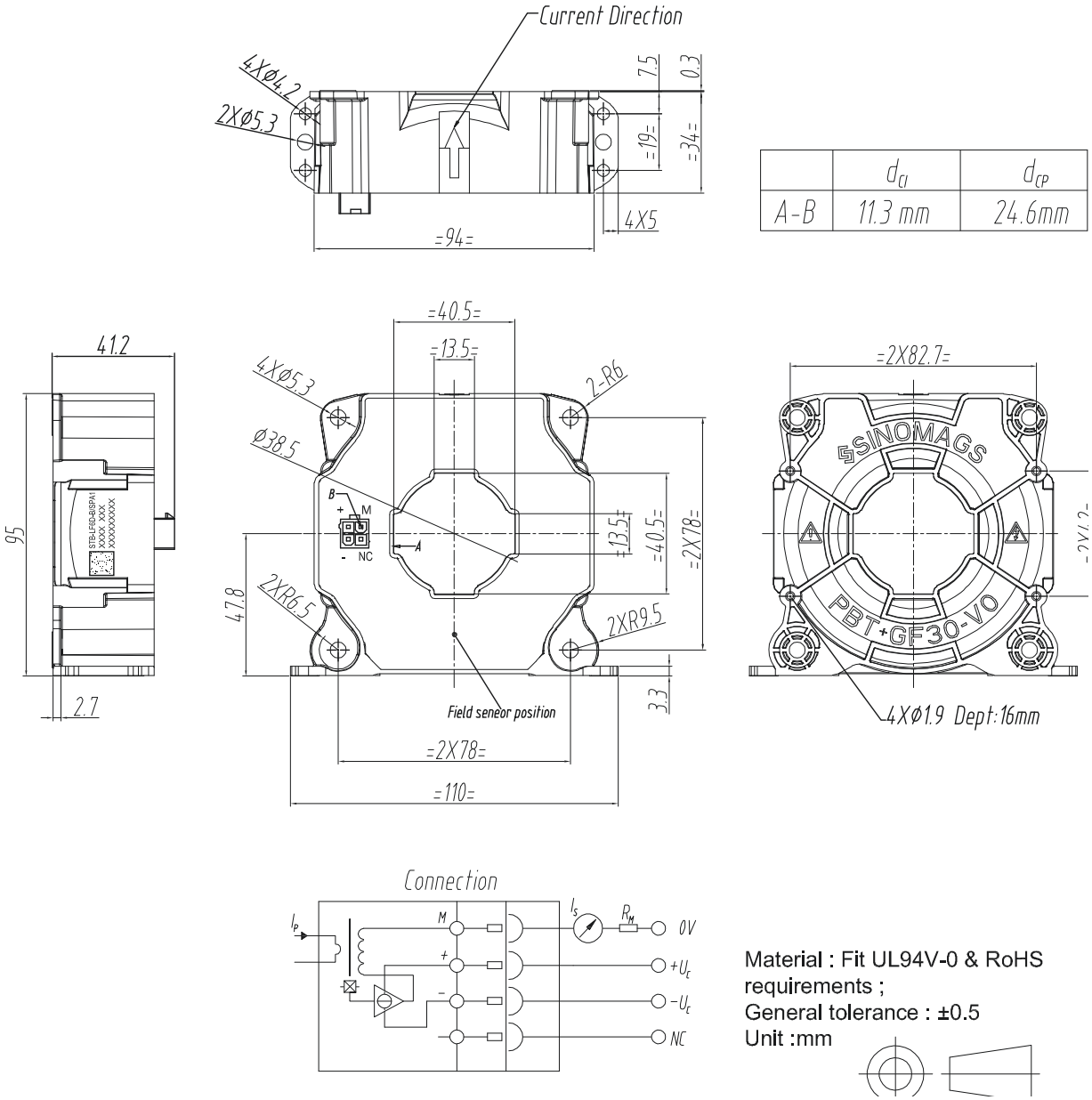
13. STB-1000LF6D-B/SPA1 Dimensions:

