



CURRENT SENSOR

Application

New Energy

新能源应用



Founded
2013

1200 employees, 200 R&D staff
 全球员工: 1200、技术人员: 200+

1200/200+

xMR device ~ 500 Mpcs/year
 xMR die ~ 5 亿颗/年

500 Mpcs

Y2022, current sensor production exceeds 100 Mpcs
 2022年, 电流传感器产出突破1亿颗

100 Mpcs

PV industry current sensors: Over 50% market dominance
 Automotive-grade current sensors: 30% global market share
 光伏行业电流传感器的市场占有率超过50%, 汽车行业30%

50%+



SINOMAGS
CURRENT SENSOR

Founded in 2013, Sinomags is dedicated to the development and production of magnetic sensors.

We have four subsidiary companies in Germany, Wuxi, Ningbo, and Bengbu. And we have invested in a magnetic encoder R&D and production based in Wuxi.

The company's R&D team consists of more than 200 engineers and experts in the field of magnetism and power electronics as the core, covering the design development and production of the whole industrial chain from xMR wafers to sensor modules.

With the mastery of the core technology of magnetic sensing and continuous innovation, Sinomags is providing more competitive solutions for new energy power generation, new energy vehicles, smart grid, smart home, smart manufacturing and other industries.

希磁科技成立于2013年, 专注于磁性传感器的研发与生产, 融合了设计、研发、生产以及销售于一体的运营模式, 坚持自主创新。

希磁科技在安徽、宁波、无锡和德国设有四家子公司, 并在无锡投资建立了磁性编码器研发生产基地。

希磁科技的产品系列包括:AMR, GMR, TMR晶圆, 磁性传感器芯片, 磁性传感器模组以及磁性检测系统等。

作为一家高新技术企业和国家专精特新小巨人企业, 我们全球的员工人数近1200人, 技术团队由磁学和电力学领域的多名专家领衔, 团队规模达200人。

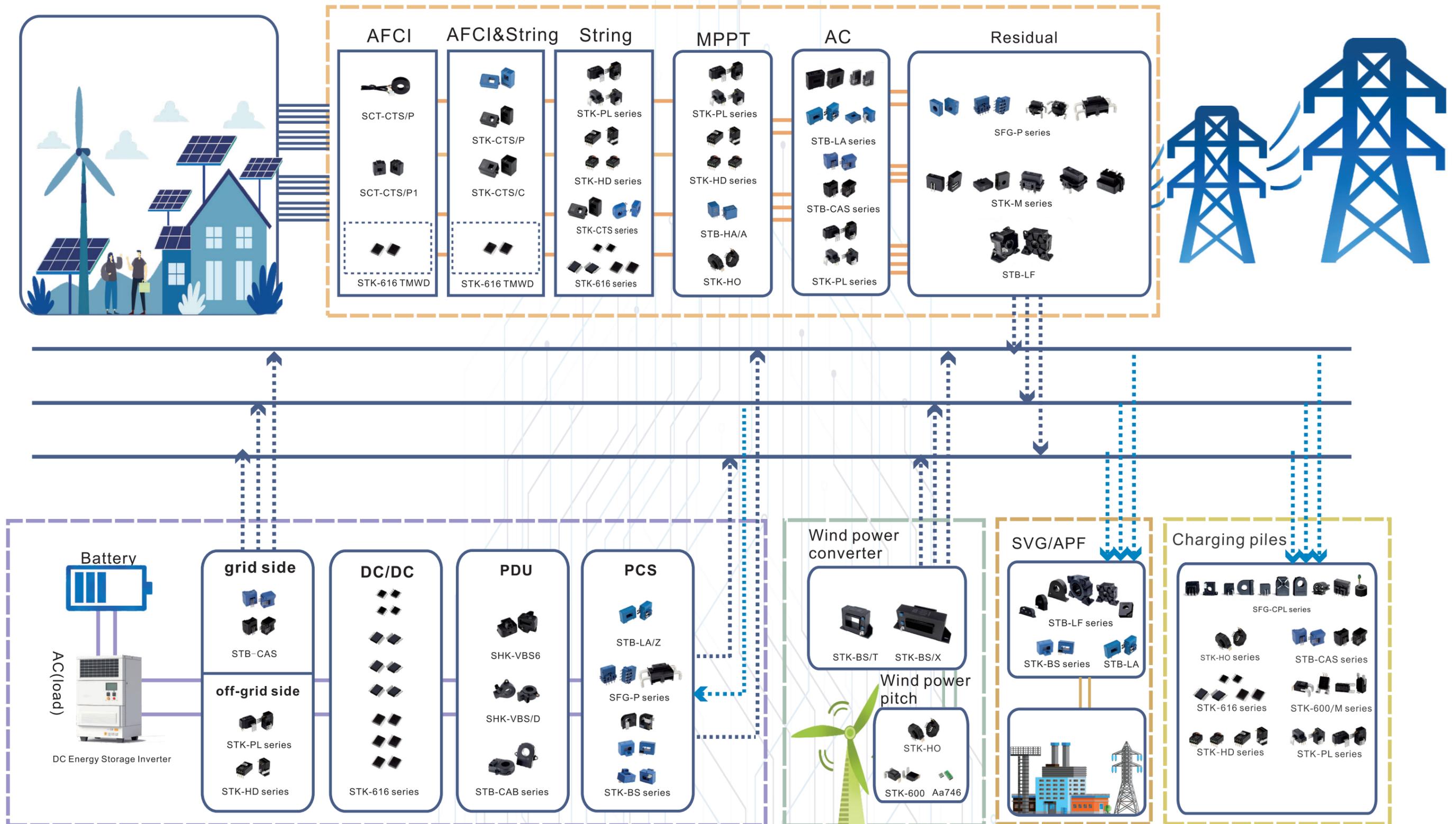
凭借对磁传感核心技术的深入掌握和持续创新, 希磁科技正为新能源发电、新能源汽车、智能电网、智能家居以及智能制造等行业提供更具竞争力的解决方案, 推动技术进步和发展。



