Current Sensor

Product Series： STK-HD/Q

Part number： STK- 25HD/Q
STK- 50HD/Q,
STK- 50HD/Q1

Version: V 1.4

Sinomags Technology Co., Ltd

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1. Summary

The STK-HD/Q series is based on TMR (Tunneling-Magnetoresistance) technology and open-loop design. It is suitable for DC, AC, pulsed and any kind of irregular current measurement under the isolated conditions. The nominal current range of the STK- HD/Q current sensor consists of 25 A, 50 A.

Typical applications

- PV combiner box
- PV inverter (MPPT & AC)
- motor driver controller
- SMPS & UPS
- Battery management system

Absolute maximum rating

Parameter	Symbol	Unit	Value
Maximum Input Voltage	Vccmax	V	6.0
Maximum Output Current	Iomax	mA	±0.5
Operating Temp Range	Topr	℃	－30 ～ 80
Storage Temp Range	Tstg	℃	－30 ～ 85

Recommended operating condition（Ta=25℃）

Parameter	Symbol	Min	Typ	Max	Unit
Supply voltage	Vcc	4.75	5.0	5.25	V

2. STK- HD/Q Electrical specifications

Condition：T_A = 25℃, Vcc = 5 V (Except special instructions)

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Supply current	Icc	mA		3.3	5	Without load
Offset voltage	Vof	V		1.65		STK- HD/Q1& Vout @ 0 A
			2.35	2.5	2.65	STK- HD/Q&Vout @ 0 A
Response time	Trr	μsec		1.5	2.5	
Frequency response	f	kHz	50	100		10%Decrease point
Temperature drift	Vhd	%	-5		5	The maximum error from room temperature
Isolation voltage		kV	1.5			60sec（Commercial cycle）
Isolation resistance		MΩ	500			500V（DC）

3. STK- 25HD/Q Electrical performance

Condition：T_A = 25℃, Vcc = 5 V (Except special instructions)

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Maximum DC sensed current	Imax	A	−30		30	
Rated sensed current	Iin	A	−25		25	Linearity error guarantee range
Maximum sensed current	Ins	A	−30		30	Output unsaturation range
Sensitivity	Vh	mV/A	59.9	63	66.1	Slope in approximate straight line
Linearity error	ρ	%F.S.	−1		1	Hysteresis is included

4. STK- 50HD/Q Electrical performance

Condition：T_A = 25℃, Vcc = 5 V (Except special instructions)

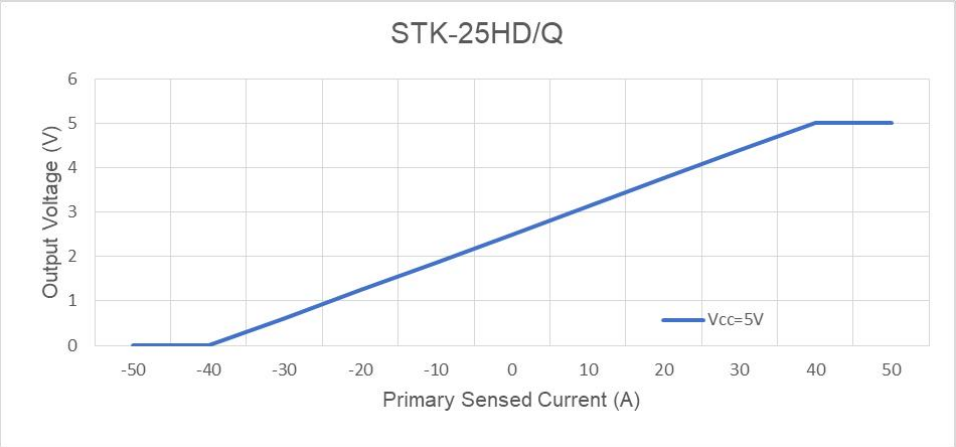
Parameter	Symbol	Unit	Min	Typ	Max	Comment
Maximum DC sensed current	Imax	A	−30		30	
Rated sensed current	Iin	A	−50		50	Linearity error guarantee range
Maximum sensed current	Ins	A	−60		60	Output unsaturation range
Sensitivity	Vh	mV/A	25.7	27	28.3	Slope in approximate straight line
Linearity error	ρ	%F.S.	−1		1	Hysteresis is included

