

HC-ASA



- Rated current 200A ~ 1150A
- Tri-phase current sensor in the same housing (Good fit 47mm/48mm pitch IGBT Modules)
- Operating temperature range: -40°C to +125°C
- Use high performance programmable Hall IC
- 5V single power supply
- Ratiometric output (sensitivity and offset)

Applications

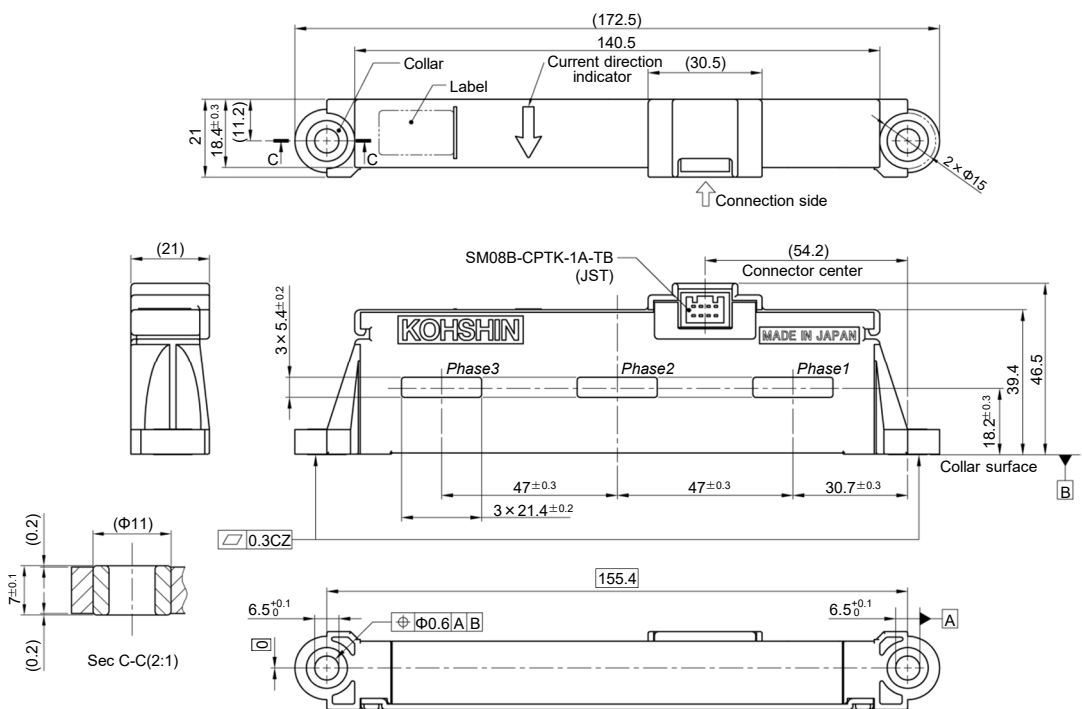
xEV inverters (HEV, EV, PHEV, etc)

Dimensions

(mm)

- Terminal No.
- 1 ... Output1
  - 2 ... Output2
  - 3 ... Output3
  - 4 ... Vcc (+5V)
  - 5 ... GND1
  - 6 ... GND2
  - 7 ... GND3
  - 8 ... NC

