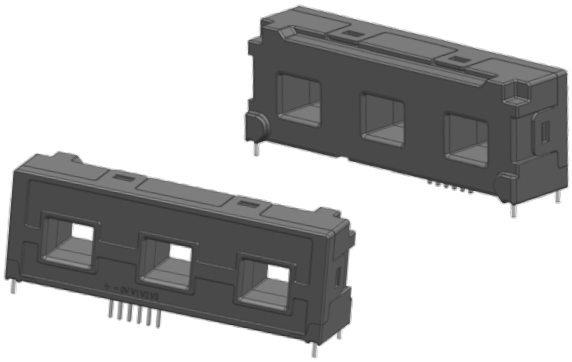
AT4V H00 SERIES

Current sensor

Model Number:

AT4V 50 H00
AT4V 75 H00
AT4V 100 H00
AT4V 150 H00
AT4V 200 H00



For the electronic measurement of current:DC,AC, pulsed in high-power and low-voltage automotive applications..., with galvanic insulation between the primary and the secondary circuits.

Features

- Open loop current sensor using the Hall effect
- Operating temperature range:-40℃~ 105℃
- Insulating plastic case recognized according to UL 94-V0
- Voltage ratio output
- Very good linearity
- Standards:
  - IEC 60664-1:2020
  - IEC 61800-5-1:2022
  - IEC 62109-1:2010

Applications

- Starter generator
- Inverter
- Hybrid vehicles
- Electric vehicles
- DC/DC Converter

Safety

This sensor must be used according to IEC 61800-5-1 .
This sensor must be used in electric/electronic equipment with respect to applicable standards and safety requirements in accordance with the following manufacture's operating instructions.

Caution, risk of electrical shock!

When operating the sensor, certain parts of the module can carry hazardous voltage (e.g., Primary busbar, power supply). Ignore this warning can lead to injury and/or cause serious damage.
This sensor is a built-in device, whose conducting parts must be inaccessible after installation. A protective housing or additional shield could be used.
Main supply must be able to be disconnected.

Absolute maximum ratings(not operating)

Parameter	Symbol	Unit	Value
Supply voltage	V_C	V	± 15.75
Primary conductor temperature	T_B	℃	105
ESD rating, Human Body Model (HBM)	V_{ESD}	KV	4

※ Stresses above these ratings may cause permanent damage.

※ Exposure to absolute maximum ratings for extended periods may degrade reliability.

Environmental and mechanical characteristics

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Ambient operating temperature	T_A	℃	-40		105	
Ambient storge temperature	T_S	℃	-45		110	
Mass	m	g		85		

Insulation coordination

Parameter	Symbol	Unit	Value	Comment
Rms voltage for AC insulation test @ 50Hz,1min	V_d	kV	3.6	AccordingtoIEC 60664-1
Impulse withstand voltage 1.2/50μs	Vw	kV	6.6	AccordingtoIEC 60664-1
Clearance (pri.- sec.)	d_{Cl}	mm	11.0	
Creepage distance (pri.- sec.)	d_{Cp}	mm	12.5	
Plastic case	-	-	UL94-V0	
Comparative traking index	*CTI*	PLC	Group Ⅰ	
Application example	-	-	300V	Reinforced insulation,according to IEC 61800-5-1,IEC 62109-1CATⅢ, PD2
Application example	-	-	600V	Basic insulation,according to IEC 61800-5-1,IEC 62109-1CATⅢ, PD2

Electrical data

※ With T_A = 25℃, V_C = ±15V, R_L = 10kΩ,unless otherwise noted.

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary nominal rms current	I_{PN}	A	-50		50	AT4V 50 H00
			-75		75	AT4V 75 H00
			-100		100	AT4V 100 H00
			-150		150	AT4V 150 H00
			-200		200	AT4V 200 H00
Maximum current measuring range	I_{PM}	A	-150		150	AT4V 50 H00
			-225		225	AT4V 75 H00
			-300		300	AT4V 100 H00
			-450		450	AT4V 150 H00
			-600		600	AT4V 200 H00
Supply voltage	V_C	V	±12		±15	
Current consumption	I_C	mA		35		
Load resistance	R_L	KΩ	10			
Output voltage(Analog)@I_{PN}	V_{OUT}	V		±4.0		
Electrical offset voltage	V_{OE}	mV	-40	±20	-40	
Temperature coefficient of V_{OE}	TCV_{OE}	mV/K	-0.5	±0.2	0.5	@-40℃~105℃
Theoretical sensitivity	G_{th}	mV/A		80.00		AT4V 50 H00
				53.33		AT4V 75 H00
				40.00		AT4V 100 H00
				26.67		AT4V 150 H00
				20.00		AT4V 200 H00
Sensitivity error	ε_G	%	-0.5		0.5	Exclusive of V_{OE}
Temperature of G	TCG	%/K	-0.05	±0.02	0.05	@-40℃~105℃
Linearity error 0…I_{PN}	ε_L	% of I_{PN}	-0.5		0.5	Exclusive of V_{OE}
Hysteresis offset voltage@I_P=0 after 1 × I_{PN}	V_{OM}	mV	-20		20	
Response time	t_r	μs		3	5	
Accuracy@ I_{PN}	X	%	-1.5	±1	1.5	Exclusive of V_{OE}
Frequency bandwidth(-3dB)	BW	kHz	50			