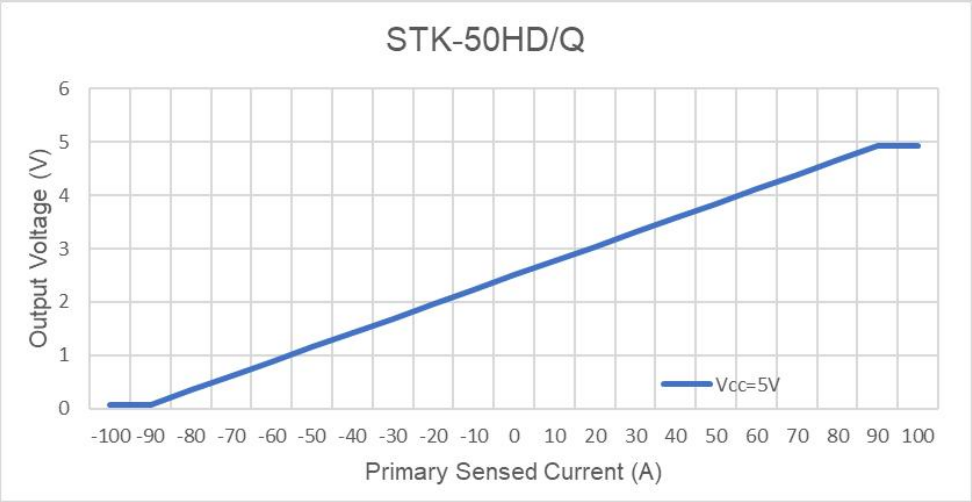
5. STK- 50HD/Q1 Electrical performance

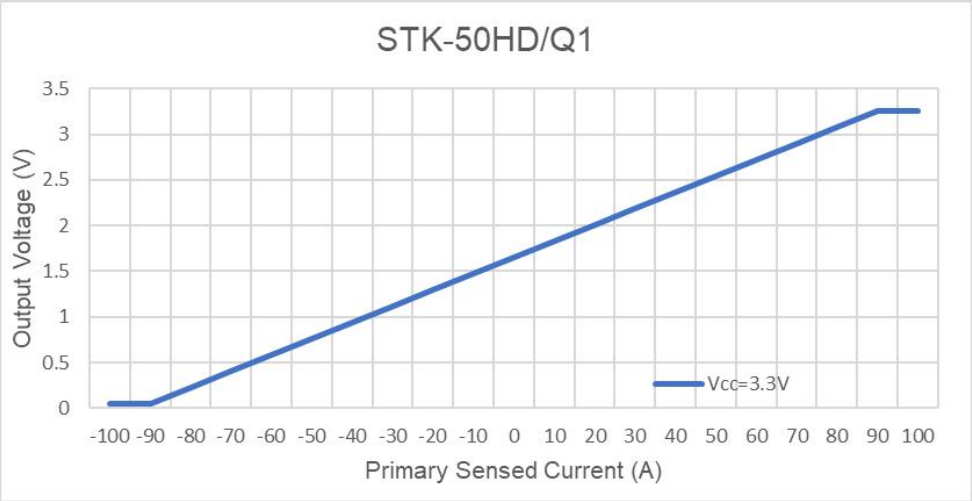
Condition：T_A = 25℃, Vcc = 3.3 V (Except special instructions)

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Maximum DC sensed current	Imax	A	−30		30	
Rated sensed current	Iin	A	−50		50	Linearity error guarantee range
Maximum sensed current	Ins	A	−60		60	Output unsaturation range
Sensitivity	Vh	mV/A	16.93	17.82	18.71	Slope in approximate straight line
Linearity error	ρ	%F.S.	−1		1	Hysteresis is included