-  **Bengbu (Sinomags)**
 Headquater
 Production for Current Sensor
-  **Wuxi (Lertech & Esstmags)**
 R&D
 Sales Centers
-  **Ningbo (Sinomags)**
 R&D & Production for Current Sensor
-  **Mainz (SENSITEC)**
 Waferfab for magnetic sensor
-  **Wetzlar (SENSITEC)**
 R&D Center for magnetic sensor

NEW ENERGY GENERATION APPLICATION

新能源发电应用



NEW ENERGY GENERATION APPLICATION

新能源发电应用

- Meet the requirements for high pressure and high altitude
- Meet the requirements for high frequency
- Development based on underlying application requirements

满足高压和高海拔应用要求
 满足高频应用要求
 基于基本应用需求进行开发

◎ AFCI / 拉弧检测

Product	Out		ESD rating(HBM)				Application
	Current	Voltage	Self-inspection Inductance(μH)	Induction coil Inductance(μH)	Self-inspection Resistance(Ω)	Induction coil Resistance(Ω)	
SCT-CTS/P1	○	NA	400~500	NA	0.4~1	4	AFCI
SCT-CTS/P	○	135~205	530~580	0.4~1	0.8~2	4	

◎ AFCI & String / 拉弧组串检测

Technology	Type	Out		Vcc (V)	I _{pn} (A)	I _{pm} (A)	U _{ESD} (kV)	U _d (kV)	BW (kHz)	t _r (μs)	X@IPN TA=25°C (%FS)	X _T Range (%FS)	Connction	Application
		Voltage	Current											
○	STK-CTS/C1	○	5	12.8~16	32~40	4	4	400	1	1	2~3	THT	AFCI&String	
○	STK-CTS/P	○	5	12.8~20	20~50	4	4	400	1	1	2.5	THT		
○	STK-CTS/P5	○	5	10~20	25~50	4	4	400	1	0.8	1.5~3	THT		
○	STK-CTS/P6	○	5	25~40	25~40	4	4	400	1	1	2.5	THT		
○	STK-CTS/PR	○	5	50	50	4	4	400	1	1.5	2.5	THT		
○	STK-CTS/CB	○	5	32	32	4	4	400	1	1	3	THT		
○	STK-CTS/C4	○	5	32	32	4	4	400	1	1	3	THT		
○	STK-CTS/CE	○	5	50	50	4	4	400	1	1	3	THT		
○	STK-CTS/CC	○	5	50	50	4	4	400	1	1	3	SMT		
○	STK-CTS/A1	○	5	25	25	4	4	180	1	1	2.5	THT		
○	STK-616TMW	○	3.3, 5	20~65	20~65	4	3.6	600	0.2	1.5	3.5	SMT		
○	STK-616TMWD	○	3.3, 5	20~65	1,20~65	8	5	600	0.2	1.5	3.5	SMT		



