DATA SHEET

Automotive Current Transducer Open Loop Technology

P/N: CHK-HAH35S2L | **I_{PN}=800A~1200A**

Description

CHK-HAH35S2L three-phase current sensor series is an open-loop Hall current sensor with primary and secondary insulation for automotive control applications, measuring DC, AC and pulse currents. CHK-HAH35S2L family can be selected for different measuring current ranges (300A to 1200A)

Feature

- Hall effect open-loop sensor
- Low voltage applications
- +5V voltage supply
- The maximum allowable current is defined by bus T < +150 ° C
- Operating temperature range: −40 °C < T < +125 °C
- Output voltage: full ratio of sensitivity and offset.
- Three-phase integrated sensor
- Simplified mounting and pressure fit contacts eliminate welding

Advantages

- High precision, good linearity
- High frequency bandwidth
- Strong anti-interference ability
- Low temperature bleaching
- No insertion loss
- Very fast response time

RoHS

Applications

- Starter Generators
- HEV/EV application
- Inverters
- DC/DC converter

Standards

- ISO16750
- GB/T28046
- IEC60068

Electrical data:

PARAMETERS	SYMBOL	UNIT	SPECIFICATIONS			CONDITIONS
			MIN.	TYP.	MAX.	
Measuring range	I_{PM}	A	-		-	According to model: ± 800A... ± 1200A
Effective value of AC isolation withstand voltage	V_d	KV	-	3	-	50HZ, 1min, IEC 60664 Part 1
Insulation impedance	R_{IS}	MΩ	500	-	-	500V DC-ISO 16750

Electrical safe distance	d_{CI}	mm		6.4		
Creepage distance	d_{CP}	mm		4.8	-	

Working performance parameters:

PARAMETERS	SYMBOL	UNIT	SPECIFICATIONS			CONDITIONS
			MIN.	TYP.	MAX.	
Rated measurement current	I_{PN}	A	-		-	According to model: ± 800... ± 1200
Power supply voltage	U_C	V	4.75	5	5.25	
Rated measurement output	Uout	V	$Uout = (UC/5) \times (Uo + S \times I_P)$			@T_A = 25°C
Sensitivity	S	mV/A	-	2000/I_{PN}	-	@Uc = 5V
Sensitivity error	εG	%		±0.6		@T_A = 25°C, Uc = 5V
Zero offset voltage	U_O	V		2.5		@Uc = 5V
Current consumption[4)]	I_C	mA	-	45	60	@T_A = 25°C, Uc = 5V
Load resistance	R_L	KΩ	4.7	10	-	
Output internal resistance	R_{OUT}	Ω	1	5	10	DC
Capacitive load	C_L	nF	-	1	10	
Working temperature	T_A	°C	-40		125	

Performance parameters:

Electronic offset voltage range	U_{OE}	mV	-10	±5	+10	@T_A = 25°C,Uc=5V
Magnetic offset voltage range	U_{OM}	mV	-4	±3	+4	@T_A = 25°C,Uc=5V,after ±I_P
Zero point accuracy	X_0	%	-0.5		+0.5	@T_A = 25°C,Uc=5V
Linearity error	εL	%	-1		+1	Of full range
Zero point voltage temperature coefficient	$TCU_{OE\ AV}$	mV/°C		±0.05		@-40°C<T_A<125°C
Output voltage temperature coefficient	TCU_{OUTAV}	%/°C		±0.03		@-40°C<T_A<125°C
Response time	tr	μs		2.5	6	@ 90% of I_{PN}
Bandwidth	BW	KHz	40			@-3dB
Phase shift	Δφ	o	-4		0	@DC to 1KHz
Output noise	Uno pp	mV			10	