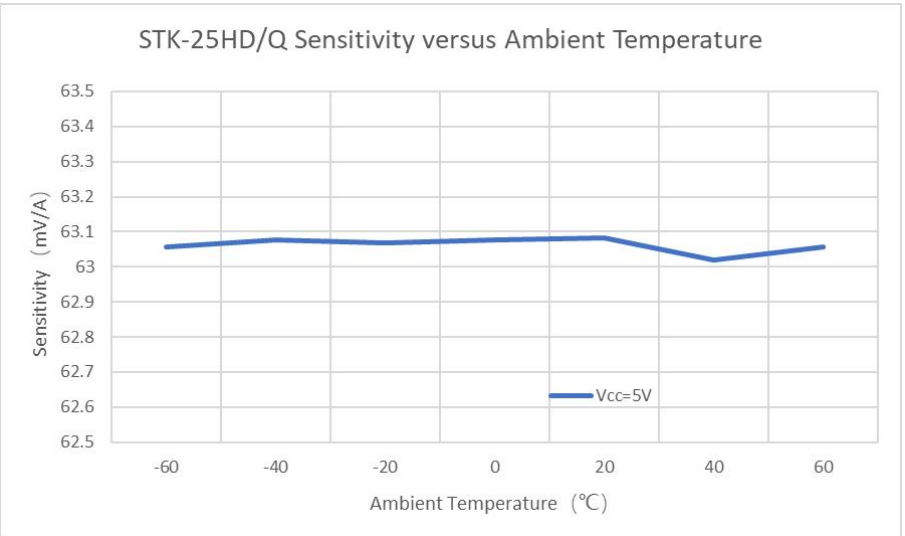
6. Primary Sensed Current versus Output Voltage

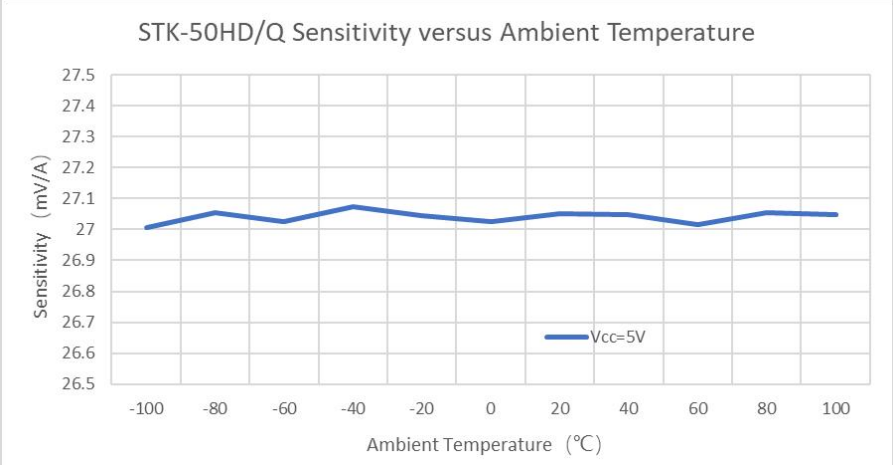


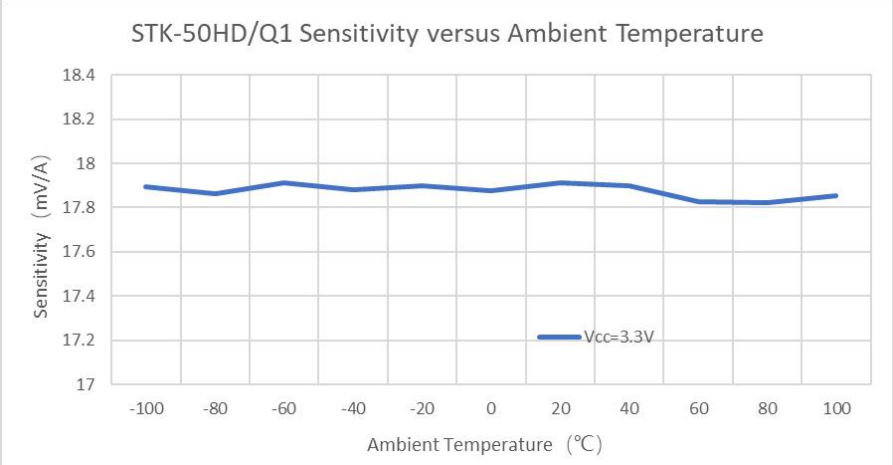




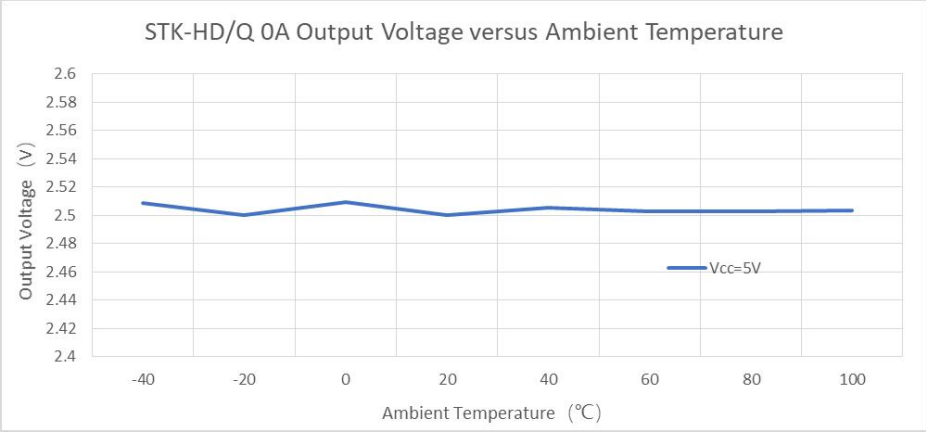
7. Sensitivity versus Ambient Temperature



