KOHSHIN

— Challenge and innovate for a better tomorrow —

High-Quality Products
to Meet a Wide Range of User Needs

CURRENT SENSORS

1 Introduce

2 Hall Current Sensor HC series <Bolt on> - Hall element / Open-loop type -

3 Hall Current Sensor HC series <PCB mounting> - Hall element / Open-loop type -

4 Hall Current Sensor HD series - Hall element / Open-loop / Digital output type -

5 Hall Current Sensor HP series - Hall IC / Open-loop type -

■ HC series, HD series and HP series current sensors

1) When the frequency of the input current is high, the core generates an unusual amount of heat due to core loss, and this heat may damage the internal circuits. The amount of heat generated is influenced by the frequency and amount of the input current and differs depending on the type of sensor, so check the performance on the actual machine.
   We are able to produce heat generation countermeasure products which use different core materials. Please consult us for the details.
2) Since the output varies depending on the size of the load resistance, use with the specified resistance. (The size of the load resistance can be specified by the user.)
3) The signal output driver of the HD Series uses a C-MOS IC. Be careful when handling and avoid direct contact.
4) Output terminal pins 9 and 10 of the HD Series are analog output terminals for small signal input.
   Do not connect them to the lead wire or they will be affected by the data and clocking signal.

■ HS series, HF series, HM series and HR series current sensors

1) Use a resistance which has good accuracy and temperature characteristics for the load resistance which is connected to current output type sensors.
2) Prepare a control power supply the capacity of which is at least twice the rated output current.
3) If the connector is inserted or removed while the control power is being applied, residual magnetism may occur in the core due to the terminal contact timing becoming out of sequence, and the residual voltage may be affected. In addition to turning the power supply on and off while the connector is connected, ensure that the + side and - side of the power supply are matched.
4) In inputting current above rating, note that some models specify energization time.
   If the product is used in excess of this time, internal circuit may fail.
5) When current exceeding saturation current is input, magnet compensation will not work, and residual output will cause displacement, therefore, use the product always at current below saturation current.
6) Demagnetize the sensors without applying electric power.

■ Common instruction for all series

1) Erroneous connection of the control terminals will cause the internal circuits to be instantaneously destroyed. Pay sufficient attention to the connection.
2) If static electricity or surge voltage is applied, the residual voltage may be increased.
3) In addition to making the control wiring as short as possible to protect it from outside noise, use twisted wire or shielding wire.
4) Connect a capacitor of approximately 0.1μF between the control power supply and GND.
5) Attach PCB mounting type current sensors firmly to the installation board so that they are not separated from it by more than 0.5mm.
   Furthermore, perform the soldering under the following conditions.

   Flow solder: Solder temperature approx. 250 degrees C, within 5 seconds
   Hand solder: Solder temperature approx. 280～300 degrees C, within 3 seconds
   <Pb-free> Flow solder: Solder temperature approx. 260 degrees C, within 5 seconds
   Hand solder: Solder temperature approx. 340 degrees C, within 4 seconds

6) The current sensor may be corroded under corrosive gas atmosphere. Make sufficient confirmation under actual service environmental conditions before use.
7) Do not store the sensors in hot or humid environments.

■ Usage limitations for current sensors

The products listed in our catalog are intended for use in general equipments (business machines, measuring equipments, industrial equipments, and home appliances, etc.), not for use under circumstances which may involve human life. They are not intended for use in special applications wherein high quality and reliability are required and the failure or malfunction of the product may cause danger to human body, such as nuclear power stations, transportation apparatuses (automobile, trains, ships, etc.), medical equipments for life support, or safety systems. If you need to use any of our products in one of the above mentioned special applications, please notify us or our agent beforehand for assistance.

■ Export limitations for Foreign Exchange and Foreign Trade Law

A product designated as 'strategic item' is controlled under the Foreign Exchange and Foreign Trade Law and WMD catchall and requires permission from the Japanese Government prior to export. If you are unsure whether a product is controlled, please contact us or our agent for assistance.

■ Concern for safety

While we constantly strive to improve quality and reliability and use materials compliant with safety guidelines, even though unlikely, current sensors can sometimes fail or malfunction. We caution the designer to respect all aspects of safety in order to protect life, prevent injury and prevent property damage should our product accidentally fail or

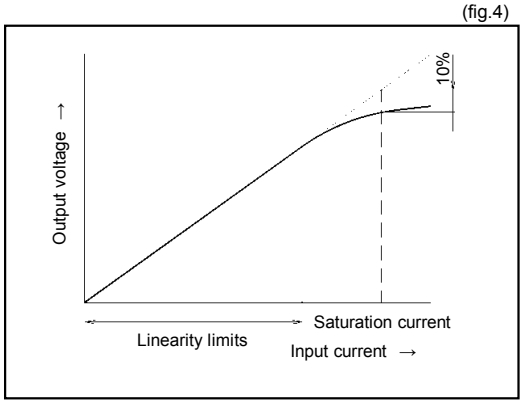
The main characteristics and their details are described below. Each characteristic is specified at an ambient temperature of 25 degrees C and with the stipulated control voltage (±1% or less error) applied. (Only the control voltage is specified for the temperature characteristics.)

1) Rated output
   Denotes the output when the rated current is input to the primary side.

2) Residual output
   Denotes the output when the primary side input is zero. This measurement is performed after the core is demagnetized (an AC current equivalent to the rated current is input to the primary side and slowly made zero).

3) Linearity
   Denotes the error in the actually measured output value and the estimate output voltage calculated by the least mean squares method from the output and residual output when the rated current and 1/2 rated current are input.

(fig.4)

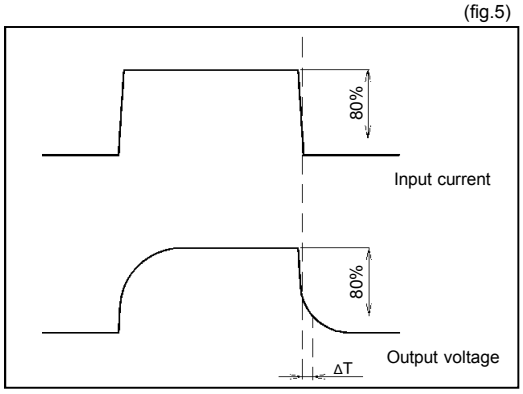


4) Saturation current
   Denotes the input current value for which the output deviates from the estimate output voltage by more than 10%.

5) Linearity limits
   Denotes the range of the input current value for which the output is within 1% of the estimate output voltage.

6) Output temperature characteristic
   Denotes the rate of temperature change of the output (value after the residual output is subtracted) when the rated current in input within the working temperature range. (The rate of change is shown per 1 degrees C with the output at 25 degrees C as the reference.)

(fig.5)



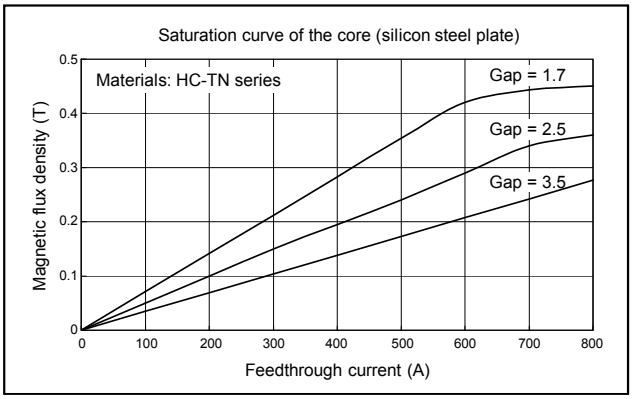
7) Residual output temperature characteristic
   Denotes the temperature change of the residual output within the working temperature range. (The change per 1 degrees C is shown.)

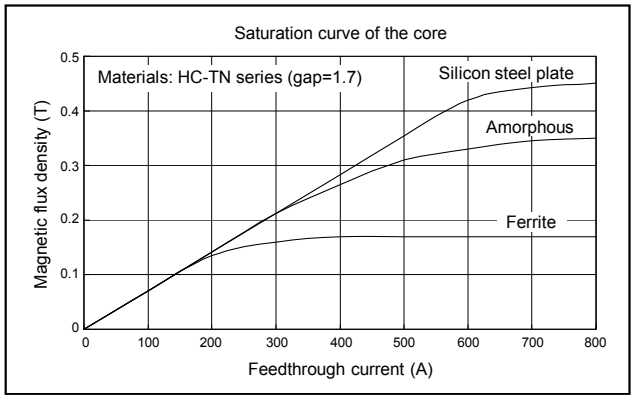
8) Response time
   Denotes the output response time (ΔT) when a pulse current is input as the input current. ΔT is shown as the time difference of when the input and output waveforms drop to 80% of their initial levels.
   However, set the smaller one on either input pulse current (di/dt) = 100A/μs or If/μs.

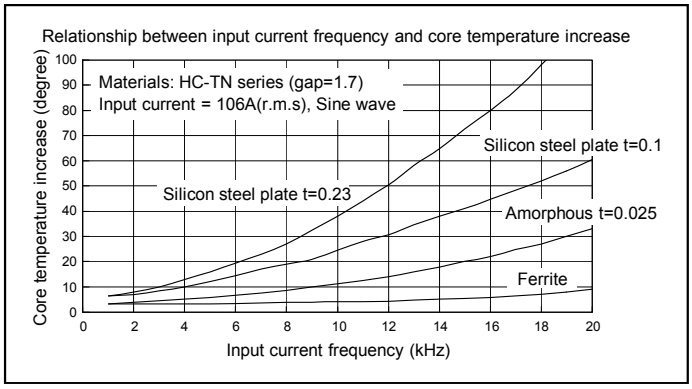
9) DC currents continuously flowing through board mount models (with a primary winding).
   The DC currents continuously flowing through board mount models (with a primary winding) are limited by the wire diameter of the winding used in them. With some exceptions, our current sensors (with a primary winding) normally have $1/\sqrt{2}$ of the rated DC current set as a continuously flowing current. The relation- ships between the wire diameters of primary windings and the continuously flowing DC currents are summarized in the table below. Continuously flowing DC currents should be equal to the r.m.s. values of AC currents.

Wire diameter	Continuously flowing DC current (A)
Φ0.4	2.2
Φ0.5	3.5
Φ0.6	5
Φ0.8	8.8
Φ1.0	13.8
Φ1.1	16.7
Φ1.2	19.9
Φ1.3	23.3
□1 x 2	35
Φ1.6	35.4
□1.2 x 2	36.8
Φ1.1 x 2	33.4
Φ1.4 x 2	54.1

10) Characteristics of core





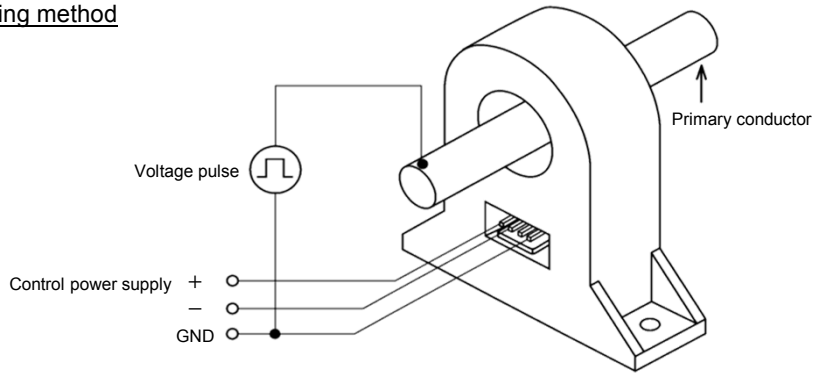


11) Noise testing method

① Effects of dv/dt

Waveform of the output voltage when the voltage pulse of dv/dt=300V/μs is applied.

Testing method

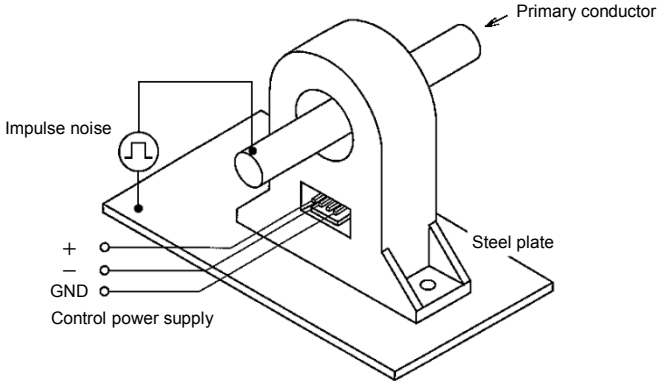


② Effects of impulse noise

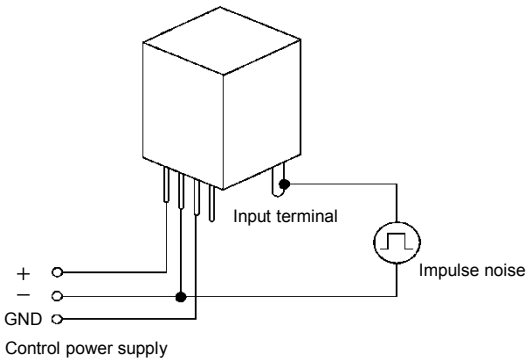
Waveform of the output voltage when the impulse noise of rise time 1ns, pulse with 1μs, and voltage 2,000V is applied.

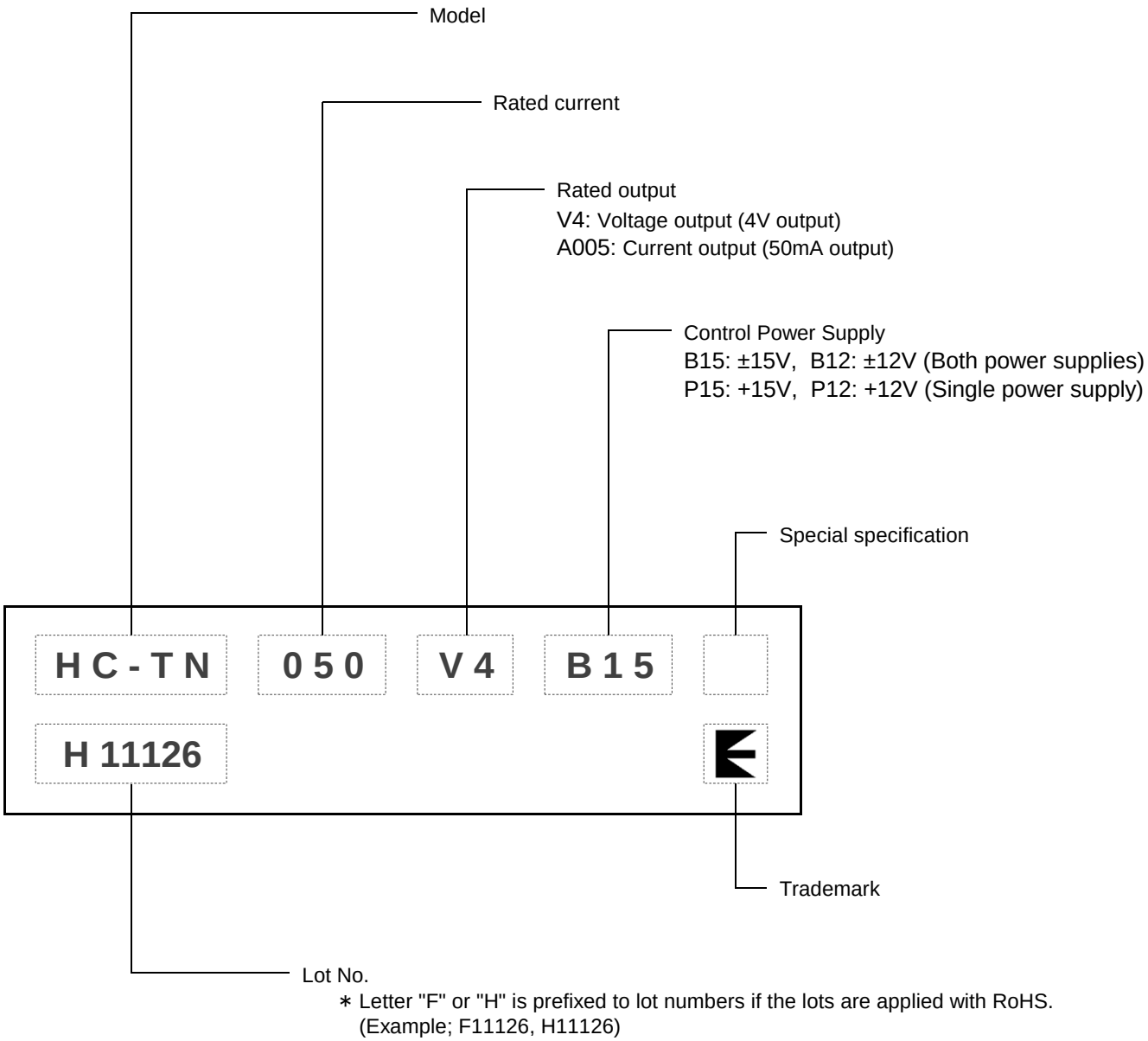
Testing method

【Bolt-on type】



【PCB-mounting type】





Standard max. rating	Input display	Example of display
Series of 70A or less	To the first decimal place	5A･･･05　37.5A･･･375　70A･･･70
Series of over 70A	000 ～ 999	70A･･･070　100A･･･100
1000A or more	E and first two digits	1000A ･･･ E10　3500A ･･･ E35　5000A ･･･ E50

Model name	Rated current (A) 5 10 50 100 200 400 600 1000 2000 3000 4000	Control power supply		Primary conductor
Hall Current Sensor HC series <Bolt on type> - Hall element / Open-loop type -				
HC-MJ	1000A ~ 4000A	±15, ±12		Through
HC-L	800A ~ 3000A	±15, ±12		Through
HC-ML	300A ~ 3000A	±15, ±12		Through
HC-MN	300A ~ 3000A	±15, ±12	+12	Through
HC-MSL	300A ~ 3000A	±15, ±12		Through
HC-MSN	300A ~ 3000A	±15, ±12	+12	Through
HC-TF	50A ~ 1600A	±15, ±12	+12	Through
HC-TTA	300A ~ 900A	+5		Through
HC-TTB	300A ~ 900A	+5		Through
HC-SL	50A ~ 800A	±15, ±12	+12, +5	Through
HC-SN	50A ~ 800A	±15, ±12	+12, +5	Through
HC-TN	50A ~ 800A	±15, ±12	+12, +5	Through
HC-TS	50A ~ 800A	±15, ±12	+12, +5	Through
HC-U	50A ~ 300A	±15, ±12		Through
HC-W	50A ~ 300A	±15, ±12		Through
HC-WT	50A ~ 300A	±15, ±12	+12	Through
HC-VT	50A ~ 300A	±15, ±12		Through
Hall Current Sensor HC series <PCB mounting type> - Hall element / Open-loop type -				
HC-PZ	50A ~ 800A	±15, ±12	+12	Through
HC-PT	50A ~ 300A	±15, ±12	+12	Through
HC-PTW	50A ~ 300A	±15, ±12	+12	Through
HC-PG	50A ~ 300A	±15, ±12	+12, +5	Through
HC-PJ	50A ~ 200A	±15, ±12	+12, +5	Through
HC-PVT	10A ~ 50A	±15, ±12		Built-in coil
HC-PSG	1A ~ 50A	±15, ±12		Built-in coil
HC-PSE	5A ~ 50A	±15, ±12		Built-in coil
HC-PD	5A ~ 50A	±15, ±12		Built-in coil
HC-PDN	5A ~ 50A	±15, ±12		Built-in coil
HC-PDG	5A ~ 50A	±15, ±12	+5	Built-in coil
HC-PDK	40A ~ 100A	±15, ±12	+5	Built-in Bus-bar
HC-PL	5A ~ 30A	±15, ±12		Built-in coil
HC-PFG	3A ~ 30A	±15, ±12	+12, +5	Built-in coil
HC-PRC	3A ~ 20A	±15, ±12	+5	Built-in coil
HC-PRD	25A ~ 50A	±15, ±12	+5	Built-in Bus-bar
Hall Current Sensor HD series - Hall element / Open-loop / Digital output type -				
HD-TS	50A ~ 800A	+5		Through
Hall Current Sensor HP series - Hall IC / Open-loop type -				
HP-PU	5A ~ 100A	+5		Built-in Bus-bar

Model name	Rated current (A) 5 10 50 100 200 400 600 1000 2000 3000 4000	Control power supply	Primary conductor
Hall Current Sensor HS series - Hall element / Closed-loop type -			
HS-PHA	5A ~ 30A	±15, ±12	Built-in coil
HS-PHB	35A ~ 50A	±15, ±12	Built-in coil
HS-PKF	50A ~ 100A	±15, ±12	Built-in Bus-bar
HS-P	50A ~ 100A	±15, ±12	Through
HS-PKD	50A ~ 150A	±15, ±12	Through
HS-PTA	50A ~ 100A	±15, ±12	Through
HS-U	50A ~ 300A	±15, ±12	Through
HS-UFB	100A ~ 300A	±15, ±12	Through
HS-UD	300A ~ 500A	±15, ±12	Through
HS-K	300A ~ 500A	±15, ±12	Through
Hall Current Sensor HC series <For automotive> - Hall element / Open-loop type -			
HC-AK	200A ~ 500A	+5	Through
HC-ASA	200A ~ 800A	+5	Through
HC-ASB	200A ~ 800A	+5	Through
Flux Gate Current Sensor HF series - Closed-loop type -			
HF-A	6A ~ 50A	+5	Built-in Bus-bar
Flux Gate Current Sensor HM series - Closed-loop type -			
HM-A	300A ~ 600A	±15	Through
HM-D	100A ~ 200A	±15	Through
HM-Z	300mA 600mA	±15	Through
Flux Gate Current Sensor HM series - Closed-loop type -			
HR-PA	5A ~ 10A	±15	Built-in Bus-bar
Clamp-Type Alternating Current Sensor HA series			
HA-06RS-C	30A		
HA-06RP-C	30A		
HA-12SS-C	50A		
HA-12SP-CK	50A		
HA-12SP-KM	50A		
HA-16SP-CK	100A		
HA-16SP-KM	100A		
HA-24RP-CK	200A 250A		
HA-24RP-KM	200A 250A		
HA-36RP-CK	400A 600A		
HA-36RP-KM	400A 600A		
HA-A	5A		
HA-B,C	50A 100A 250A		
HA-BV,CV	50A 100A 250A		
Clamp-Type Direct Current Sensor HB series			
HB-10RS	15A	±12 / +5	

HC-MJ

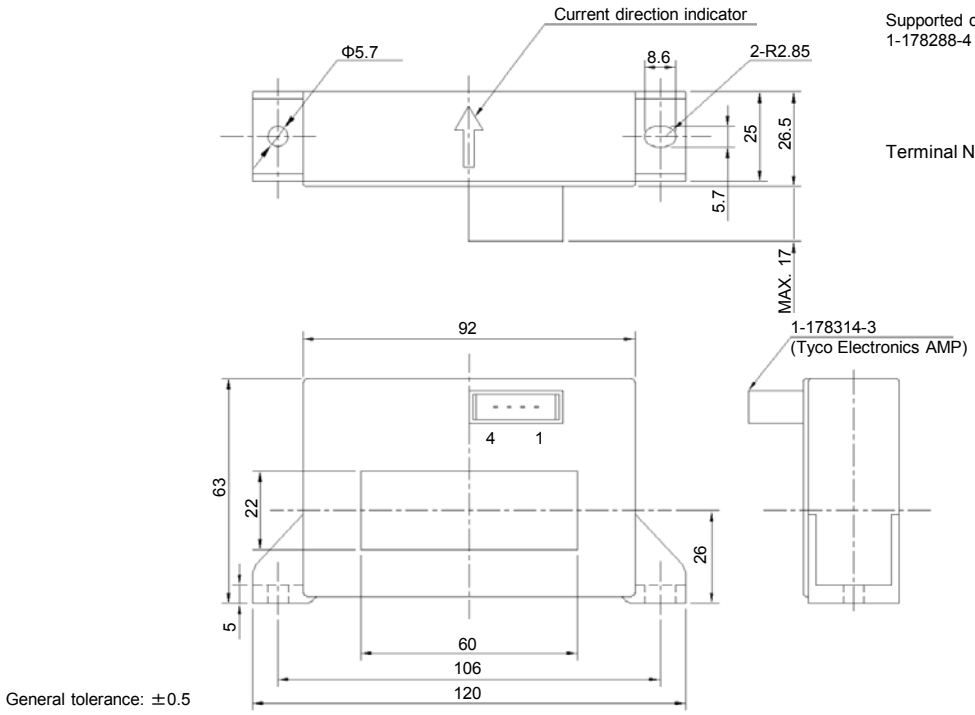
- Rated current 1000A ~ 4000A
- Protection network internalized for superior surge withstand capability

Applications

High-capacity inverters (for power plants), High-capacity power supply equipment

Dimensions

(mm)



Supported connector housing
1-178288-4 (Tyco Electronics AMP)

Terminal No.
1 - (+) terminal
2 - (-) terminal
3 - Output
4 - GND

Weight : 280g

General tolerance: ±0.5

Specification

Ta=25℃

Type		HC-MJE10V4B15	HC-MJE20V4B15	HC-MJE30V4B15	HC-MJE40V4B15
Rated current	[If]	±1000A	±2000A	±3000A	±4000A
Saturation current	[Is]	±2400A	±2400A	±4800A	±4800A
Linearity limits		0~±2000A	0~±2000A	0~±4000A	0~±4000A
Rated output	[Vh]	±4V±1.5%			
Residual output	[Vo]	Within ±30mV			
Output linearity		Within ±1%			
Response time		Within 10μs (at di/dt=100A/μs)			
Response performance		Within 10%			
Hysteresis voltage range		Within 30mV			
Output Temp. Coef.		Within ±0.1%/℃			
Residual output Temp. Coef.		Within ±1.5mV/℃			
Control power supply		±15V±5%			
Consumption current		Within 50mA			
Operating Temp.		-40℃~+80℃			
Storage Temp.		-40℃~+85℃			
Dielectric withstand voltage		2500V AC 50/60Hz 1minute			
Insulation resistance		Not less than 500MΩ 500V DC			

Note1) The indicated rated output is the one when no load is applied.

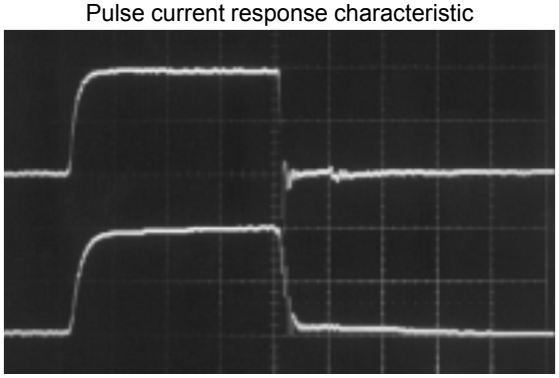
Note2) The indicated residual output is the one after the core hysteresis is removed.

Characteristics chart

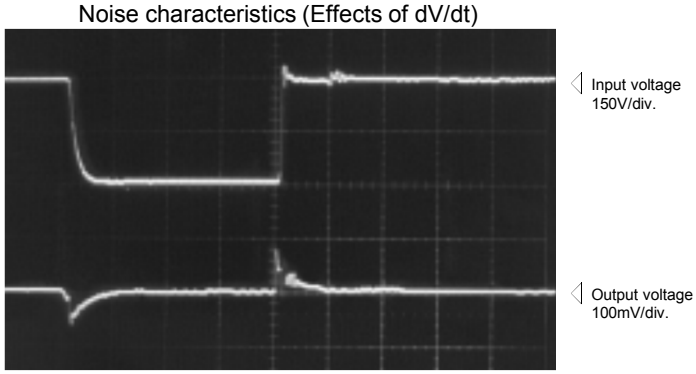
HC-MJE10V4B15

5μs/div. Time base

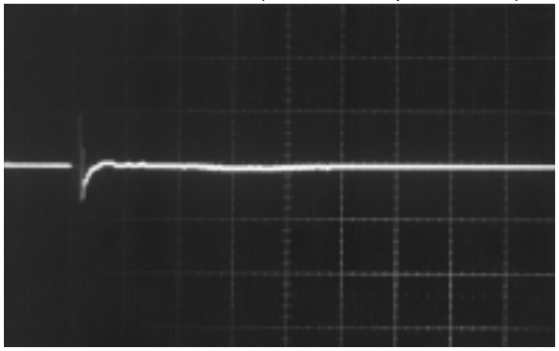
Pulse current response characteristic



Noise characteristics (Effects of dV/dt)

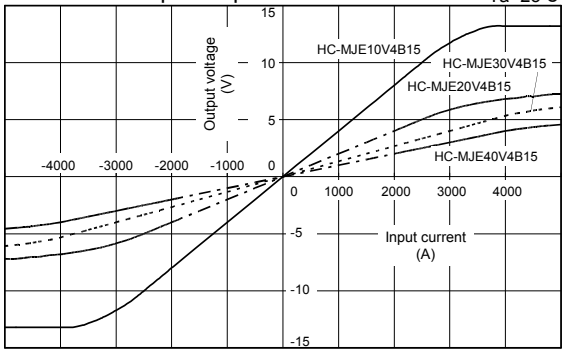


Noise characteristics (Effects of impulse noise)



Input/output characteristics

Ta=25℃



Note: The marks " ◁ " means 0V or 0A.

HC-L

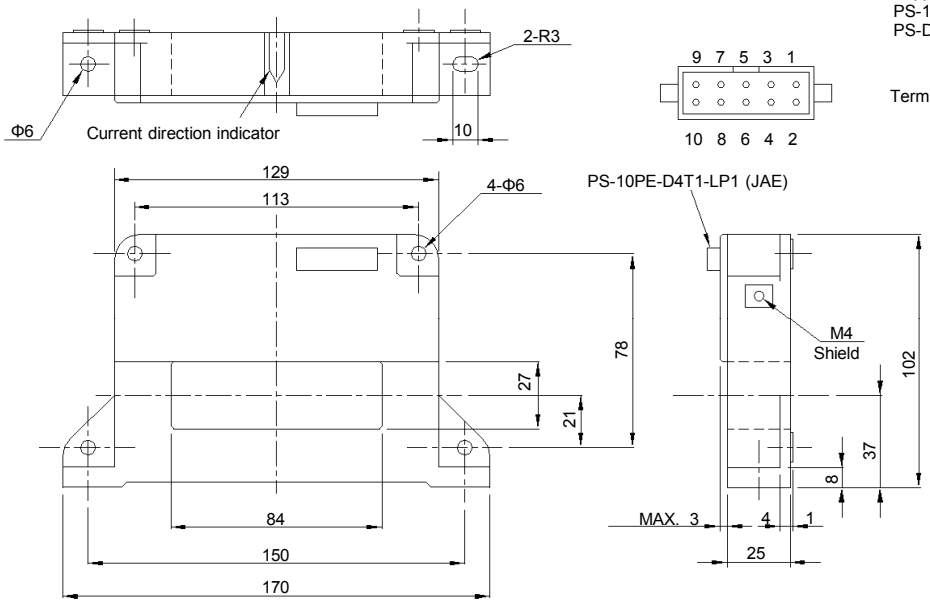
- Rated current 800A ~ 3000A
- Superior noise-resistance

Applications

High-capacity inverters (for power plants), High-capacity power supply equipment

Dimensions

(mm)



Supported connector housing
PS-10SEN-D4P1-1 (JAE)
PS-D4C10 (JAE)

Terminal No. 1, 2 - (+) terminal
3, 4, 8 - GND
5, 6 - (-) terminal
7 - Not used
9, 10 - Output

Weight : 660g

General tolerance: ±0.5

Specification

Ta=25℃

Type		HC-L800V4B15	HC-LE10V4B15	HC-LE20V4B15	HC-LE30V4B15
Rated current	[If]	±800A	±1000A	±2000A	±3000A
Saturation current	[Is]	±1200A	±2500A	±4000A	±5000A
Linearity limits		0~±1000A	0~±2000A	0~±3500A	0~±4000A
Rated output	[Vh]	±4V±1%			
Residual output	[Vo]	Within ±30mV			
Output linearity		Within ±1%			
Response time		Within 10μs (at di/dt=100A/μs)			
Response performance		Within 10%			
Hysteresis voltage range		Within 30mV			
Output Temp. Coef.		Within ±0.05%/℃			
Residual output Temp. Coef.		Within ±2mV/℃			
Control power supply		±15V±5%			
Consumption current		Within 50mA			
Operating Temp.		-10℃~+80℃			
Storage Temp.		-15℃~+85℃			
Dielectric withstand voltage		2500V AC 50/60Hz 1minute			
Insulation resistance		Not less than 500MΩ 500V DC			

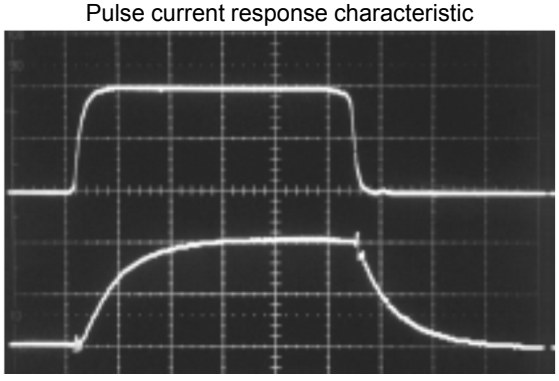
Note1) The indicated rated output is the one when no load is applied.

Note2) The indicated residual output is the one after the core hysteresis is removed.

