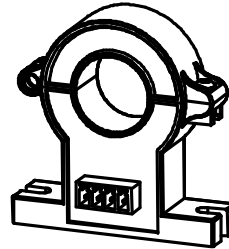


# HK3A H20 SERIES

## Current Sensor

### Model Number:

HK3A 50 H20  
HK3A 100 H20



For the electronic measurement of current:DC,AC,pulsed...,with galvanic insulation between the primary and the secondary circuit.

### Features

- ✦ Open loop sensor using the Hall Effect
- ✦ Galvanic insulation between primary and secondary
- ✦ Insulating plastic case recognized according to UL 94-V0
- ✦ No insertion loss
- ✦ Output  $12 \pm 8\text{mA}$
- ✦ 12V (DC) Power supply
- ✦ Proportional output
- ✦ Standards:
  - EN 50178: 1997
  - IEC 61010-1: 2000
  - UL 508: 2010

### Applications

- ✦ Battery monitoring motor
- ✦ Battery pack current detection

## Safety

This sensor must be used according to IEC 61010-1.

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.

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## Absolute maximum ratings(not operating)

Parameter	Symbol	Unit	Value
Supply voltage	$V_C$	V	$\pm 13.2$
Primary conductor temperature	$T_B$	$^{\circ}\text{C}$	100

- ※ 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	$T_A$	$^{\circ}\text{C}$	-25		85	
Ambient storage temperature	$T_S$	$^{\circ}\text{C}$	-40		85	
Mass	$m$	g		280		

## Insulation coordination

Parameter	Symbol	Unit	Value	Comment
Rms voltage for AC insulation test	$V_d$	kV	3	@ 50HZ, AC, RMS, 2mA,1min
Plastic case	-	-	UL94-V0	
Insulation resistance	$R_{is}$	M $\Omega$	500	
Application example	$d_{Cp}$	-	6.4	
Application example	$d_{Ci}$	-	6.4	

# HK3A H20 SERIES

## Electrical data

### HK3A 50 H20

※ With  $T_A = 25^\circ\text{C}$ ,  $V_C = \pm 12\text{V}$ ,  $R_L = 100\Omega$ . unless otherwise noted.

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary nominal rms current	$I_{PN}$	A	-50	-	50	-
Supply voltage	$V_C$	V	10.8	12	13.2	-
Output load resistance	$R_L$	$\Omega$	-	-	100	@ $I_{sn}$ TO GND
Output load capacitance	$C_L$	nF	-	-	1	@ $I_{sn}$ TO GND
Current consumption	$I_C$	mA	-	15+ $I_{sn}$	18+ $I_{sn}$	@ $25^\circ\text{C}$ , $V_C = 5\text{V}$
Accuracy@ $I_{PN}$	X	%FS	-1	-	1	@ $25^\circ\text{C}$ , $V_C = 5\text{V}$
Linearity error	$\epsilon_L$	%FS	-1	-	1	@ $25^\circ\text{C}$
Offset current	$I_O$	mA	11.92	12	12.08	@ $I_p = 0$ , $T_A = 25^\circ\text{C}$
Secondary nominal rms current	$I_{SN}$	mA	4	-	20	@ $25^\circ\text{C}$
Magnetic offset current	$I_{OM}$	mA	-0.08	-	0.08	@ $I_p = I_{pn} = 0$
Temperature drift of offset current	$I_{OT}$	mA	-0.3	0.03	0.3	@ $I_p = 0$ , $T_A = -25 \sim +85^\circ\text{C}$
Amplitude current temperature drift	$I_T$	mA	-1	0.02	1	@ $I_p = I_{pn}$ , $T_A = -25 \sim +85^\circ\text{C}$
Response time@ 90% of $I_{PN}$	$t_r$	mS	-	2	-	-
Frequency bandwidth(-3dB)	$BW$	KHZ	-	DC	-	-