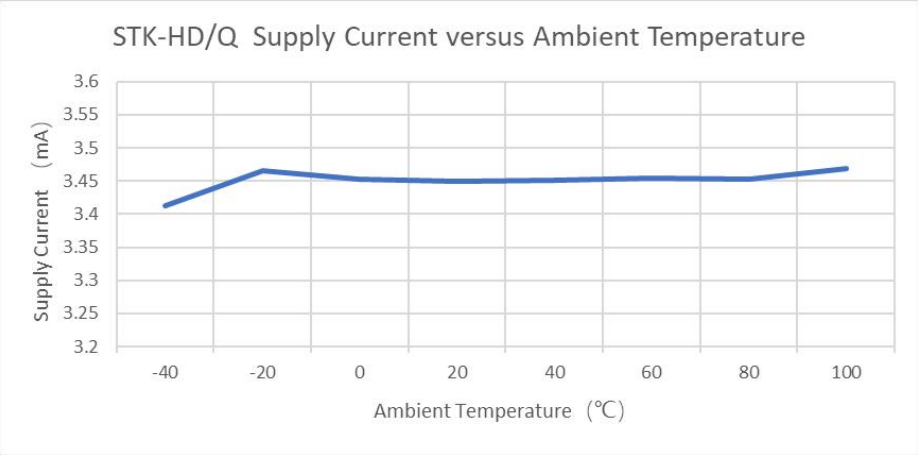




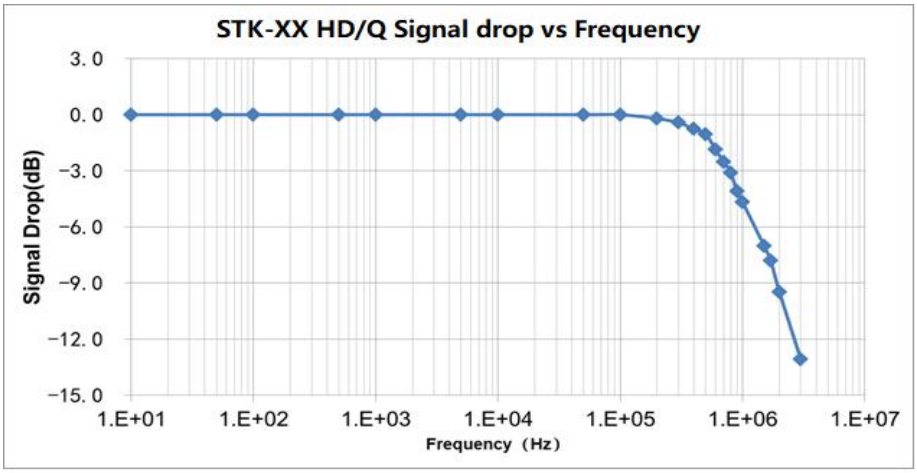
8. 0A Output Voltage versus Ambient Temperature



