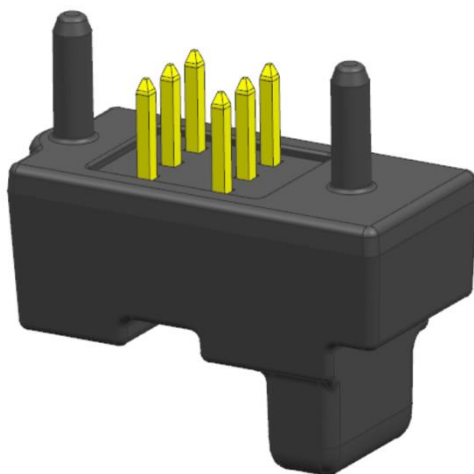


Current Sensor

Product Series: STK-GB/U

Part number: STK-GB/U8-900-S2
STK-GB/U8-1000-S2
STK-GB/U8-1100-S2

Version: Ver 1.7



CONTENT

1. Summary.....	2
2. Electrical performance.....	3
3. Dimensions & Pins	5
4. Installation diagram	6
5. Frequency Performance	6
6. Frequency Bandwidth	7

1. Summary

The STK-GB/U8-S2 series is based on Hall technology and open-loop design. It is suitable for DC, AC, and pulse current measurement under the isolated conditions.

Typical applications

- MCU (motor control unit)
- UPS (Uninterruptible PoUr Supply)

General parameter

Parameter	Symbol	Unit	Value
Working temperature	T_A	℃	-40 ~ 150
Storage temperature	T_stg	℃	-40 ~ 150
Mass (w/o bus-bar)	m	g	2.5

Absolute maximum rating

Parameter	Symbol	Unit	Value
Supply voltage (non-destructive)	V _C	V	6
ESD rating (HBM)	U _{ESD}	kV	4

Remark: the unrecoverable damage may occur when the product works on the conditions over the absolute maximum ratings. Long-time working on the absolute maximum ratings may cause the degradation on performance and reliability.

Isolation parameter

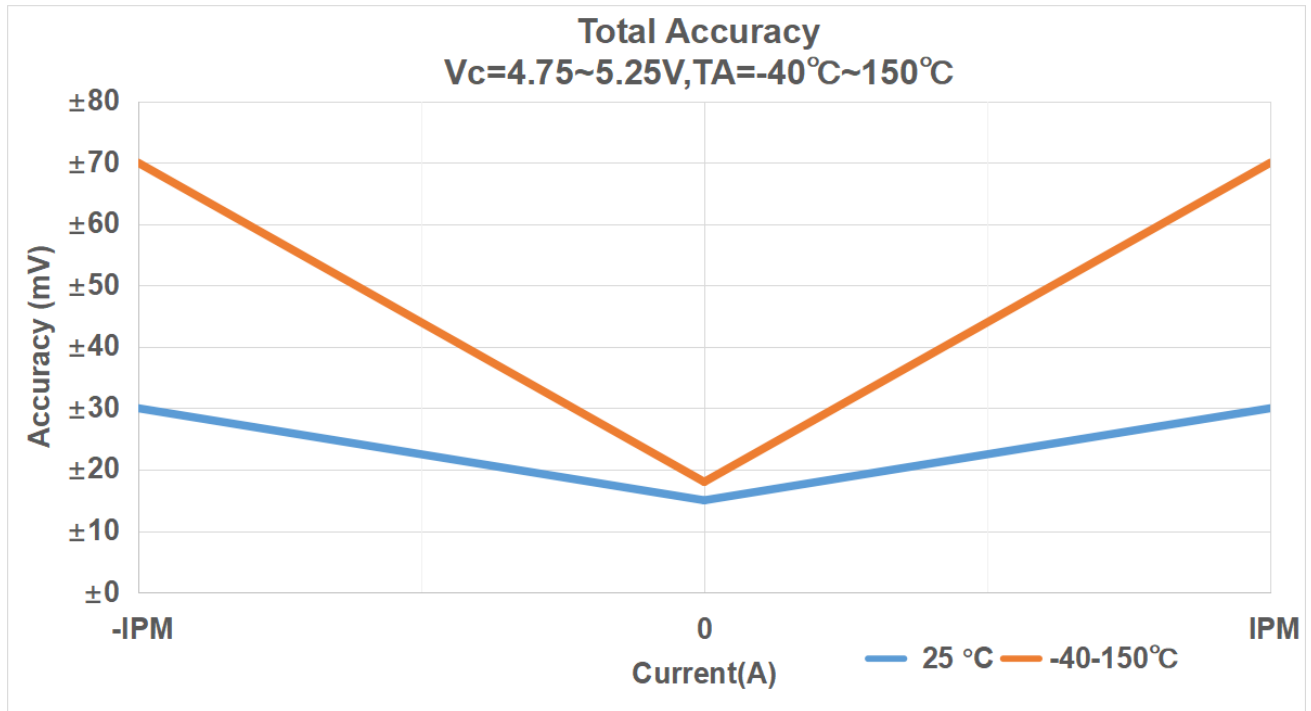
Parameter	Symbol	Unit	Value	Comment
RMS voltage for AC test 50Hz/1 min	U _d	kV	2	
Clearance distance (pri.-sec)	d _{CI}	mm	4	Shortest distance through air
Creepage distance (pri.-sec)	d _{Cp}	mm	4	Shortest path along device body
Case material			V0	According to UL 94