SCT-CTS/P1



SCT-CTS/P



STK-CTS/C1



STK-CTS/P5, P6, PR



STK-CTS/CB



STK-CTS/CC, C4



STK-CTS/CE



STK-CTS/A1

◎ String/ 组串电流检测

Technology	Type	Out		Vcc (V)	I _{pn} (A)	I _{pm} (A)	U _{ESD} (kV)	U _d (kV)	BW (kHz)	t _r (μs)	X@IPN TA=25°C (%FS)	X _T Range (%FS)	Connction	Application
		Voltage	Current											
○	STK-616AM	○	3.3, 5	25~100	25~100	4	4	600	0.9	1.5	3.5	SMT	String	
○	STK-616AM3	○	3.3, 5	50~180	50~180	4	4	600	0.9	1	3.5	SMT		
○	STK-616AM5	○	3.3, 5	20~200	20~200	4	4	600	0.9	1.5	3.5	SMT		
○	STK-616AM8	○	3.3, 5	50~133	50~133	4	4	600	0.9	1	3.5	SMT		
○	STK-616BML	○	3.3, 5	6.5~65	6.5~65	4	3.6	600	0.9	1.5	3.5	SMT		
○	STK-616DML	○	3.3, 5	6~25	14.5~75	4	3.6	600	0.9	1.5	3.5	SMT		
○	STK-616HML	○	3.3, 5	10~30	25~75	4	3.6	600	0.9	1.5	3.5	SMT		
○	STK-616KMF	○	3.3, 5	20~65	20~65	4	3.6	1500	0.2	1.5	3.5	SMT		
○	STK-616TML	○	3.3, 5	10~133	10~133	4	3.6	600	0.9	3.5	3.5	SMT		
○	STK-616TMF	○	3.3, 5	10~65	10~65	4	3.6	1500	0.2	1.5	3.5	SMT		
○	STK-616TMF5	○	3.3, 5	10~133	10~133	4	3.6	1500	0.6	1.5	3.5	SMT		
○	STK-616TMM	○	3.3, 5	20~65	20~65	4	3.6	600	0.2	1.5	3.5	SMT		
○	STK-616TMW	○	3.3, 5	20~65	20~65	4	3.6	600	0.2	1.5	3.5	SMT		
○	STK-616TMWD	○	3.3, 5	20~65	1,20~65	8	5	600	0.2	1.5	3.5	SMT		
○	STK-616ZMF	○	3.3, 5	10~65	10~65	2	3.6	2000	0.05	1.5	3.5	SMT		
○	STK-616ZMT	○	3.3, 5	10~65	10~65	4	2.4	2000	0.05	1.5	3.5	SMT		
○	STK-PL/A	○	5	10~50	25~125	5	4	400	1.5	1	2	THT		
○	STK-PL/Z	○	3.3, 5	50~180	125~450	4	5	400	1.5	1	2	THT		
○	STK-HD/P	○	5, 3.3	5~30	12.5~75	4	4	600	1	1	3	THT		
○	STK-HD/K	○	5	20~50	50~100	4	4	600	1	0.8	1.5	THT		