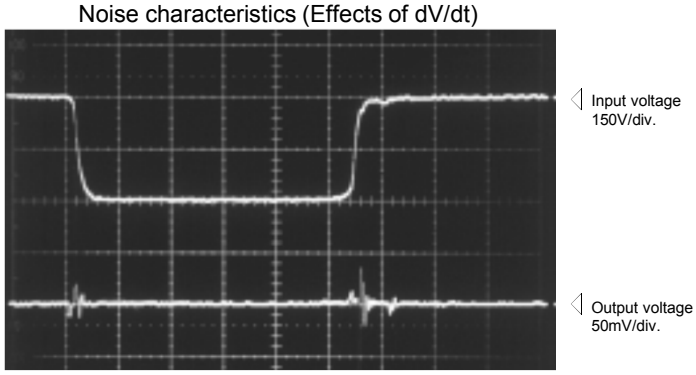
Characteristics chart

HC-LE20V4B15 Time base: 5μs/div.

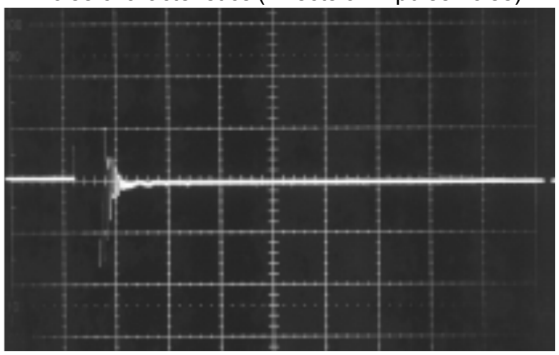
Pulse current response characteristic



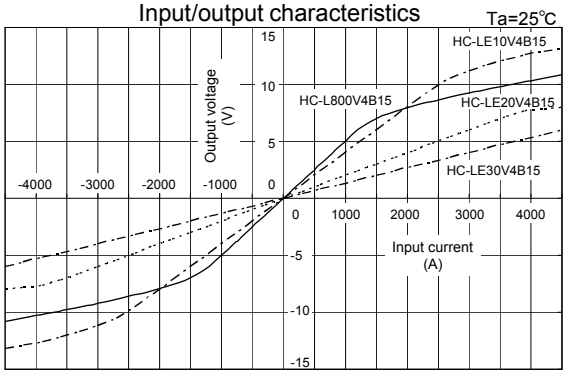
Noise characteristics (Effects of dV/dt)



Noise characteristics (Effects of impulse noise)



Input/output characteristics



Note: The marks " ◁ " means 0V or 0A.

HC-ML

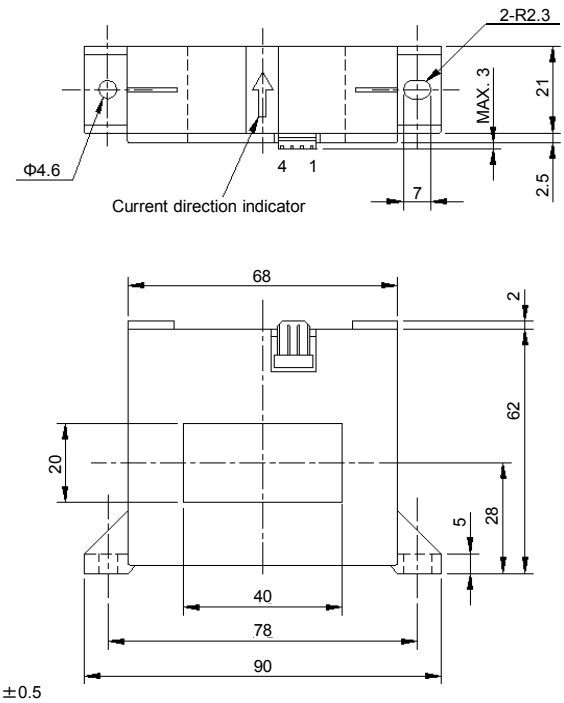
- Rated current 300A ~ 3000A
- Screw type control terminals also available

Applications

Inverters, Power supply equipment, Uninterruptible power supply (UPS), NC machine tools, Welders

Dimensions

(mm)



Supported connector housing
5051-04 (MOLEX)

Terminal No.
1 - (+) terminal
2 - (-) terminal
3 - Output
4 - GND

Weight : 200g

General tolerance: ±0.5

Specification

Ta=25℃

Type		HC-ML300V4B15	HC-ML600V4B15	HC-MLE10V4B15	HC-MLE15V4B15	HC-MLE30V4B15
Rated current	[If]	±300A	±600A	±1000A	±1500A	±3000A
Saturation current	[Is]	±900A	±1200A	±2400A	±2400A	±5000A
Linearity limits		0~±900A	0~±1000A	0~±2100A	0~±2100A	0~±4500A
Rated output	[Vh]	±4V±1%				±4V±2%
Residual output	[Vo]	Within ±30mV				
Output linearity		Within ±1%				
Response time		Within 10μs (at di/dt=100A/μs)				
Response performance		Within 10%				
Hysteresis voltage range		Within 30mV				
Output Temp. Coef.		Within ±0.1%/℃				
Residual output Temp. Coef.		Within ±1mV/℃				
Control power supply		±15V±5%				
Consumption current		Within 30mA		Within 50mA		
Operating Temp.		-10℃~+80℃				
Storage Temp.		-15℃~+85℃				
Dielectric withstand voltage		2500V AC 50/60Hz 1minute				
Insulation resistance		Not less than 500MΩ 500V DC				

Note1) The indicated rated output is the one when no load is applied.

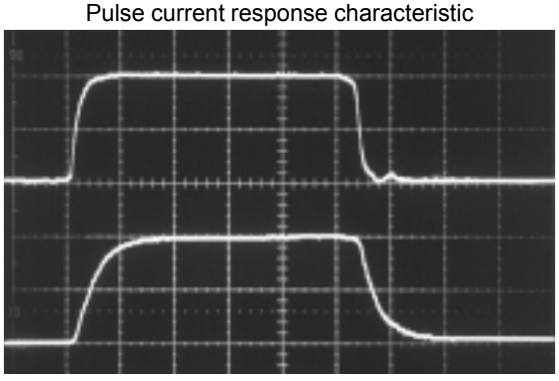
Note2) The indicated residual output is the one after the core hysteresis is removed.

Characteristics chart

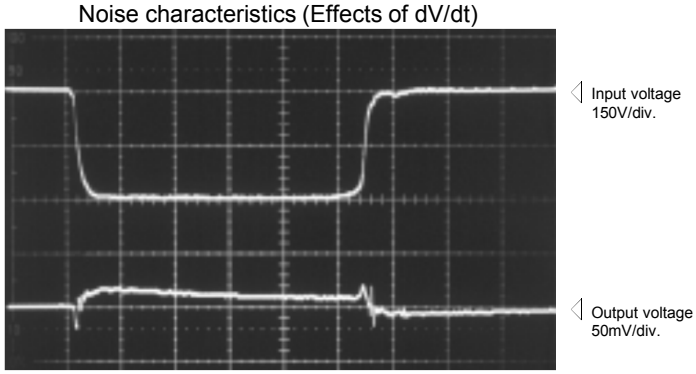
HC-MLE10V4B15

Time base: 5μs/div.

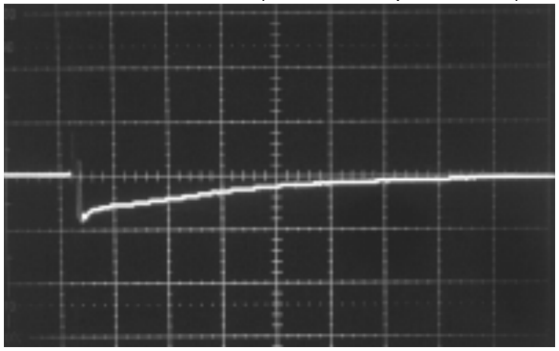
Pulse current response characteristic



Noise characteristics (Effects of dV/dt)

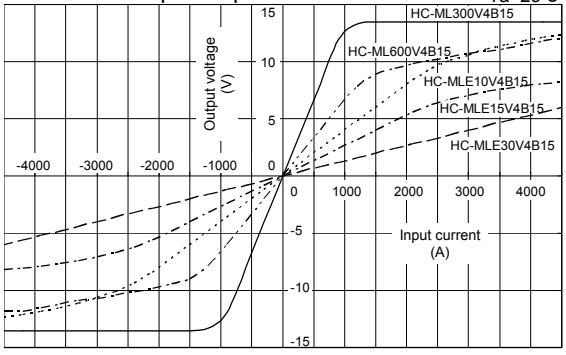


Noise characteristics (Effects of impulse noise)



Input/output characteristics

Ta=25℃



Note: The marks " ◁ " means 0V or 0A.

HC-MN

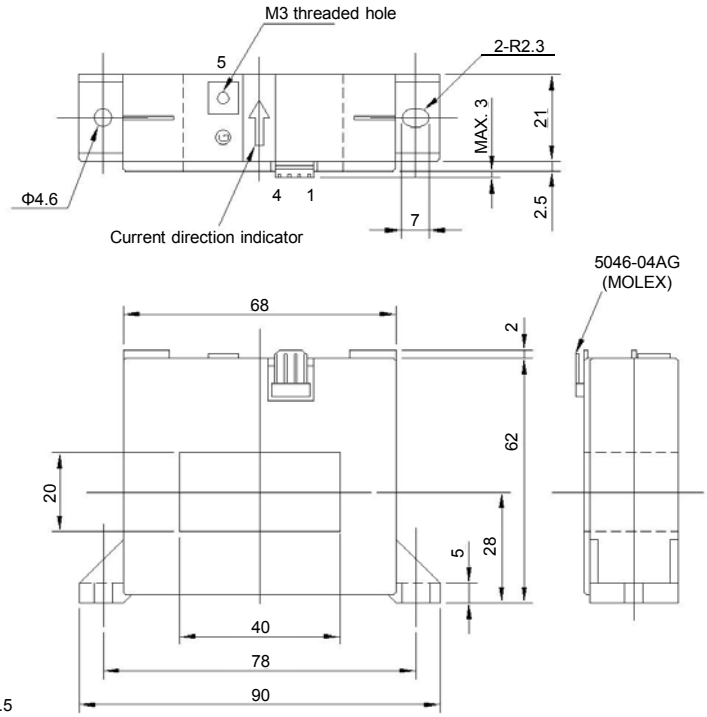
- Rated current 300A ~ 3000A
- Superior noise-resistance
- Screw type control terminals also available
- Single-power supplies also available

Applications

Inverters, Power supply equipment, Uninterruptible power supply (UPS), NC machine tools, Welders

Dimensions

(mm)



Supported connector housing
5051-04 (MOLEX)

Terminal No.
1 - (+) terminal
2 - (-) terminal
3 - Output
4 - GND
5 - Shield

Weight : 200g

General tolerance: ±0.5

Specification

Ta=25℃

Type		HC-MN300V4B15	HC-MN600V4B15	HC-MNE10V4B15	HC-MNE15V4B15	HC-MNE30V4B15
Rated current	[If]	±300A	±600A	±1000A	±1500A	±3000A
Saturation current	[Is]	±900A	±1200A	±2400A	±2400A	±5000A
Linearity limits		0~±900A	0~±1000A	0~±2100A	0~±2100A	0~±4500A
Rated output	[Vh]	±4V±1%				±4V±2%
Residual output	[Vo]	Within ±30mV				
Output linearity		Within ±1%				
Response time		Within 10μs (at di/dt=100A/μs)				
Response performance		Within 10%				
Hysteresis voltage range		Within 30mV				
Output Temp. Coef.		Within ±0.1%/℃				
Residual output Temp. Coef.		Within ±1mV/℃				
Control power supply		±15V±5%				
Consumption current		Within 30mA		Within 50mA		
Operating Temp.		-10℃~+80℃				
Storage Temp.		-15℃~+85℃				
Dielectric withstand voltage		2500V AC 50/60Hz 1minute				
Insulation resistance		Not less than 500MΩ 500V DC				

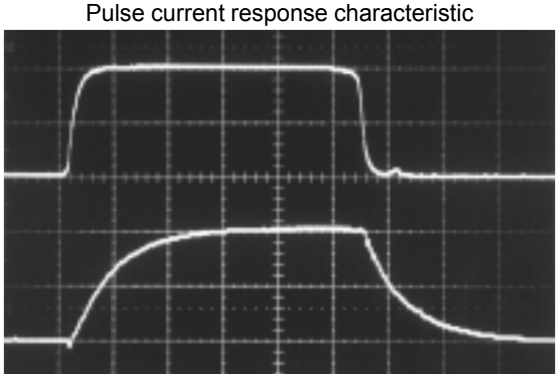
Note1) The indicated rated output is the one when no load is applied.

Note2) The indicated residual output is the one after the core hysteresis is removed.

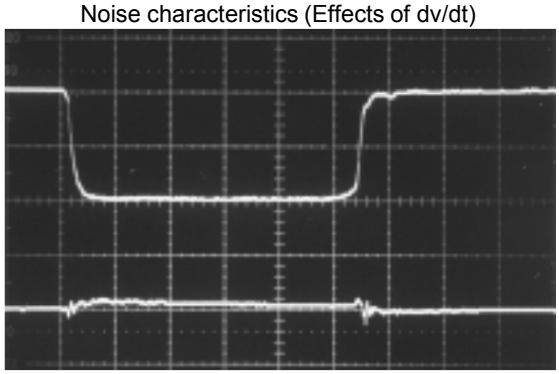
Characteristics chart

HC-MNE10V4B15 Time base: 5μs/div.

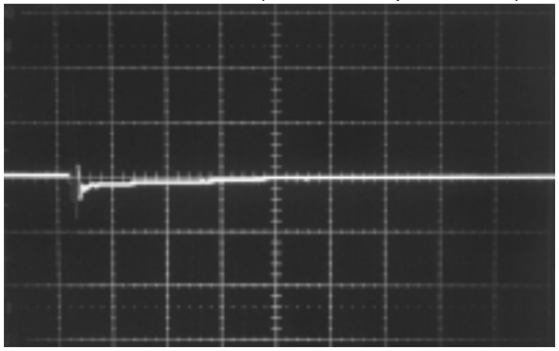
Pulse current response characteristic



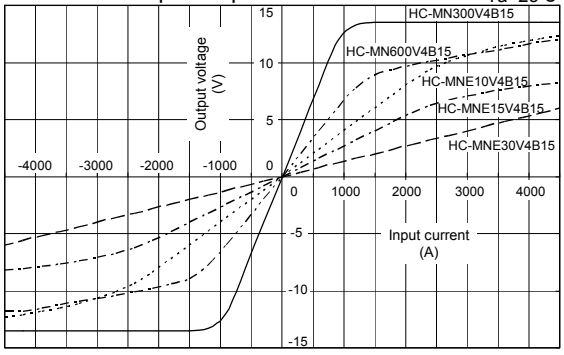
Noise characteristics (Effects of dv/dt)



Noise characteristics (Effects of impulse noise)



Input/output characteristics Ta=25℃



Note: The marks " ◁ " means 0V or 0A.

HC-MSL

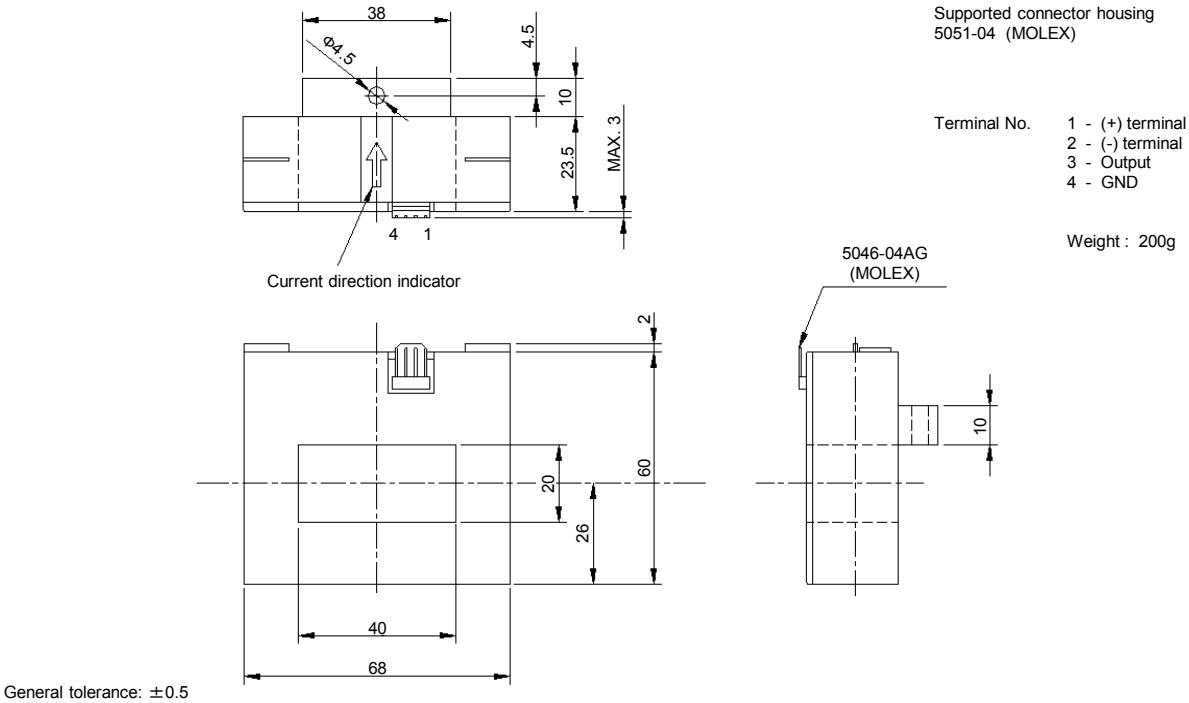
- Rated current 300A ~ 3000A
- Screw type control terminals also available

Applications

Inverters, Power supply equipment, Uninterruptible power supply (UPS), NC machine tools, Welders

Dimensions

(mm)



Supported connector housing
5051-04 (MOLEX)

Terminal No.
1 - (+) terminal
2 - (-) terminal
3 - Output
4 - GND

Weight : 200g

General tolerance: ±0.5

Specification

Ta=25℃

Type		HC-MSL300V4B15	HC-MSL600V4B15	HC-MSLE10V4B15	HC-MSLE15V4B15	HC-MSLE30V4B15
Rated current	[If]	±300A	±600A	±1000A	±1500A	±3000A
Saturation current	[Is]	±900A	±1200A	±2400A	±2400A	±5000A
Linearity limits		0~±900A	0~±1000A	0~±2100A	0~±2100A	0~±4500A
Rated output	[Vh]	±4V±1%				±4V±2%
Residual output	[Vo]	Within ±30mV				
Output linearity		Within ±1%				
Response time		Within 10μs (at di/dt=100A/μs)				
Response performance		Within 10%				
Hysteresis voltage range		Within 30mV				
Output Temp. Coef.		Within ±0.1%/℃				
Residual output Temp. Coef.		Within ±1mV/℃				
Control power supply		±15V±5%				
Consumption current		Within 30mA		Within 50mA		
Operating Temp.		-10℃~+80℃				
Storage Temp.		-15℃~+85℃				
Dielectric withstand voltage		2500V AC 50/60Hz 1minute				
Insulation resistance		Not less than 500MΩ 500V DC				

Note1) The indicated rated output is the one when no load is applied.

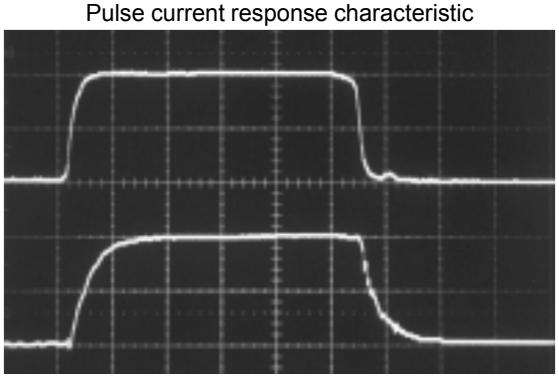
Note2) The indicated residual output is the one after the core hysteresis is removed.

Characteristics chart

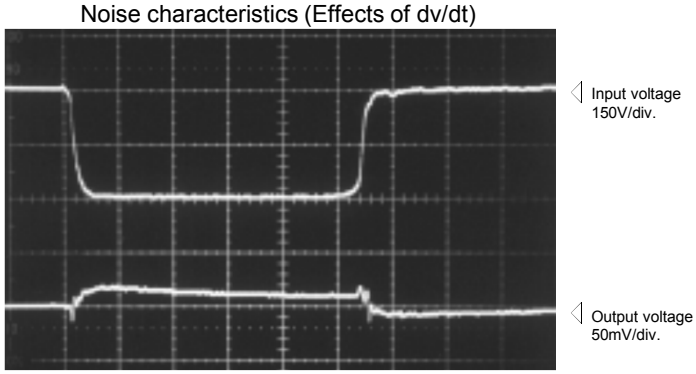
HC-MSLE10V4B15

Time base: 5μs/div.

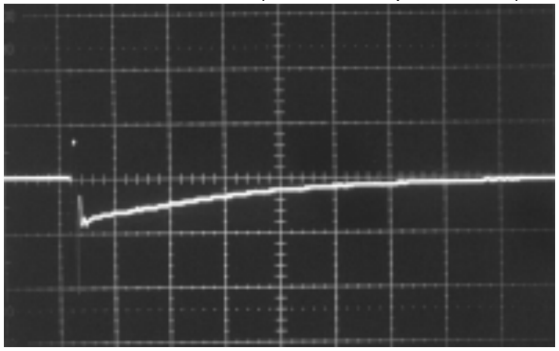
Pulse current response characteristic



Noise characteristics (Effects of dv/dt)

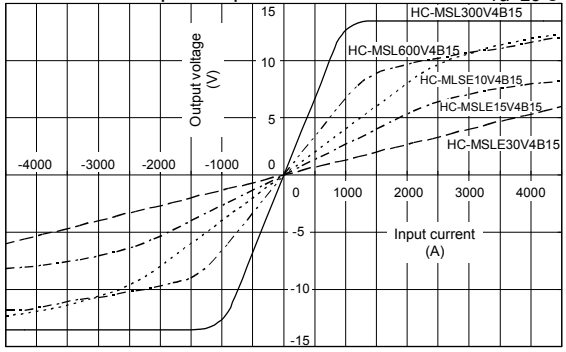


Noise characteristics (Effects of impulse noise)



Input/output characteristics

Ta=25℃



Note: The marks " ◁ " means 0V or 0A.

HC-MSN

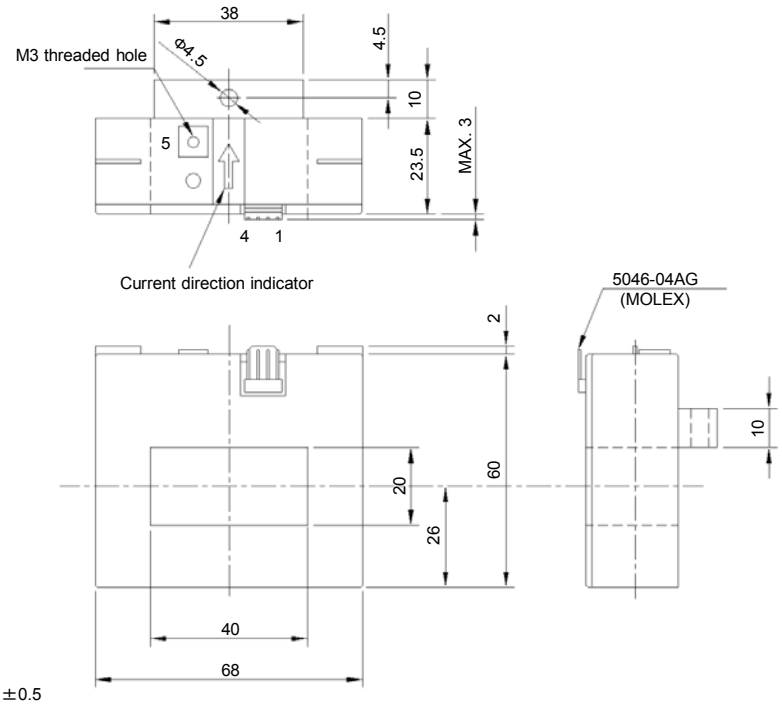
- Rated current 300A ~ 3000A
- Superior noise-resistance
- Screw type control terminals also available
- Single-power supplies also available

Applications

Inverters, Power supply equipment, Uninterruptible power supply (UPS), NC machine tools, Welders

Dimensions

(mm)



Supported connector housing
5051-04 (MOLEX)

Terminal No.
1 - (+) terminal
2 - (-) terminal
3 - Output
4 - GND
5 - Shield

Weight : 200g

General tolerance: ±0.5

Specification

Ta=25℃

Type		HC-MSN300V4B15	HC-MSN600V4B15	HC-MSNE10V4B15	HC-MSNE15V4B15	HC-MSNE30V4B15
Rated current	[If]	±300A	±600A	±1000A	±1500A	±3000A
Saturation current	[Is]	±900A	±1200A	±2400A	±2400A	±5000A
Linearity limits		0~±900A	0~±1000A	0~±2100A	0~±2100A	0~±4500A
Rated output	[Vh]	±4V±1%				±4V±2%
Residual output	[Vo]	Within ±30mV				
Output linearity		Within ±1%				
Response time		Within 10μs (at di/dt=100A/μs)				
Response performance		Within 10%				
Hysteresis voltage range		Within 30mV				
Output Temp. Coef.		Within ±0.1%/℃				
Residual output Temp. Coef.		Within ±1mV/℃				
Control power supply		±15V±5%				
Consumption current		Within 30mA		Within 50mA		
Operating Temp.		-10℃~+80℃				
Storage Temp.		-15℃~+85℃				
Dielectric withstand voltage		2500V AC 50/60Hz 1minute				
Insulation resistance		Not less than 500MΩ 500V DC				

Note1) The indicated rated output is the one when no load is applied.

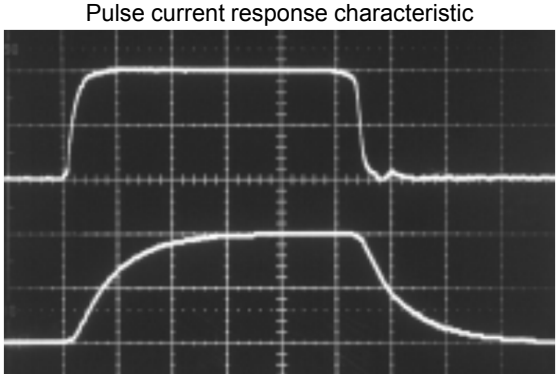
Note2) The indicated residual output is the one after the core hysteresis is removed.

Characteristics chart

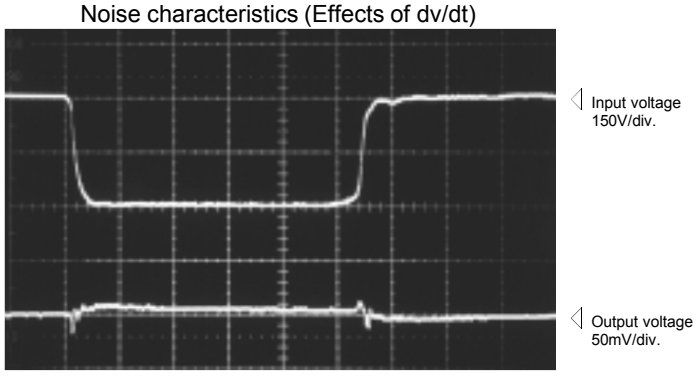
HC-MSNE10V4B15

Time base: 5μs/div.

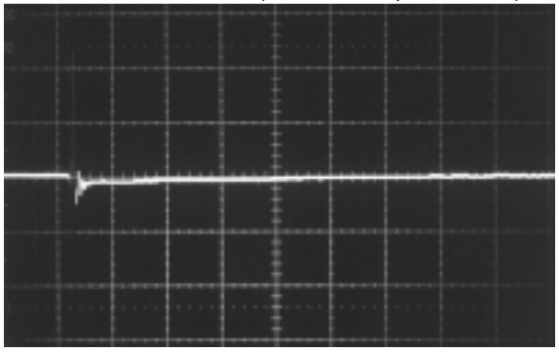
Pulse current response characteristic



Noise characteristics (Effects of dv/dt)

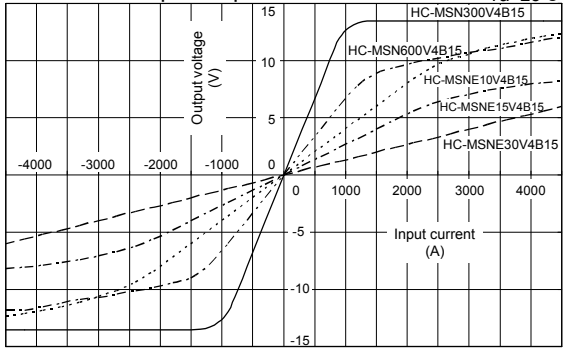


Noise characteristics (Effects of impulse noise)



Input/output characteristics

Ta=25℃



Note: The marks " ◁ " means 0V or 0A.

HC-TF series

Medium-sized, large current range
Bolt on type

HC-TF

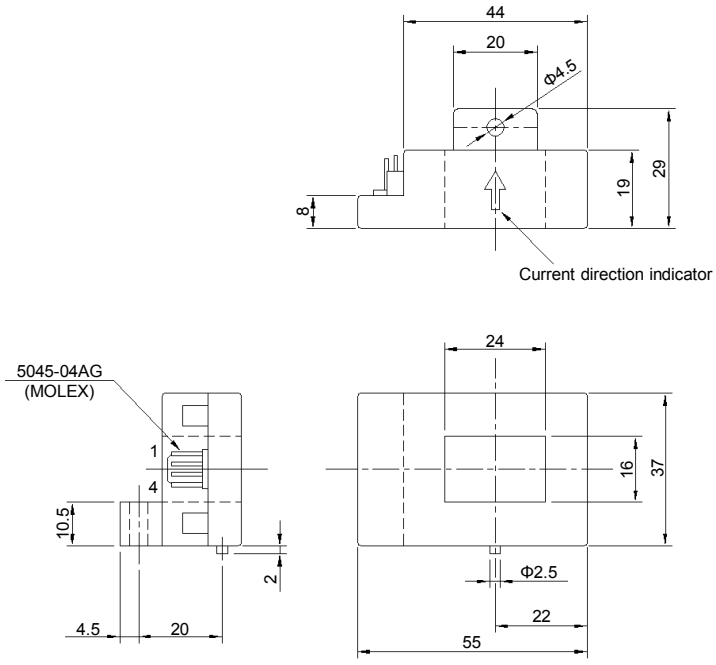
- Rated current 50A ~ 1600A
- Single-power supplies also available

Applications

Inverters, Servo drivers, Power supply equipment, Uninterruptible power supply (UPS), NC machine tools, Welders

Dimensions

(mm)



Supported connector housing
5051-04 (MOLEX)

Terminal No.
1 - (+) terminal
2 - (-) terminal
3 - Output
4 - GND

Weight : 66g

General tolerance: ±0.5

Specification

Ta=25℃

Type		HC-TF050V4B15	HC-TF100V4B15	HC-TF400V4B15	HC-TFE10V4B15H	HC-TFE16V4B15H
Rated current [If]		±50A	±100A	±400A	±1000A	±1600A
Saturation current [Is]		±150A	±300A	±1000A	±2700A	±2700A
Linearity limits		0~±150A	0~±300A	0~±800A	0~±2200A	0~±2200A
Rated output [Vh]	+If	V0+4V±1% (RL=10kΩ)			V0+4V±2% (RL=10kΩ)	
	-If	V0-4V±1% (RL=10kΩ)			V0-4V±2% (RL=10kΩ)	
Residual output [Vo]		Within ±70mV	Within ±50mV			
Output linearity		Within ±1%				
Response time		Within 10μs (The smaller one on either at di/dt = 100 A/μs or If/μs.)				
Response performance		Within 10%				
Hysteresis voltage range		Within 30mV				
Output Temp. Coef.		Within ±0.1%/℃				
Residual output Temp. Coef.		Within ±3mV/℃	Within ±1.5mV/℃	Within ±1mV/℃		
Control power supply		±15V±5%				
Consumption current		Within 30mA				
Operating Temp.		-10℃~+80℃				
Storage Temp.		-15℃~+85℃				
Dielectric withstand voltage		2500V AC 50/60Hz 1minute				
Insulation resistance		Not less than 500MΩ 500V DC				

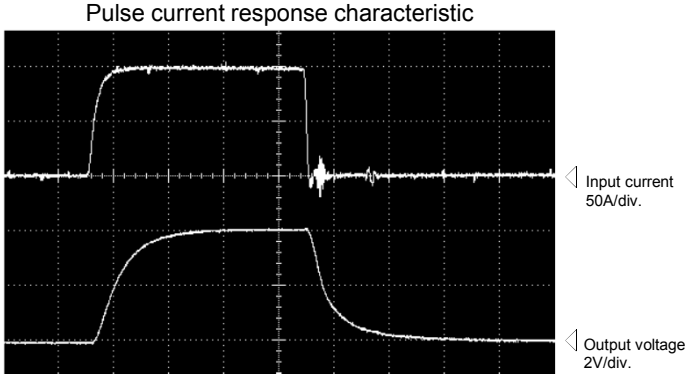
Note1) The indicated residual output is the one after the core hysteresis is removed.

Characteristics chart

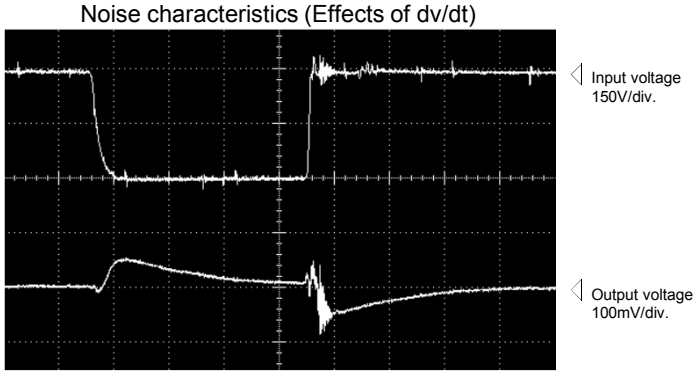
HC-TF100V4B15

Time base: 5μs/div.