Weight : 265g



General tolerance: ±0.5

Specification

Ta=25°C

Type	HP-AR200V2PP5	HP-AR400V2PP5	HP-AR600V2PP5	HP-AR800V2PP5	HP-ARE115V2PP5
Rated current [ I <sub>f</sub> ]	±200A	±400A	±600A	±800A	±1150A
Output voltage [ V <sub>out</sub> ]	$V_{out}=(V_{cc}/5) \cdot (V_0+G \cdot I_p)$ (Note3)				
Sensitivity [ G ] (Note4)	10mV/A	5mV/A	3.33mV/A	2.5mV/A	1.74mV/A
Load resistance [ R <sub>L</sub> ]	≥ 2.5kΩ				
Sensitivity error	I=±I <sub>F</sub> ±1%				±1.5%
Offset voltage [ V <sub>0</sub> ]	I=0 V <sub>ref</sub> ± 18mV (V <sub>ref</sub> =V <sub>cc</sub> /2)				
Output linearity	Within ±1%				
Response time	Within 5μs (at di/dt=100A/μs) @LPF(fc=133kHz) connected				
Response performance	Within 10% (at di/dt=100A/μs) @LPF(fc=133kHz) connected				Within 15% (at di/dt=100A/μs) @LPF(fc=133kHz) connected
Hysteresis voltage range	±22mV	±15mV	±12mV	±10mV	±9mV
Sensitivity Temp. Coef.	±3%				
Offset voltage Temp. Coef.	±30mV				
Control power supply [ V <sub>cc</sub> ]	+5V±5%				
Ratiometricity error [ +5V±5% ]	Sensitivity		±0.5%		
	Offset voltage		±0.4%		
Consumption current	Within 40mA				
Operating Temp.	-40°C~+125°C				
Storage Temp.	-40°C~+125°C				
Dielectric withstand voltage	2500V AC 50/60Hz 1minute				
Insulation resistance	Not less than 500MΩ 500V DC				

Note1) The indicated offset voltage is the one after the core hysteresis is removed.

Note2) Output specifications: maximum output current ≤2mA, Load capacitance ≤100pF

Note3) V<sub>cc</sub>: Control power supply, V<sub>0</sub>: Offset voltage, G: Sensitivity, I<sub>p</sub>: Primary current

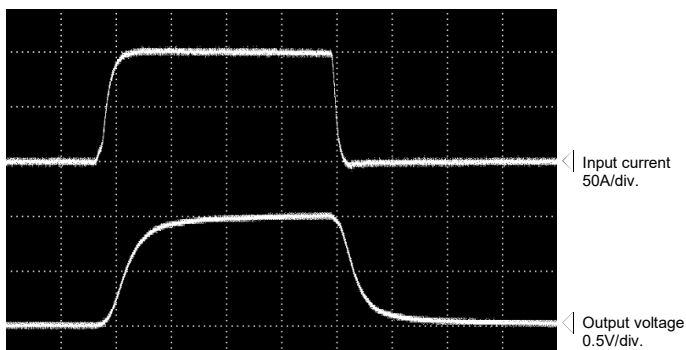
Note4) Sensitivity: G=2000mV/I<sub>f</sub>

Characteristics chart

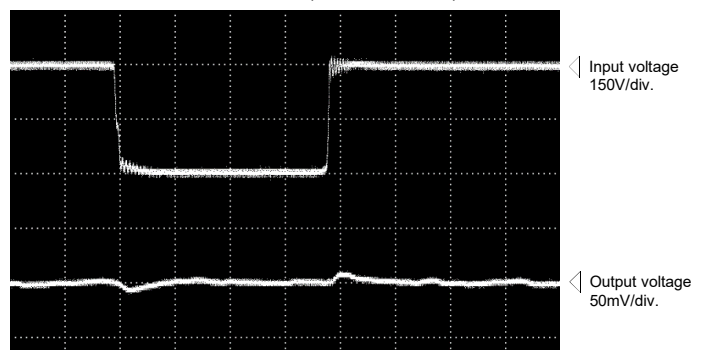
HP-AR200V2PP5

Time base: 5μs/div.