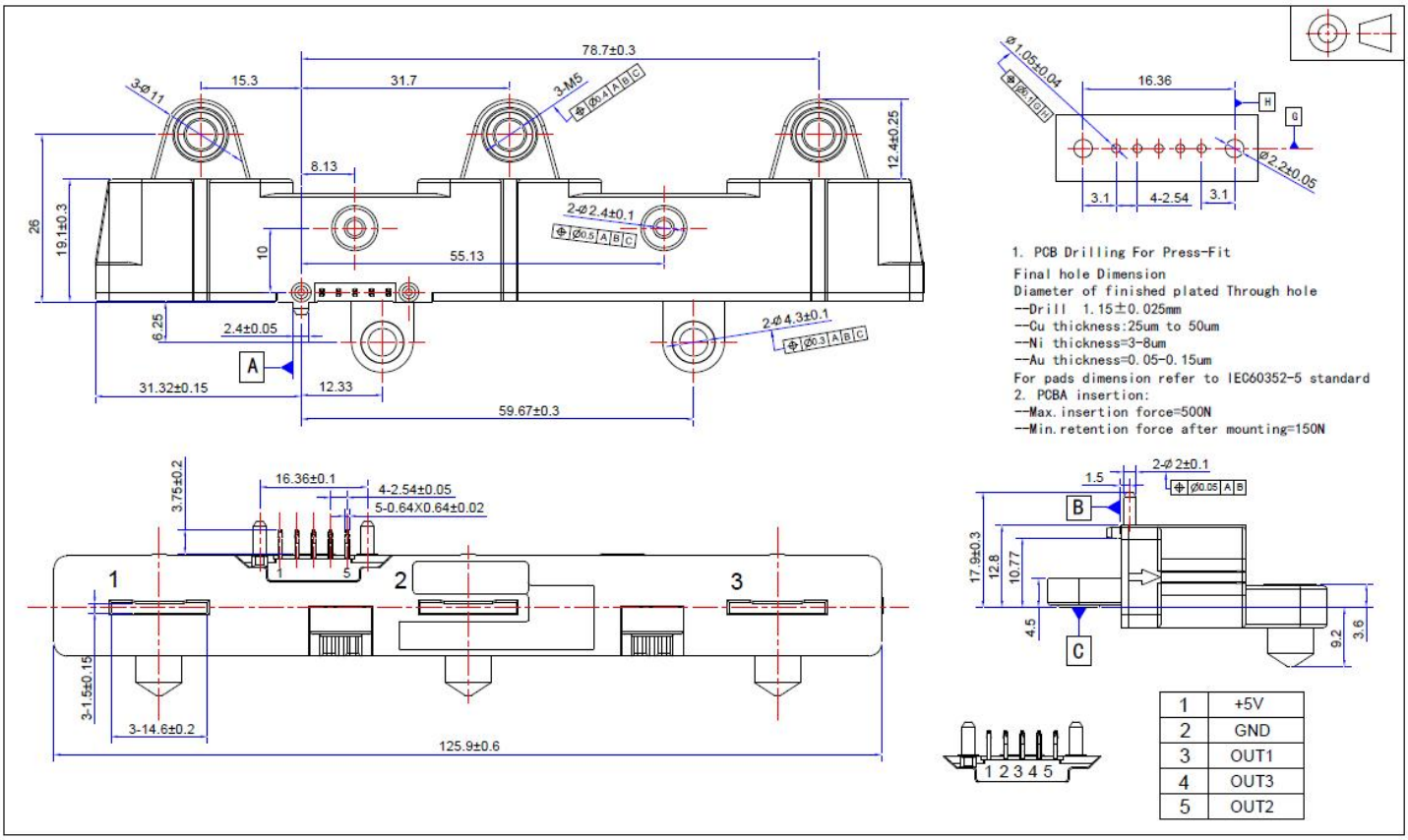
Notes:

1）The output voltage Vout is fully ratiometric. The offset and sensitivity are dependent on the supply voltage UC relative to the following formula:

$I_P = (5/U_C * U_{OUT} - U_O) * 1/S$ with S in (V/A)

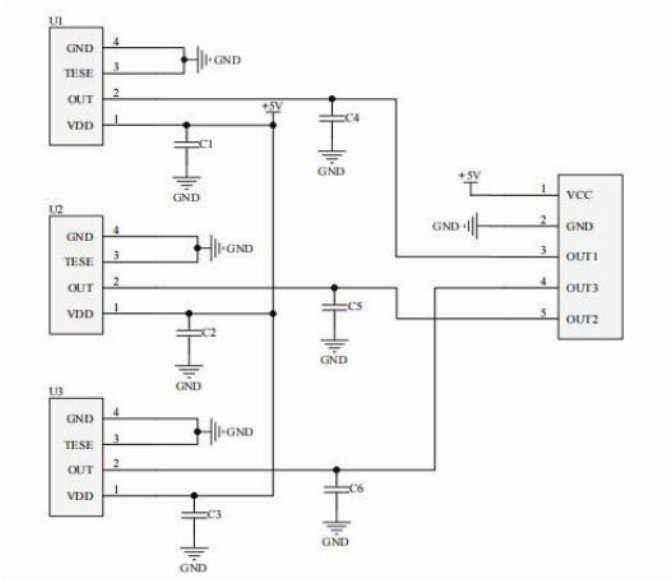
2）In order to avoid overheating of the busbar, magnetic ring, and Hall IC, the frequency of the primary side current must be limited.

Dimensions(mm): (Tolerance ±0.2mm)



1	+5V
2	GND
3	OUT1
4	OUT3
5	OUT2

Electronic schematic



Bill of Materials

Plastic case : PA66+ GF30
Magnetic core: Silicon steel sheet winding
Terminal: Tin-plated brass
The gross weight: about 90 g

Mounting recommendation

- Recommended maximum torque
  M5 =5.5Nm±0.275
  M4 =2Nm±0.1
  M3 =0.8Nm±0.04
- Secondary side connection: crimping type
- PCB board to 5 fisheye needle maximum insertion force: 500N
- Minimum support force of PCB board for 5 fisheye needles :125N

Remarks:

- When the primary current Ip flows to the direction of the positive arrow, the output voltage Uout is greater than the offset voltage Uo (refer to the arrow marked on the drawing (note: wrong wiring may cause damage to the sensor).
- When the busbar is fully filled with primary perforations, the dynamic performance of accuracy (di/dt) is best.
- Sensors with different rated input current and output voltage can be customized according to user needs.

WARNING : Incorrect wiring may cause damage to the sensor.

Cheemi Technology Co., Ltd
Tel: 025-85996365 E-mail: info@cheemi-tech.com www. cheemi-tech.com
Add:N22, Xianlongwan, Xianyin South Road, Qixia District, Nanjing - China.
July 6th, 2023/ Version 1