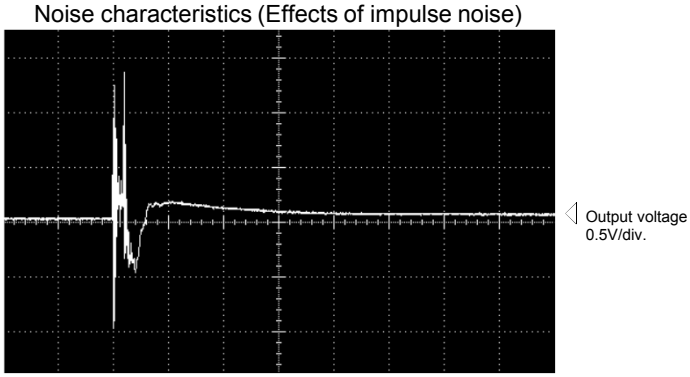
Pulse current response characteristic



Noise characteristics (Effects of dv/dt)

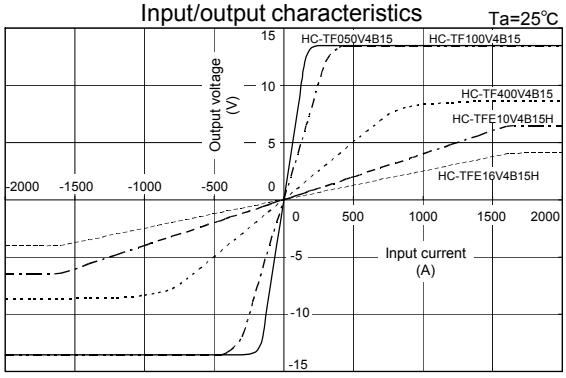


Noise characteristics (Effects of impulse noise)



Input/output characteristics

Ta=25℃



Note: The marks " ◁ " means 0V or 0A.

HC-TTA

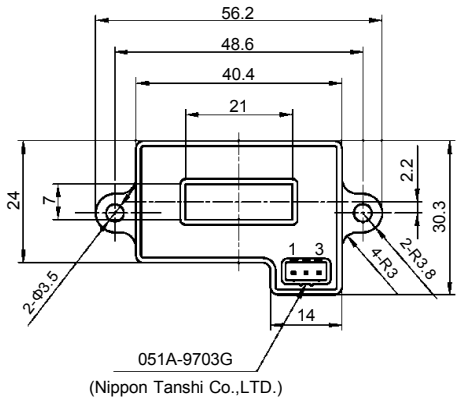
- Rated current 300A ~ 900A
- Potted products
- Superior noise-resistance
- Built-in wire break detector enables detection of broken GND connection

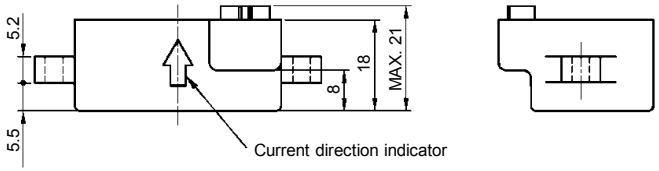
Applications

Inverters, Servo drivers, Power supply equipment, Uninterruptible power supply (UPS), NC machine tools, Welders

Dimensions

(mm)





Conformable housing and pin
0520-9103 and 17528-M5 (Nippon Tanshi Co.,LTD.)

Terminal No. 1 - (+) terminal
2 - Output
3 - GND

Weight : 45g

General tolerance: ±0.5

Specification

Ta=25℃

Type		HC-TTA300V2PP5	HC-TTA600V2PP5	HC-TTA900V2PP5
Rated current	[If]	±300A	±600A	±900A
Saturation current	[Is]	±330A	±660A	±990A
Linearity limits		0~±300A	0~±600A	0~±900A
Rated output	[Vh]	V0±2V±50mV (RL=10kΩ)		
Residual output	[V0]	Within Vcc/2±50mV		
Output linearity		Within ±1%		
Response time		Within 10μs (at di/dt=100A/μs)		
Response performance		Within 10%		
Hysteresis voltage range		Within 30mV		
Output Temp. Coef.		Within ±0.1%/℃		
Residual output Temp. Coef.		Within ±1mV/℃		
Control power supply	[Vcc]	+5V±5%		
Consumption current		Within 30mA		
Operating Temp.		-10℃~+80℃		
Storage Temp.		-15℃~+85℃		
Dielectric withstand voltage		2500V AC 50/60Hz 1minute		
Insulation resistance		Not less than 500MΩ 500V DC		

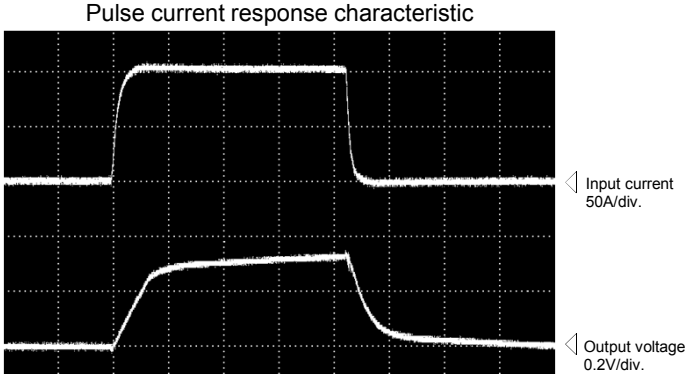
Note1) The indicated residual output is the one after the core hysteresis is removed.
Note2) Output specifications include 100-Ω output resistance and 0.7-mA maximum output current.
Note3) The rated output and residual output vary with the value of the control power because the are ratiometric outputs.
Note4) Output is +4.8 V or greater when GND line is disconnected.

Characteristics chart

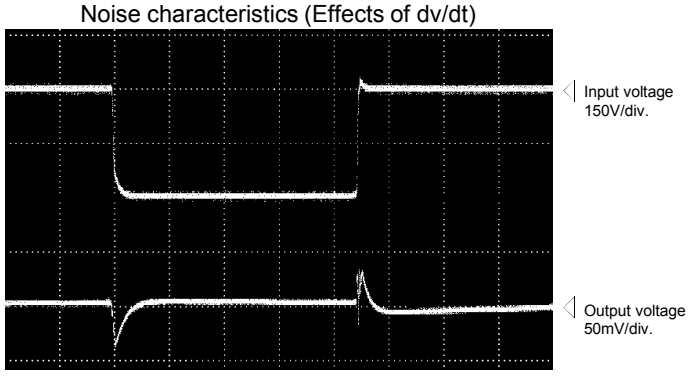
HC-TTA600V2PP5

Time base: 5μs/div.

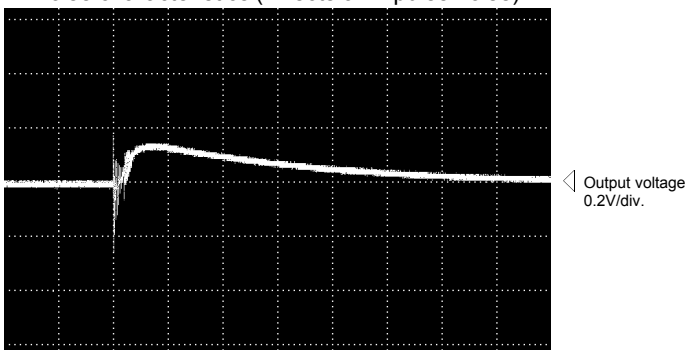
Pulse current response characteristic



Noise characteristics (Effects of dv/dt)

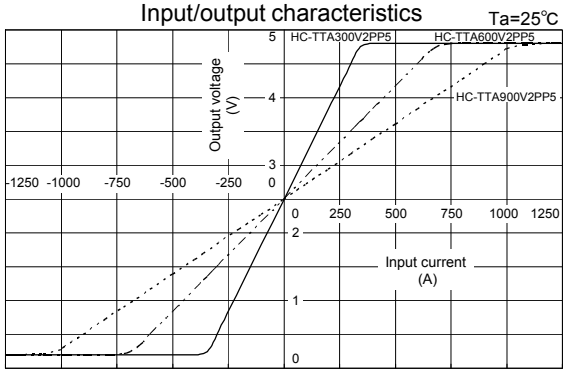


Noise characteristics (Effects of impulse noise)



Input/output characteristics

Ta=25℃



Note: The marks " ◁ " means 0V or 0A.

HC-TTB series

Small-sized, medium current range
Bolt on type

HC-TTB

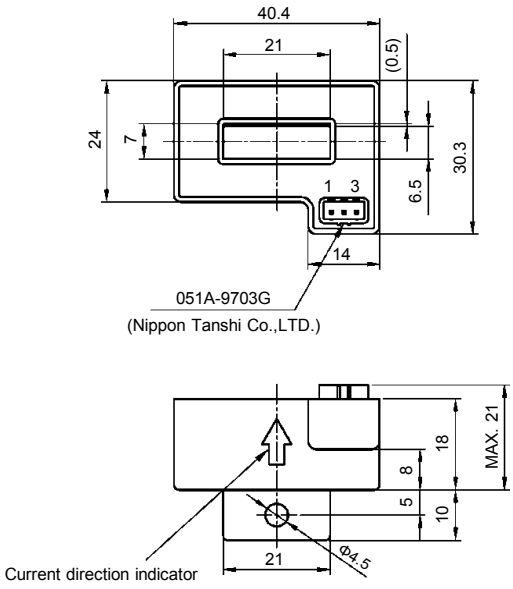
- Rated current 300A ~ 900A
- Potted products
- Superior noise-resistance
- Built-in wire break detector enables detection of broken GND connection

Applications

Inverters, Servo drivers, Power supply equipment, Uninterruptible power supply (UPS), NC machine tools, Welders

Dimensions

(mm)



Conformable housing and pin
0520-9103 and 17528-M5 (Nippon Tanshi Co.,LTD.)

Terminal No. 1 - (+) terminal
2 - Output
3 - GND

Weight : 47g

General tolerance: ±0.5

Specification

Ta=25℃

Type		HC-TTB300V2PP5	HC-TTB600V2PP5	HC-TTB900V2PP5
Rated current	[If]	±300A	±600A	±900A
Saturation current	[Is]	±330A	±660A	±990A
Linearity limits		0~±300A	0~±600A	0~±900A
Rated output	[Vh]	V0±2V±50mV (RL=10kΩ)		
Residual output	[V0]	Within Vcc/2±50mV		
Output linearity		Within ±1%		
Response time		Within 10μs (at di/dt=100A/μs)		
Response performance		Within 10%		
Hysteresis voltage range		Within 30mV		
Output Temp. Coef.		Within ±0.1%/℃		
Residual output Temp. Coef.		Within ±1mV/℃		
Control power supply	[Vcc]	+5V±5%		
Consumption current		Within 30mA		
Operating Temp.		-10℃~+80℃		
Storage Temp.		-15℃~+85℃		
Dielectric withstand voltage		2500V AC 50/60Hz 1minute		
Insulation resistance		Not less than 500MΩ 500V DC		

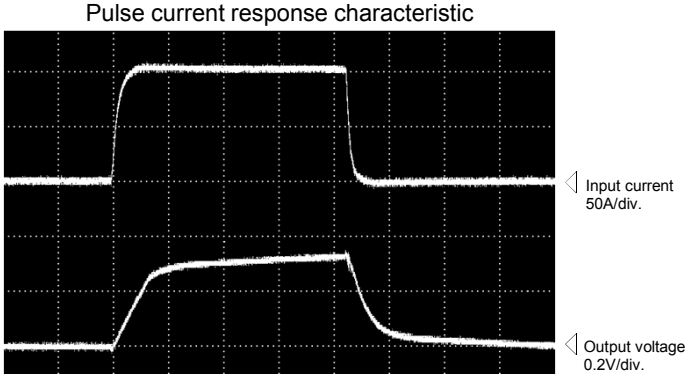
Note1) The indicated residual output is the one after the core hysteresis is removed.
Note2) Output specifications include 100-Ω output resistance and 0.7-mA maximum output current.
Note3) Since residual output is ratiometric output, it varies according to the control power supply value.
Note4) Output is +4.8 V or greater when GND line is disconnected.

Characteristics chart

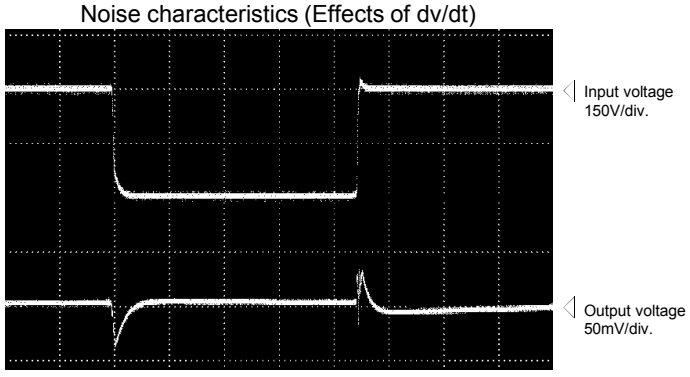
HC-TTB600V2PP5

Time base: 5μs/div.

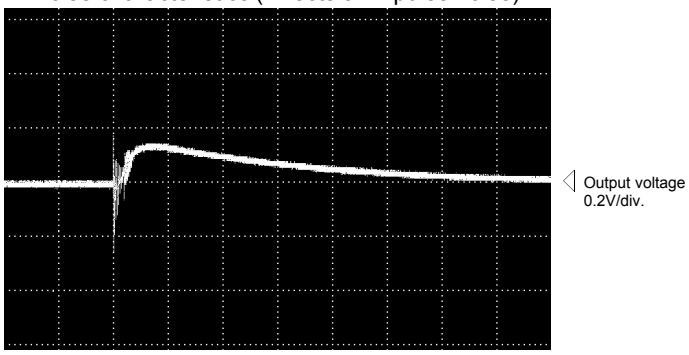
Pulse current response characteristic



Noise characteristics (Effects of dv/dt)

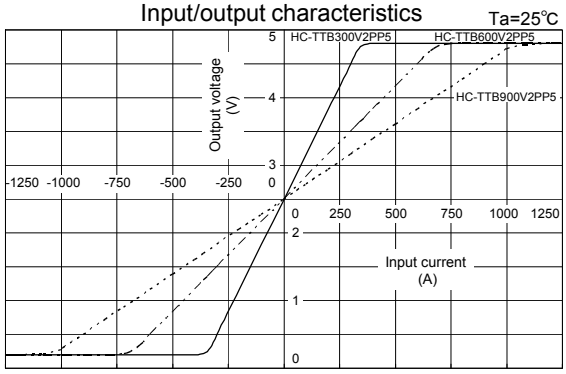


Noise characteristics (Effects of impulse noise)



Input/output characteristics

Ta=25℃



Note: The marks " ◁ " means 0V or 0A.

HC-SL

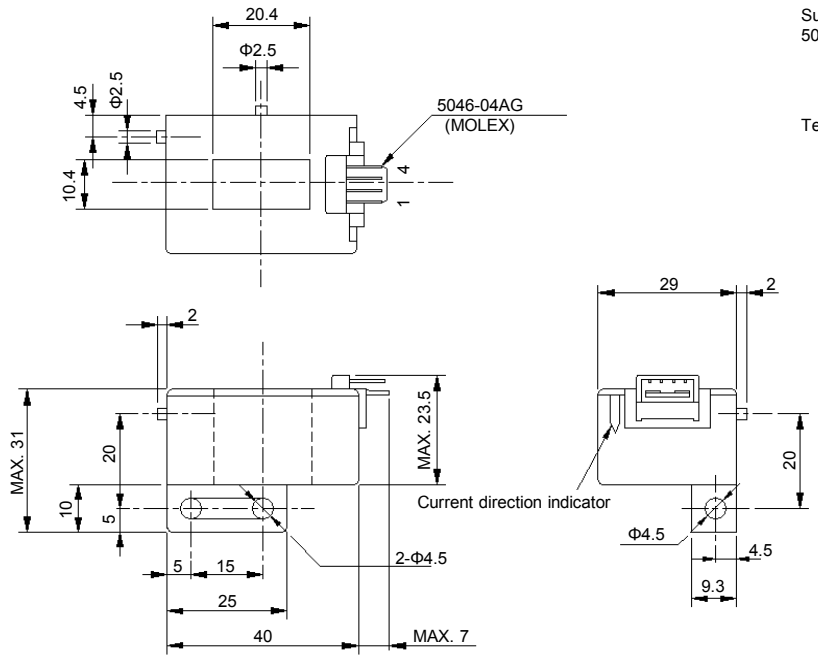
- Rated current 50A ~ 800A
- Single-power supplies also available

Applications

Inverters, Servo drivers, Power supply equipment, Uninterruptible power supply (UPS), NC machine tools, Welders

Dimensions

(mm)



Supported connector housing
5051-04 (MOLEX)

Terminal No.
1 - (+) terminal
2 - (-) terminal
3 - Output
4 - GND

Weight : 46g

General tolerance: ±0.5

Specification

Ta=25℃

Type		HC-SL050V4B15	HC-SL100V4B15	HC-SL300V4B15	HC-SL600V4B15	HC-SL800V4B15
Rated current	[If]	±50A	±100A	±300A	±600A	±800A
Saturation current	[Is]	±150A	±300A	±900A	±1000A	±1000A
Linearity limits		0~±150A	0~±300A	0~±700A	0~±900A	0~±900A
Rated output	[Vh]	±4V±1.5% (RL=10kΩ)	±4V±1% (RL=10kΩ)			
Residual output	[Vo]	Within ±50mV	Within ±30mV			
Output linearity		Within ±1%				
Response time		Within 10μs (The smaller one on either at di/dt = 100A/μs or If/μs.)				
Response performance		Within 10%				
Hysteresis voltage range		Within 30mV				
Output Temp. Coef.		Within ±0.1%/℃				
Residual output Temp. Coef.		Within ±3mV/℃	Within ±1.5mV/℃	Within ±1mV/℃		
Control power supply		±15V±5%				
Consumption current		Within 30mA				
Operating Temp.		-10℃~+80℃				
Storage Temp.		-15℃~+85℃				
Dielectric withstand voltage		2500V AC 50/60Hz 1minute				
Insulation resistance		Not less than 500MΩ 500V DC				

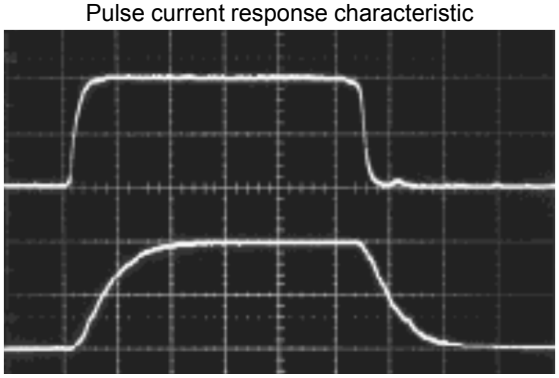
Note1) The indicated residual output is the one after the core hysteresis is removed.

Characteristics chart

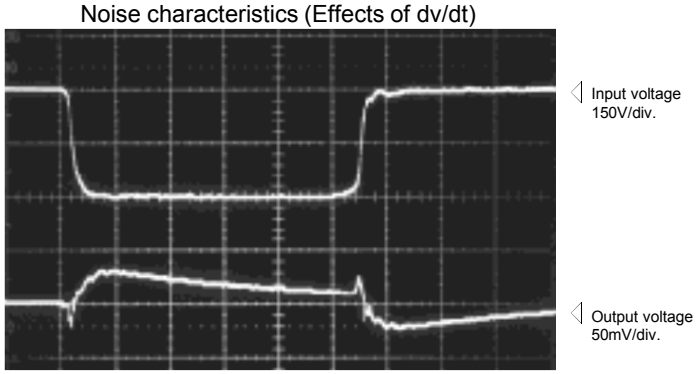
HC-SL100V4B15

Time base: 5μs/div.

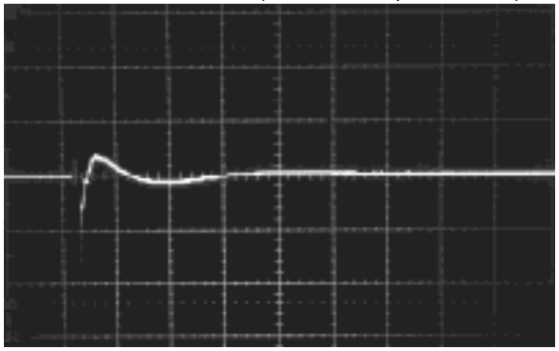
Pulse current response characteristic



Noise characteristics (Effects of dv/dt)

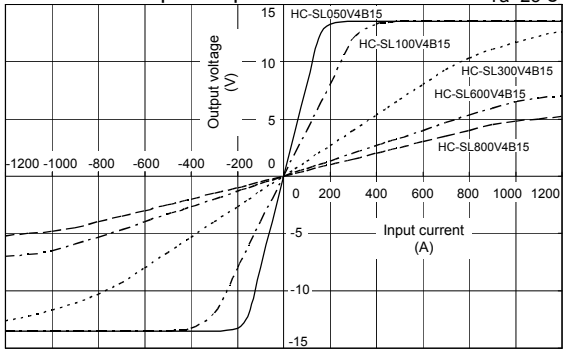


Noise characteristics (Effects of impulse noise)



Input/output characteristics

Ta=25℃



Note: The marks " ◁ " means 0V or 0A.

HC-SN

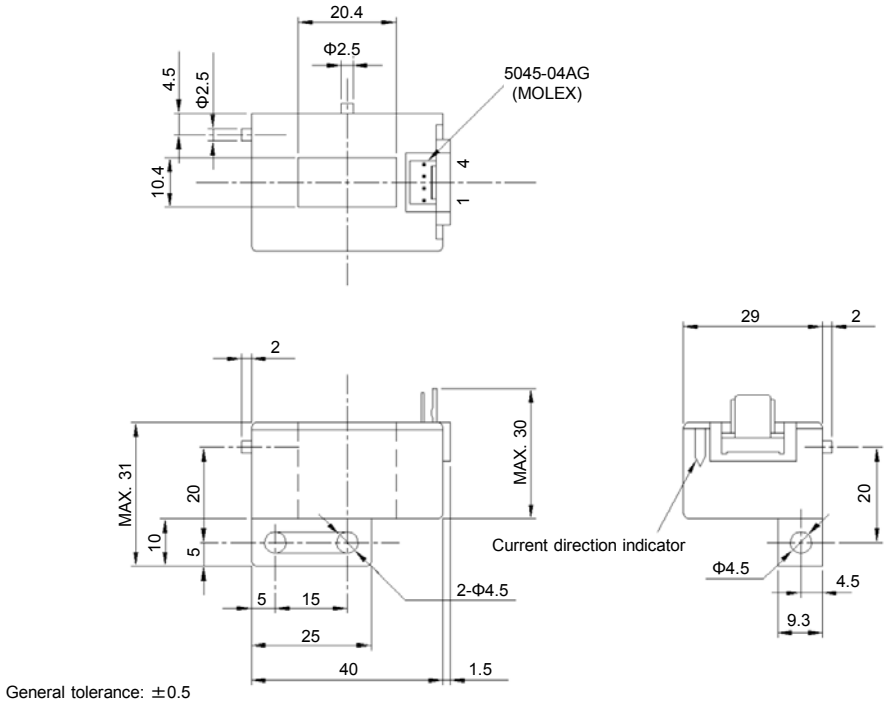
- Rated current 50A ~ 800A
- Superior noise-resistance
- Single-power supplies also available

Applications

Inverters, Servo drivers, Power supply equipment, Uninterruptible power supply (UPS), NC machine tools, Welders

Dimensions

(mm)



Supported connector housing
5051-04 (MOLEX)

Terminal No. 1 - (+) terminal
2 - (-) terminal
3 - Output
4 - GND

Weight : 46g

General tolerance: ±0.5

Specification

Ta=25℃

Type		HC-SN050V4B15	HC-SN100V4B15	HC-SN300V4B15	HC-SN600V4B15	HC-SN800V4B15
Rated current	[If]	±50A	±100A	±300A	±600A	±800A
Saturation current	[Is]	±150A	±300A	±700A	±1000A	±1000A
Linearity limits		0~±150A	0~±300A	0~±450A	0~±900A	0~±900A
Rated output	[Vh]	±4V±1.5% (RL=10kΩ)	±4V±1% (RL=10kΩ)			
Residual output	[Vo]	Within ±50mV	Within ±30mV			
Output linearity		Within ±1%				
Response time		Within 10μs (The smaller one on either at di/dt = 100A/μs or If/μs.)				
Response performance		Within 10%				
Hysteresis voltage range		Within 30mV				
Output Temp. Coef.		Within ±0.1%/℃				
Residual output Temp. Coef.		Within ±3mV/℃	Within ±1.5mV/℃	Within ±1mV/℃		
Control power supply		±15V±5%				
Consumption current		Within 30mA				
Operating Temp.		-10℃~+80℃				
Storage Temp.		-15℃~+85℃				
Dielectric withstand voltage		2500V AC 50/60Hz 1minute				
Insulation resistance		Not less than 500MΩ 500V DC				

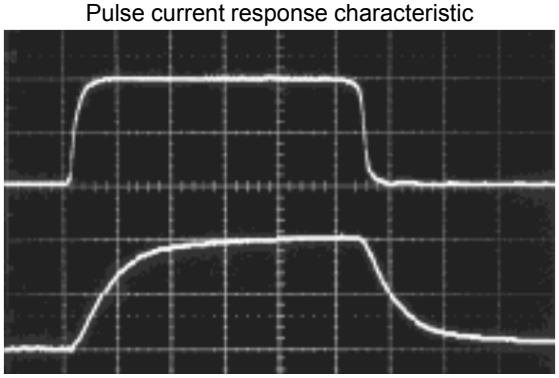
Note1) The indicated residual output is the one after the core hysteresis is removed.

Characteristics chart

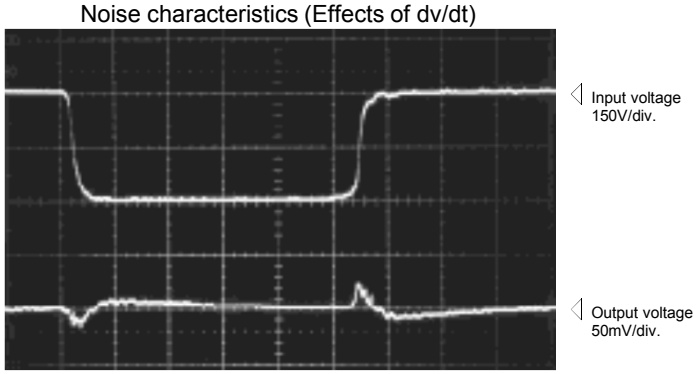
HC-SN100V4B15

Time base: 5μs/div.

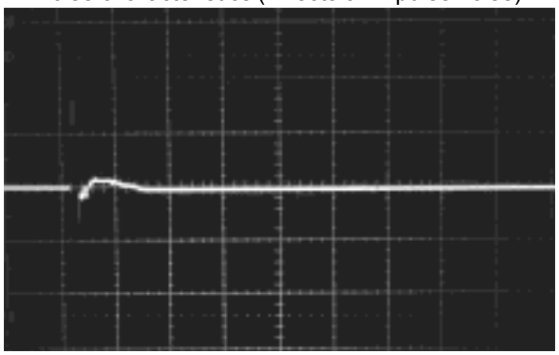
Pulse current response characteristic



Noise characteristics (Effects of dv/dt)

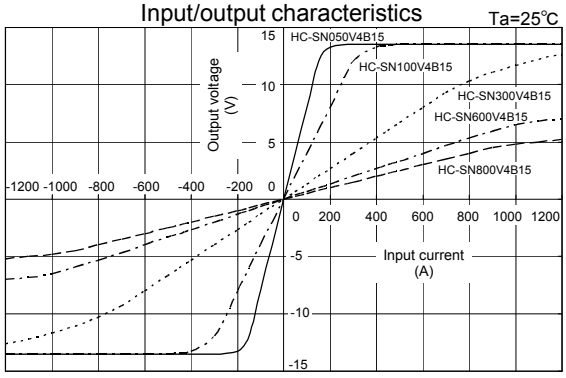


Noise characteristics (Effects of impulse noise)



Input/output characteristics

Ta=25℃



Note: The marks " ◁ " means 0V or 0A.

HC-TN series

Small-sized, medium current range
Bolt on type

HC-TN

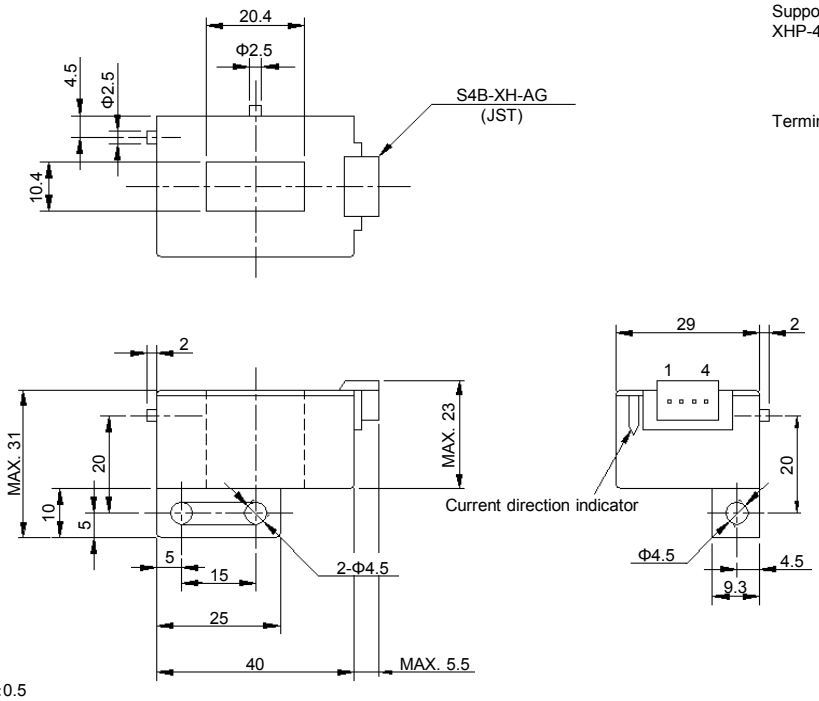
- Rated current 50A ~ 800A
- Single-power supplies also available

Applications

Inverters, Servo drivers, Power supply equipment, Uninterruptible power supply (UPS), NC machine tools, Welders

Dimensions

(mm)



Supported connector housing
XHP-4 (JST)

Terminal No.
1 - (+) terminal
2 - (-) terminal
3 - Output
4 - GND

Weight : 46g

General tolerance: ±0.5

Specification

Ta=25℃

Type		HC-TN050V4B15	HC-TN100V4B15	HC-TN300V4B15	HC-TN600V4B15	HC-TN800V4B15
Rated current	[If]	±50A	±100A	±300A	±600A	±800A
Saturation current	[Is]	±150A	±300A	±900A	±1000A	±1000A
Linearity limits		0~±150A	0~±300A	0~±700A	0~±900A	0~±900A
Rated output	[Vh]	±4V±1.5% (RL=10kΩ)	±4V±1% (RL=10kΩ)			
Residual output	[Vo]	Within ±50mV	Within ±30mV			
Output linearity		Within ±1%				
Response time		Within 10μs (The smaller one on either at di/dt = 100A/μs or If/μs.)				
Response performance		Within 10%				
Hysteresis voltage range		Within 30mV				
Output Temp. Coef.		Within ±0.1%/℃				
Residual output Temp. Coef.		Within ±3mV/℃	Within ±1.5mV/℃	Within ±1mV/℃		
Control power supply		±15V±5%				
Consumption current		Within 30mA				
Operating Temp.		-10℃~+80℃				
Storage Temp.		-15℃~+85℃				
Dielectric withstand voltage		2500V AC 50/60Hz 1minute				
Insulation resistance		Not less than 500MΩ 500V DC				

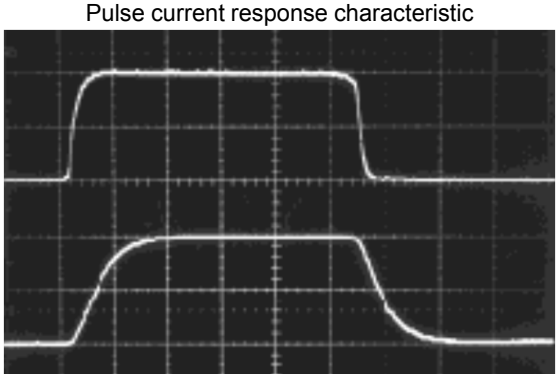
Note1) The indicated residual output is the one after the core hysteresis is removed.

Characteristics chart

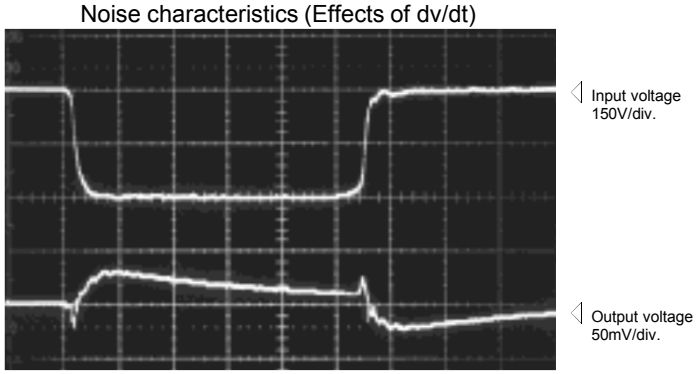
HC-TN100V4B15

Time base: 5μs/div.