STK-616TMW, TMWD



STK-616ZM



STK-616AMx



STK-616xM



STK-PL/A



STK-PL/Z



STK-HD/P



STK-HD/K

◎ MPPT / 光伏逆变器 MPPT

Technology	Type	Out		Vcc (V)	I _{pn} (A)	I _{pm} (A)	U _{ESD} (kV)	U _d (kV)	BW (kHz)	t _r (μs)	X@IPN TA=25°C (%FS)	X _T Range (%FS)	Connction	Application
		Voltage	Current											
○	STK-HO	○	5	60~150	150~375	4	4	200	2	1.5	3	THT	MPPT	
○	STK-HO/2	○	5	60~250	150~625	4	4.3	200	1.5	1	3	THT		
○	STK-HO/4	○	5	50~250	125~625	4	4.3	200	1.5	1	3	THT		
○	STK-HO/1	○	5	100~200	300~600	4	4.3	200	2	1	3	THT		
○	STK-HO/P	○	5	50~400	150~600	4	4.3	50	5	1	3	THT		
○	STK-HO/B	○	5	50~180	125~350	4	4	1000	0.2	1	3	THT		
○	STK-200HO/YS	○	5	±200	1250	4	5.4	180	3	3.3	4	THT		
○	STK-500HO/YS	○	5	±500	1250	4	5.4	180	3	3.3	4	THT		