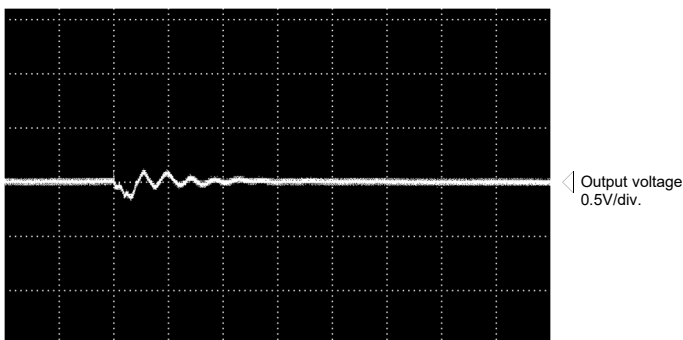
Pulse current response characteristic



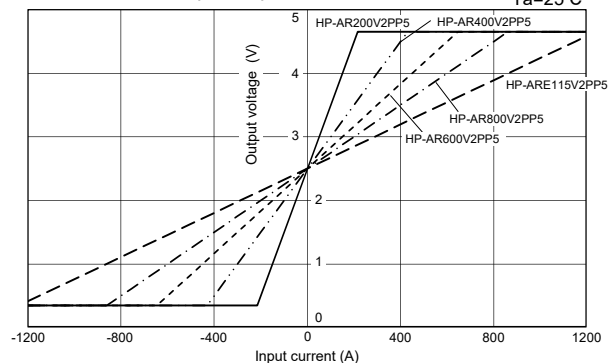
Noise characteristics (Effects of dv/dt)



Noise characteristics (Effects of impulse noise)



Input/output characteristics



Note: The marks "◁" means "0V or 0A."

# KOHSHIN

Current Sensor

Type: HP-AR\*\*\*V2PP5

Instruction manual

## Usage notes

Please make sure to observe the following in order to use this product correctly and safely.

Read this instruction manual carefully before use and use this product correctly.

### (1) Matters concerning use environment and use conditions

Do not use this product in the following places. It may result in malfunction or a reduction in lifetime.

- Places where the ambient temperature exceeds the operating ambient temperature (-40 to +125 degrees Celsius)
- Places where the humidity exceeds the humidity range (up to 95% RH), or where condensation occurs
- Places with significant amounts of dust, corrosive gas, salt, or oily smoke
- Places subject to vibration and impact conditions exceeding the specified levels
- Places exposed to rain or water droplets
- Places exposed to direct sunlight
- Place where metal fragments or conductive foreign substances scatter
- Places with a strong electromagnetic field or a high level of exogenous noise

### (2) Matters concerning installation and connection

Before installation and connection, make sure to read the product specifications and instruction manual.

- Before wiring, check the connection drawing carefully. If the control power supply is applied incorrectly, the internal circuit will be destroyed.
- Install this product as far as possible from the surrounding electromagnetic noise or magnetic noise source.
- The output wiring should be as short as possible to prevent the influence of external noise, and do not place the wiring in the vicinity of, or do not bind with a power line or high-voltage line.
- Use the connector specified in the outline drawing.
- Pay attention not to apply excessive stress to connectors during connector insertion/removal (<60 N).
- For installation of the product, use M5 Hexagon bolts with a flange (tightening torque 5N·m ±20%).

### (3) Purpose of use of the product

This product is designed and manufactured as a general vehicle-mounted current sensor.

- It is left to the discretion and responsibility of the customer whether to use this product for equipment in other applications (such as nuclear plant components, transportation equipment other than general vehicles, medical equipment and various safety devices) that require especially high quality/reliability.

### (4) Usage notes

Before use, make sure to read the product specifications and instruction manual.

- Use this product within the control power supply voltage range stated in the specifications. Use at voltages outside the range may cause errors and malfunction.
- Connect the load resistor with the specified resistance value. Attachment of a resistor less than the specified value may cause malfunction.
- Note that offset voltage may increase when static electricity or surge voltage is applied.
- The output may be distorted due to the switching voltage (dv/dt noise) or electromagnetic wave noise, resulting in incorrect output. Also, as the product may be more susceptible to external noise depending on the wire routing, thoroughly check in advance during the actual use condition.
- If the frequency of the input current is high, the core may generate heat due to iron loss and the sensor may be destroyed. Since the extent of heat generation is influenced by the frequency component and the current value, thoroughly check in advance during the actual use condition.
- Do not disassemble, modify and then use this product. It may result in malfunction.