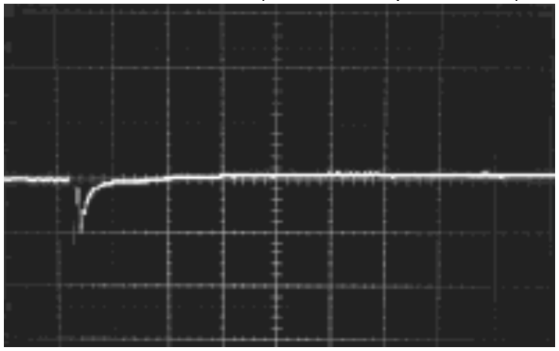
Pulse current response characteristic



Noise characteristics (Effects of dv/dt)

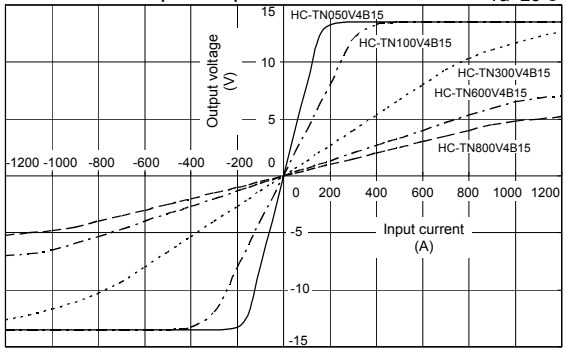


Noise characteristics (Effects of impulse noise)



Input/output characteristics

Ta=25℃



Note: The marks " ◁ " means 0V or 0A.

HC-TS

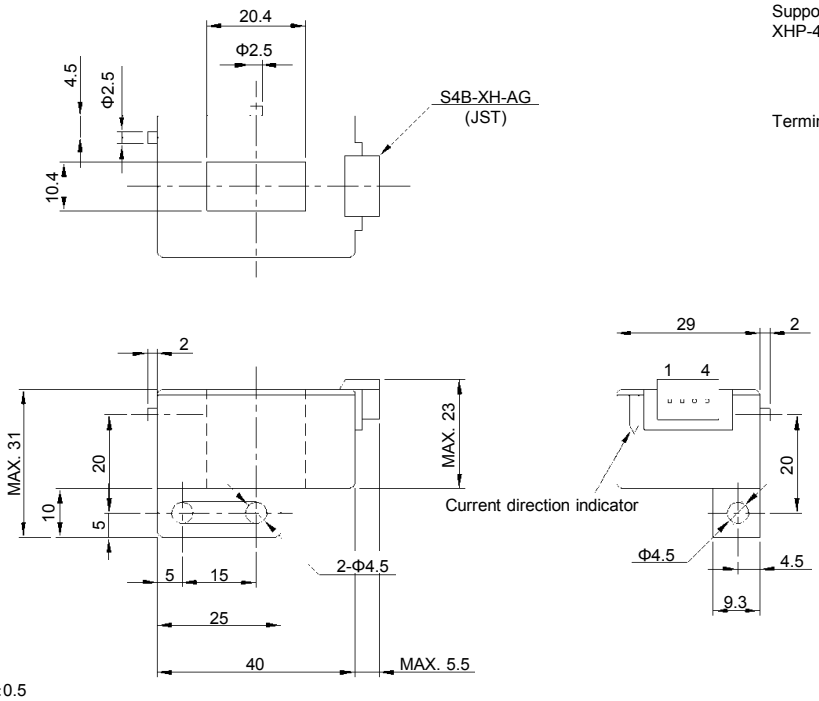
- Rated current 50A ~ 800A
- Superior noise-resistance
- Single-power supplies also available

Applications

Inverters, Servo drivers, Power supply equipment, Uninterruptible power supply (UPS), NC machine tools, Welders

Dimensions

(mm)



Supported connector housing
XHP-4 (JST)

Terminal No.
1 - (+) terminal
2 - (-) terminal
3 - Output
4 - GND

Weight : 46g

General tolerance: ±0.5

Specification

Ta=25℃

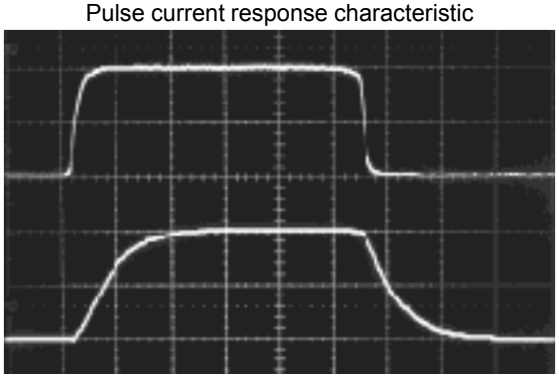
Type		HC-TS050V4B15	HC-TS100V4B15	HC-TS300V4B15	HC-TS600V4B15	HC-TS800V4B15
Rated current	[If]	±50A	±100A	±300A	±600A	±800A
Saturation current	[Is]	±150A	±300A	±900A	±1000A	±1000A
Linearity limits		0~±150A	0~±300A	0~±700A	0~±900A	0~±900A
Rated output	[Vh]	±4V±1.5% (RL=10kΩ)	±4V±1% (RL=10kΩ)			
Residual output	[Vo]	Within ±50mV	Within ±30mV			
Output linearity		Within ±1%				
Response time		Within 10μs (The smaller one on either at di/dt = 100A/μs or If/μs.)				
Response performance		Within 10%				
Hysteresis voltage range		Within 30mV				
Output Temp. Coef.		Within ±0.1%/℃				
Residual output Temp. Coef.		Within ±3mV/℃	Within ±1.5mV/℃	Within ±1mV/℃		
Control power supply		±15V±5%				
Consumption current		Within 30mA				
Operating Temp.		-10℃~+80℃				
Storage Temp.		-15℃~+85℃				
Dielectric withstand voltage		2500V AC 50/60Hz 1minute				
Insulation resistance		Not less than 500MΩ 500V DC				

Note1) The indicated residual output is the one after the core hysteresis is removed.

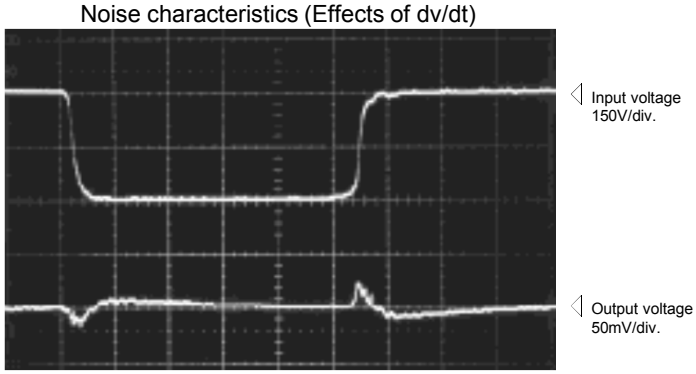
Characteristics chart

HC-TS100V4B15 Time base: 5μs/div.

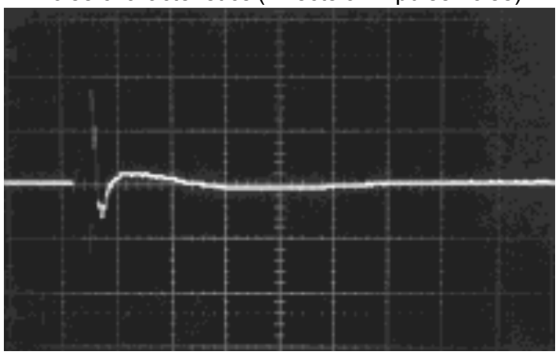
Pulse current response characteristic



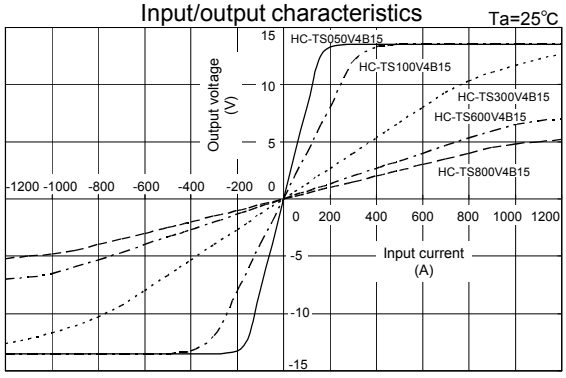
Noise characteristics (Effects of dv/dt)



Noise characteristics (Effects of impulse noise)



Input/output characteristics Ta=25℃



Note: The marks " ◁ " means 0V or 0A.

HC-U

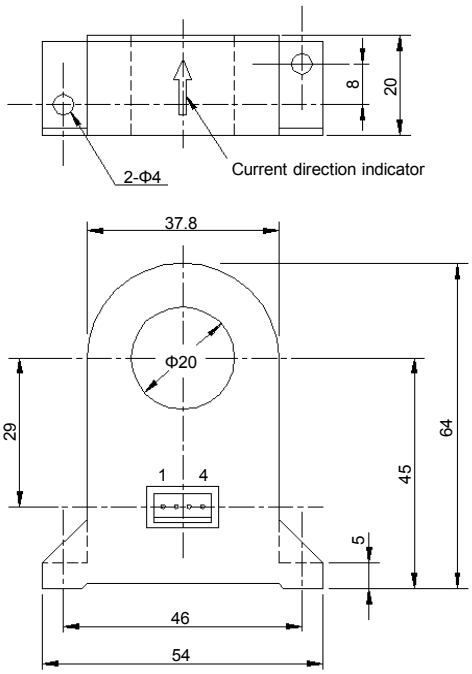
● Rated current 50A ~ 300A

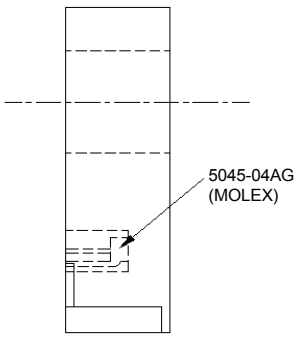
Applications

Inverters, Power supply equipment, NC machine tools, Welders

Dimensions

(mm)





Supported connector housing
5051-04 (MOLEX)

Terminal No. 1 - (+) terminal
2 - (-) terminal
3 - Output
4 - GND

Weight : 59g

General tolerance: ±0.5

Specification

Ta=25℃

Type		HC-U050V4B15	HC-U100V4B15	HC-U300V4B15
Rated current	[If]	±50A	±100A	±300A
Saturation current	[Is]	±150A	±300A	±700A
Linearity limits		0~±150A	0~±300A	0~±600A
Rated output	[Vh]	±4V±1.5%	±4V±1%	
Residual output	[Vo]	Within ±50mV	Within ±30mV	
Output linearity		Within ±1%		
Response time		Within 10μs (The smaller one on either at di/dt = 100A/μs or If/μs.)		
Response performance		Within 10%		
Hysteresis voltage range		Within 30mV		
Output Temp. Coef.		Within ±0.08%/℃		
Residual output Temp. Coef.		Within ±2.5mV/℃	Within ±1.5mV/℃	
Control power supply		±15V±5%		
Consumption current		Within 30mA		
Operating Temp.		-10℃~+80℃		
Storage Temp.		-15℃~+85℃		
Dielectric withstand voltage		2500V AC 50/60Hz 1minute		
Insulation resistance		Not less than 500MΩ 500V DC		

Note1) The indicated rated output is the one when no load is applied.

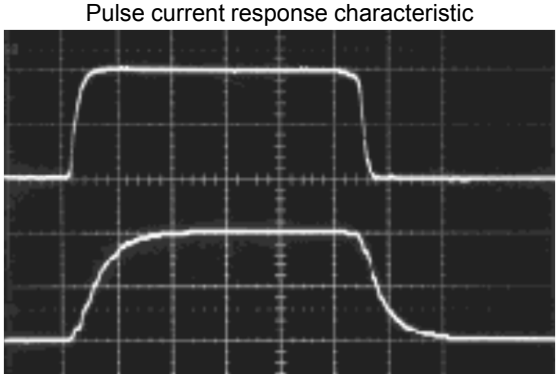
Note2) The indicated residual output is the one after the core hysteresis is removed.

Characteristics chart

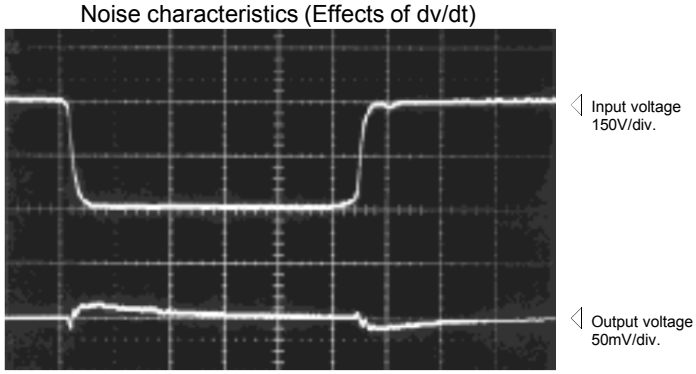
HC-U100V4B15

Time base: 5μs/div.

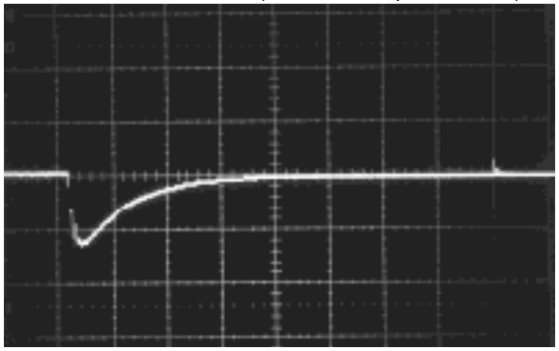
Pulse current response characteristic



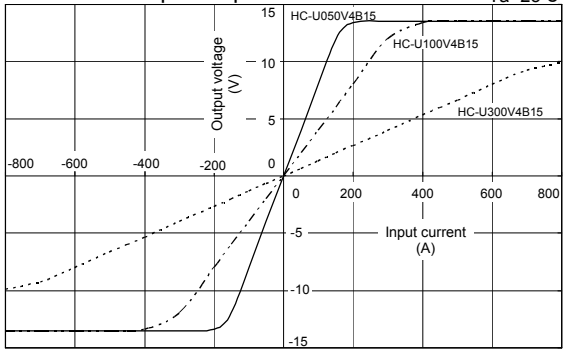
Noise characteristics (Effects of dv/dt)



Noise characteristics (Effects of impulse noise)



Input/output characteristics



Note: The marks " ◁ " means 0V or 0A.

HC-W

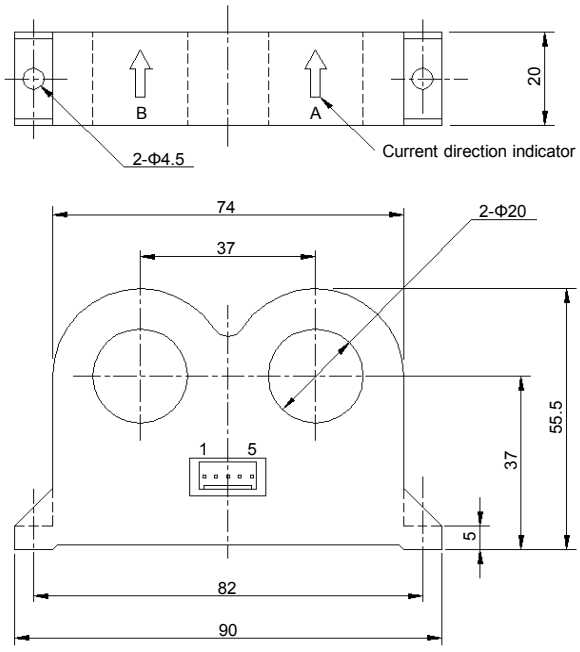
- Rated current 50A ~ 300A
- Two circuits can be measured at the same time
- Single-power supplies also available

Applications

Inverters, Power supply equipment, NC machine tools

Dimensions

(mm)



Supported connector housing
5051-05 (MOLEX)

Terminal No.
1 - GND
2 - B-phase output
3 - A-phase output
4 - (-) terminal
5 - (+) terminal

Weight : 106g

General tolerance: ±0.5

Specification

Ta=25℃

Type		HC-W050V4B15	HC-W100V4B15	HC-W300V4B15
Rated current	[If]	±50A	±100A	±300A
Saturation current	[Is]	±150A	±300A	±700A
Linearity limits		0~±150A	0~±300A	0~±600A
Rated output	[Vh]	±4V±1.5%	±4V±1%	
Residual output	[Vo]	Within ±50mV	Within ±30mV	
Output linearity		Within ±1%		
Response time		Within 10μs (The smaller one on either at di/dt = 100A/μs or If/μs.)		
Response performance		Within 10%		
Hysteresis voltage range		Within 30mV		
Output Temp. Coef.		Within ±0.08%/℃		
Residual output Temp. Coef.		Within ±2.5mV/℃	Within ±1.5mV/℃	
Control power supply		±15V±5%		
Consumption current		Within 60mA		
Operating Temp.		-10℃~+80℃		
Storage Temp.		-15℃~+85℃		
Dielectric withstand voltage		2500V AC 50/60Hz 1minute		
Insulation resistance		Not less than 500MΩ 500V DC		

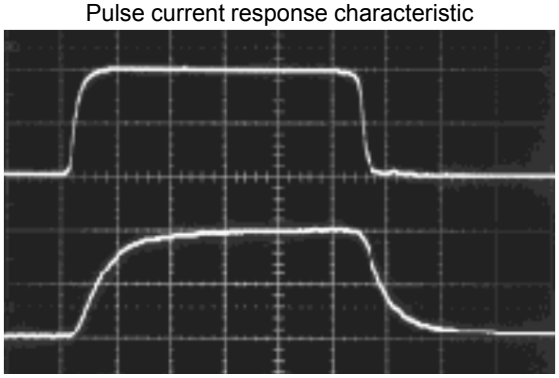
Note1) The indicated rated output is the one when no load is applied.

Note2) The indicated residual output is the one after the core hysteresis is removed.

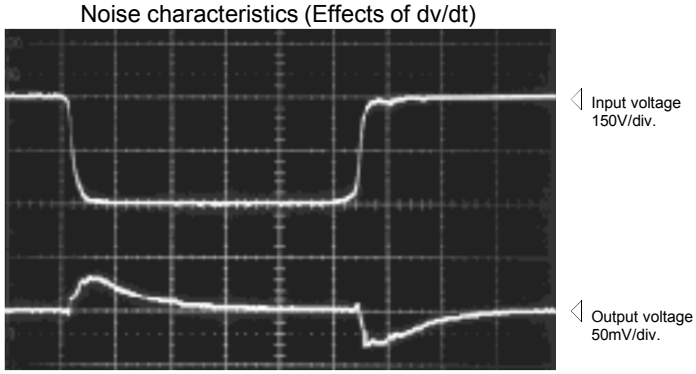
Characteristics chart

HC-W100V4B15 Time base: 5μs/div.

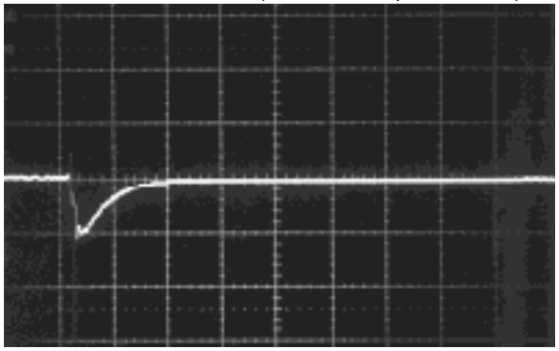
Pulse current response characteristic



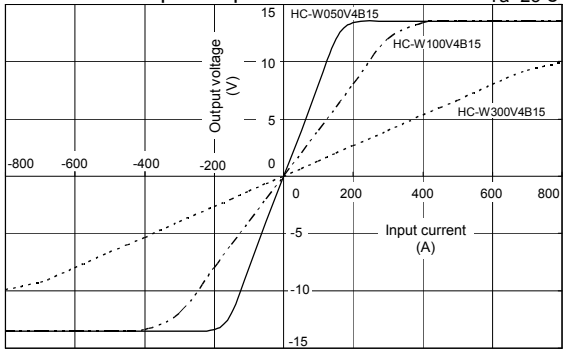
Noise characteristics (Effects of dv/dt)



Noise characteristics (Effects of impulse noise)



Input/output characteristics



Note: The marks " ◁ " means 0V or 0A.

HC-WT

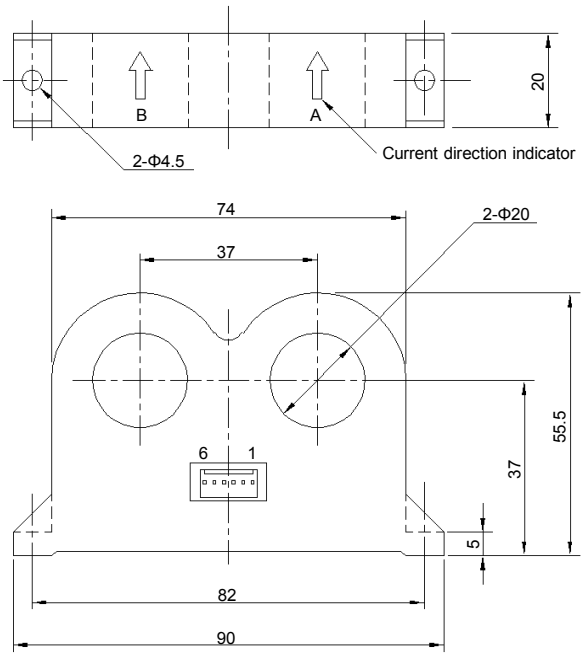
- Rated current 50A ~ 300A
- Two circuits can be measured at the same time
- Single-power supplies also available

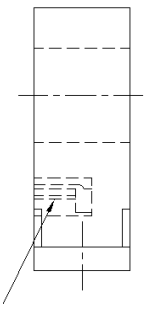
Applications

Inverters, Power supply equipment, NC machine tools

Dimensions

(mm)





5045-06AG
(MOLEX)

Supported connector housing
5051-06 (MOLEX)

Terminal No.
1 - (+) terminal
2 - (-) terminal
3 - A-phase output
4 - GND
5 - B-phase output
6 - GND

Weight : 106g

General tolerance: ±0.5

Specification

Ta=25℃

Type		HC-WT050V4B15	HC-WT100V4B15	HC-WT300V4B15
Rated current	[If]	±50A	±100A	±300A
Saturation current	[Is]	±150A	±300A	±700A
Linearity limits		0~±150A	0~±300A	0~±600A
Rated output	[Vh]	±4V±1.5%	±4V±1%	
Residual output	[Vo]	Within ±50mV	Within ±30mV	
Output linearity		Within ±1%		
Response time		Within 10μs (The smaller one on either at di/dt = 100A/μs or If/μs.)		
Response performance		Within 10%		
Hysteresis voltage range		Within 30mV		
Output Temp. Coef.		Within ±0.08%/℃		
Residual output Temp. Coef.		Within ±2.5mV/℃	Within ±1.5mV/℃	
Control power supply		±15V±5%		
Consumption current		Within 60mA		
Operating Temp.		-10℃~+80℃		
Storage Temp.		-15℃~+85℃		
Dielectric withstand voltage		2500V AC 50/60Hz 1minute		
Insulation resistance		Not less than 500MΩ 500V DC		

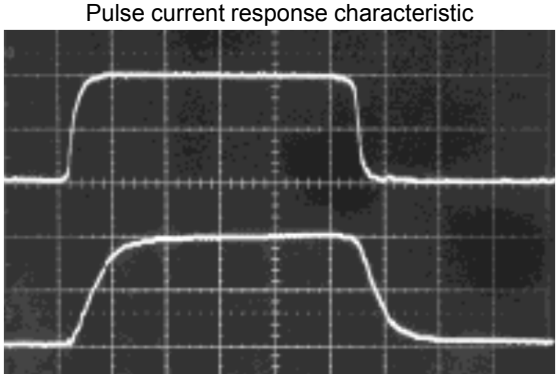
Note1) The indicated rated output is the one when no load is applied.

Note2) The indicated residual output is the one after the core hysteresis is removed.

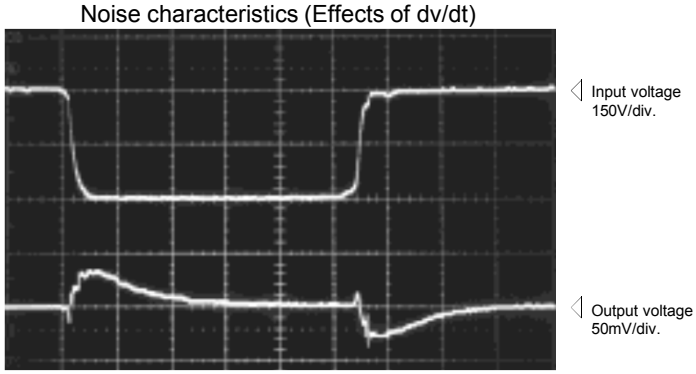
Characteristics chart

HC-WT100V4B15 Time base: 5μs/div.

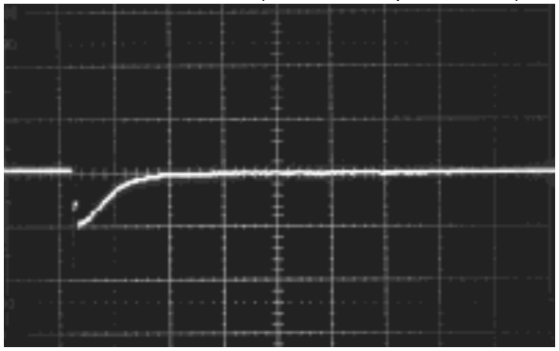
Pulse current response characteristic



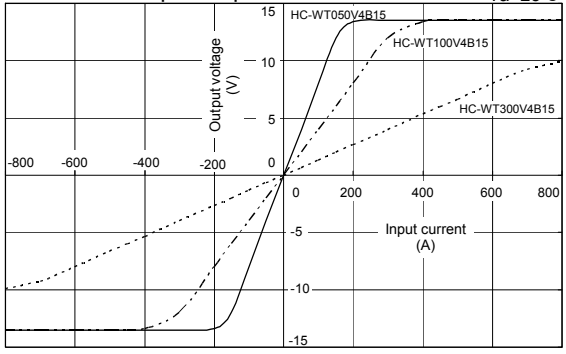
Noise characteristics (Effects of dv/dt)



Noise characteristics (Effects of impulse noise)



Input/output characteristics Ta=25℃



Note: The marks " ◁ " means 0V or 0A.

HC-VT series

Small-sized, medium current range
Bolt on type

HC-VT

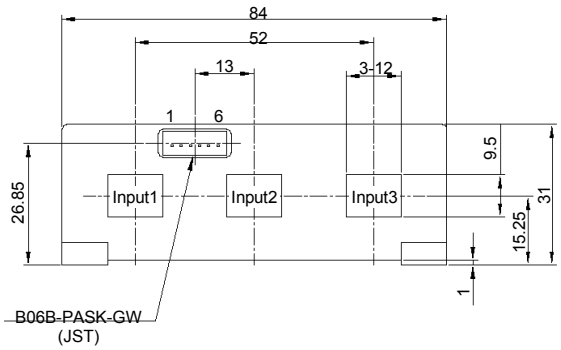
- Rated current 50A ~ 300A
- Superior noise-resistance
- Three circuits can be measured at the same time
- Ferrite core specification also available (Rated current 50A ~ 100A)

Applications

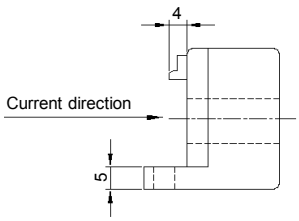
Inverters, Power supply equipment, NC machine tools

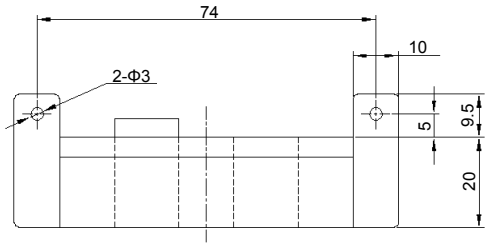
Dimensions

(mm)



Supported connector housing
PAP-06V-S (JST)
PARP-06V (JST)





Terminal No.
1 - (+) terminal
2 - GND
3 - (-) terminal
4 - Output1
5 - Output2
6 - Output3

Weight : 78g

General tolerance: ±0.5

Specification

Ta=25℃

Type		HC-VT050V4B15	HC-VT100V4B15	HC-VT150V4B15	HC-VT200V4B15	HC-VT300V4B15
Rated current	[If]	±50A	±100A	±150A	±200A	±300A
Saturation current	[Is]	±150A	±300A	±450A	±600A	±600A
Linearity limits		0~±150A	0~±300A	0~±400A	0~±400A	0~±400A
Rated output	+If	V0+4V±1% (RL=10kΩ)				
	-If	V0-4V±1% (RL=10kΩ)				
Residual output	[Vo]	Within ±70mV	Within ±50mV			
Output linearity		Within ±1%				
Response time		Within 10μs (The smaller one on either at di/dt = 100A/μs or If/μs.)				
Response performance		Within 10%				
Hysteresis voltage range		Within 200mV				
Output Temp. Coef.		Within ±0.1%/℃				
Residual output Temp. Coef.		Within	Within ±3mV/℃		Within ±2mV/℃	
Control power supply		±15V±5%				
Consumption current		Within 60mA				
Operating Temp.		-10℃~+80℃				
Storage Temp.		-15℃~+85℃				
Dielectric withstand voltage		2500V AC 50/60Hz 1minute				
Insulation resistance		Not less than 500MΩ 500V DC				

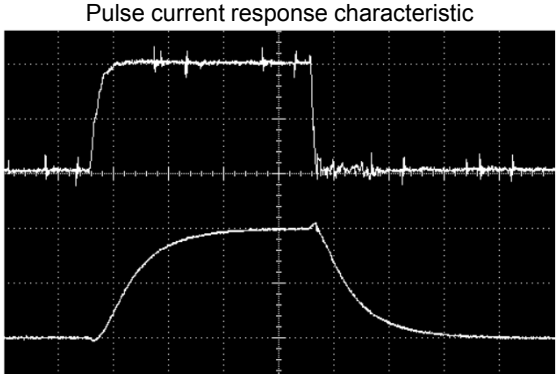
Note1) The indicated residual output is the one after the core hysteresis is removed.

Characteristics chart

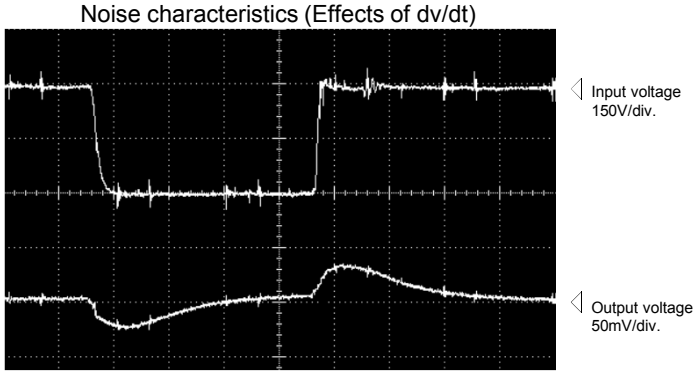
HC-VT100V4B15

Time base: 5μs/div.

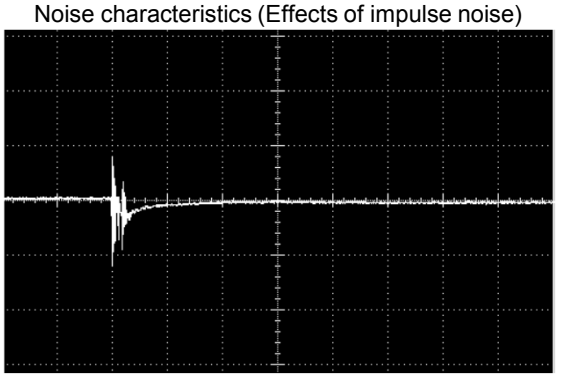
Pulse current response characteristic



Noise characteristics (Effects of dv/dt)

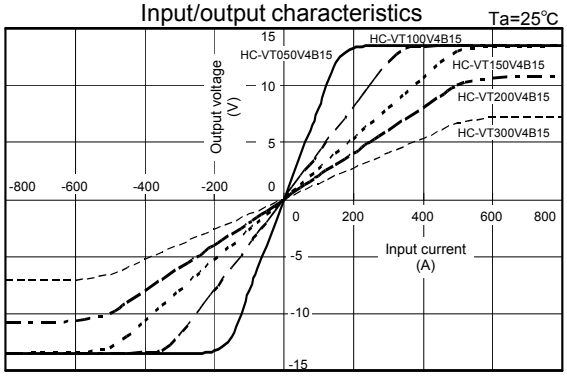


Noise characteristics (Effects of impulse noise)



Input/output characteristics

Ta=25℃

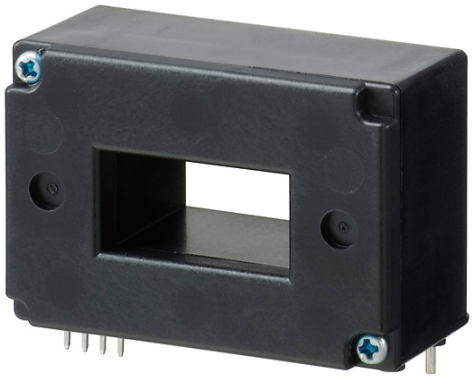


Note: The marks " ◁ " means 0V or 0A.