STK-HO



STK-HO/2



STK-HO/1&4



STK-HO/P



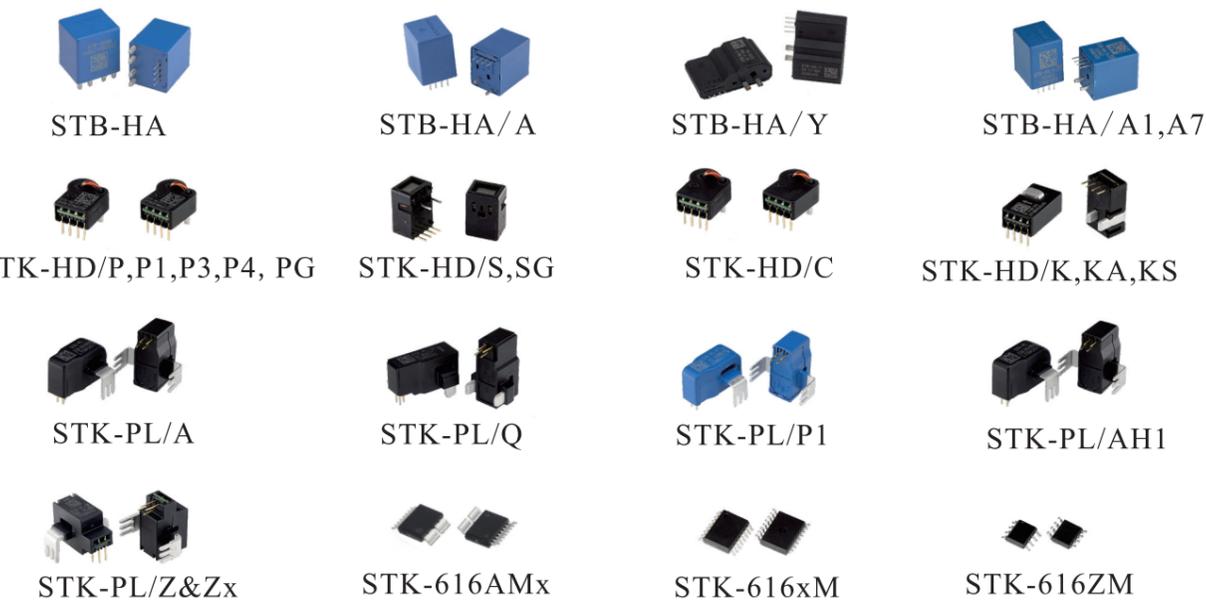
STK-HO/B



STK-HO/YS

◎ MPPT / 光伏逆变器 MPPT

Technology			Out			Vcc (V)	I _{pn} (A)	I _{pm} (A)	UESD (kV)	Ud (kV)	BW (kHz)	t _r (μs)	X@IPN TA=25°C (%FS)	X ₋ TRange (%FS)	Connction	Application
Open-loop	Closed-loop	Fluxgate	Voltage	Digital	Current											
O					±15	3~40	9~120	4	4	150	1.5	0.8	0.8	THT	MPPT	
O					±15	10~60	30~180	4	4	150	1.5	0.8	0.8	THT		
O					±15	50	150	4	4	150	1.5	0.8	0.8	THT		
O					±15	25	75	4	NA	150	1.5	1.5	1.5	THT		
O					±15	50	150	4	NA	150	1.5	1.5	1.5	THT		
O					3.3, 5	5~30	12.5~75	4	4	600	1	1	3	THT		
O					5	3~10	7.5~25	4	4	800	0.4	0.8	1.5	THT		
O					5	20~40	NA	4	4	400	1	1	3	THT		
O					5	20~50	50~100	4	4	600	1	0.8	1.5	THT		
O					5	20~50	50~100	4	4	600	1	0.8	1.5	THT		
O					5	20~50	50~100	4	4	600	1	0.8	1.5	THT		
O					5	20~50	50~100	4	4	600	1	0.8	1.5	THT		
O					5	20~30	20~50	4	4	600	1	1	3	THT		
O					5	20	20	4	4	600	1	1	3	THT		
O					5	20	50	4	4	600	1	1	3	THT		
O					5	15	NA	4	4	600	0.4	0.8	1.5	THT		
O					5	5~30	12.5~75	4	4	1000	0.5	1	3	THT		
O					5	10~50	25~125	5	4	400	1.5	1	2	THT		
O					5	50	50	5	4	300	1.5	1.5	3	THT		
O					3.3	10~50	30~150	5	4	400	1.5	1	2	THT		
O					5	10~50	25~125	5	4	400	1.5	1	2	THT		
O					3.3, 5	50~180	125~450	4	5	400	1.5	1	2	THT		
O					5	50	150	4	5	400	1.5	1	3	THT		
O					5	100	200	4	5	400	1.5	1	3	THT		
O					3.3	50	150	4	5	400	1.5	1	3	THT		
O					5	200	500	4	5	300	1.5	1	2	THT		
O					3.3, 5	25~100	25~100	4	4	600	0.9	1.5	3.5	SMT		
O					3.3, 5	50~180	50~180	4	4	600	0.9	1	3.5	SMT		
O					3.3, 5	20~200	20~200	4	4	600	0.9	1.5	3.5	SMT		
O					3.3, 5	50~133	50~133	4	4	600	0.9	1	3.5	SMT		
O					3.3, 5	6.5~65	6.5~65	4	3.6	600	0.9	1.5	3.5	SMT		
O					3.3, 5	6~25	14.5~75	4	3.6	600	0.9	1.5	3.5	SMT		
O					3.3, 5	10~30	25~75	4	3.6	600	0.9	1.5	3.5	SMT		
O					3.3, 5	20~65	20~65	4	3.6	1500	0.2	1.5	3.5	SMT		
O					3.3, 5	10~133	10~133	4	3.6	600	0.9	3.5	3.5	SMT		
O					3.3, 5	10~65	10~65	4	3.6	1500	0.2	1.5	3.5	SMT		
O					3.3, 5	10~133	10~133	4	3.6	1500	0.6	1.5	3.5	SMT		
O					3.3, 5	20~65	20~65	4	3.6	600	0.2	1.5	3.5	SMT		
O					3.3, 5	20~65	20~65	4	3.6	600	0.2	1.5	3.5	SMT		
O					3.3, 5	20~65	1,20~65	8	5	600	0.2	1.5	3.5	SMT		
O					3.3, 5	10~65	10~65	2	3.6	2000	0.05	1.5	3.5	SMT		
O					3.3, 5	10~65	10~65	4	2.4	2000	0.05	1.5	3.5	SMT		