2. Electrical performance

 Condition: $T_A = 25^{\circ}\text{C}$, $V_{CC} = 5\text{ V}$

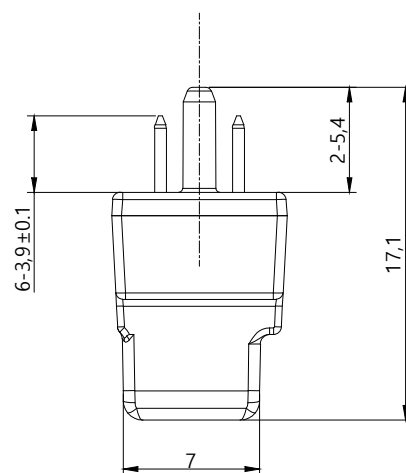
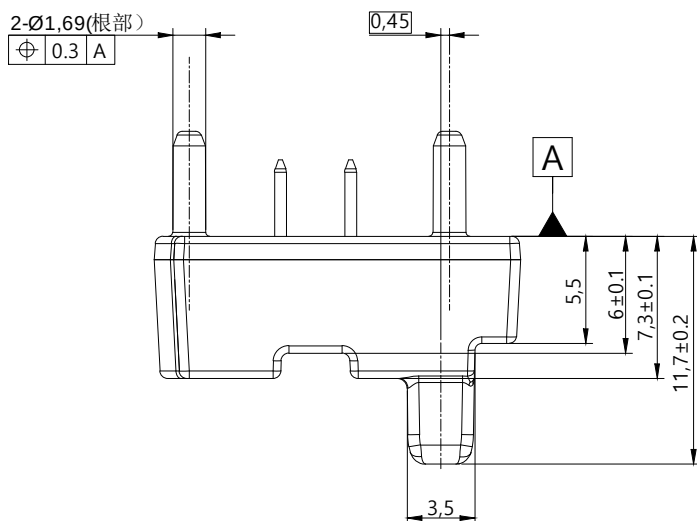
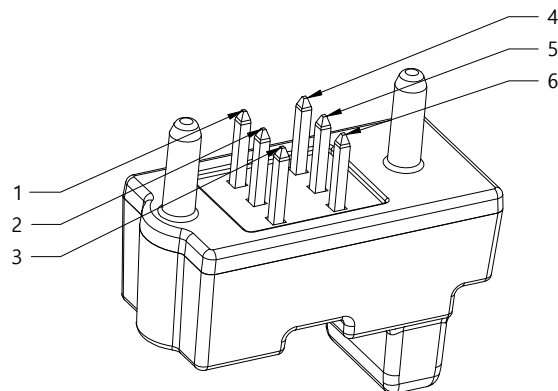
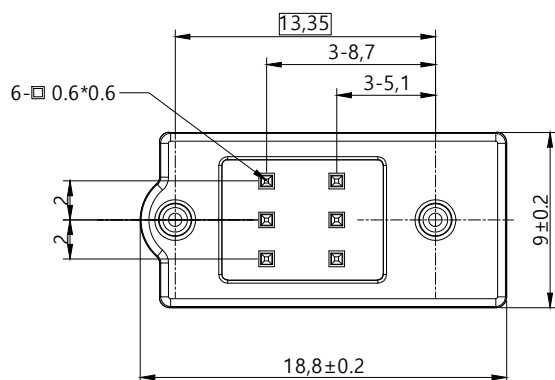
Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary current measuring range	I_{PM}	A	-900		900	STK-GB/U8-900-S2
			-1000		1000	STK-GB/U8-1000-S2
			-1100		1100	STK-GB/U8-1100-S2
Supply voltage	V_{CC}	V	4.75	5	5.25	
Current consumption	I_{CC}	mA		17	21	
Zero current voltage	V_{off}	V	2.475	2.5	2.525	$V_{out} @ 0\text{ A}$
Reference voltage	V_{ref}	V	2.475	2.5	2.525	Output function
Quiescent voltage	V_{oe}	mV	-5		5	$V_{oe} = V_{off} - V_{ref}$
Rated output voltage	V_{FS}	V		+/-1.8		$(V_{out} @ I_{PM}) - V_{off}$
Internal output resistance	R_{out}	Ω		10		V_{out}
	R_{ref}			10		V_{ref}