HC-PZ series

Small-sized, medium current range
PCB-mounting type

HC-PZ



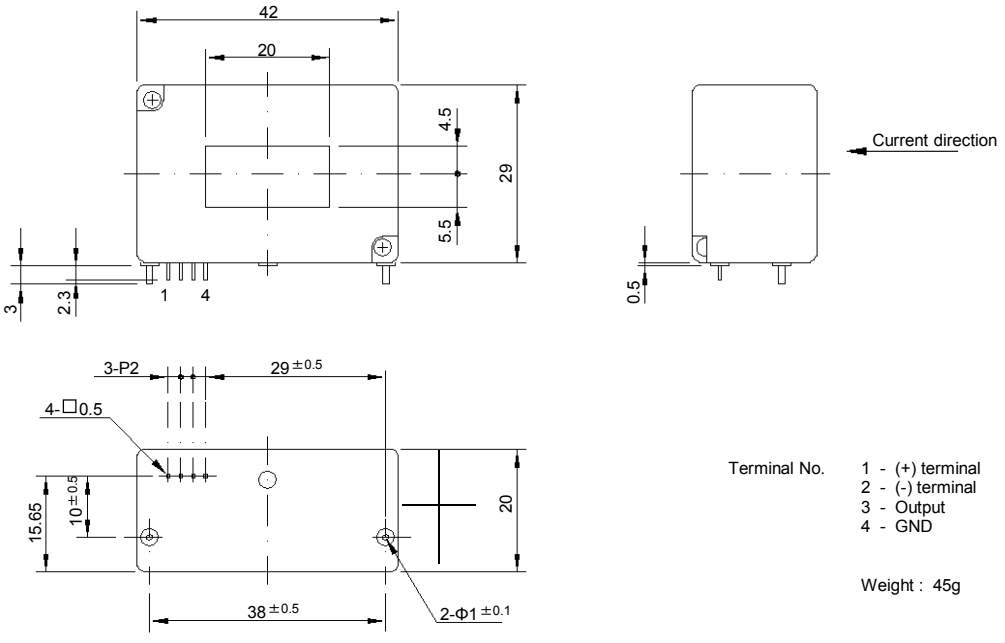
- Rated current 50A ~ 800A
- Models available from low-to medium-capacity
- Single-power supplies also available

Applications

Inverters, Power supply equipment, NC machine tools

Dimensions

(mm)



Terminal No.
1 - (+) terminal
2 - (-) terminal
3 - Output
4 - GND

Weight : 45g

General tolerance: ±0.5

Specification

Ta=25℃

Type		HC-PZ050V4B15	HC-PZ100V4B15	HC-PZ300V4B15	HC-PZ600V4B15	HC-PZ800V4B15
Rated current	[If]	±50A	±100A	±300A	±600A	±800A
Saturation current	[Is]	±150A	±300A	±900A	±1000A	±1000A
Linearity limits		0~±150A	0~±300A	0~±700A	0~±800A	0~±800A
Rated output	[Vh]	±4V±1%				
Residual output	[Vo]	Within ±50mV				
Output linearity		Within ±1%				
Response time		Within 10μs (The smaller one on either at di/dt = 100A/μs or If/μs.)				
Response performance		Within 10%				
Hysteresis voltage range		Within 200mV				
Output Temp. Coef.		Within ±0.1%/℃				
Residual output Temp. Coef.		Within ±4mV/℃	Within ±2mV/℃	Within ±1mV/℃		
Control power supply		±15V±5%				
Consumption current		Within 30mA				
Operating Temp.		-10℃~+80℃				
Storage Temp.		-15℃~+85℃				
Dielectric withstand voltage		2500V AC 50/60Hz 1minute				
Insulation resistance		Not less than 500MΩ 500V DC				

Note1) The indicated rated output is the one when no load is applied.

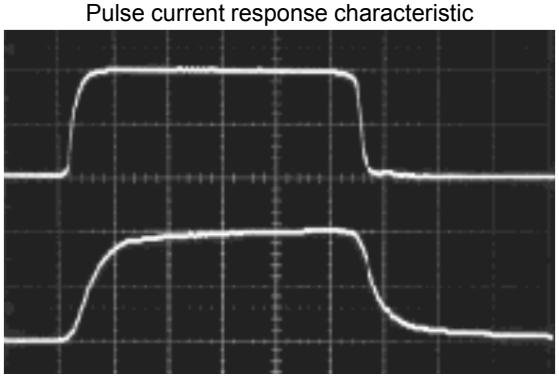
Note2) The indicated residual output is the one after the core hysteresis is removed.

Characteristics chart

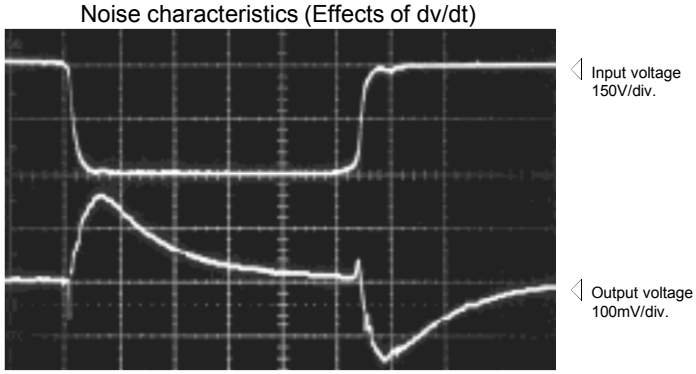
HC-PZ100V4B15

Time base: 5μs/div.

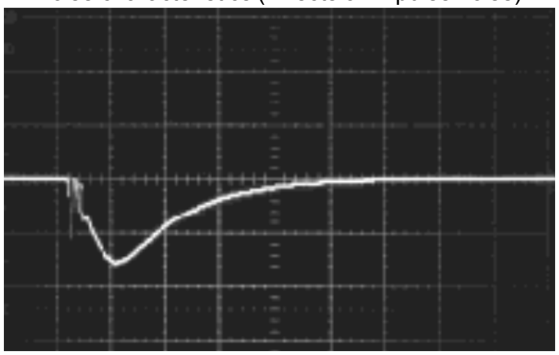
Pulse current response characteristic



Noise characteristics (Effects of dv/dt)

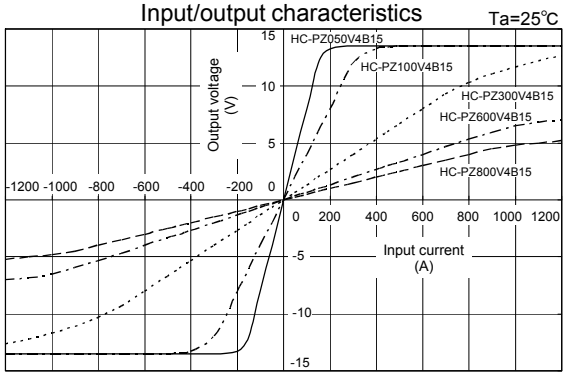


Noise characteristics (Effects of impulse noise)



Input/output characteristics

Ta=25℃



Note: The marks " ◁ " means 0V or 0A.

HC-PT

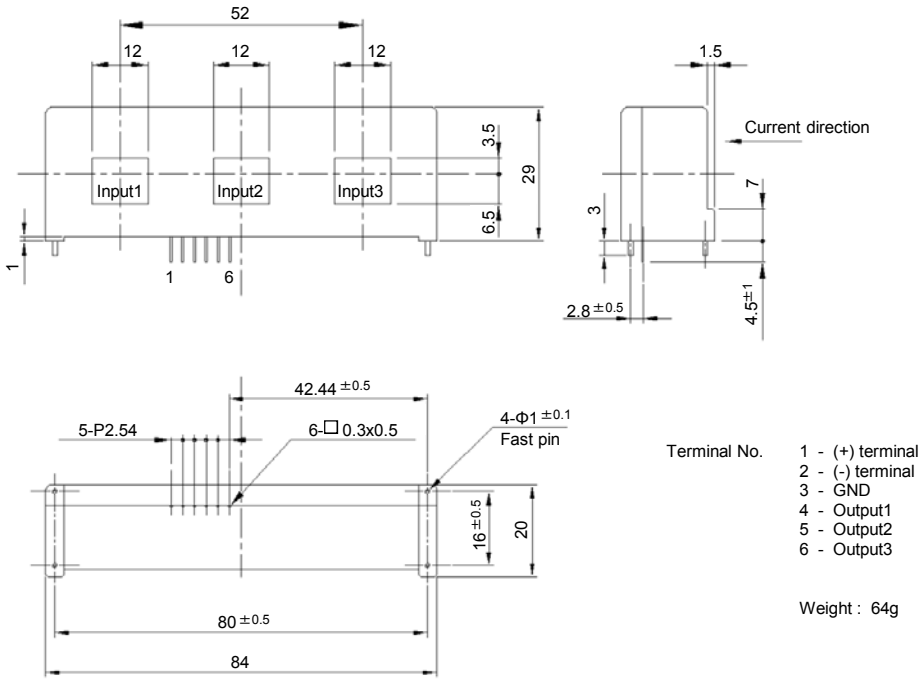
- Rated current 50A ~ 300A
- Three circuits can be measured at the same time
- Ferrite core specification also available (Rated current 50A ~ 100A)
- Single-power supplies also available

Applications

Inverters, Power supply equipment, NC machine tools

Dimensions

(mm)



Terminal No.
1 - (+) terminal
2 - (-) terminal
3 - GND
4 - Output1
5 - Output2
6 - Output3

Weight : 64g

General tolerance: ±0.5

Specification

Ta=25℃

Type		HC-PT050V4B15	HC-PT100V4B15	HC-PT150V4B15	HC-PT200V4B15	HC-PT300V4B15
Rated current	[If]	±50A	±100A	±150A	±200A	±300A
Saturation current	[Is]	±150A	±300A	±450A	±600A	±600A
Linearity limits		0~±150A	0~±300A	0~±400A	0~±400A	0~±400A
Rated output	[Vh]	±4V±1%				
Residual output	[Vo]	Within ±50mV				
Output linearity		Within ±1%				
Response time		Within 10μs (The smaller one on either at di/dt = 100A/μs or If/μs.)				
Response performance		Within 10%				
Hysteresis voltage range		Within 200mV				
Output Temp. Coef.		Within ±0.1%/℃				
Residual output Temp. Coef.		Within ±4mV/℃	Within ±3mV/℃		Within ±2mV/℃	
Control power supply		±15V±5%				
Consumption current		Within 60mA				
Operating Temp.		-10℃~+80℃				
Storage Temp.		-15℃~+85℃				
Dielectric withstand voltage		2500V AC 50/60Hz 1minute				
Insulation resistance		Not less than 500MΩ 500V DC				

Note1) The indicated rated output is the one when no load is applied.

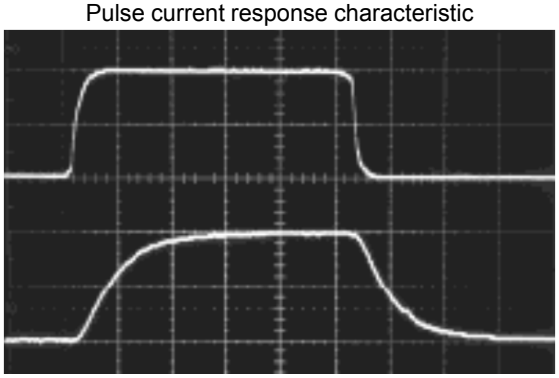
Note2) The indicated residual output is the one after the core hysteresis is removed.

Characteristics chart

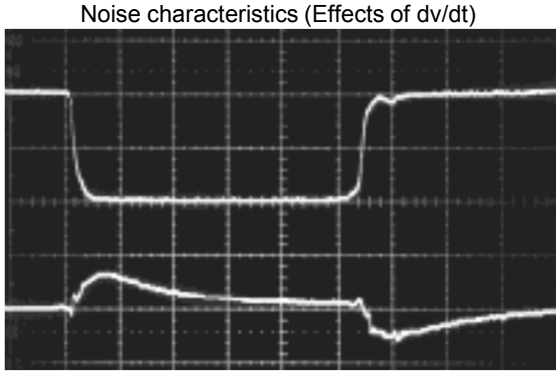
HC-PT100V4B15

Time base: 5μs/div.

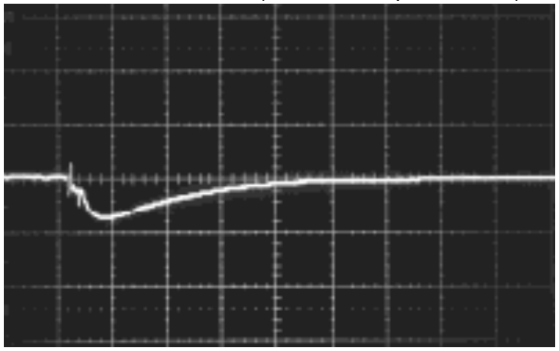
Pulse current response characteristic



Noise characteristics (Effects of dv/dt)

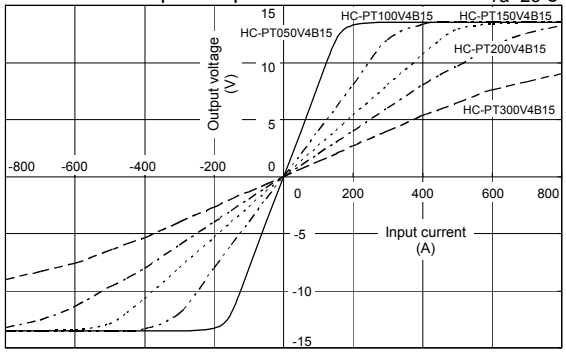


Noise characteristics (Effects of impulse noise)



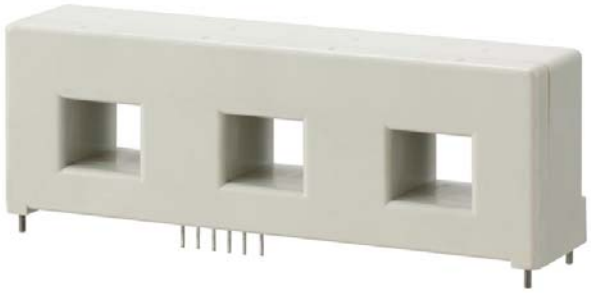
Input/output characteristics

Ta=25℃



Note: The marks " ◁ " means 0V or 0A.

HC-PTW



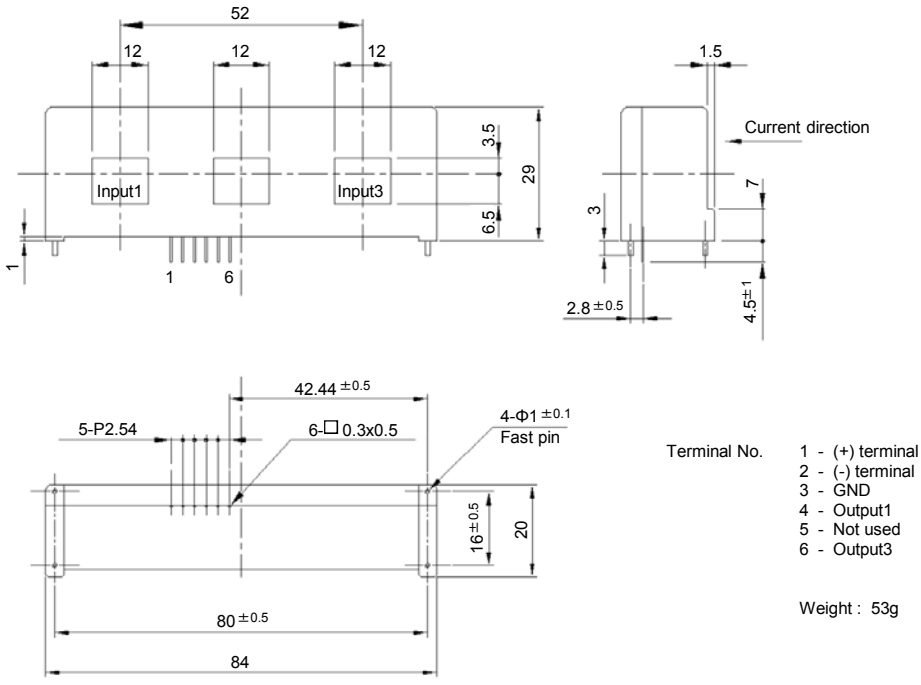
- Rated current 50A ~ 300A
- Two circuits can be measured at the same time
- Ferrite core specification also available (Rated current 50A ~ 100A)
- Single-power supplies also available

Applications

Inverters, Power supply equipment, NC machine tools

Dimensions

(mm)



Terminal No.
1 - (+) terminal
2 - (-) terminal
3 - GND
4 - Output1
5 - Not used
6 - Output3

Weight : 53g

General tolerance: ±0.5

Specification

Ta=25℃

Type		HC-PTW050V4B15	HC-PTW100V4B15	HC-PTW150V4B15	HC-PTW200V4B15	HC-PTW300V4B15
Rated current	[If]	±50A	±100A	±150A	±200A	±300A
Saturation current	[Is]	±150A	±300A	±450A	±600A	±600A
Linearity limits		0~±150A	0~±300A	0~±400A	0~±400A	0~±400A
Rated output	[Vh]	±4V±1%				
Residual output	[Vo]	Within ±50mV				
Output linearity		Within ±1%				
Response time		Within 10μs (The smaller one on either at di/dt = 100A/μs or If/μs.)				
Response performance		Within 10%				
Hysteresis voltage range		Within 200mV				
Output Temp. Coef.		Within ±0.1%/℃				
Residual output Temp. Coef.		Within ±4mV/℃	Within ±3mV/℃		Within ±2mV/℃	
Control power supply		±15V±5%				
Consumption current		Within 40mA				
Operating Temp.		-10℃~+80℃				
Storage Temp.		-15℃~+85℃				
Dielectric withstand voltage		2500V AC 50/60Hz 1minute				
Insulation resistance		Not less than 500MΩ 500V DC				

Note1) The indicated rated output is the one when no load is applied.

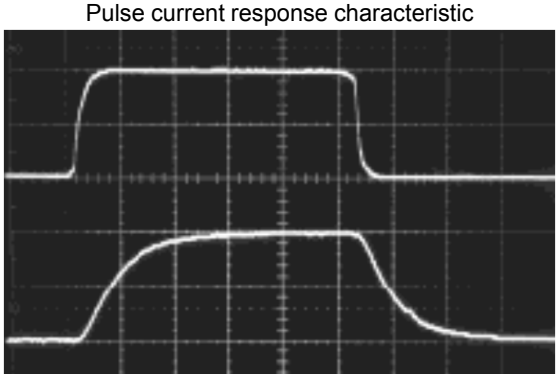
Note2) The indicated residual output is the one after the core hysteresis is removed.

Characteristics chart

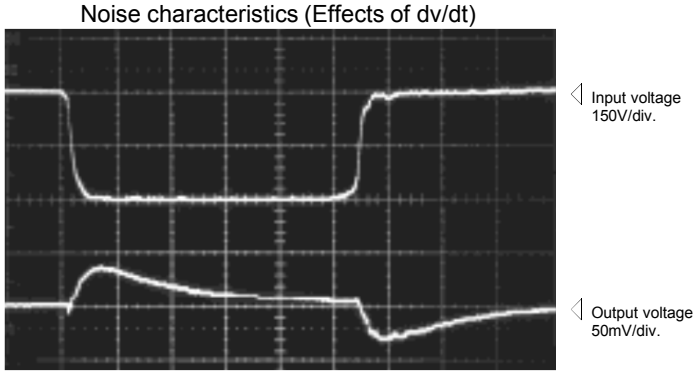
HC-PTW100V4B15

Time base: 5μs/div.

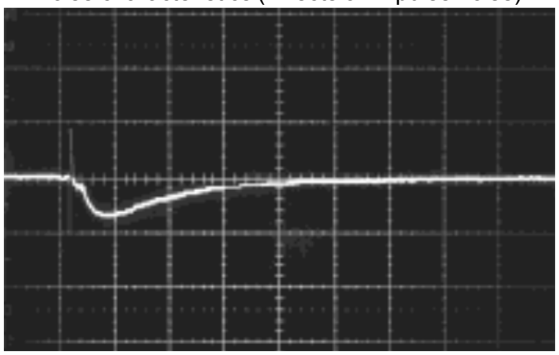
Pulse current response characteristic



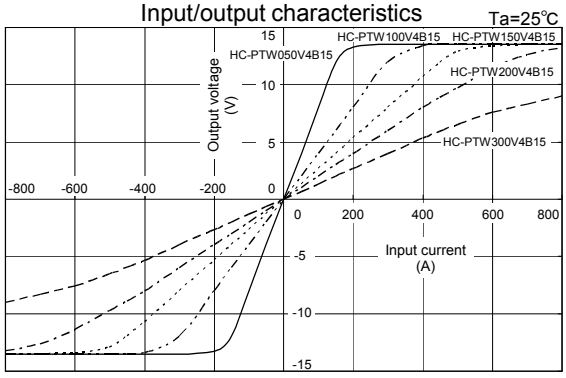
Noise characteristics (Effects of dv/dt)



Noise characteristics (Effects of impulse noise)



Input/output characteristics



Note: The marks " ◁ " means 0V or 0A.

HC-PG series

Small-sized, medium current range
PCB-mounting type

HC-PG

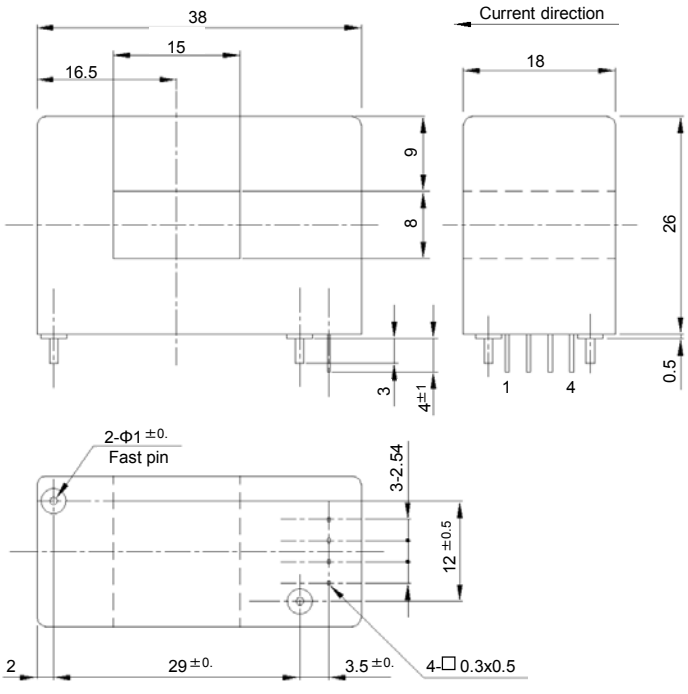
- Rated current 50A ~ 300A
- Superior noise-resistance
- Ferrite core specification also available
  (Rated current 50A ~ 100A)
- Single-power supplies also available

Applications

Inverters, Power supply equipment, NC machine tools

Dimensions

(mm)



Terminal No.
1 - (-) terminal
2 - GND
3 - (+) terminal
4 - Output

Weight : 38g

General tolerance: ±0.5

Specification

Ta=25℃

Type		HC-PG050V4B15	HC-PG100V4B15	HC-PG150V4B15	HC-PG200V4B15	HC-PG300V4B15
Rated current	[If]	±50A	±100A	±150A	±200A	±300A
Saturation current	[Is]	±150A	±300A	±450A	±600A	±900A
Linearity limits		0~±150A	0~±300A	0~±450A	0~±500A	0~±700A
Rated output	[Vh]	±4V±1%				
Residual output	[Vo]	Within ±50mV				
Output linearity		Within ±1%				
Response time		Within 10μs (The smaller one on either at di/dt = 100A/μs or If/μs.)				
Response performance		Within 10%				
Hysteresis voltage range		Within 100mV				
Output Temp. Coef.		Within ±0.1%/℃				
Residual output Temp. Coef.		Within ±4mV/℃	Within ±3mV/℃		Within ±2mV/℃	
Control power supply		±15V±5%				
Consumption current		Within 30mA				
Operating Temp.		-10℃~+80℃				
Storage Temp.		-15℃~+85℃				
Dielectric withstand voltage		2500V AC 50/60Hz 1minute				
Insulation resistance		Not less than 500MΩ 500V DC				

Note1) The indicated rated output is the one when no load is applied.

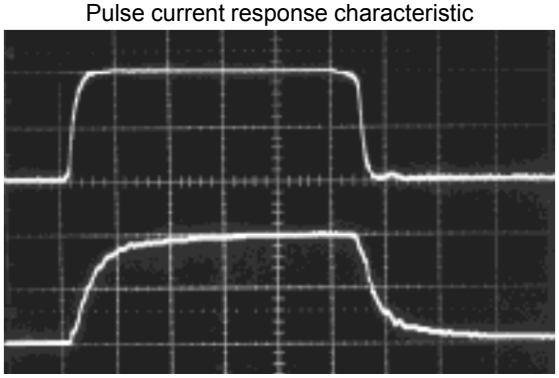
Note2) The indicated residual output is the one after the core hysteresis is removed.

Characteristics chart

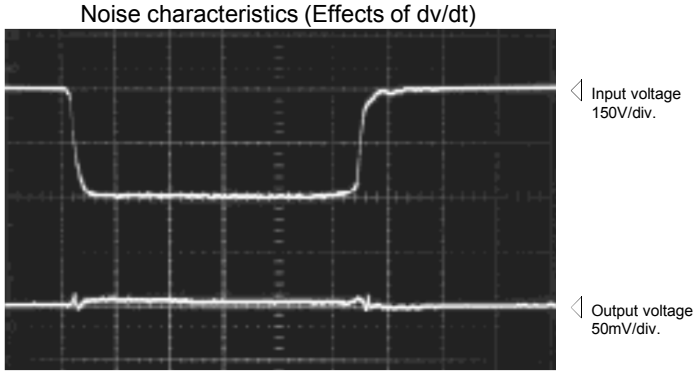
HC-PG100V4B15

Time base: 5μs/div.

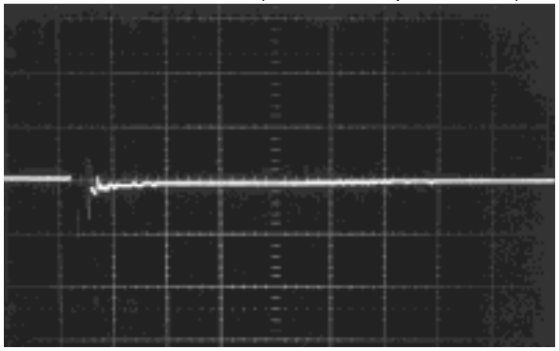
Pulse current response characteristic



Noise characteristics (Effects of dv/dt)

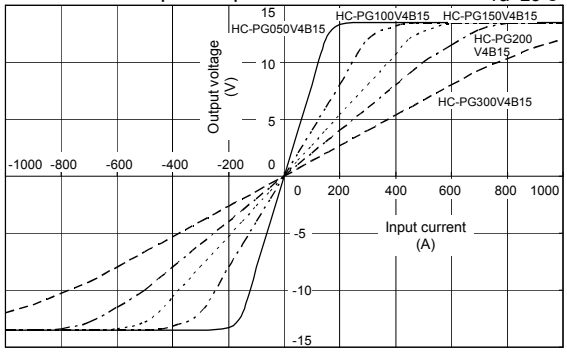


Noise characteristics (Effects of impulse noise)



Input/output characteristics

Ta=25℃



Note: The marks " ◁ " means 0V or 0A.

HC-PJ

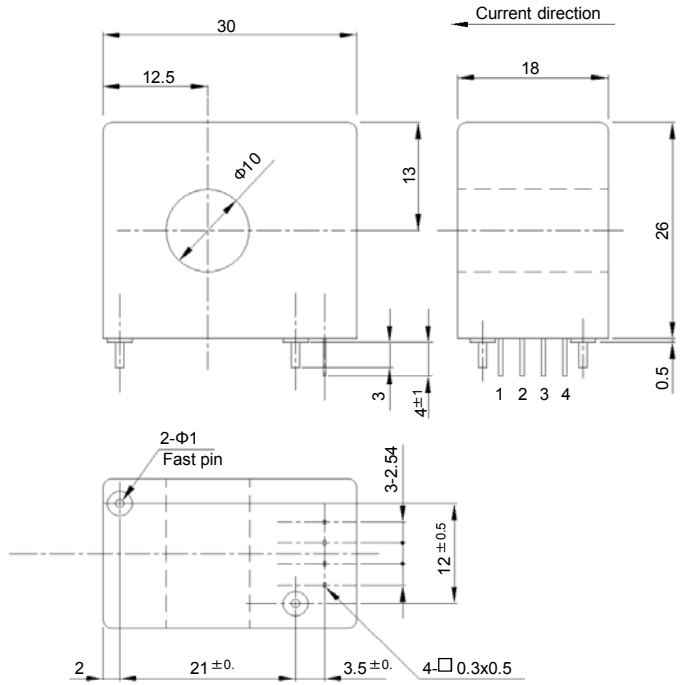
- Rated current 50A ~ 200A
- Superior noise-resistance
- Ferrite core specification also available
  (Rated current 50A ~ 100A)
- Single-power supplies also available

Applications

Inverters, Power supply equipment, NC machine tools

Dimensions

(mm)



Terminal No.
1 - (-) terminal
2 - GND
3 - (+) terminal
4 - Output

Weight : 21g

General tolerance: ±0.5

Specification

Ta=25℃

Type		HC-PJ050V4B15	HC-PJ100V4B15	HC-PJ150V4B15	HC-PJ200V4B15
Rated current	[If]	±50A	±100A	±150A	±200A
Saturation current	[Is]	±150A	±300A	±450A	±600A
Linearity limits		0~±150A	0~±300A	0~±450A	0~±500A
Rated output	[Vh]	±4V±1%			
Residual output	[Vo]	Within ±50mV			
Output linearity		Within ±1%			
Response time		Within 10μs (The smaller one on either at di/dt = 100A/μs or If/μs.)			
Response performance		Within 10%			
Hysteresis voltage range		Within 100mV			
Output Temp. Coef.		Within ±0.1%/℃			
Residual output Temp. Coef.		Within ±4mV/℃	Within ±3mV/℃		Within ±2mV/℃
Control power supply		±15V±5%			
Consumption current		Within 30mA			
Operating Temp.		-10℃~+80℃			
Storage Temp.		-15℃~+85℃			
Dielectric withstand voltage		2500V AC 50/60Hz 1minute			
Insulation resistance		Not less than 500MΩ 500V DC			

Note1) The indicated rated output is the one when no load is applied.

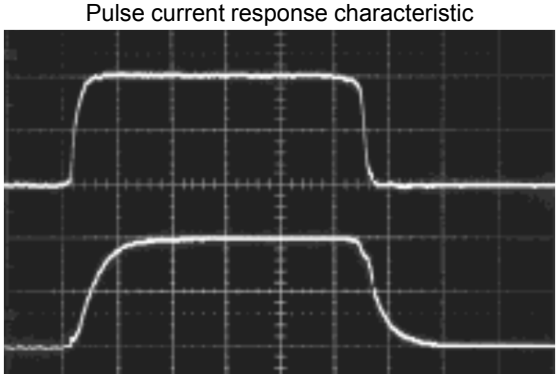
Note2) The indicated residual output is the one after the core hysteresis is removed.

Characteristics chart

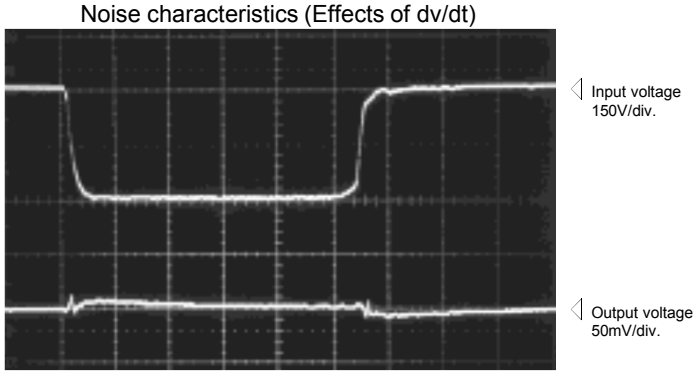
HC-PJ100V4B15

Time base: 5μs/div.

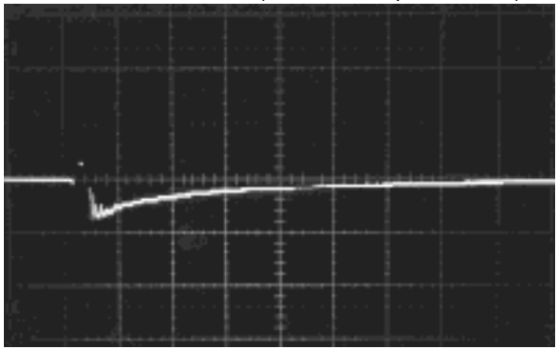
Pulse current response characteristic



Noise characteristics (Effects of dv/dt)

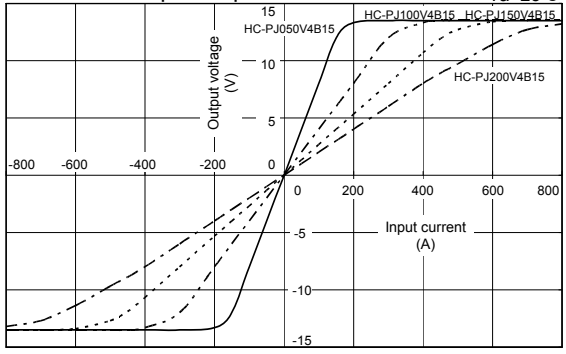


Noise characteristics (Effects of impulse noise)



Input/output characteristics

Ta=25℃



Note: The marks " ◁ " means 0V or 0A.