# HK3A H20 SERIES

## Electrical data

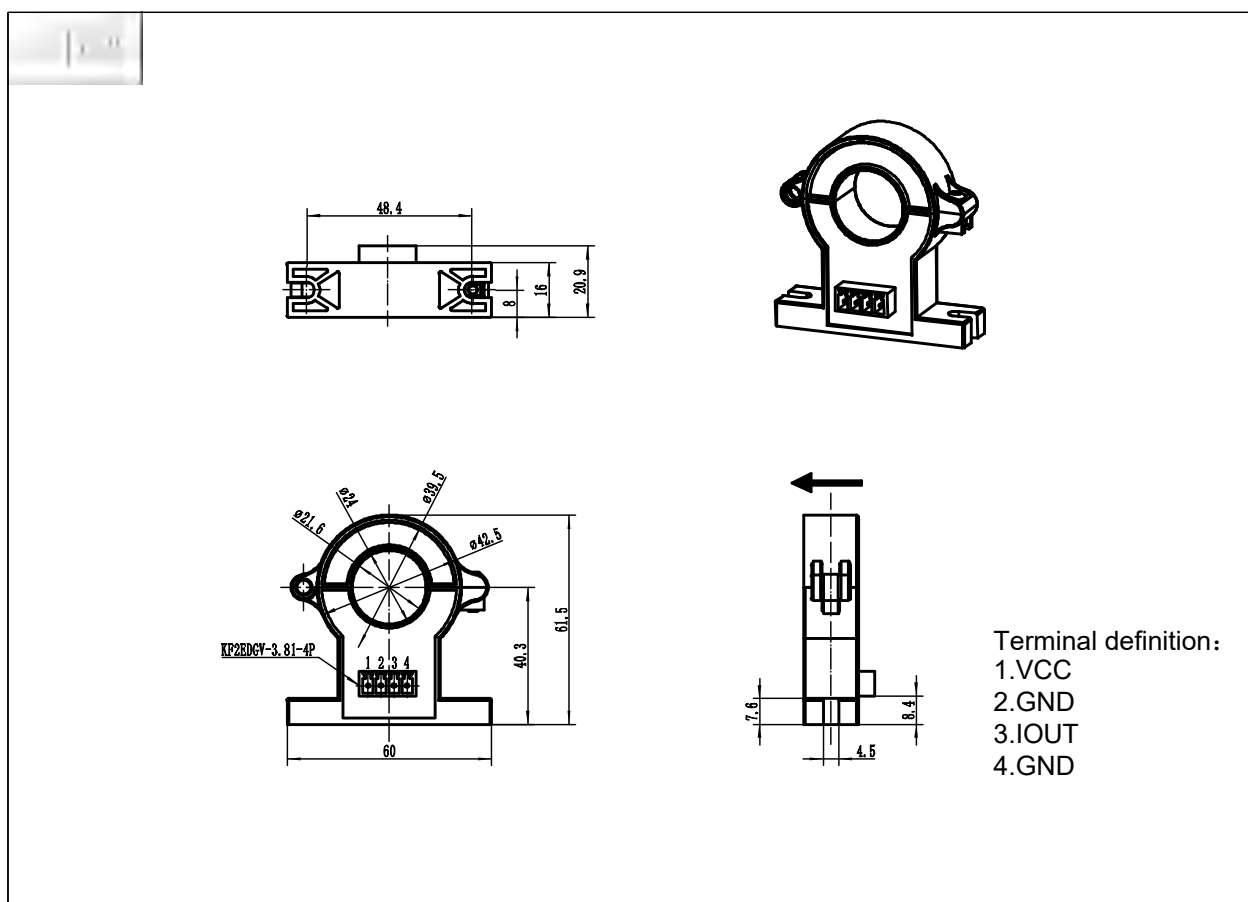
### HK3A 100 H20

※ With  $T_A = 25^\circ\text{C}$ ,  $V_C = \pm 12\text{V}$ ,  $R_L = 100\Omega$ . unless otherwise noted.

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary nominal rms current	$I_{PN}$	A	-100	-	100	-
Supply voltage	$V_C$	V	10.8	12	13.2	-
Output load resistance	$R_L$	$\Omega$	-	-	100	@ $I_{sn}$ TO GND
Output load capacitance	$C_L$	nF	-	-	1	@ $I_{sn}$ TO GND
Current consumption	$I_C$	mA	-	15+ $I_{sn}$	18+ $I_{sn}$	@ $25^\circ\text{C}$ , $V_C = 5\text{V}$
Accuracy@ $I_{PN}$	X	%FS	-1	-	1	@ $25^\circ\text{C}$ , $V_C = 5\text{V}$
Linearity error	$\epsilon_L$	%FS	-1	-	1	@ $25^\circ\text{C}$
Offset current	$I_O$	mA	11.92	12	12.08	@ $I_p = 0$ , $T_A = 25^\circ\text{C}$
Secondary nominal rms current	$I_{SN}$	mA	4	-	20	@ $25^\circ\text{C}$
Magnetic offset current	$I_{OM}$	mA	-0.08	-	0.08	@ $I_p = I_{pn} = 0$
Temperature drift of offset current	$I_{OT}$	mA	-0.3	0.03	0.3	@ $I_p = 0$ , $T_A = -25 \sim +85^\circ\text{C}$
Amplitude current temperature drift	$I_T$	mA	-1	0.02	1	@ $I_p = I_{pn}$ , $T_A = -25 \sim +85^\circ\text{C}$
Response time@ 90% of $I_{PN}$	$t_r$	mS	-	2	-	-
Frequency bandwidth(-3dB)	$BW$	KHZ	-	DC	-	-

# HK3A H20 SERIES

Dimensions (in mm. 1 mm = 0.0394 inch)



## Mechanical characteristics

- ◇ General tolerance  $\pm 1\text{mm}$
- ◇ Connection of secondary KF2EDGV-3.81-4P

## Remarks

- ◇  $V_{OUT}$  and  $I_P$  are in the same direction, when  $I_P$  flows in the direction of arrow.
- ◇ Temperature of the primary conductor should not exceed 100 C.
- ◇ Dynamic performances (di/dt and response time) are best with a single bar completely filling the primary hole.

This is a standard model. For different applications (measurement, secondary connections...), please contact CHIPSENSE.