◎ AC / 交流检测

Technology			Out			Vcc (V)	I _{pn} (A)	I _{pm} (A)	UESD (kV)	Ud (kV)	BW (kHz)	t _r (μs)	X@IPN TA=25°C (%FS)	X ₋ TRange (%FS)	Connction	Application
Open-loop	Closed-loop	Fluxgate	Voltage	Digital	Current											
O					5	15~75	51~220	4	5	400	0.3	0.8	2.5	THT	AC	
O	O				5	6~75	20~220	4	5	400	0.3	0.8	1.4	THT		
O	O				5	6~75	20~220	4	4	400	0.3	0.8	1.1	THT		
O	O				5	25~50	85~150	4	4	400	0.3	0.8	1.1	THT		
O					5	25	85	4	4	400	0.3	0.8	1.15	THT		
O					5	25	50.1	4	8	200	1	0.5	0.5	THT		
O					±12 or ±15	50~150	200~240	4	4	150	0.5	0.5	0.5	THT		
O					±12~±15	25~100	55~200	4	4	150	0.5	NA	0.5	THT		
O					5	25	25	4	4	200	0.3	10	10	THT		
O					±12 or ±15	100	188,236	NA	1.8	200	1	0.1	0.1	THT		
O					±12~±15	25~100	55~175	4	4	150	0.5	0.5	1.5	THT		
O					±12~±15	25~100	55~175	4	5	150	0.5	0.5	NA	THT		
O					±12~±15	50	128	4	4	150	0.5	0.3	0.3	THT		
O					±15	200	NA	NA	3	100	1	0.5	0.6	THT		
O					±15	230	425,220	NA	3	100	1	0.5	0.5	THT		
O					5	100	220	4	4	300	0.5	0.8	1.1	THT		
O					5	100	200	4	4	100	1	0.7	0.7	THT		
O					5	300	600	4	4	300	0.6	0.8	1.1	THT		
O					5	300	600	4	4	300	0.6	0.8	1.1	THT		
O					12	50	50	4	4	100	/	10	10	THT		
O					5	250	380,450	4	4	200	3	1	1.4	THT		
O					5	100~200	300~450	4	4	300	0.3	0.8	1.1	THT		
O					5	250	450	4	4	200	3	1	1.4	THT		



◎ AC / 交流检测 (离网侧&电网侧)

Technology			Out			Vcc (V)	I _{pn} (A)	I _{pm} (A)	UESD (kV)	Ud (kV)	BW (kHz)	t _r (μs)	X@IPN TA=25°C (%FS)	X_TRange (%FS)	Connction	Application
Open-loop	Closed-loop	Fluxgate	Voltage	Digital	Current											
O					5	10~50	25~125	5	4	400	1.5	1	2	THT	AC	
O					5	50	50	5	4	300	1.5	1.5	3	THT		
O					3.3	10~50	30~150	5	4	400	1.5	1	2	THT		
O					5	10~50	25~125	5	4	400	1.5	1	2	THT		
O					3.3, 5	50~180	125~450	4	5	400	1.5	1	2	THT		
O					5	50	150	4	5	400	1.5	1	3	THT		
O					5	100	200	4	5	400	1.5	1	3	THT		
O					3.3	50	150	4	5	400	1.5	1	3	THT		
O					5	200	500	4	5	300	1.5	1	2	THT		
O					5, 3.3	5~30	12.5~75	4	4	600	1	1	3	THT		
O					5	20~50	50~100	4	4	600	1	0.8	1.5	THT		
O					5	10~50	25~125	5	4	400	1.5	1	2	THT		
O					3.3, 5	50~180	125~450	4	5	400	1.5	1	2	THT		
O					12	500	NA	4	2.5	NA	NA	NA	0.5	Clamping	AC(grid)	
O					12	540	NA	4	2.5	NA	NA	NA	0.5	Clamping		
O					12	540	NA	4	2.5	NA	NA	NA	0.5	Clamping		
O					12	500	NA	4	2.5	NA	NA	NA	0.5	Clamping		
O					12	1000	NA	4	2.5	NA	NA	NA	0.5	Clamping		
O					12	500~700	NA	4	2.5	NA	NA	NA	0.5	Clamping		
O					12	600	NA	4	2.5	NA	NA	NA	0.5	Clamping		