Theoretical gain	G_{th}	mV/A		2		STK-GB/U8-900-S2
				1.8		STK-GB/U8-1000-S2
				1.64		STK-GB/U8-1100-S2
DCDI		V	-0.3			DCDI communication interface: open-drain I/O
Working Range				S4.5		Compiled via the DCDI interface
Rated linearity error	Non-L	%		± 1		@ I_{PM}
Step response time	t_{res}	μs		2		@ 90% of I_{PM}
Frequency bandwidth (-3dB)	BW	kHz	120			No RC circui
Accuracy	X_{T-AC}	A		1.5%		@ 25°C
Accuracy	X_{T-AC}	% of I_P		3.5%		@ $-40^{\circ}\text{C} < T_a < 150^{\circ}\text{C}$

Note-1: the accuracy of the sensor is calculated for AC current based on the conditions listed in section of "Accuracy Calculation"

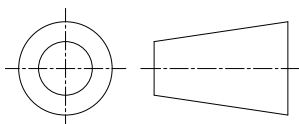


Total error specification				
$I_{PM}(A)$	@ $T_a=25^{\circ}C$, $V_{CC}=5.0V$		@ $-40^{\circ}C \leq T_a \leq 125^{\circ}C$, $V_{CC}=5.0V$	
IPM	±30mV	±1.5%	±70mV	±3.5%
0	±15mV	±0.75%	±18mV	±0.9%
-IPM	±30mV	±1.5%	±70mV	±3.5%