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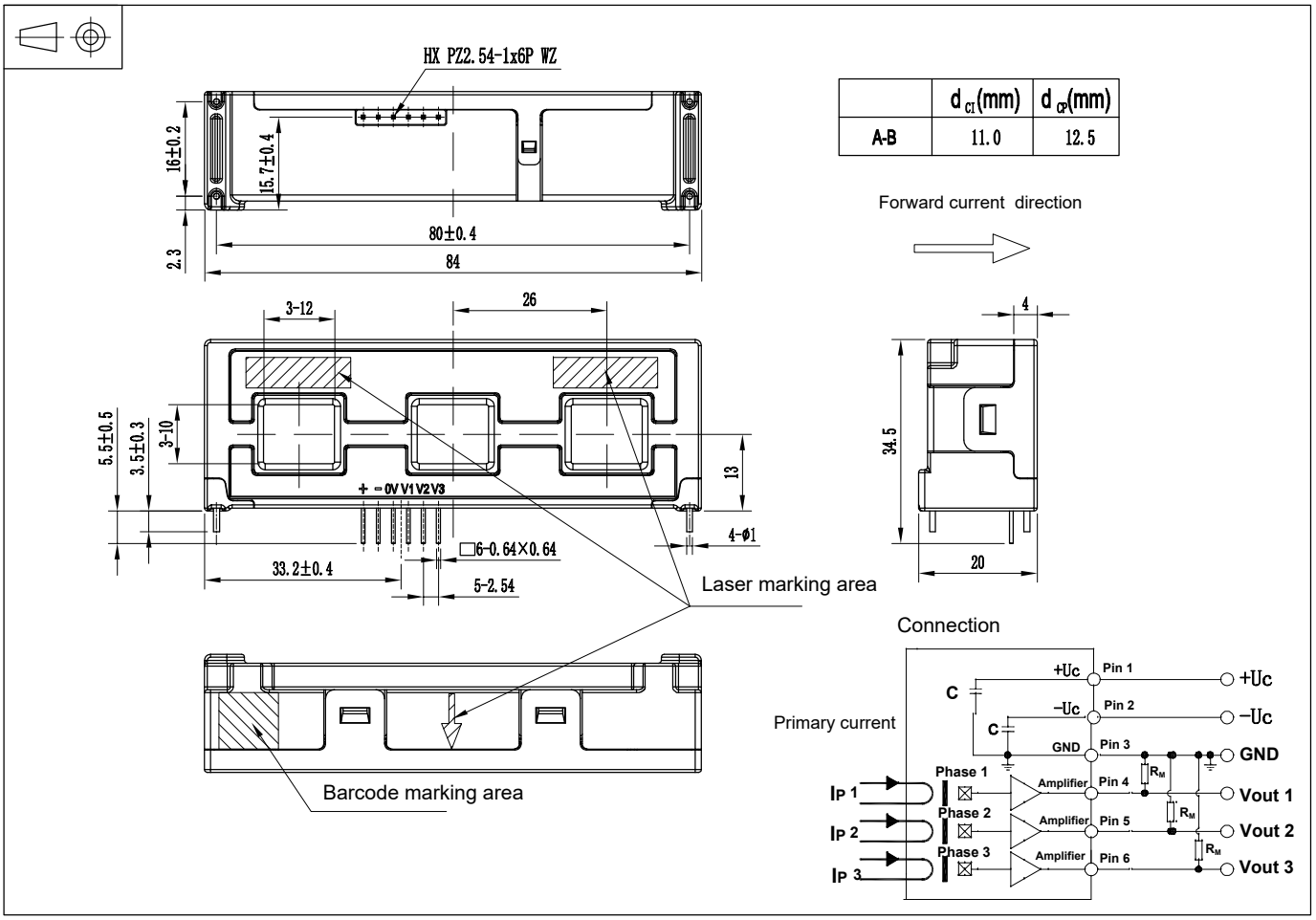
Dimensions（in mm. 1 mm = 0.0394 inch）



	d_{CI}(mm)	d_{CP}(mm)
A-B	11.0	12.5

Mechanical characteristics

- ✧ General tolerance ±0.5 mm
- ✧ Connection of secondary HX PZ2.54-1x6P WZ
- ✧ Primary hole 10mm×12mm

Remarks

- ✧ Temperature of the primary conductor should not exceed 105℃.
- ✧ Dynamic performances (di/dt and response time)are best with a single bar completely filling the primary hole.