◎ Residual/漏电流检测

Technology			Out			Vcc (V)	I _{pn} (A)	I _{pm} (A)	UESD (kV)	Ud (kV)	BW (kHz)	t _r (μs)	X@IPN TA=25°C (%FS)	X_TRange (%FS)	Connction	Application
Open-loop	Closed-loop	Fluxgate	Voltage	Digital	Current											
					5	0.3~5.0	0.5~8.0	NA	4	15	30~50	1.9	3.2	THT	Residual	
					5	0.3~5.0	0.5~10	NA	4	15	30~50	1.9	3.2	THT		
					5	0.3~3.0	0.5~5.0	NA	4	15	40~50	1.9	3.2	THT		
					5	0.6~3.0	0.85~5.0	NA	4	15	40	1.9	3.2	THT		
					5	3.0~5.0	5.0~8.0	NA	4	15	40	1.9	3.2	THT		
					5	3.0~5.0	5.0~8.0	NA	4	15	40	1.9	3.2	THT		
					5	0.3~5.0	0.5~10	NA	4	15	50	1.9	3.2	THT		
					5	0.3	0.5	NA	4	15	40	1.9	3.2	THT		
					5	0.6~5	0.85~10	NA	5.1	15	30~50	1.9	3.2	THT		
					5	0.6~6	0.85~10	NA	5.1	15	30~50	1.9	3.2	THT		
					5	0.3~1.0	0.5~1.7	NA	4	0.7	700	2	4	THT		
					5	0.3~1.0	0.5~1.7	NA	4	0.7	700	2	4	THT		
					5	0.3~1.0	0.5~1.7	NA	5	0.7	700	2	4	THT		
					5	0.3~1.0	0.5~1.7	NA	5	0.7	700	2	4	THT		
					5	0.3~1.0	0.5~1.7	NA	5	0.7	700	2	4	THT		
					5	0.3~1.0	0.5~1.7	NA	5	0.7	700	2	4	THT		
					5	0.3~1.0	0.5~1.7	NA	5	0.7	700	2	4	THT		
					5	0.3~1.0	0.5~1.7	NA	5	0.7	700	2	4	THT		
					5	0.3~1.0	0.5~1.7	NA	5	0.7	700	2	4	THT		



◎ Power Grid / 电网

Technology			Type	Out			Vcc (V)	I _{pn} (A)	I _{pm} (A)	UESD (kV)	Ud (kV)	BW (kHz)	t _r (μs)	X@IPN TA=25°C (%FS)	X _T Range (%FS)	Connction	Application
Open-loop	Closed-loop	Fluxgate		Voltage	Digital	Current											
O			STB-LA			±12~±15	50~150	200~240	4	4	150	0.5	0.5	0.5		THT	Power Grid
O			STB-LA/N1			±12~±15	25~100	55~200	4	4	150	0.5	NA	0.5		THT	
O		O	STB-LA/A			5	25	25	4	4	200	0.3	10	10		THT	
O			STB-LA/B			±12 or ±15	100	188, 236	NA	1.8	200	1	0.1	0.1		THT	
O			STB-LA/D			±12~±15	25~100	55~175	4	4	150	0.5	0.5	1.5		THT	
O			STB-LA/DF			±12~±15	25~100	55~175	4	5	150	0.5	0.5	NA		THT	
O			STB-50LA/DH			±12~±15	50	128	4	4	150	0.5	0.3	0.3		THT	
O			STB-LA/E			±15	200	NA	NA	3	100	1	0.5	0.6		THT	
O			STB-LA/F			±15	230	425, 220	NA	3	100	1	0.5	0.5		THT	
O			STB-LA/S			5	100	220	4	4	300	0.5	0.8	1.1		THT	
O			STB-LA/SF			5	100	200	4	4	100	1	0.7	0.7		THT	
O			STB-LA/M			5	300	600	4	4	300	0.6	0.8	1.1		THT	
O			STB-300LA/M			5	300	600	4	4	300	0.6	0.8	1.1		THT	
O			STB-LA/AM3			12	50	50	4	4	100	/	10	10		THT	
O			STB-250LA/ZR			5	250	380, 450	4	4	200	3	1	1.4		THT	
O			STB-LA/Zx			5	100~200	300~450	4	4	300	0.3	0.8	1.1		THT	
O			STB-250LA/Zx			5	250	450	4	4	200	3	1	1.4		THT	
O			STK-BS1			±15	100~600	300~900	4	4	50~150	2~7	1	2		THT	
O			STK-BS2			±15	500	900	4	4	50	5	1	1		THT	
O			STK-BS6			±15	50~600	150~900	4	4	50	5	1	1		THT	
O			STK-BS9			±15	50~600	150~900	4	4	50~150	3	1	2		THT	
O			STK-BS10			±15	100~600	300~900	4	4	50~150	2~4	1	2		THT	
O			STK-BS/S1			5	50~600	150~1100	4	3.3	60	3.5	1	3.5		THT	
O			STK-BS/S2			5	50~600	150~1100	4	3.3	60	3.5	1	3.5		THT	
O			STK-BS/S3			5	50~600	150~1100	4	3.3	250	3.5	1	3.5		THT	
O			STK-BS/H			±15	50~400	150~600	4	2.5	50	3	1	3		THT	
O			STK-BS/H4			15	50~100	150~450	4	2.5	50	3	1	2		THT	
O			STK-BS/A			±12~±15	300~1000	900~3000	4	5	25	3	1	1		THT	
O			STK-BS1B			±15	100~600	300~900	4	4	70~150	2~4	1	2		THT	
O			STK-BS1L			±15	100~600	300~900	4	4	70~150	2~4	1	2		THT	