HC-PVT series

Small-sized, small current range
PCB-mounting type

HC-PVT

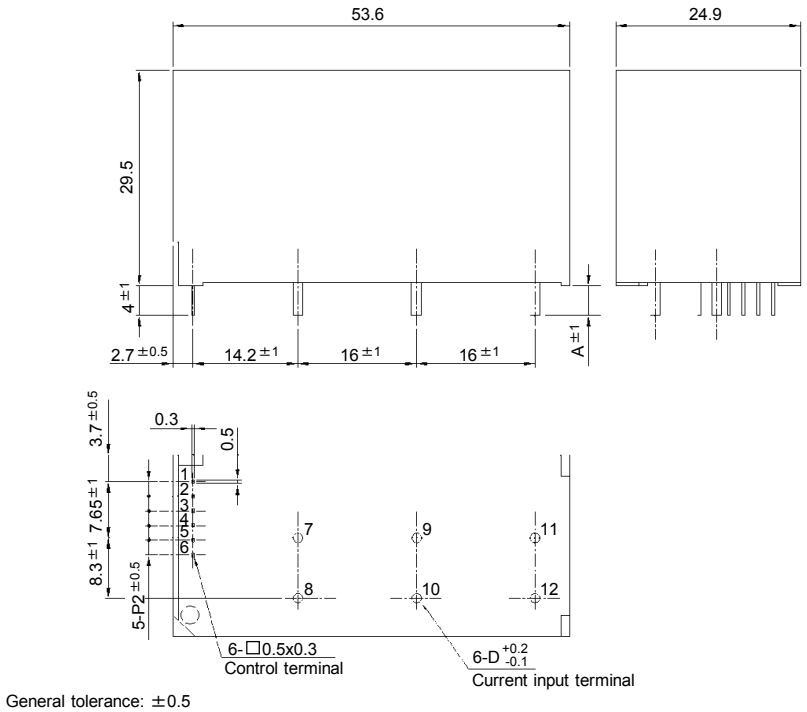
- Rated current 10A ~ 50A
- Well isolated for European Standards
- Three circuits can be measured at the same time

Applications

Inverters, Servo drivers, Power supply equipment, Uninterruptible power supply (UPS)

Dimensions

(mm)



General tolerance: ±0.5

Dimensions of Current Input Terminals

Size of primary winding	Width D	Width A
Φ0.8	Φ0.8	4
Φ1.0	Φ1.0	4
Φ1.3	Φ1.3	4
Φ1.6	Φ1.6	4

Terminal No.

1 - (+) terminal
2 - (-) terminal
3 - GND
4 - Output1
5 - Output2
6 - Output3
7 - (+) input1
8 - (-) input1
9 - (+) input2
10 - (-) input2
11 - (+) input3
12 - (-) input3

Weight : 50g

Specification

Ta=25℃

Type	HC-PVT10V4B15	HC-PVT20V4B15	HC-PVT30V4B15	HC-PVT50V4B15
Rated current [If]	±10A	±20A	±30A	±50A
Continuously flowing DC current	±13.8A	±13.8A	±23.3A	±35.4A
Saturation current [Is]	±27.6A	±46A	±69A	±138A
Linearity limits	0~±20A	0~±33.3A	0~±50A	0~±100A
Size of primary winding	Φ1.0	Φ1.0	Φ1.3	Φ1.6
Turns	5	3	2	1
Rated output [Vh]	V0±4V±2% (RL=10kΩ)			
Residual output [Vo]	Within ±100mV			
Output linearity	Within ±1%			
Response time	Within 10μs (at di/dt=If/μs)			
Response performance	Within 10%			
Hysteresis voltage range	Within 100mV			
Output Temp. Coef.	Within ±0.1%/℃			
Residual output Temp. Coef.	Within ±3mV/℃			
Control power supply	±15V±5%			
Consumption current	Within 60mA			
Operating Temp.	-10℃~+80℃			
Storage Temp.	-15℃~+85℃			
Dielectric withstand voltage	2500V AC 50/60Hz 1minute			
Insulation resistance	Not less than 500MΩ 500V DC			

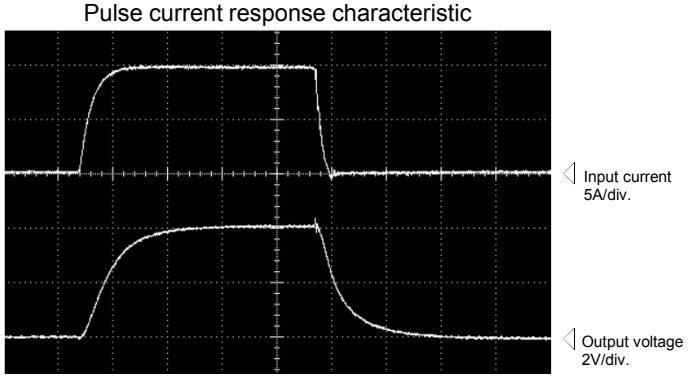
Note1) The indicated residual output is the one after the core hysteresis is removed.

Characteristics chart

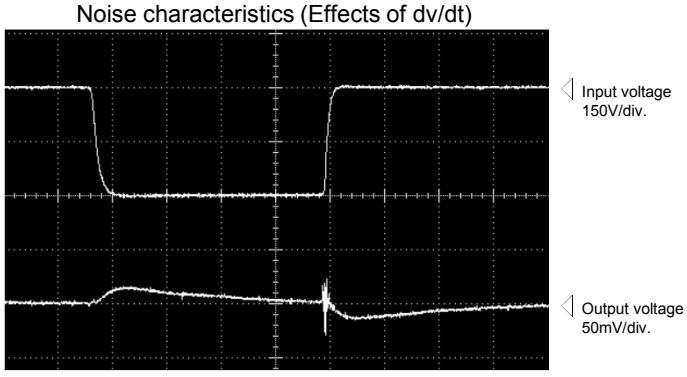
HC-PVT10V4B15

Time base: 5μs/div.

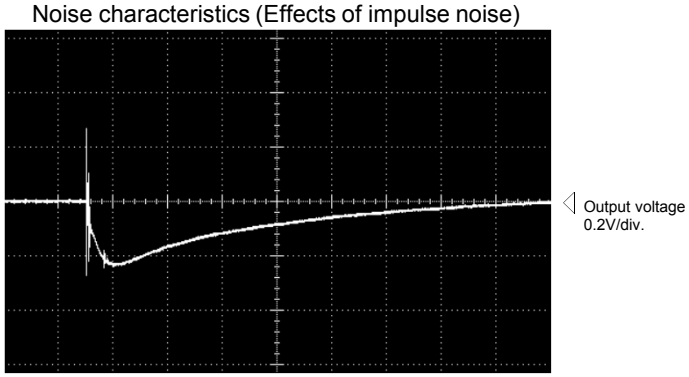
Pulse current response characteristic



Noise characteristics (Effects of dv/dt)

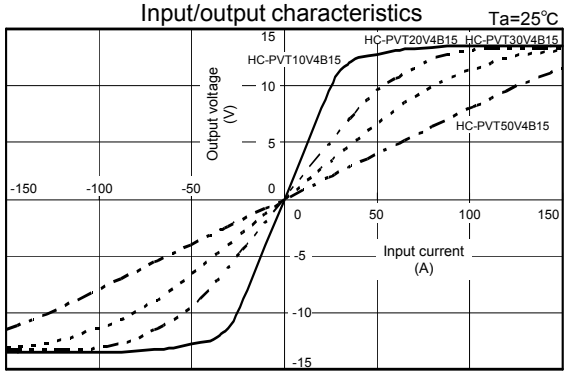


Noise characteristics (Effects of impulse noise)



Input/output characteristics

Ta=25℃



Note: The marks " ◁ " means 0V or 0A.

HC-PSG

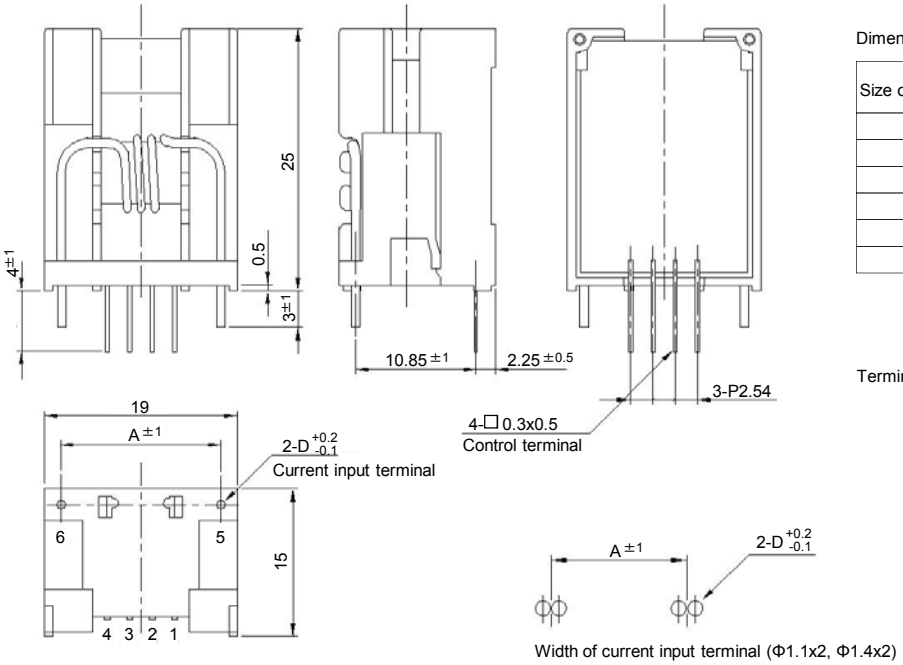
- Rated current 1A ~ 50A
- Superior noise-resistance
- Models available from 1A
- Single-power supplies also available

Applications

Inverters, Servo drivers, Power supply equipment, Uninterruptible power supply (UPS)

Dimensions

(mm)



Width of current input terminal (Φ1.1x2, Φ1.4x2)

Dimensions of Current Input Terminals

Size of primary winding	Width D	Width A
Φ0.4	Φ1.3	15.7
Φ0.8	Φ0.8	15.7
Φ1.0	Φ1.0	15.7
Φ1.3	Φ1.3	15.7
Φ1.1 x 2	Φ1.1 x 2	14.3
Φ1.4 x 2	Φ1.4 x 2	14.3

Terminal No.
1 - (-) terminal
2 - GND
3 - (+) terminal
4 - Output
5 - (+) input
6 - (-) input

Weight : 8g

General tolerance: ±0.5

Specification

Ta=25℃

Type	HC-PSG01V4B15	HC-PSG05V4B15	HC-PSG10V4B15	HC-PSG20V4B15	HC-PSG30V4B15	HC-PSG50V4B15
Rated current [If]	±1A	±5A	±10A	±20A	±30A	±50A
Continuously flowing DC current	±2.2A	±8.8A	±13.8A	±23.3A	±33.4A	±54.1A
Saturation current [Is]	±3A	±15A	±30A	±45A	±90A	±90A
Linearity limits	0~±2.5A	0~±12.5A	0~±25A	0~±37.5A	0~±75A	0~±75A
Size of primary winding	Φ0.4	Φ0.8	Φ1.0	Φ1.3	Φ1.1 x 2	Φ1.4 x 2
Turns	30	6	3	2	1	1
Rated output [Vh]	±4V±2% (RL=10kΩ)					
Residual output [Vo]	Within ±100mV					
Output linearity	Within ±1%					
Response time	Within 10μs (at di/dt=If/μs)					
Response performance	Within 10%					
Hysteresis voltage range	Within 100mV					
Output Temp. Coef.	Within ±0.1%/℃					
Residual output Temp. Coef.	Within ±6mV/℃					
Control power supply	±15V±5%					
Consumption current	Within 30mA					
Operating Temp.	-10℃~+80℃					
Storage Temp.	-15℃~+85℃					
Dielectric withstand voltage	2500V AC 50/60Hz 1minute					
Insulation resistance	Not less than 500MΩ 500V DC					

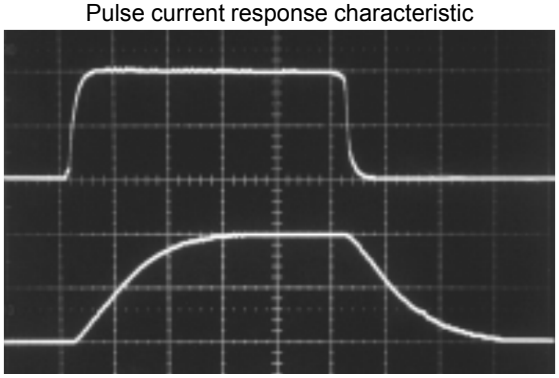
Note1) The indicated residual output is the one after the core hysteresis is removed.

Characteristics chart

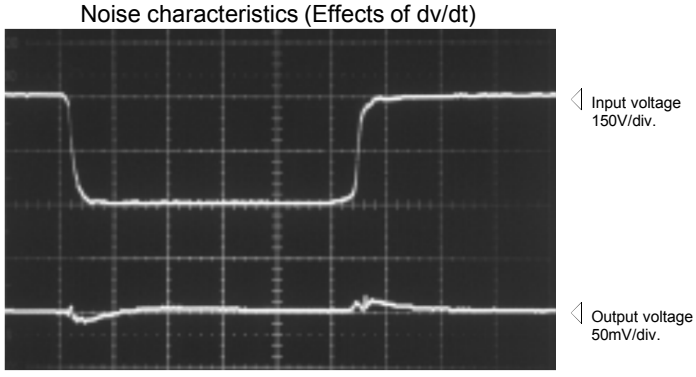
HC-PSG05V4B15

Time base: 5μs/div.

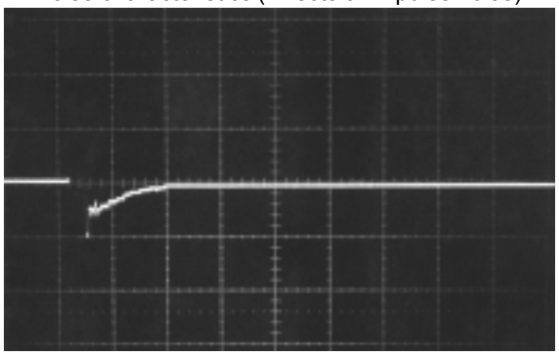
Pulse current response characteristic



Noise characteristics (Effects of dv/dt)

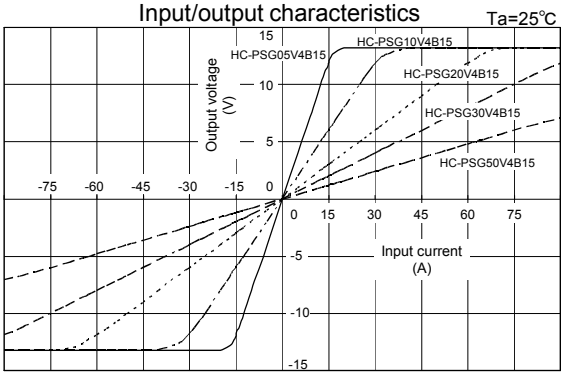


Noise characteristics (Effects of impulse noise)



Input/output characteristics

Ta=25℃



Note: The marks " ◁ " means 0V or 0A.

HC-PSE

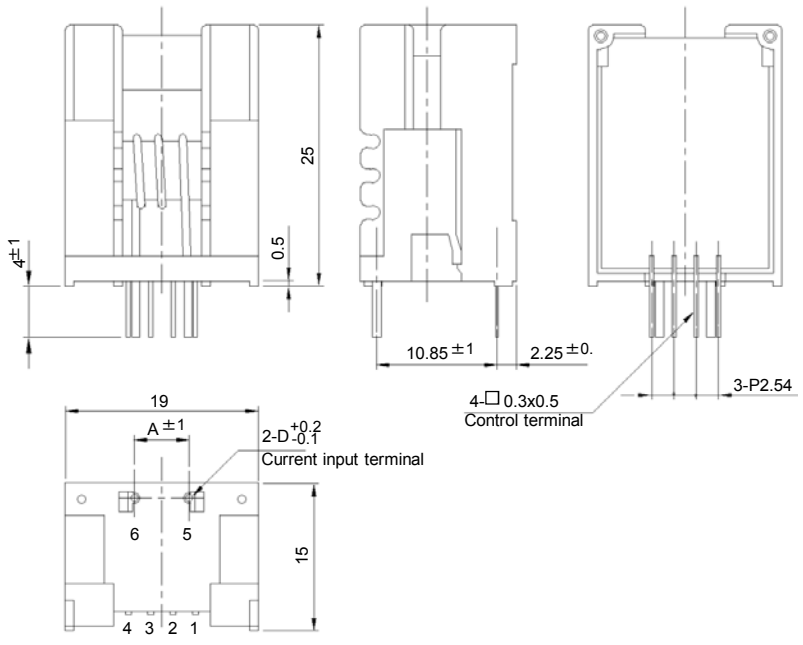
- Rated current 5A ~ 50A
- Well isolated for European Standards
- Superior noise-resistance
- Single-power supplies also available

Applications

Inverters, Servo drivers, Power supply equipment, Uninterruptible power supply (UPS)

Dimensions

(mm)



Dimensions of Current Input Terminals

Size of primary winding	Width D	Width A
Φ0.8	Φ0.8	5.7
Φ1.0	Φ1.0	5.7
Φ1.3	Φ1.3	5.7
Φ1.6	Φ1.6	5.2

Terminal No.
1 - (-) terminal
2 - GND
3 - (+) terminal
4 - Output
5 - (+) input
6 - (-) input

Weight : 8g

General tolerance: ±0.5

Specification

Ta=25℃

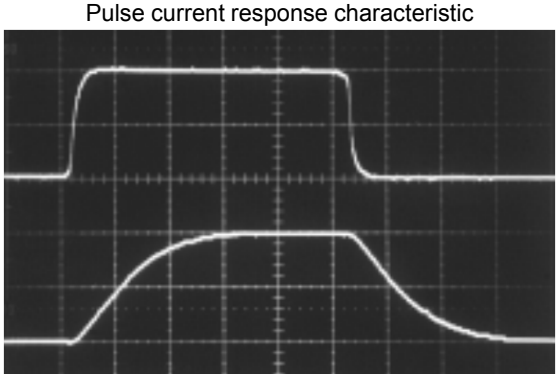
Type	HC-PSE05V4B15	HC-PSE10V4B15	HC-PSE20V4B15	HC-PSE30V4B15	HC-PSE50V4B15
Rated current [If]	±5A	±10A	±20A	±30A	±50A
Continuously flowing DC current	±8.8A	±13.8A	±23.3A	±23.3A	±35.4A
Saturation current [Is]	±15A	±30A	±45A	±90A	±90A
Linearity limits	0~±12.5A	0~±25A	0~±37.5A	0~±75A	0~±75A
Size of primary winding	Φ0.8	Φ1.0	Φ1.3	Φ1.3	Φ1.6
Turns	6	3	2	1	1
Rated output [Vh]	±4V±2% (RL=10kΩ)				
Residual output [Vo]	Within ±100mV				
Output linearity	Within ±1%				
Response time	Within 10μs (at di/dt=If/μs)				
Response performance	Within 10%				
Hysteresis voltage range	Within 100mV				
Output Temp. Coef.	Within ±0.1%/℃				
Residual output Temp. Coef.	Within ±6mV/℃				
Control power supply	±15V±5%				
Consumption current	Within 30mA				
Operating Temp.	-10℃~+80℃				
Storage Temp.	-15℃~+85℃				
Dielectric withstand voltage	2500V AC 50/60Hz 1minute				
Insulation resistance	Not less than 500MΩ 500V DC				

Note1) The indicated residual output is the one after the core hysteresis is removed.

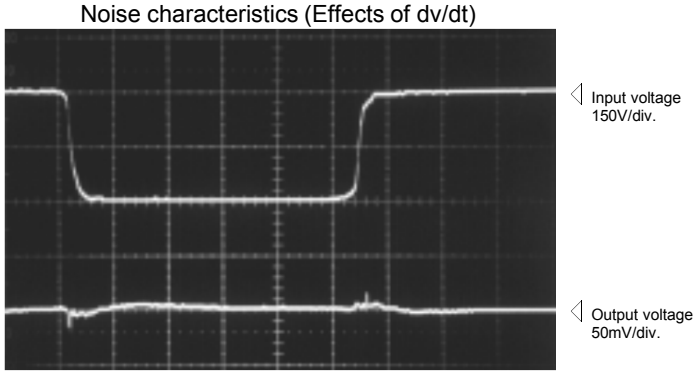
Characteristics chart

HC-PSE05V4B15 Time base: 5μs/div.

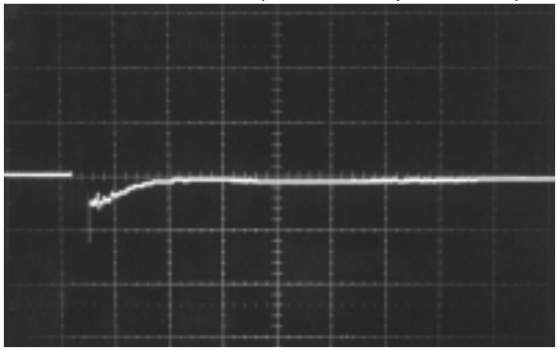
Pulse current response characteristic



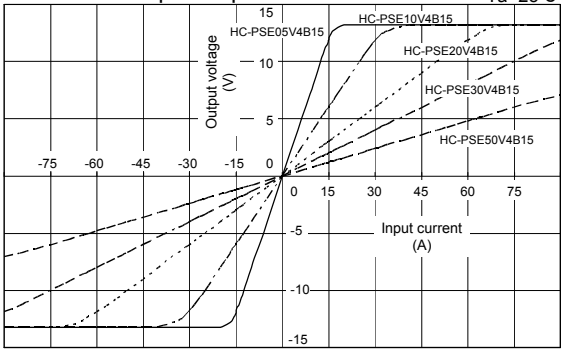
Noise characteristics (Effects of dv/dt)



Noise characteristics (Effects of impulse noise)

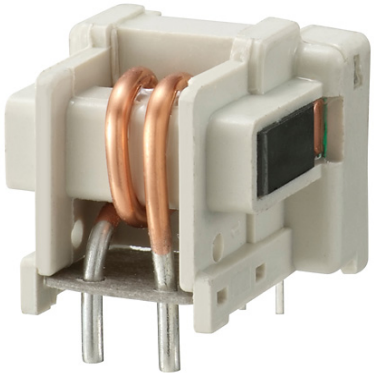


Input/output characteristics Ta=25℃



Note: The marks " ◁ " means 0V or 0A.

HC-PD



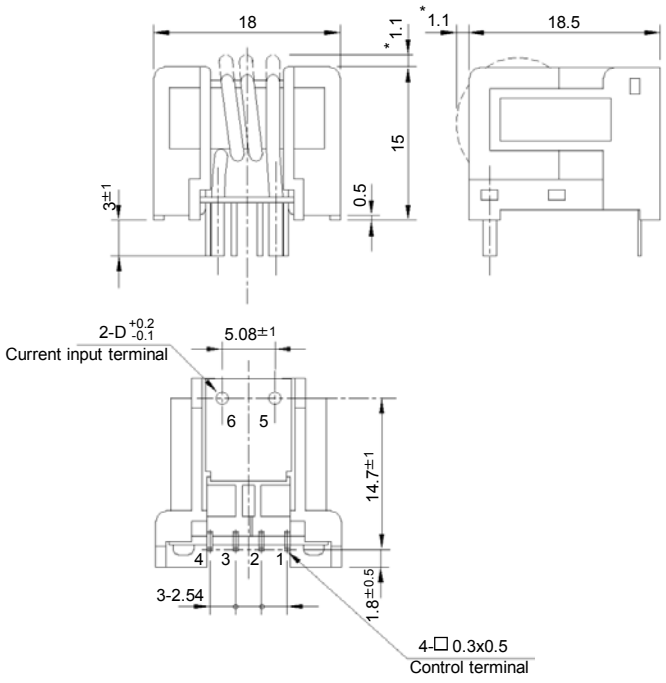
- Rated current 5A ~ 50A
- Reduced height compact design

Applications

Inverters, Servo drivers, NC machine tools

Dimensions

(mm)



General tolerance: ±0.5

Dimensions of Current Input Terminals

Size of primary winding	Width D
Φ0.8	Φ0.8
Φ1.3	Φ1.3
Φ1.6	Φ1.6

Note) The dimensions marked with * are protruded areas of the primary winding

Terminal No.
1 - (-) terminal
2 - GND
3 - (+) terminal
4 - Output
5 - (+) input
6 - (-) input

Weight : 6g

Specification

Ta=25℃

Type		HC-PD05V4B15	HC-PD10V4B15	HC-PD20V4B15	HC-PD30V4B15	HC-PD50V4B15
Rated current	[If]	±5A	±10A	±20A	±30A	±50A
Continuously flowing DC current		±8.8A	±23.3A	±23.3A	±35.4A	±35.4A
Saturation current	[Is]	±15A	±30A	±45A	±90A	±90A
Linearity limits		0~±12.5A	0~±25A	0~±37.5A	0~±75A	0~±75A
Size of primary winding		Φ0.8	Φ1.3	Φ1.3	Φ1.6	Φ1.6
Turns		6	3	2	1	1
Rated output	[Vh]	±4V±2% (RL=10kΩ)				
Residual output	[Vo]	Within ±100mV				
Output linearity		Within ±1%				
Response time		Within 10μs (at di/dt=If/μs)				
Response performance		Within 10%				
Hysteresis voltage range		Within 100mV				
Output Temp. Coef.		Within ±0.1%/℃				
Residual output Temp. Coef.		Within ±6mV/℃				
Control power supply		±15V±5%				
Consumption current		Within 30mA				
Operating Temp.		-10℃~+80℃				
Storage Temp.		-15℃~+85℃				
Dielectric withstand voltage		2500V AC 50/60Hz 1minute				
Insulation resistance		Not less than 500MΩ 500V DC				

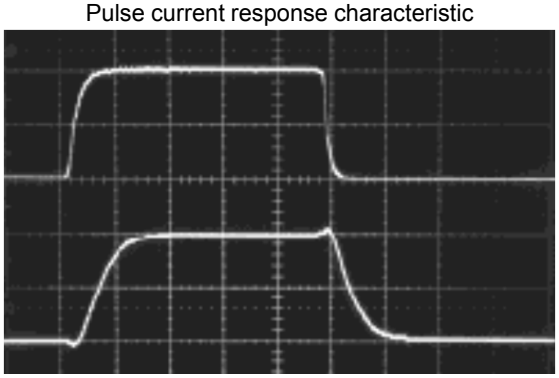
Note1) The indicated residual output is the one after the core hysteresis is removed.

Characteristics chart

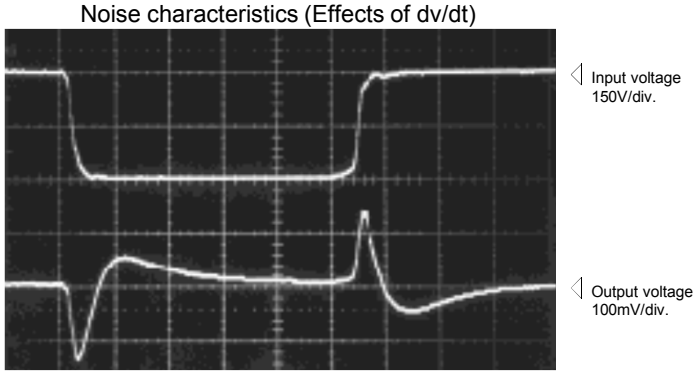
HC-PD05V4B15

Time base: 5μs/div.

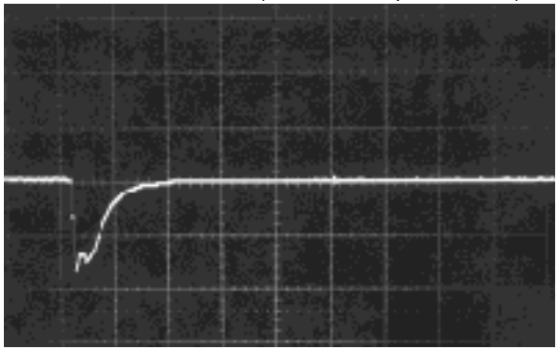
Pulse current response characteristic



Noise characteristics (Effects of dv/dt)

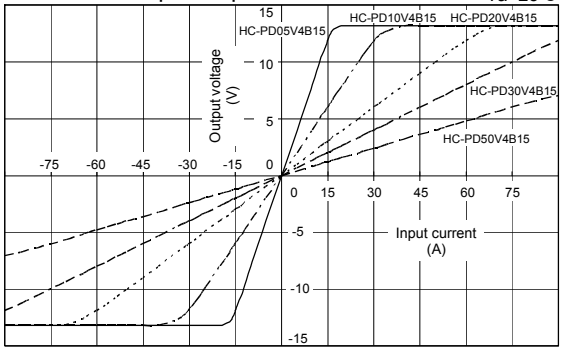


Noise characteristics (Effects of impulse noise)



Input/output characteristics

Ta=25℃

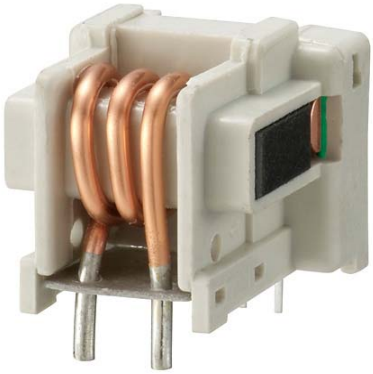


Note: The marks " ◁ " means 0V or 0A.

HC-PDN series

Very small-sized, small current range
PCB-mounting type

HC-PDN



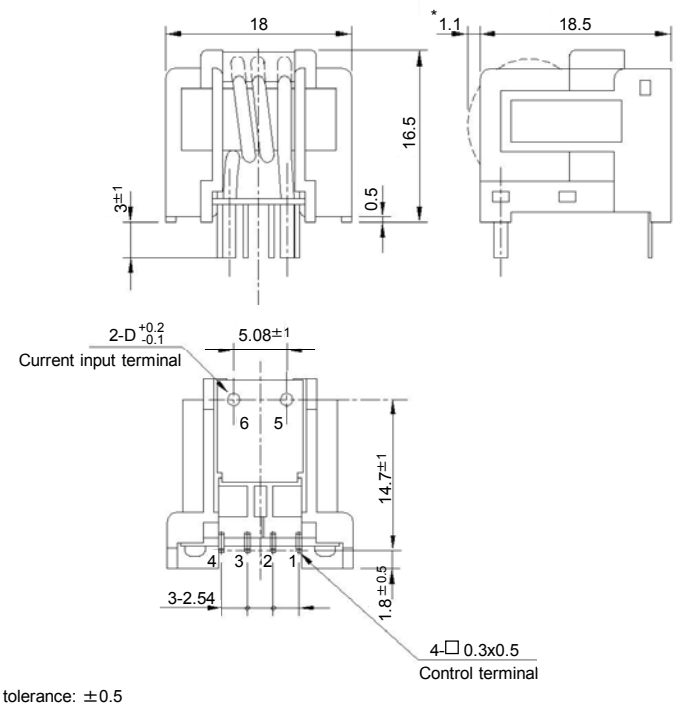
- Rated current 5A ~ 50A
- Well isolated for European Standards
- Superior noise-resistance
- Reduced height compact design

Applications

Inverters, Servo drivers, NC machine tools

Dimensions

(mm)



General tolerance: ±0.5

Dimensions of Current Input Terminals

Size of primary winding	Width D
Φ0.8	Φ0.8
Φ1.3	Φ1.3
Φ1.6	Φ1.6

Note) The dimensions marked with * are protruded areas of the primary winding

Terminal No.
1 - (-) terminal
2 - GND
3 - (+) terminal
4 - Output
5 - (+) input
6 - (-) input

Weight : 6g

Specification

Ta=25℃

Type	HC-PDN05V4B15	HC-PDN10V4B15	HC-PDN20V4B15	HC-PDN30V4B15	HC-PDN50V4B15
Rated current [If]	±5A	±10A	±20A	±30A	±50A
Continuously flowing DC current	±8.8A	±23.3A	±23.3A	±35.4A	±35.4A
Saturation current [Is]	±15A	±30A	±45A	±90A	±90A
Linearity limits	0~±12.5A	0~±25A	0~±37.5A	0~±75A	0~±75A
Size of primary winding	Φ0.8	Φ1.3	Φ1.3	Φ1.6	Φ1.6
Turns	6	3	2	1	1
Rated output [Vh]	±4V±2% (RL=10kΩ)				
Residual output [Vo]	Within ±100mV				
Output linearity	Within ±1%				
Response time	Within 10μs (at di/dt=If/μs)				
Response performance	Within 10%				
Hysteresis voltage range	Within 100mV				
Output Temp. Coef.	Within ±0.1%/℃				
Residual output Temp. Coef.	Within ±6mV/℃				
Control power supply	±15V±5%				
Consumption current	Within 30mA				
Operating Temp.	-10℃~+80℃				
Storage Temp.	-15℃~+85℃				
Dielectric withstand voltage	2500V AC 50/60Hz 1minute				
Insulation resistance	Not less than 500MΩ 500V DC				

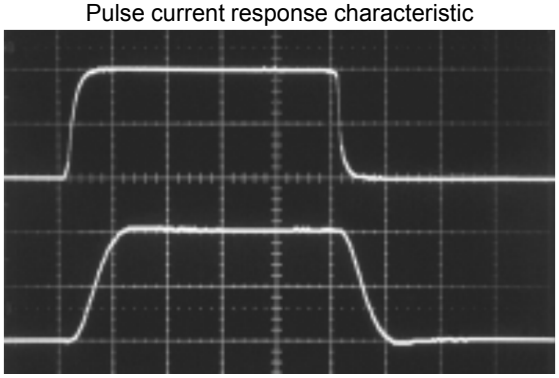
Note1) The indicated residual output is the one after the core hysteresis is removed.