3. Dimensions & Pins



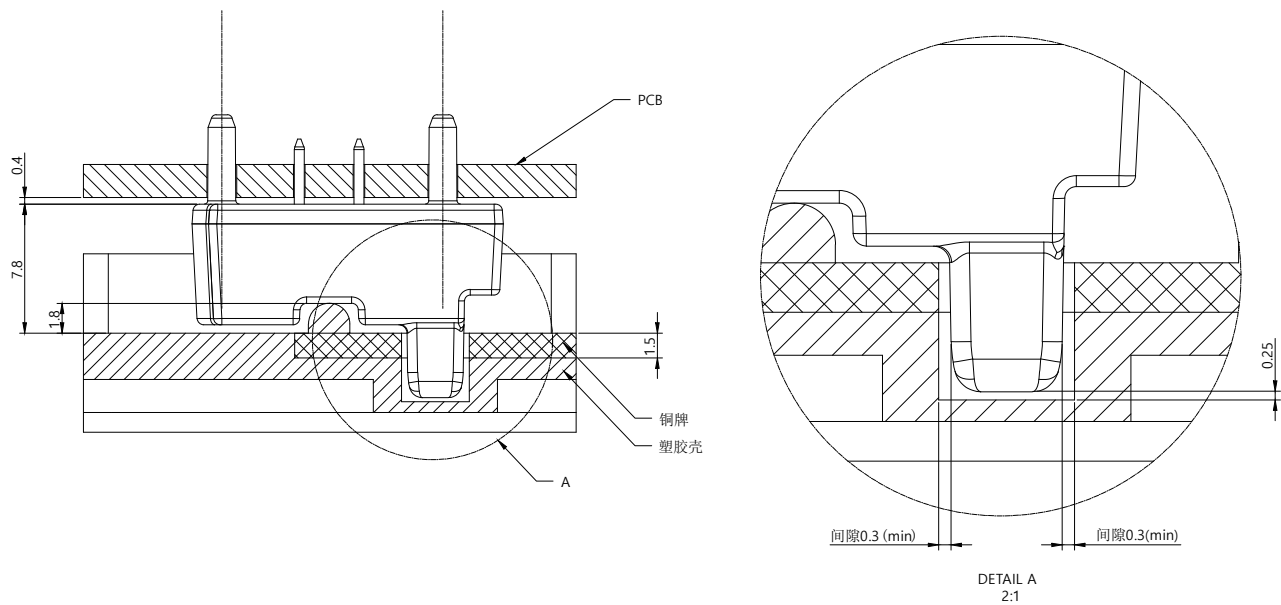
Material : Fit UL94V-0 & RoHS requirements ;
General tolerance : ± 0.5
Unit : mm



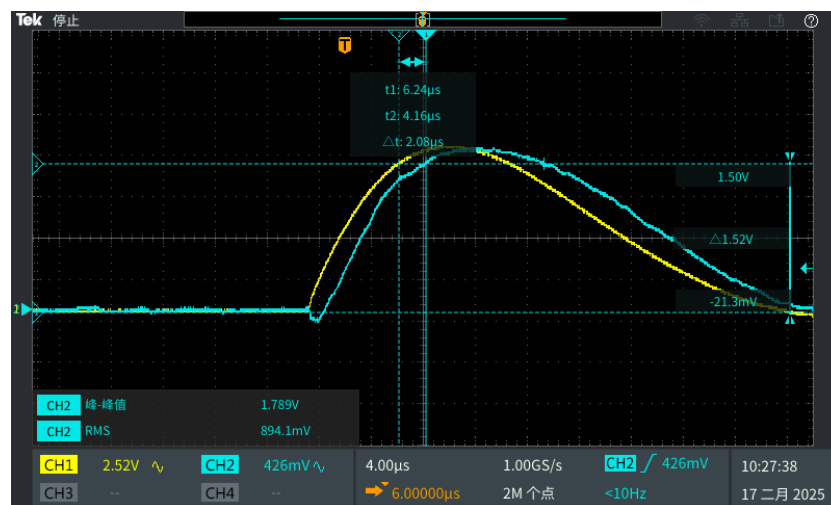
Terminals:

Pin1	Vdd
Pin2	Aout
Pin3	DCDI
Pin4	GND
Pin5	Vref
Pin6	OCD

4. Installation diagram



5. Frequency Performance



The step rise response time of STK-GB/U8-S2 current sensor. The yellow line (channel-1) is primary current, and the blue line (channel-3) is the output of the current sensor.

6. Frequency Bandwidth