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Technology			Type	Out			Vcc (V)	I _{pn} (A)	I _{pm} (A)	UESD (kV)	Ud (kV)	BW (kHz)	t _r (μs)	X@IPN TA=25°C (%FS)	X _T Range (%FS)	Connction	Application
Open-loop	Closed-loop	Fluxgate		Voltage	Digital	Current											
O			STK-BS/T			±12~±15	200~1500	600~2500	4	4.9	25	5	1	1		Clamping	Wind power & Power Grid
O			STK-BS/T5			±15	163~2184	500~2500	4	4.9	25	5	1	1		Clamping	
O		O	STK-BS/X			±12~±15	500~2500	1500~5500	4	4	25	5	1	1		Clamping	
O			STK-BS/X2			±15	3000~6000	4500~12000	4	5.6	1	0.2	1	1		Clamping	
O			STK-BS/X4			±12~±15	500~2500	1500~5500	4	5	25	5	1	1		Clamping	
O			STK-BS/X5			±12~±15	500~2500	1500~5500	4	4	25	5	1	1		Clamping	
O			STK-BS/X6			±12~±15	500~2500	1500~5500	4	5	25	5	1	1		Clamping	
O			STK-BS/X7			±12~±15	1200~3000	3600~5500	4	5	25	5	1	1		Clamping	
O			STK-HO			5	60~150	150~375	4	4	200	2	1.5	3		THT	
O			STB-LF			±12~±15	100~200	200~420	4	4	100	0.5	0.3	0.2		Clamping	
O			STB-LF2			±12~±15	200~300	500~600	4	5	100	1	0.3	0.3		Clamping	
O			STB-LF/2			±15~±18	500	800	4	4.95	100	0.5	0.4	0.4		Clamping	
O			STB-LF/3			±15	366	950	4	3	100	1	0.42	0.42		Clamping	
O			STB-LF4			±12~±20	300	500	4	3.8	100	1	0.5	0.5		Clamping	
O			STB-LF4-A			±24	300	860	4	3.8	100	1	0.47	0.47		Clamping	
O			STB-LF4-B			±12~±20	300	500	4	3.8	100	1	0.47	0.47		Clamping	
O			STB-LF5			±15~±24	500	800	4	3.8	200	0.5	0.5	0.6		Clamping	
O			STB-LF5-A			±15~±24	500	800	4	4	200	1	0.6	0.6		Clamping	
O			STB-LF5-B			±15~±24	500	800	4	4	200	1	0.6	0.6		Clamping	
O			STB-LF5-S			±24	622	1700	4	3	100	1	0.6	0.6		Clamping	
O			STB-LF6			±15~±24	1000	1500	4	3.8	200	0.5	0.4	0.4		Clamping	
O			STB-LF7			±15	180	540	4	2.5	100	1	1.2	1.2		Clamping	
O			STB-LF8			±15	88	240	4	2.5	100	1	1.2	1.2		Clamping	
O			STB-LF9			±15~±20	300	700	3	3	100	1	0.3	0.36		Clamping	