Characteristics chart

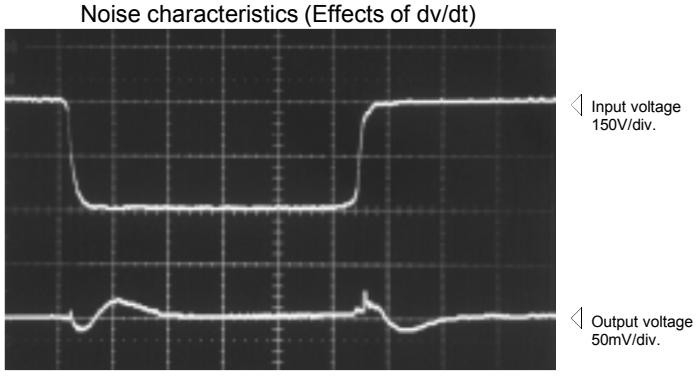
HC-PDN05V4B15

Time base: 5μs/div.

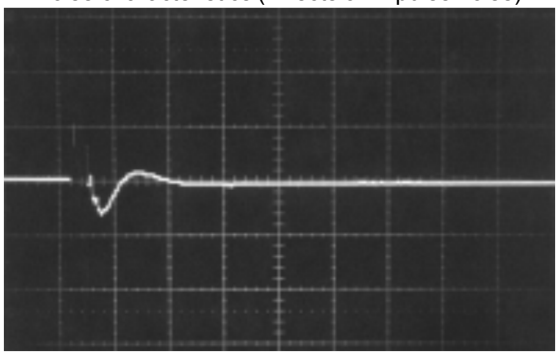
Pulse current response characteristic



Noise characteristics (Effects of dv/dt)

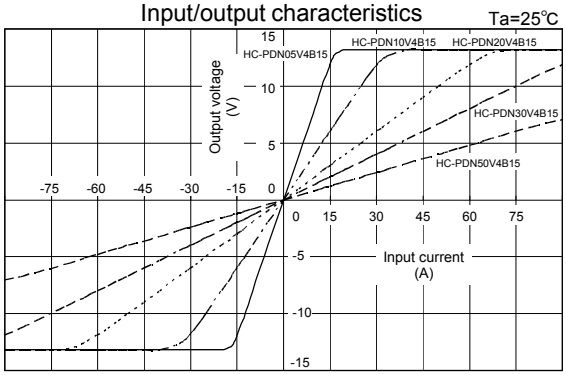


Noise characteristics (Effects of impulse noise)



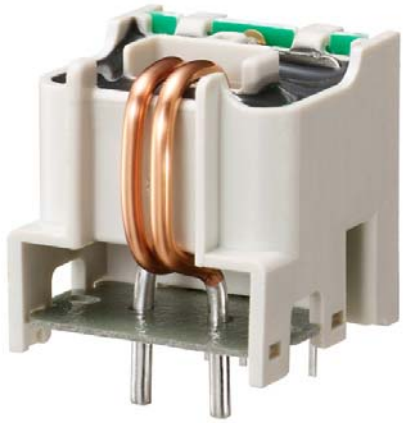
Input/output characteristics

Ta=25℃



Note: The marks " ◁ " means 0V or 0A.

HC-PDG



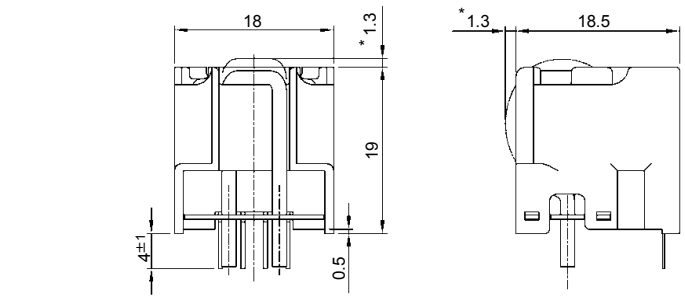
- Rated current 5A ~ 50A
- Superior noise-resistance
- Superior saturation characteristics
- Reduced height compact design
- Single-power supplies also available

Applications

Inverters, Servo drivers, Power supply equipment, Uninterruptible power supply (UPS), NC machine tools, Welders

Dimensions

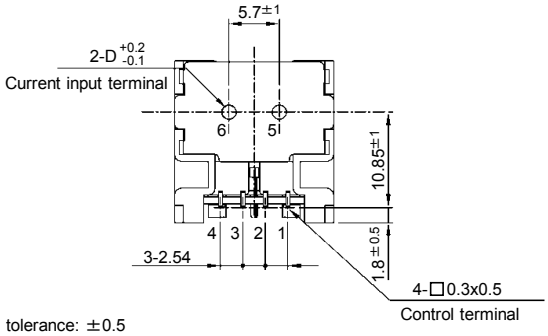
(mm)



Dimensions of Current Input Terminals

Size of primary winding	Width D
Φ0.8	Φ0.8
Φ1.0	Φ1.0
Φ1.1	Φ1.1
Φ1.3	Φ1.3
Φ1.6	Φ1.6

Note) Marking * mean maximum dimensions of primary winding protuberant.



General tolerance: ±0.5

Terminal No.
1 - (-) terminal
2 - GND
3 - (+) terminal
4 - Output
5 - (+) input
6 - (-) input

Weight : 9g

Specification

Ta=25℃

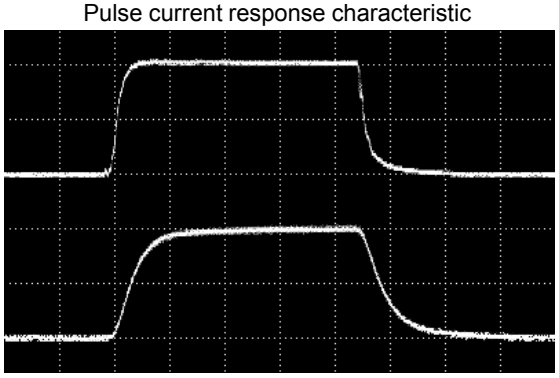
Type	HC-PDG05V4B15	HC-PDG10V4B15	HC-PDG20V4B15	HC-PDG30V4B15	HC-PDG50V4B15
Rated current [If]	±5A	±10A	±20A	±30A	±50A
Continuously flowing DC current	±8.8A	±13.8A	±23.3A	±23.3A	±35.4A
Saturation current [Is]	±15A	±25A	±50A	±75A	±150A
Linearity limits	0~±13.5A	0~±22.5A	0~±45A	0~±67.5A	0~±135A
Size of primary winding	Φ0.8	Φ1.0	Φ1.3	Φ1.3	Φ1.6
Turns	10	6	3	2	1
Rated output [Vh]	±4V±1.5% (RL=10kΩ)				
Residual output [Vo]	Within ±50mV				
Output linearity	Within ±1%				
Response time	Within 10μs (at di/dt=If/μs)				
Response performance	Within 10%				
Hysteresis voltage range	Within 60mV				
Output Temp. Coef.	Within ±0.1%/℃				
Residual output Temp. Coef.	Within ±2mV/℃				
Control power supply	±15V±5%				
Consumption current	Within 20mA				
Operating Temp.	-10℃~+80℃				
Storage Temp.	-15℃~+85℃				
Dielectric withstand voltage	2500V AC 50/60Hz 1minute				
Insulation resistance	Not less than 500MΩ 500V DC				

Note1) The indicated residual output is the one after the core hysteresis is removed.

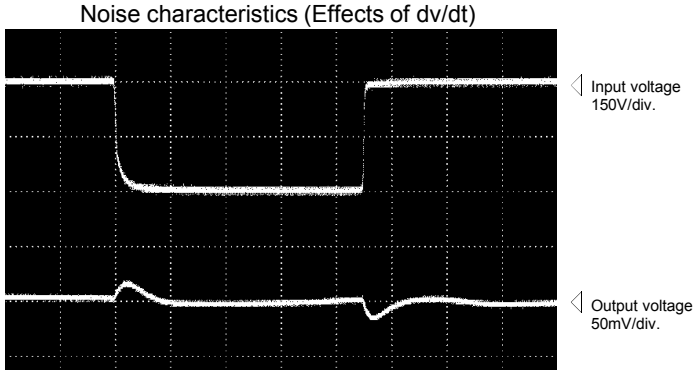
Characteristics chart

HC-PDG20V4B15 Time base: 5μs/div.

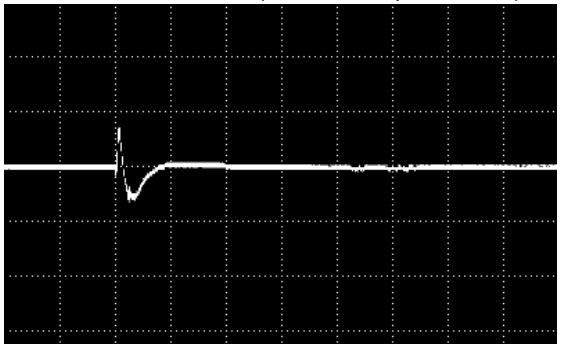
Pulse current response characteristic



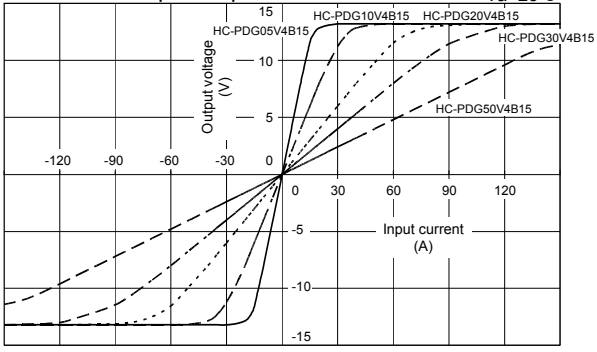
Noise characteristics (Effects of dv/dt)



Noise characteristics (Effects of impulse noise)



Input/output characteristics Ta=25℃

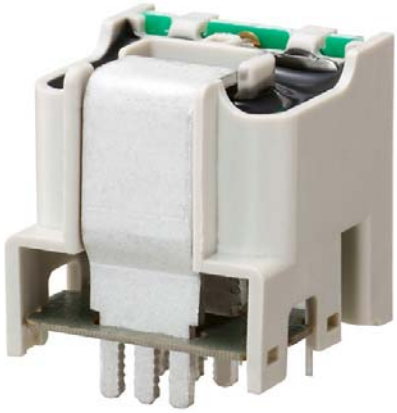


Note: The marks " ◁ " means 0V or 0A.

HC-PDK series

Very small-sized, small current range
PCB-mounting type

HC-PDK



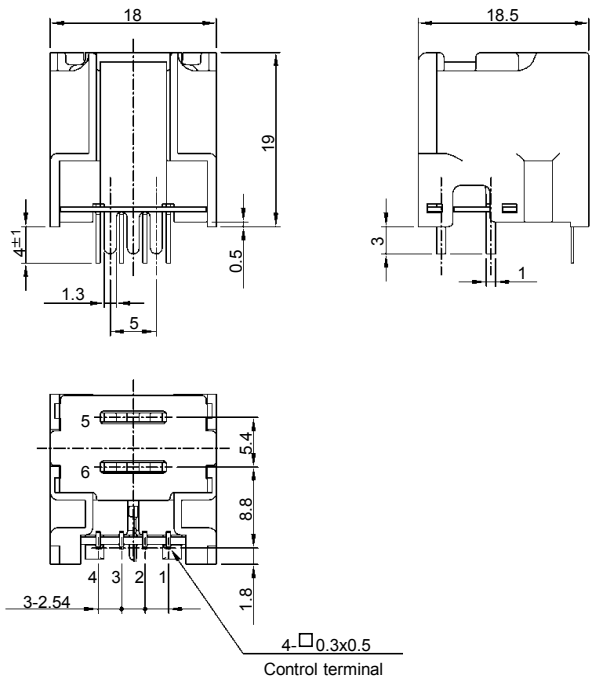
- Rated current 50A ~ 100A
- Superior noise-resistance
- Superior saturation characteristics
- Reduced height compact design
- Single-power supplies also available

Applications

Inverters, Servo drivers, Power supply equipment, Uninterruptible power supply (UPS), NC machine tools, Welders

Dimensions

(mm)



Terminal No.
1 - (-) terminal
2 - GND
3 - (+) terminal
4 - Output
5 - (+) input
6 - (-) input

Weight : 10g

General tolerance: ±0.5

Specification

Ta=25℃

Type	HC-PDK50V4B15	HC-PDK60V4B15	HC-PDK100V4B15
Rated current [If]	±50A	±60A	±100A
Continuously flowing DC current	±100A		
Saturation current [Is]	±150A		
Linearity limits	0~±135A		
Size of primary busbar	Busbar 1 x 7.8		
Turns	1		
Rated output [Vh]	±4V±1.5% (RL=10kΩ)		
Residual output [Vo]	Within ±50mV		
Output linearity	Within ±1%		
Response time	Within 10μs (at di/dt=If/μs)		
Response performance	Within 10%		
Hysteresis voltage range	Within 60mV		
Output Temp. Coef.	Within ±0.1%/℃		
Residual output Temp. Coef.	Within ±2mV/℃		
Control power supply	±15V±5%		
Consumption current	Within 20mA		
Operating Temp.	-10℃~+80℃		
Storage Temp.	-15℃~+85℃		
Dielectric withstand voltage	2500V AC 50/60Hz 1minute		
Insulation resistance	Not less than 500MΩ 500V DC		

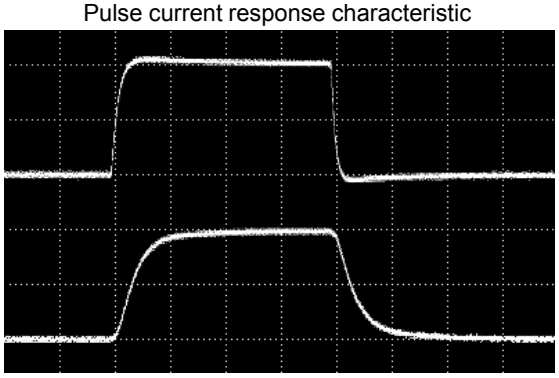
Note1) The indicated residual output is the one after the core hysteresis is removed.

Characteristics chart

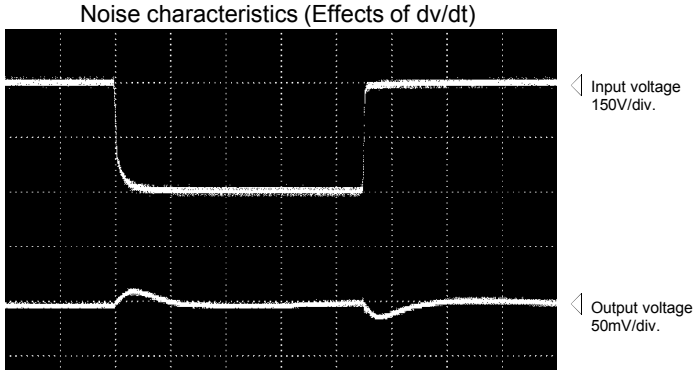
HC-PDK60V4B15

Time base: 5μs/div.

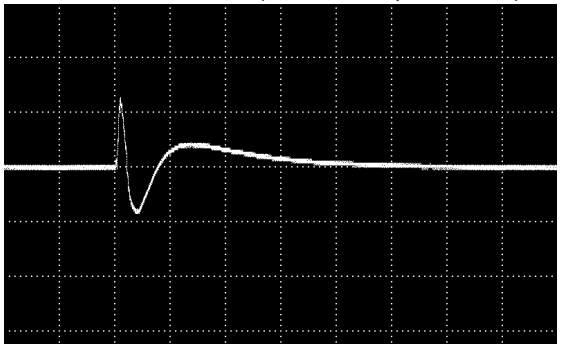
Pulse current response characteristic



Noise characteristics (Effects of dv/dt)

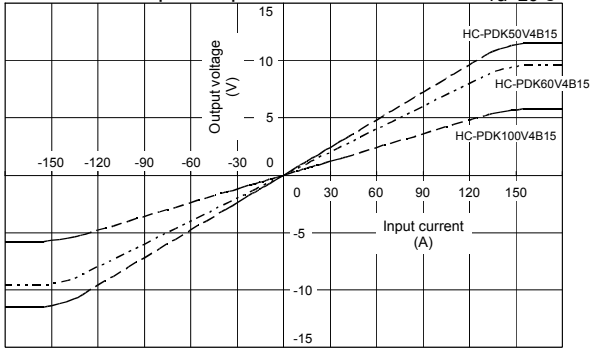


Noise characteristics (Effects of impulse noise)



Input/output characteristics

Ta=25℃

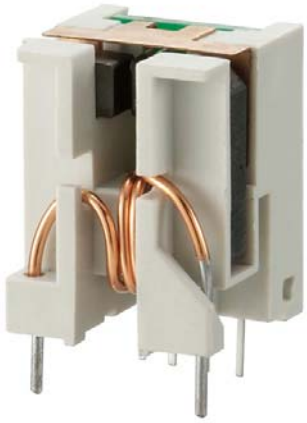


Note: The marks " ◁ " means 0V or 0A.

HC-PL series

Very small-sized, small current range
PCB-mounting type

HC-PL



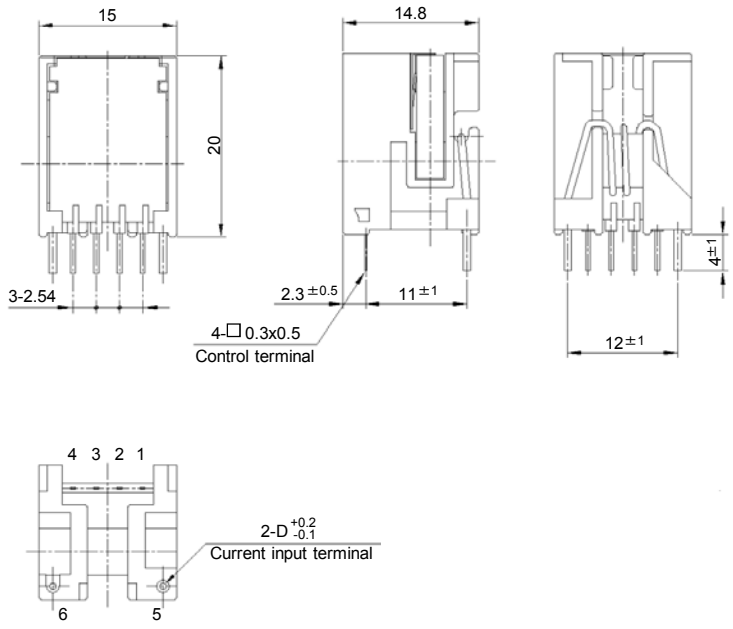
- Rated current 5A ~ 30A
- Requires little space on the PCB
- Single-power supllies also avaiable

Applications

Inverters, Srevo drivers, Power supply equipment, NC machine tools

Dimensions

(mm)



Dimensions of Current Input Terminals

Size of primary winding	Width D
Φ0.6	Φ0.6
Φ0.8	Φ0.8
Φ1.0	Φ1.0
Φ1.3	Φ1.3

Terminal No.
1 - (+) terminal
2 - (-) terminal
3 - Output
4 - GND
5 - (+) input
6 - (-) input

Weight : 6g

General tolerance: ±0.5

Specification

Ta=25℃

Type	HC-PL05V4B15	HC-PL10V4B15	HC-PL20V4B15	HC-PL30V4B15
Rated current [If]	±5A	±10A	±20A	±30A
Continuously flowing DC current	±8.8A	±8.8A	±13.8A	±23.3A
Saturation current [Is]	±12.5A	±25A	±37.5A	±75A
Linearity limits	0~±10A	0~±20A	0~±30A	0~±60A
Size of primary winding	Φ0.8	Φ0.8	Φ1.0	Φ1.3
Turns	6	3	2	1
Rated output [Vh]	±4V±2% (RL=10kΩ)			
Residual output [Vo]	Within ±100mV			
Output linearity	Within ±1%			
Response time	Within 10μs (at di/dt=If/μs)			
Response performance	Within 10%			
Hysteresis voltage range	Within 100mV			
Output Temp. Coef.	Within ±0.1%/℃			
Residual output Temp. Coef.	Within ±2mV/℃			
Control power supply	±15V±5%			
Consumption current	Within 30mA			
Operating Temp.	-10℃~+80℃			
Storage Temp.	-15℃~+85℃			
Dielectric withstand voltage	2500V AC 50/60Hz 1minute			
Insulation resistance	Not less than 500MΩ 500V DC			

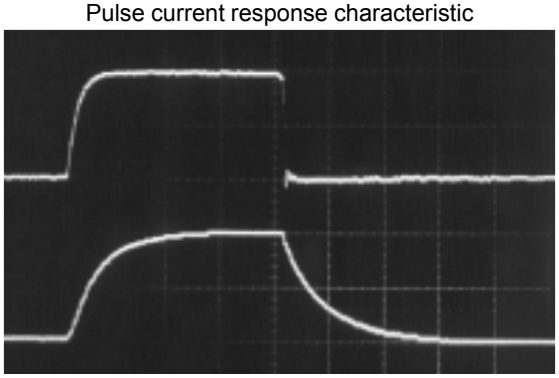
Note1) The indicated residual output is the one after the core hysteresis is removed.

Characteristics chart

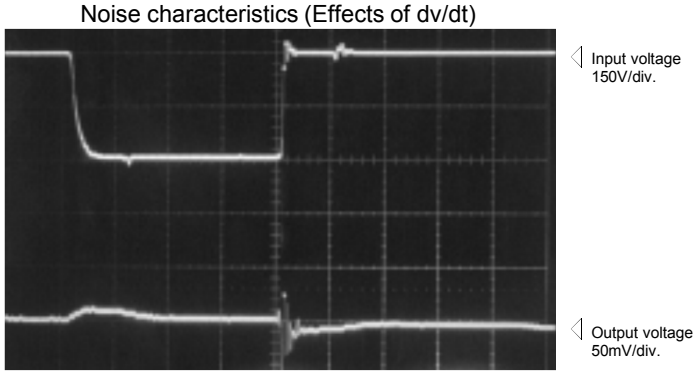
HC-PL10V4B15

Time base: 5μs/div.

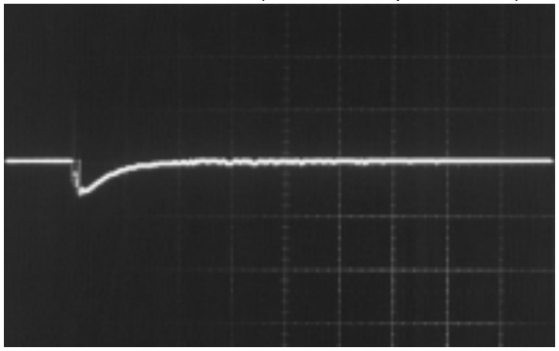
Pulse current response characteristic



Noise characteristics (Effects of dv/dt)

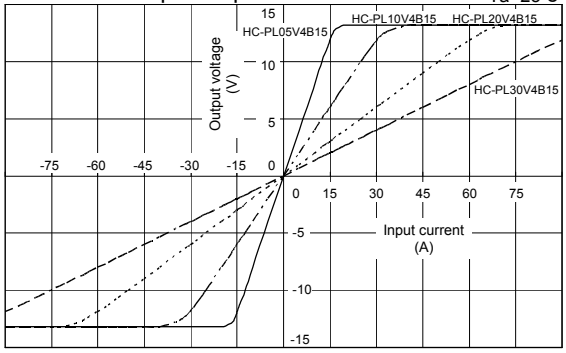


Noise characteristics (Effects of impulse noise)



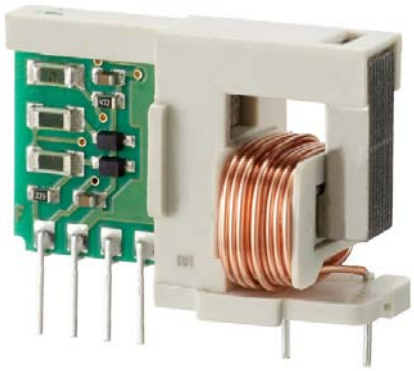
Input/output characteristics

Ta=25℃



Note: The marks " ◁ " means 0V or 0A.

HC-PFG



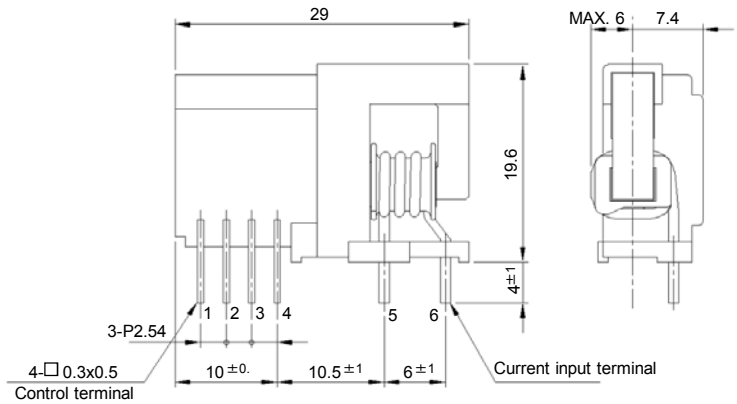
- Rated current 3A ~ 30A
- Well isolated for European Standards
- Superior noise-resistance
- Small mounting surface (SIP type)
- Single-power supplies also available

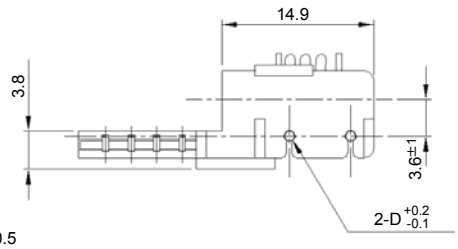
Applications

Inverters, Servo drivers, NC machine tools

Dimensions

(mm)





General tolerance: ±0.5

Dimensions of Current Input Terminals

Size of primary winding	Width D
Φ0.5	Φ0.5
Φ0.6	Φ0.6
Φ0.8	Φ0.8
Φ1.0	Φ1.0
Φ1.1	Φ1.1
Φ1.3	Φ1.3

Terminal No.
1 - (-) terminal
2 - GND
3 - (+) terminal
4 - Output
5 - (-) input
6 - (+) input

Weight : 6g

Specification

Ta=25℃

Type	HC-PFG03V4B15	HC-PFG05V4B15	HC-PFG10V4B15	HC-PFG20V4B15	HC-PFG30V4B15
Rated current [If]	±3A	±5A	±10A	±20A	±30A
Continuously flowing DC current	±5A	±8.8A	±8.8A	±23.3A	±23.3A
Saturation current [Is]	±9A	±15A	±30A	±60A	±75A
Linearity limits	0~±7.5A	0~±12.5A	0~±25A	0~±60A	0~±62.5A
Size of primary winding	Φ0.6	Φ0.8	Φ0.8	Φ1.3	Φ1.3
Turns	16	10	5	2	2
Rated output [Vh]	±4V±2% (RL=10kΩ)				
Residual output [Vo]	Within ±100mV				
Output linearity	Within ±1%				
Response time	Within 10μs (at di/dt=If/μs)				
Response performance	Within 10%				
Hysteresis voltage range	Within 100mV				
Output Temp. Coef.	Within ±0.1%/℃				
Residual output Temp. Coef.	Within ±3mV/℃				
Control power supply	±15V±5%				
Consumption current	Within 30mA				
Operating Temp.	-10℃~+80℃				
Storage Temp.	-15℃~+85℃				
Dielectric withstand voltage	2500V AC 50/60Hz 1minute				
Insulation resistance	Not less than 500MΩ 500V DC				

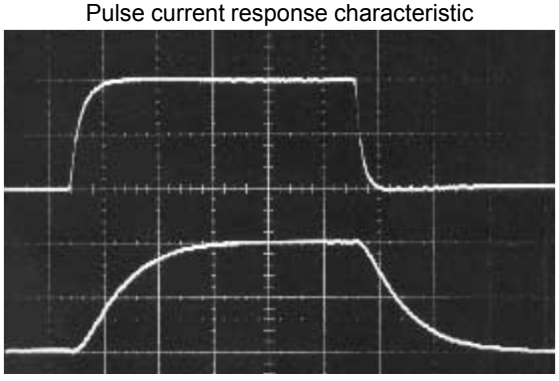
Note1) The indicated residual output is the one after the core hysteresis is removed.

Characteristics chart

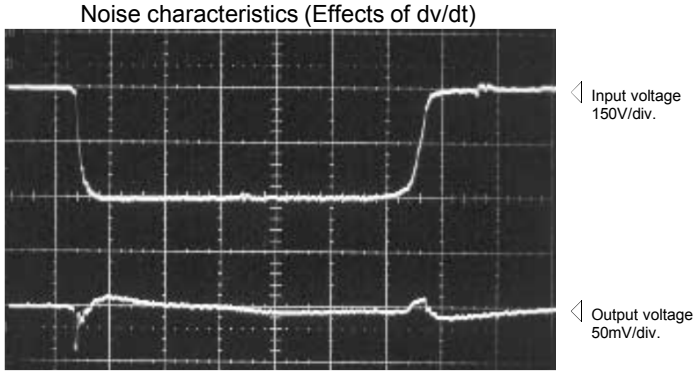
HC-PFG10V4B15

Time base: 5μs/div.

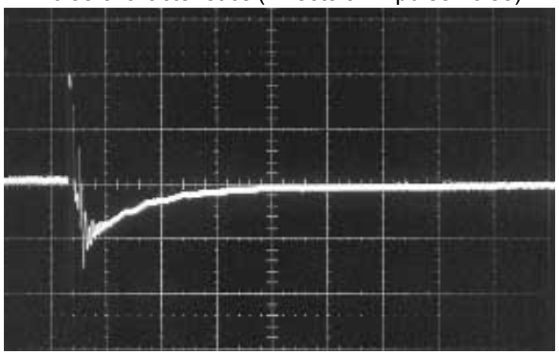
Pulse current response characteristic



Noise characteristics (Effects of dv/dt)

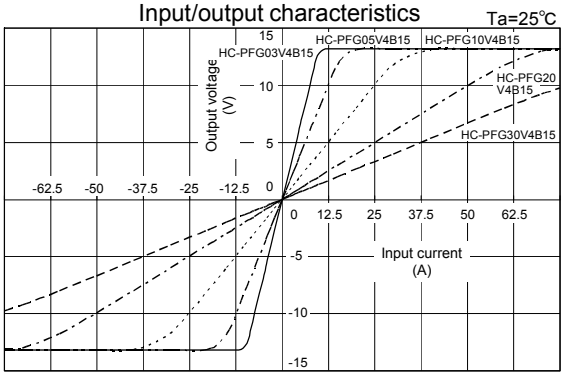


Noise characteristics (Effects of impulse noise)



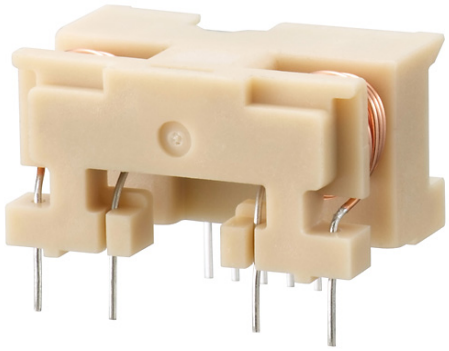
Input/output characteristics

Ta=25℃



Note: The marks " ◁ " means 0V or 0A.

HC-PRC



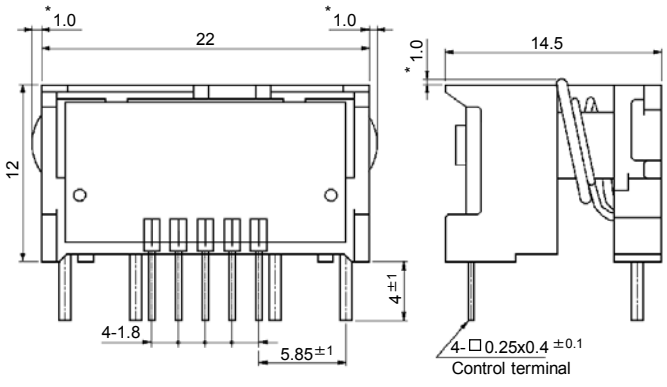
- Rated current 3A ~ 20A
- Well isolated for European Standards
- Compact design: height has been kept down to 12.0 mm
- Single-power supplies also available
- Two circuits can be measured at the same time

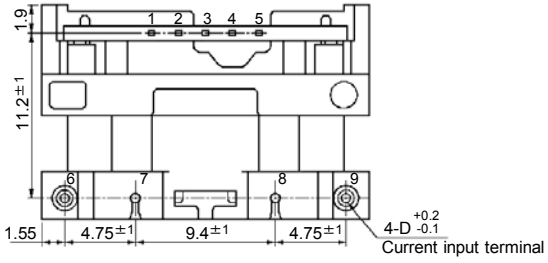
Applications

Inverters, Servo drivers, NC machine tools

Dimensions

(mm)





General tolerance: ±0.5

Dimensions of Current Input Terminals

Size of primary winding	Width D
Φ0.45	Φ0.45
Φ0.6	Φ0.6
Φ0.9	Φ0.9

Note) The dimensions marked with * are protruded areas of the primary winding

Terminal No.
1 - (+) terminal
2 - (-) terminal
3 - Output1
4 - Output2
5 - GND
6 - (+) input
7 - (-) input
8 - (+) input
9 - (-) input

Weight : 5g

Specification

Ta=25℃

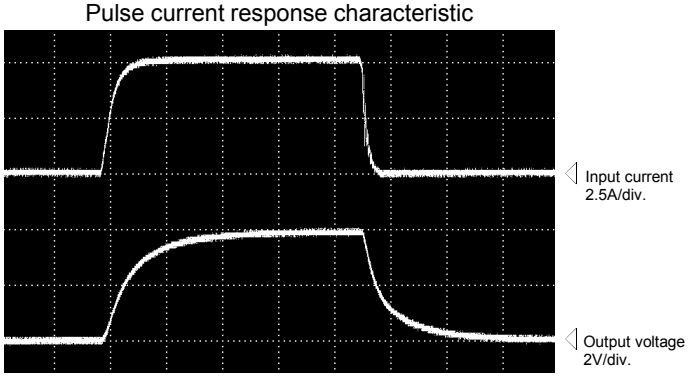
Type		HC-PRC03V4B15	HC-PRC05V4B15	HC-PRC10V4B15	HC-PRC20V4B15
Rated current [If]		±3A	±5A	±10A	±20A
Continuously flowing DC current		±3.5A	±3.5A	±8.8A	±8.8A
Saturation current [Is]		±9A	±15A	±30A	±45A
Linearity limits		0~±7.5A	0~±12.5A	0~±25A	0~±37.5A
Size of primary winding		Φ0.45	Φ0.45	Φ0.9	Φ0.9
Turns		10	6	3	2
Rated output [Vh]	+If	V0+4V±1.5% (RL=10kΩ)			
	-If	V0-4V±1.5% (RL=10kΩ)			
Residual output [Vo]		Within ±100mV			
Output linearity		Within ±1%			
Response time		Within 10μs (at di/dt=If/μs)			
Response performance		Within 10%			
Hysteresis voltage range		Within 120mV			
Output Temp. Coef.		Within ±0.1%/℃			
Residual output Temp. Coef.		Within ±3mV/℃			
Control power supply		±15V±5%			
Consumption current		Within 40mA			
Operating Temp.		-10℃~+80℃			
Storage Temp.		-15℃~+85℃			
Dielectric withstand voltage		2500V AC 50/60Hz 1minute			
Insulation resistance		Not less than 500MΩ 500V DC			

Note1) The indicated residual output is the one after the core hysteresis is removed.