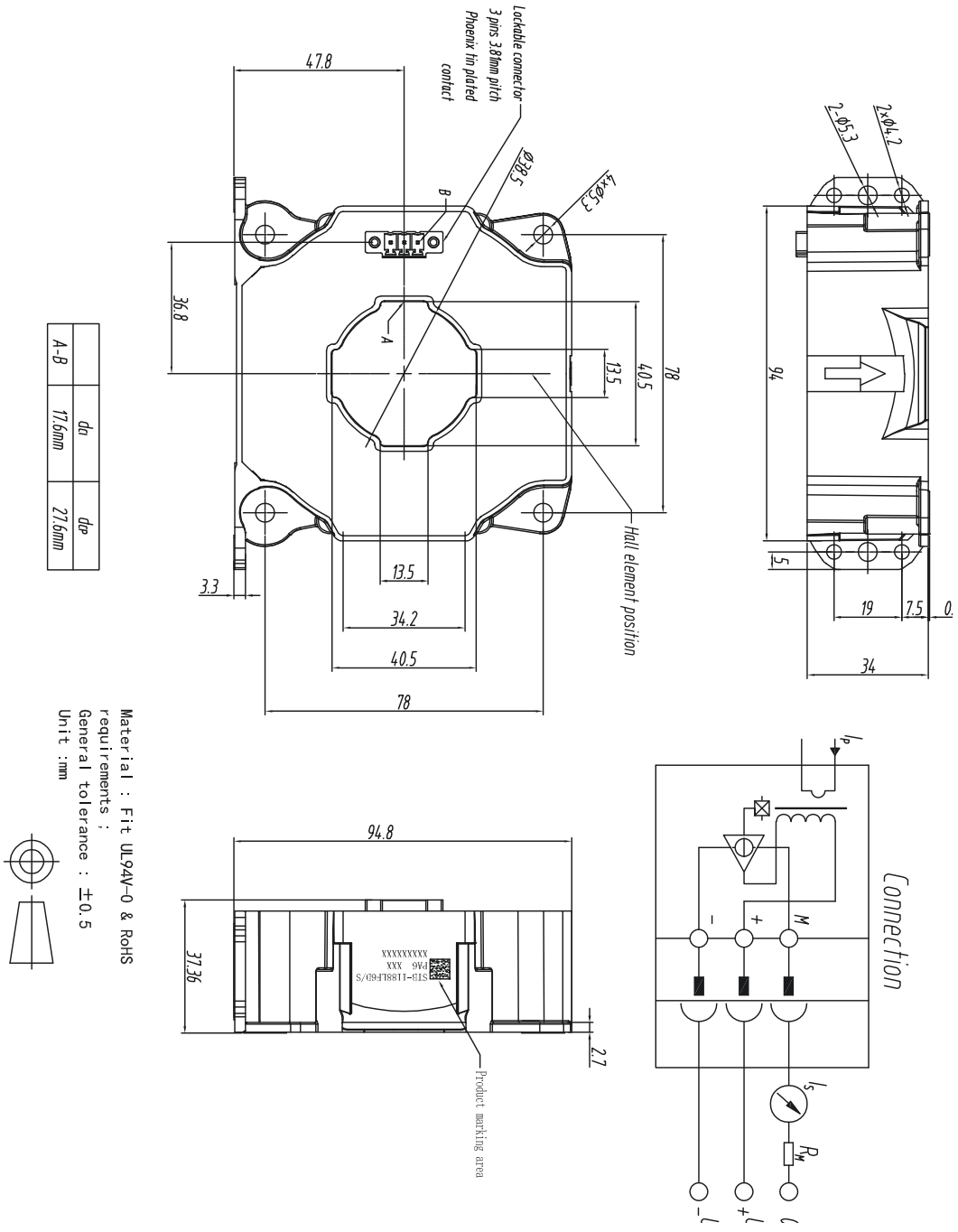


	d_{CI}	d_{CP}
A-B	11.3 mm	24.6mm

Material : Fit UL94V-0 & RoHS requirements ;
General tolerance : ±0.5
Unit :mm

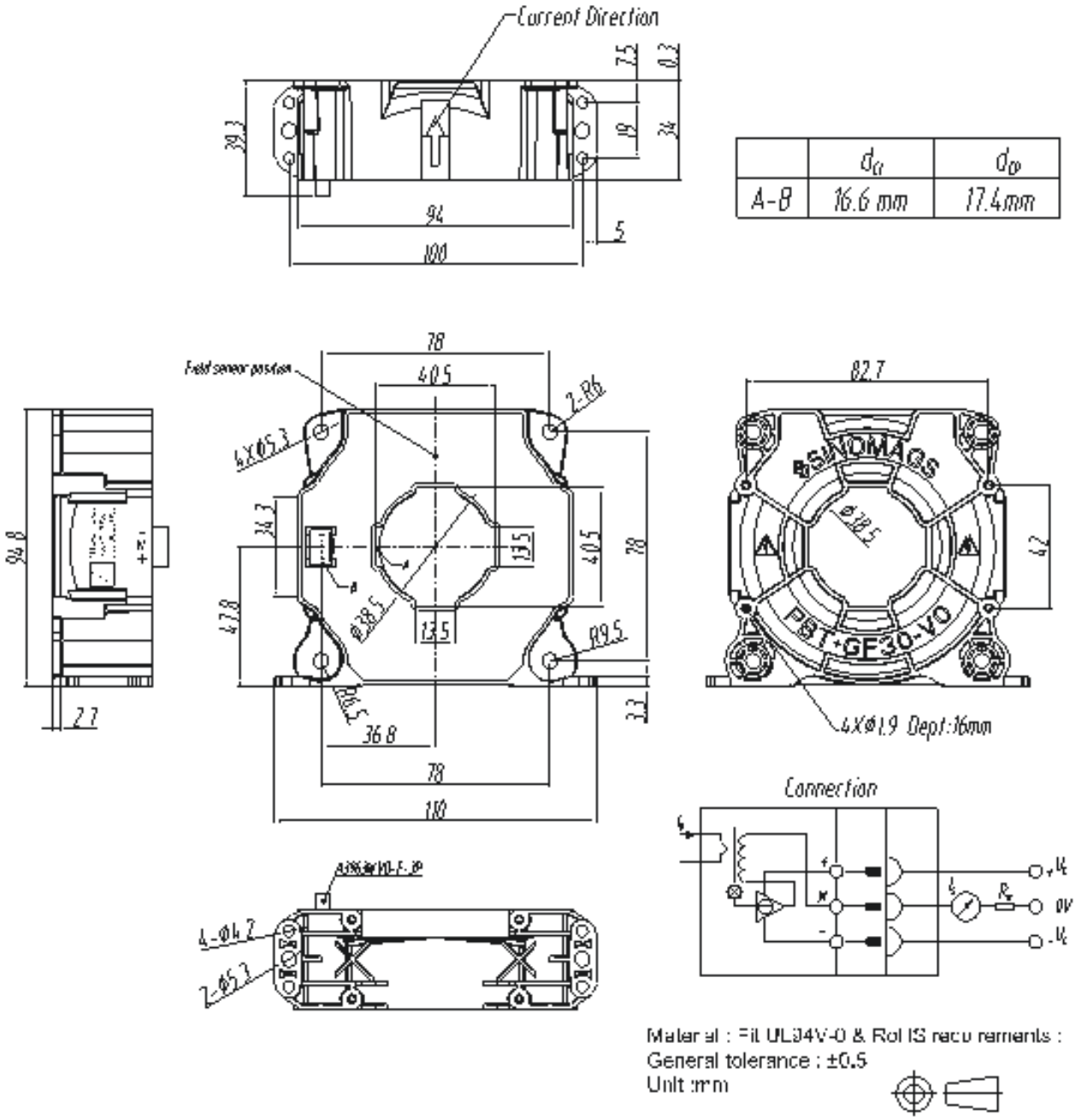
受 控
2026-10-20

14. STB-1188LF6D/SPA6 Dimensions:



受 控
2026-10-20

15. STB-1000LF6D/ZJ Dimensions:



	d_A	d_Φ
A-B	16.6 mm	17.4mm

受 控
2026-10-20

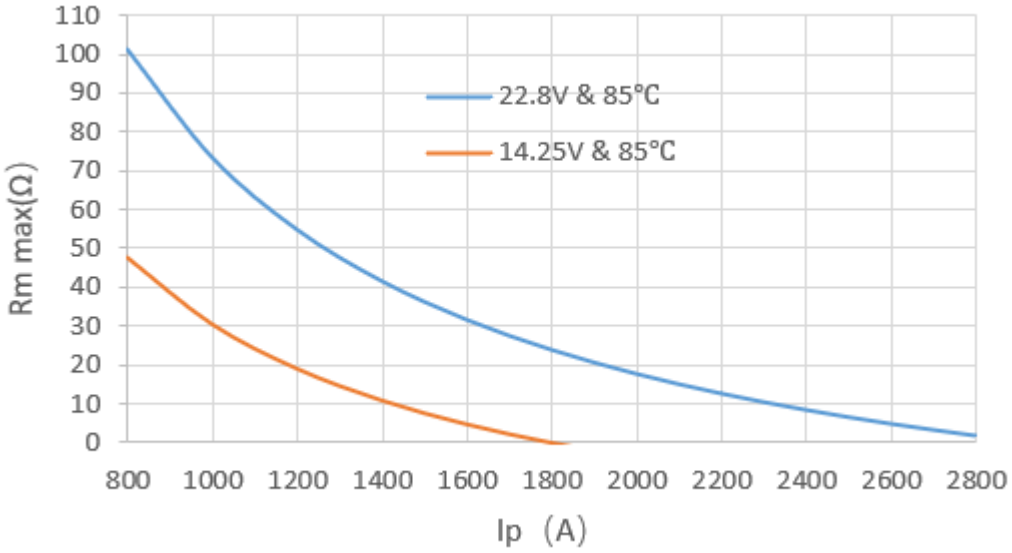
16. Mechanical characteristics