9. Supply Current versus Ambient Temperature

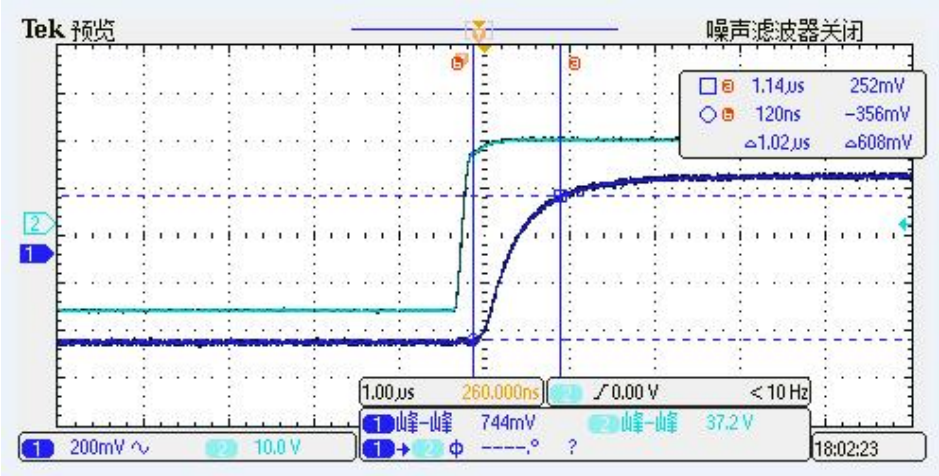


10. Frequency response and bandwidth

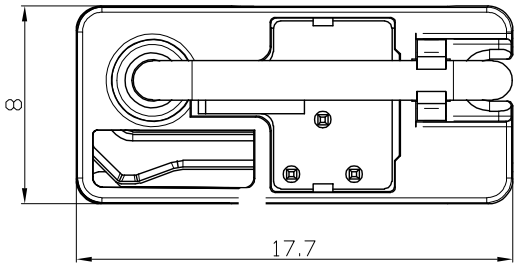


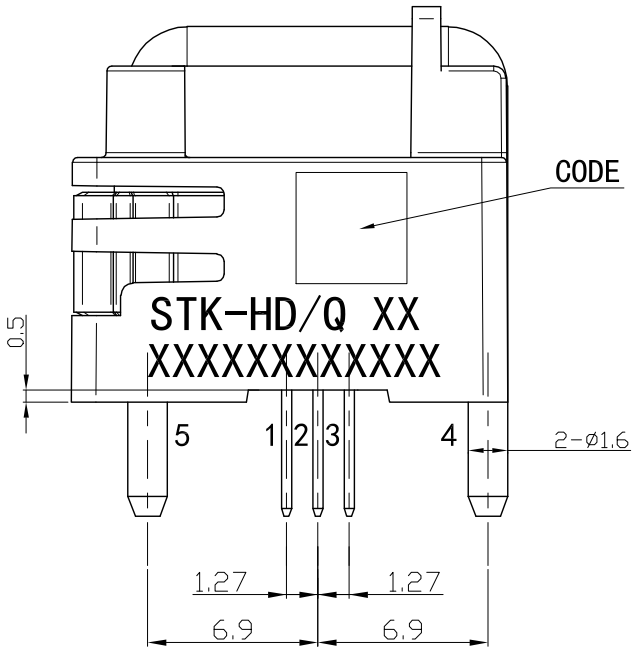
The frequency bandwidth of STK-HD/Q series current sensor. The bandwidth of current sensor is DC ~ 400 kHz (-3dB).

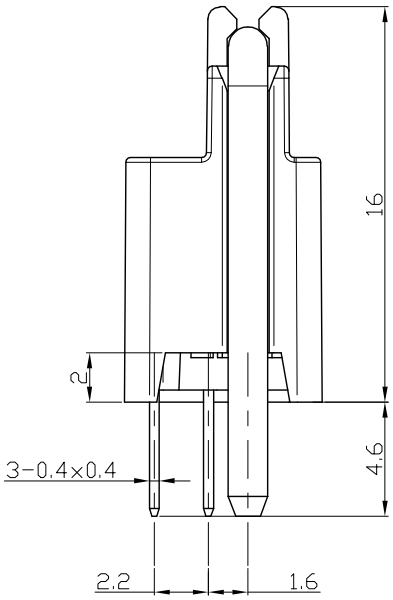
11. Step Response

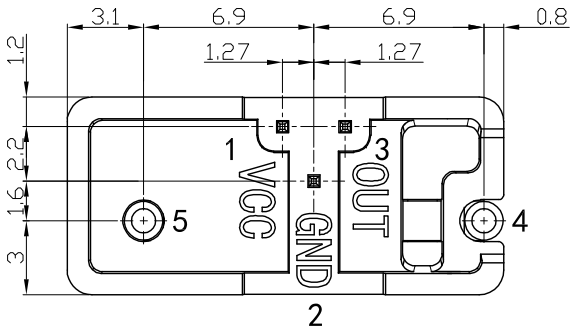


12. Dimension & Pin definitions









Terminal Pin Identification
1 : VCC
2 : GND
3 : OUT
4 : Primary input Current (+)
5 : Primary input Current (-)

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