### (5) Storage precautions

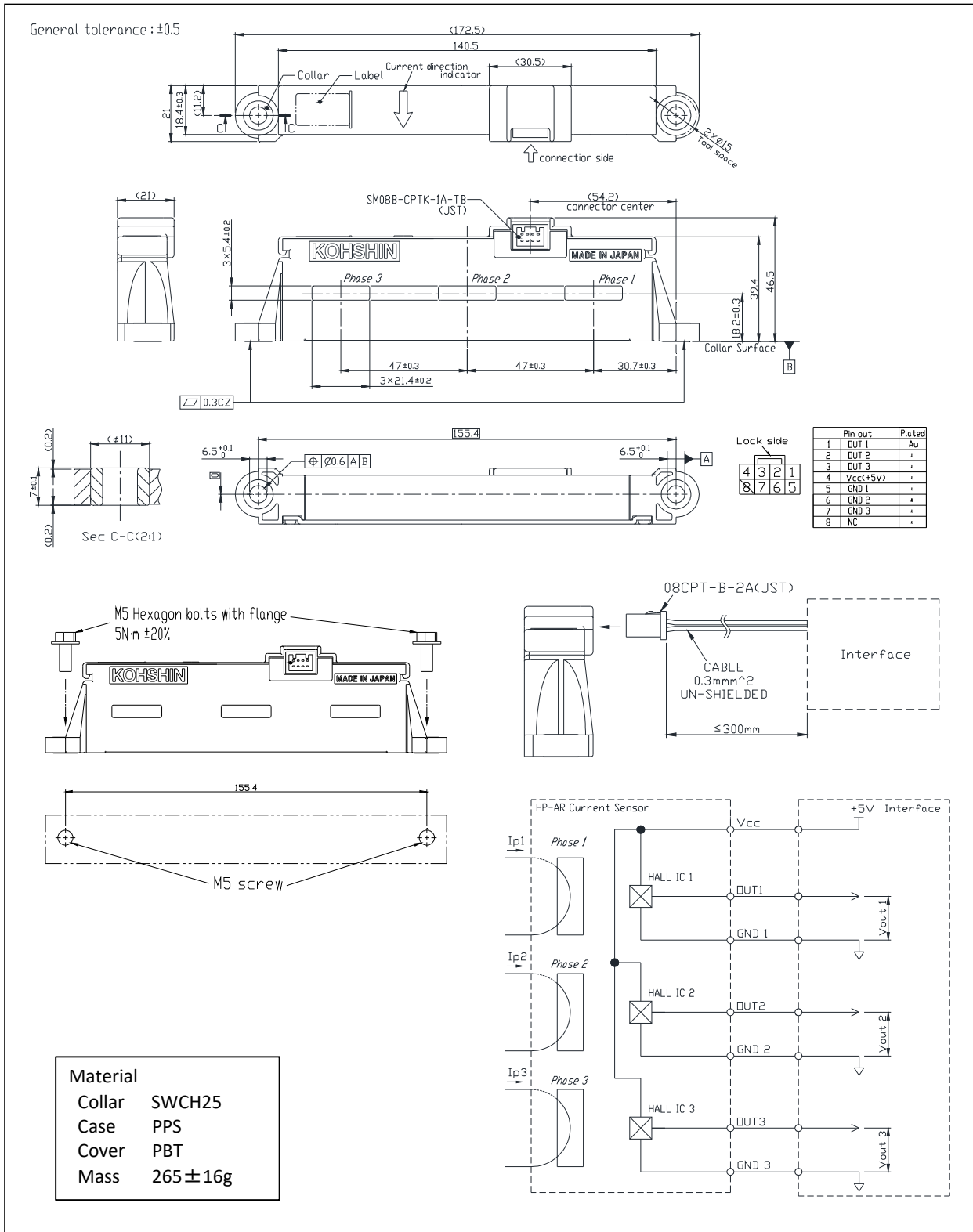
When storing the product, avoid the following places. Failure to do so may result in malfunction or a reduction in lifetime.

- Places of high temperature and high humidity
- Places where condensation occurs
- Places with significant amounts of dust, corrosive gas, salt, or oily smoke
- Places exposed to rain, water droplets, direct sunlight
- Places subject to high levels of vibration and impact
- Place where metal fragments or conductive foreign substances scatter

### (6) Matters concerning disposal

Treat this product as general industrial waste.

## Outline dimensional drawing



## Contact Information

Importer

Distributor

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Okayama, 714-0062, Japan  
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