● General tolerance	±0.5 mm
● Transducer fastening	
Vertical position	2 holes ⌀ 5.3 mm
	2 M5 steel screws
Recommended fastening torque	3.2 N·m(±10%)
Or	4 holes ⌀ 4.2 mm,
	4 M4 steel screws
Recommended fastening torque	2.1 N·m（±10%）
● Primary through-hole	⌀ 38mm
Or	40mm x 13 mm
● Transducer fastening	
Horizontal position	4 holes ⌀ 5.3 mm
	4 M5 steel screws
Recommended fastening torque	3.2 N·m (±10 %)
● Connection of secondary	
STB-1000LF6D	Molex 6410 or CJT A2543WV-3P
STB-1000LF6D-A	JST B3P VH or CJT A3963WV-3P
STB-1200LF6D-A/SP10	JST B3P VH or CJT A3963WV-3P
STB-1188LF6D-A/SP25	JST B3P VH or CJT A3963WV-3P
STB-1000LF6D-B/SPA1	CJT C4201WD-2x2P-V0
STB-1188LF6D-B/SPA6	Phoenix 1707641 or 15EDGVM-THR-3.81-XXP-1Y-00A&Z(H)

受 控
2026-10-20

17. STB-LF6D Typical performance characteristics

Figure 1



$$R_{M\,max} = (N_S * (V_{CC\,min} - 0.5V)/I_P) - R_{S\,max} - 1.1\Omega$$