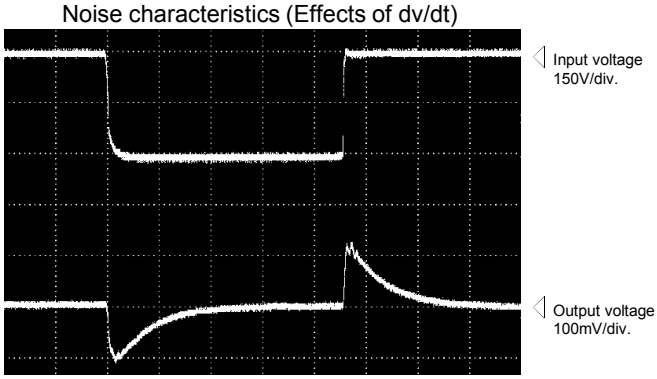
Characteristics chart

HC-PRC05V4B15 Time base: 5μs/div.

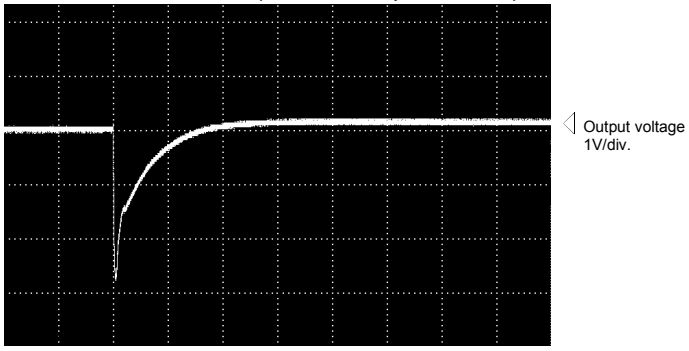
Pulse current response characteristic



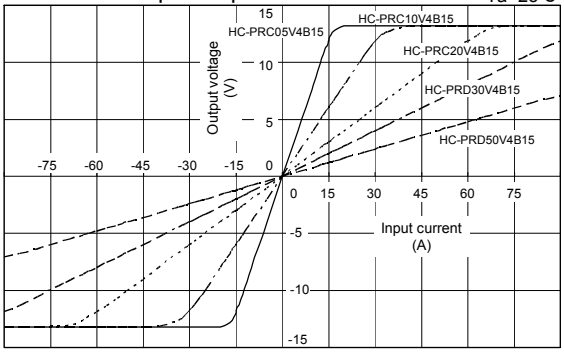
Noise characteristics (Effects of dv/dt)



Noise characteristics (Effects of impulse noise)

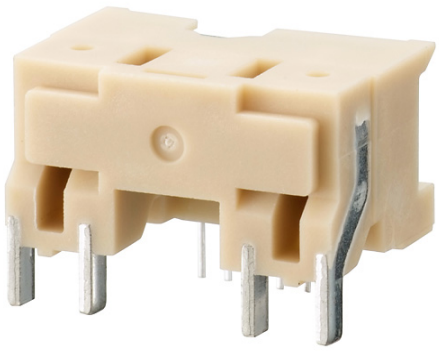


Input/output characteristics Ta=25℃



Note: The marks " ◁ " means 0V or 0A.

HC-PRD



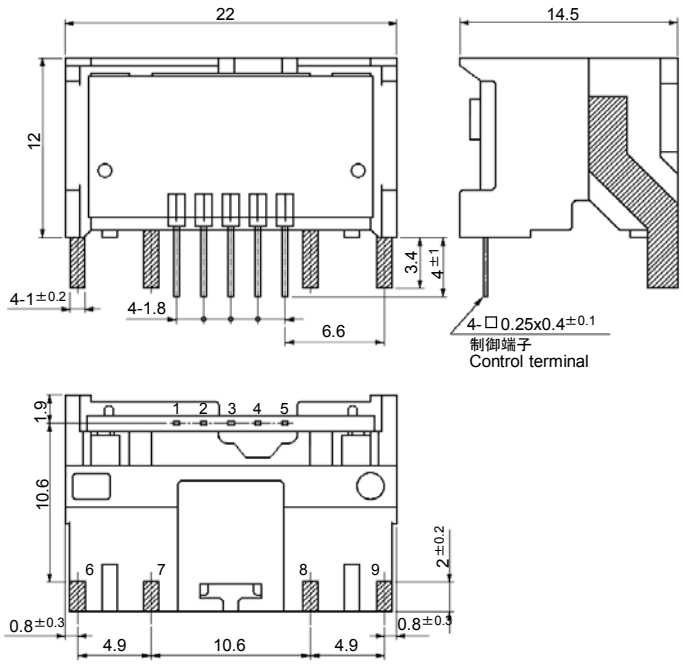
- Rated current 25A ~ 50A
- Well isolated for European Standards
- Compact design: height has been kept down to 12.0 mm
- Single-power supplies also available
- Two circuits can be measured at the same time

Applications

Inverters, Servo drivers, NC machine tools

Dimensions

(mm)



Terminal No.

1 - (+) terminal
2 - (-) terminal
3 - Output1
4 - Output2
5 - GND
6 - (+) input
7 - (-) input
8 - (+) input
9 - (-) input

Weight : 6g

General tolerance: ±0.5

Specification

Ta=25℃

Type		HC-PRD25V4B15	HC-PRD30V4B15	HC-PRD40V4B15	HC-PRD50V4B15
Rated current [If]		±25A	±30A	±40A	±50A
Continuously flowing DC current		±35A	±35A	±35A	±35A
Saturation current [Is]		±75A	±90A	±90A	±90A
Linearity limits		0~±75A	0~±75A	0~±75A	0~±75A
Size of primary busbar		□1 x 2	□1 x 2	□1 x 2	□1 x 2
Turns		1	1	1	1
Rated output [Vh]	+If	V0+4V±1.5% (RL=10kΩ)			
	-If	V0-4V±1.5% (RL=10kΩ)			
Residual output [Vo]		Within ±100mV			
Output linearity		Within ±1%			
Response time		Within 10μs (at di/dt=If/μs)			
Response performance		Within 10%			
Hysteresis voltage range		Within 120mV			
Output Temp. Coef.		Within ±0.1%/℃			
Residual output Temp. Coef.		Within ±3mV/℃			
Control power supply		±15V±5%			
Consumption current		Within 40mA			
Operating Temp.		-10℃~+80℃			
Storage Temp.		-15℃~+85℃			
Dielectric withstand voltage		2500V AC 50/60Hz 1minute			
Insulation resistance		Not less than 500MΩ 500V DC			

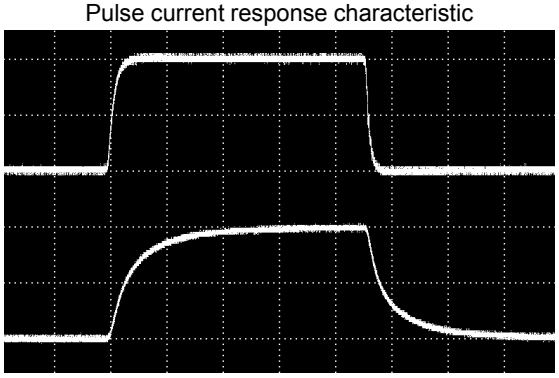
Note1) The indicated residual output is the one after the core hysteresis is removed.

Characteristics chart

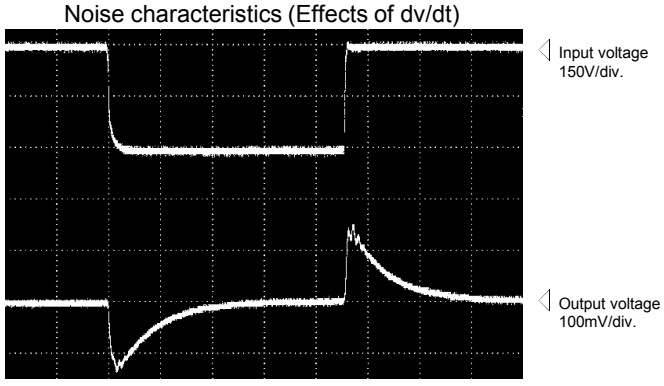
HC-PRD30V4B15

Time base: 5μs/div.

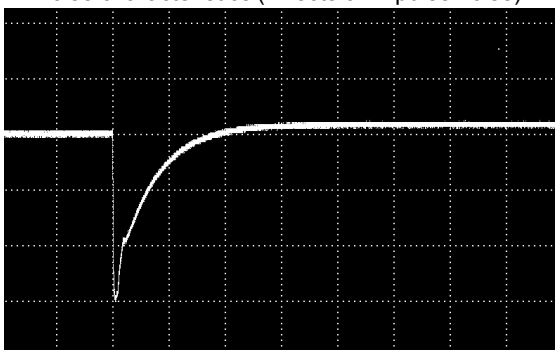
Pulse current response characteristic



Noise characteristics (Effects of dv/dt)

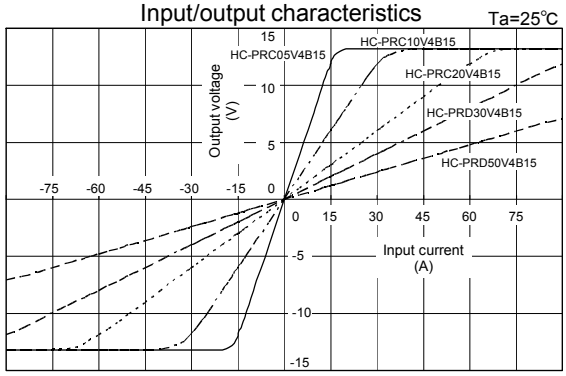


Noise characteristics (Effects of impulse noise)



Input/output characteristics

Ta=25℃



Note: The marks " ◁ " means 0V or 0A.

HD-TS

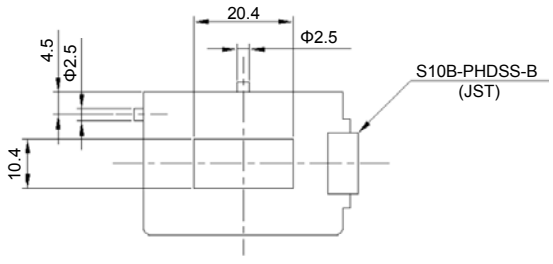
- Rated current 100A ~ 600A
- Δ-Σ(delta-sigma) modulation digital output sensors excelling in the anti-noise characteristic
- It is possible to simplify the circuits on the input side as the input side requires no A/D conversion

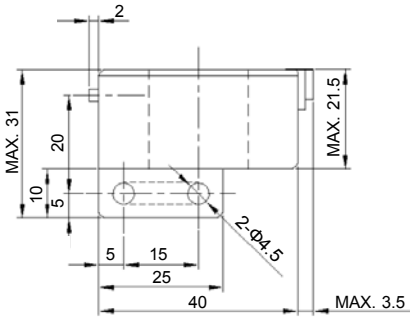
Applications

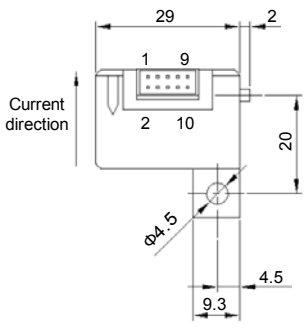
Inverters, Servo drivers, Power supply equipment, Uninterruptible power supply (UPS), NC machine tools, Welders

Dimensions

(mm)







Supported Connector Housing
PHDR-10VS (JST)

Terminal No.	
1	GND
2	(+) terminal
3	GND
4	(+) terminal
5	+MDAT
6	-MDAT
7	+MCLK
8	-MCLK
9	Analog output
10	Analog output GND

Weight : 44g

General tolerance: ±0.5

Specification

Ta=25℃

Type		HD-TS100V027P5	HD-TS200V027P5	HD-TS300V027P5	HD-TS400V027P5	HD-TS500V027P5	HD-TS600V027P5
Rated current	[If]	±100A	±200A	±300A	±400A	±500A	±600A
Saturation current	[Is]	±119A	±237A	±356A	±474A	±593A	±711A
Linearity limits		0~±119A	0~±237A	0~±356A	0~±474A	0~±593A	0~±711A
Base data		±16384[data] (at Is)					
Rated output data	[Dh]	±13824[data] Within ±491[data] (at If)					
Residual output data	[D0]	Within ±164[data]					
Output linearity		Within ±1% (Within ±164[data])					
Response time		Within 20μs (at di/dt=100A/μs)					
Hysteresis voltage range		Within ±164[data]					
Output Temp. Coef.		Within ±0.1%/℃					
Residual output Temp. Coef.		Within ±51[data]/℃					
Control power supply		+5V±5%					
Consumption current		Within 50mA					
Operating Temp.		-10℃~+80℃					
Storage Temp.		-15℃~+85℃					
Dielectric withstand voltage		2500V AC 50/60Hz 1minute					
Insulation resistance		Not less than 500MΩ 500V DC					
Output specifications		TIA/EIA-422-B[RS422] standard serial output (data and clock output)					
Output clock frequency		10MHz±2MHz					
Others		Δ-Σ A/D converter Built-in Type *)All the data number shall be the values at 14bit(16384[data]) in resolution					

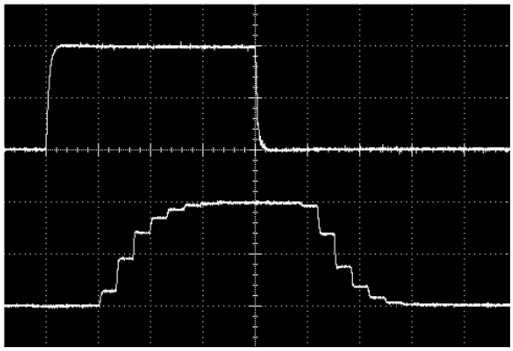
Note1) The indicated residual voltage is the one after the core hysteresis is removed.

Characteristics chart

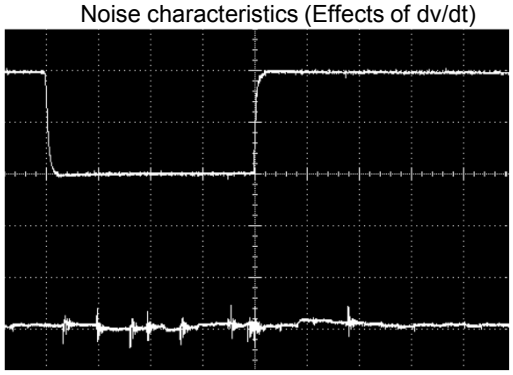
HD-TS200V027P5

Time base: 10μs/div.

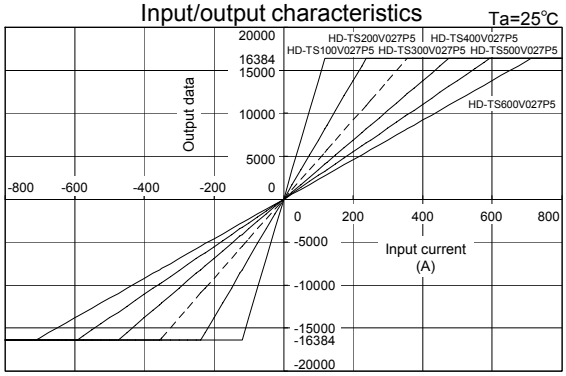
Pulse current response characteristic



Noise characteristics (Effects of dv/dt)



Input/output characteristics



HP-PU series

Small-sized, small current range
PCB-mounting type

HP-PU

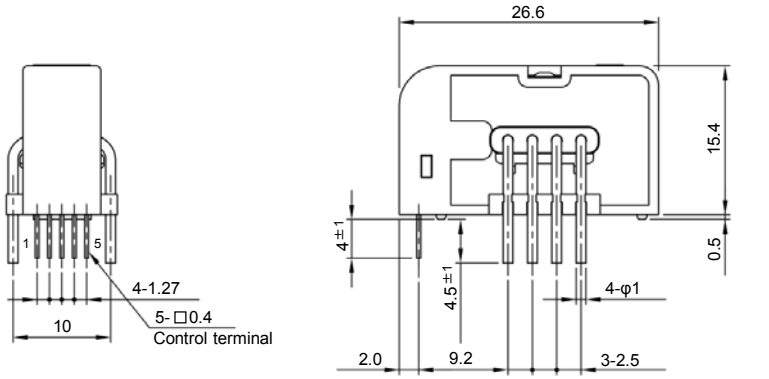
- Rated current 5A ~ 100A
- Compact and small mounting area by application of Hall IC
- Excellent in temperature characteristics by incorporating temperature compensation circuit
- Superior noise-resistance

Applications

Inverters, Servo drivers, Power supply equipment, Uninterruptible power supply (UPS), NC machine tools, Welders

Dimensions

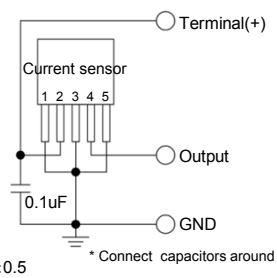
(mm)

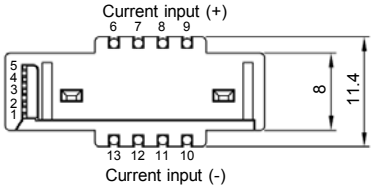


How to connect current input terminal

Number of turns	How to connect PCB side
1T specification	(+ side) 6 7 8 9 / (- side) 13 12 11 10
2T specification	(+ side) 6 7 8 9 / (- side) 13 12 11 10
4T specification	(+ side) 6 7 8 9 / (- side) 13 12 11 10

Circuit connection diagram





Terminal No.

1 ··· GND
2 ··· (+) terminal
3 ··· GND
4 ··· Output
5 ··· GND
6 ··· (+) input
7 ··· (+) input
8 ··· (+) input
9 ··· (+) input
10 ··· (-) input
11 ··· (-) input
12 ··· (-) input
13 ··· (-) input

Weight : 8g

General tolerance: ±0.5

* Connect capacitors around the current sensor terminal.

Specification

Ta=25℃

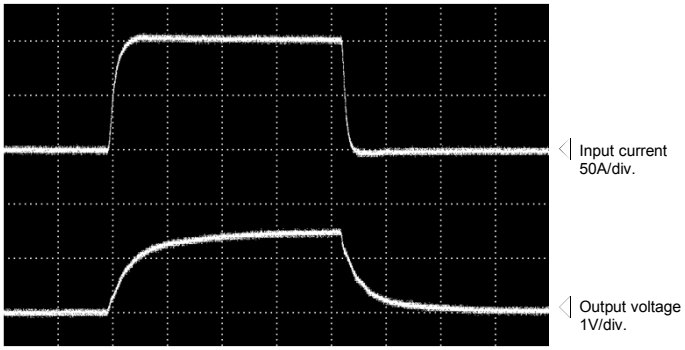
Type	HP-PU005V15PP5	HP-PU010V15PP5	HP-PU025V15PP5	HP-PU050V15PP5	HP-PU100V15PP5
Rated current [If]	±5A	±10A	±25A	±50A	±100A
Continuously flowing DC current	±5A	±10A	±25A	±50A	±55A
Saturation current [Is]	±7.3A	±14.6A	±36.5A	±73A	±146A
Linearity limits	0~±6.5A	0~±13A	0~±32.5A	0~±65A	0~±130A
Number of current input terminal turns	4	4	2	1	1
Rated output [Vh]	V0±1.5V×(Vcc/5)±3.5%				V0±1.5V×(Vcc/5) ±2.5%
Residual output [Vo]	Within (Vcc/2)±40mV	Within (Vcc/2)±35mV			Within (Vcc/2)±30mV
Output linearity	Within ±1%				
Response time	Within 10μs (at di/dt=If/μs)				
Response performance	Within 10%				
Hysteresis voltage range	Within 80mV	Within 75mV	Within 70mV		Within 50mV
Output Temp. Coef.	Within ±0.05%/℃				
Residual output Temp. Coef.	Within ±0.75mV/℃	Within ±0.65mV/℃	Within ±0.6mV/℃		Within ±0.3mV/℃
Control power supply	+5V±5%				
Consumption current	Within 15mA				
Operating Temp.	-40℃~+85℃				
Storage Temp.	-40℃~+85℃				
Dielectric withstand voltage	2500V AC 50/60Hz 1minute				
Insulation resistance	Not less than 500MΩ 500V DC				

Note1) The indicated residual output is the one after the core hysteresis is removed.
Note2) The output specification is the maximum output current 0.5mA or less, load capacity 100pF or less.
Note3) The rated output and residual output vary with the value of the control power because they are ratiometric outputs.
Note4) Connect to the board at the specified number of turns. A different number of turns will result in an output error.

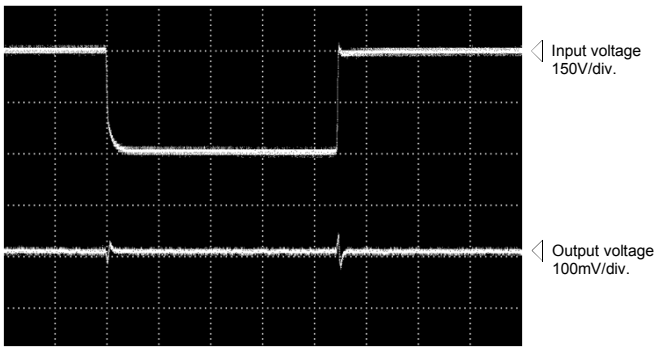
Characteristics chart

HP-PU100V15PP5 Time base: 5μs/div.

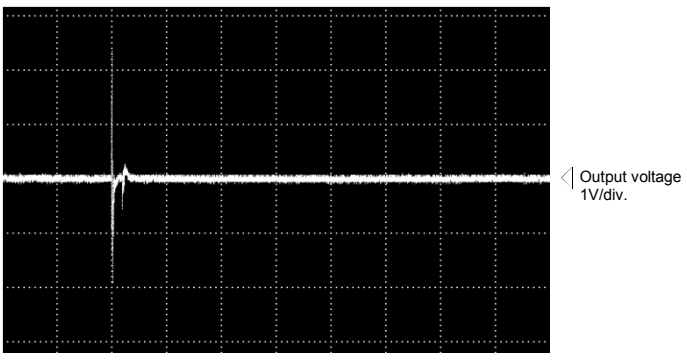
Pulse current response characteristic



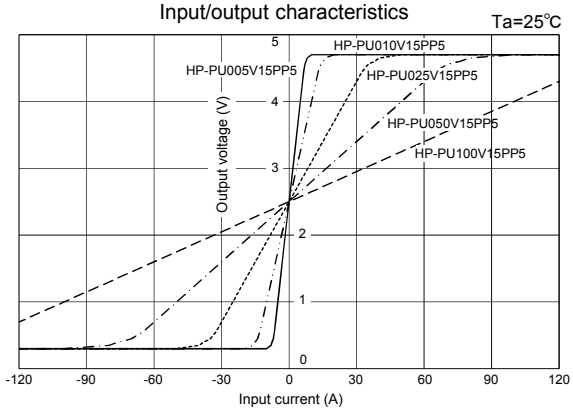
Noise characteristics (Effects of dv/dt)



Noise characteristics (Effects of impulse noise)



Input/output characteristics



Note: The marks " ◁ " means 0V or 0A.

HS-PHA series

Very small-sized, small current range
PCB-mounting type

HS-PHA

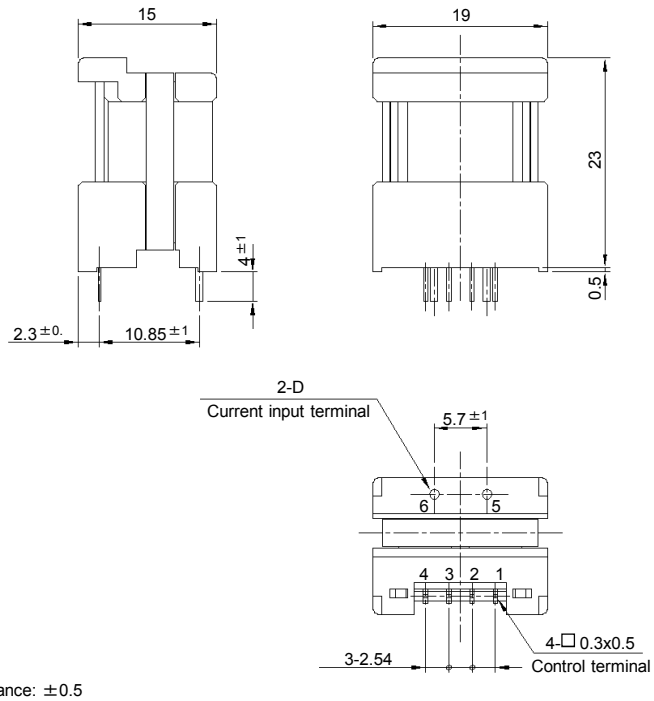
- Rated current 5A ~ 30A
- Realized high precision and compact size
- Superior in response, linearity and temperature characteristics

Applications

Inverters, Servo drivers, Power supply equipment, NC machine tools

Dimensions

(mm)



Dimensions of Current Input Terminals

Size of primary winding	Width D
Φ0.8	Φ0.8
Φ1.0	Φ1.0
Φ1.3	Φ1.3

Terminal No.
1 - (-) terminal
2 - GND
3 - (+) terminal
4 - Output
5 - (+) input
6 - (-) input

Weight : 12g

General tolerance: ±0.5

Specification

Ta=25℃

	Voltage output type			
Type	HS-PHA05V4B15	HS-PHA10V4B15	HS-PHA20V4B15	HS-PHA30V4B15
Rated current [If]	±5A	±10A	±20A	±30A
Continuously flowing DC current	±3.6A	±7.2A	±14.4A	±21.6A
Saturation current [Is]	±12.5A	±25A	±50A	±75A
Linearity limits	0~±10A	0~±20A	0~±40A	0~±60A
Size of primary winding	Φ0.8	Φ1.0	Φ1.3	Φ1.3
Turns	6	3	1	1
Rated output [Vh]	±4V±1.5% (RL=10kΩ)			
Residual output [Vo]	Within ±30mV			
Output linearity	Within ±0.5%			
Response time	Within 3μs (at di/dt=If/μs)			
Response performance	Within 20%			
Hysteresis voltage range	Within 50mV			
Output Temp. Coef.	Within ±0.04%/℃			
Residual output Temp. Coef.	Within ±1mV/℃			
Control power supply	±15V±5%			
Consumption current	20mA+(Input current x N)/1270			
Operating Temp.	-10℃~+80℃			
Storage Temp.	-15℃~+85℃			
Dielectric withstand voltage	2500V AC 50/60Hz 1minute			
Insulation resistance	Not less than 500MΩ 500V DC			

Note1) The indicated residual output is the one after the core hysteresis is removed.

Note2) Energization time of saturation current shall be within 1 second.

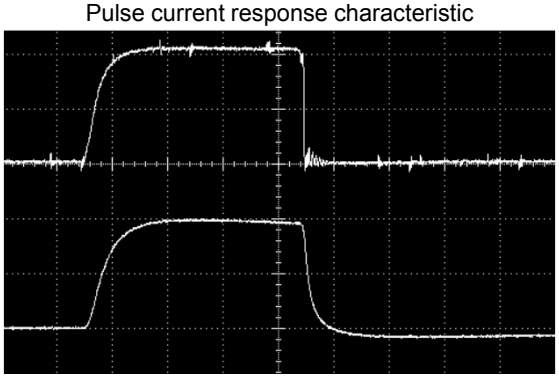
Note3) Energization time of continuous live DC current x150% shall be within 1 minute.

Characteristics chart

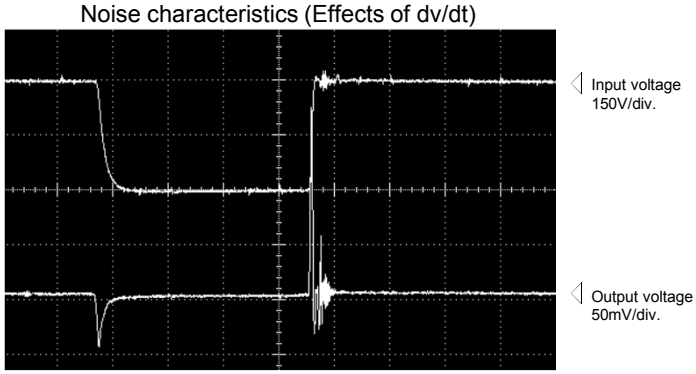
HS-PHA05V4B15 (RL=10kΩ)

Time base: 5μs/div.

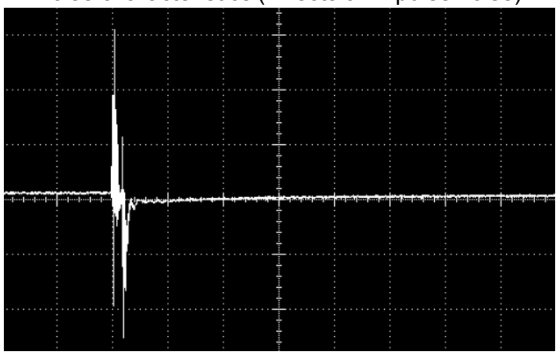
Pulse current response characteristic



Noise characteristics (Effects of dv/dt)

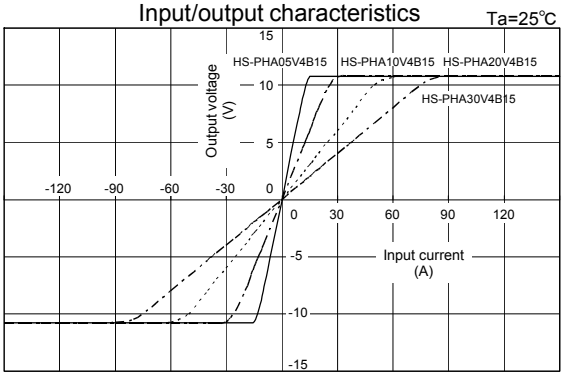


Noise characteristics (Effects of impulse noise)



Input/output characteristics

Ta=25℃



Note: The marks " ◁ " means 0V or 0A.

HS-PHB series

Very small-sized, small current range
PCB-mounting type

HS-PHB

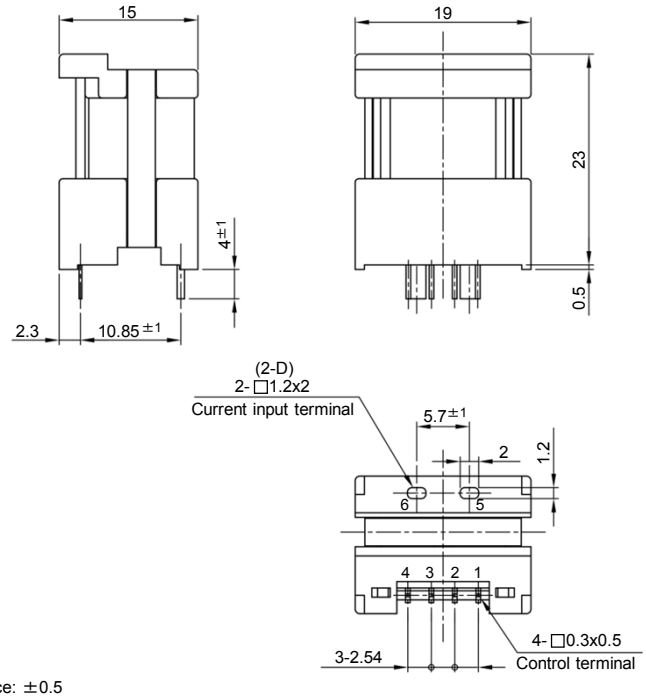
- Rated current 35A ~ 50A
- Realized high precision and compact size
- Superior in response, linearity and temperature characteristics

Applications

Inverters, Servo drivers, Power supply equipment, NC machine tools

Dimensions

(mm)



Dimensions of Current Input Terminals

Size of primary winding	Width D
Φ1.3	Φ1.3
□1.2 x 2	□1.2 x 2

Terminal No.
1 - (-) terminal
2 - GND
3 - (+) terminal
4 - Output
5 - (+) input
6 - (-) input

Weight : 12g

General tolerance: ±0.5

Specification

Ta=25℃

	Voltage output type		
Type	HS-PHB35V4B15	HS-PHB40V4B15	HS-PHB50V4B15
Rated current [If]	±35A	±40A	±50A
Continuously flowing DC current	±25.2A	±28.8A	±36A
Saturation current [Is]	±87.5A	±100A	±125A
Linearity limits	0~±70A	0~±80A	0~±100A
Size of primary winding	Φ1.3	□1.2 x 2	□1.2 x 2
Turns	1	1	1
Rated output [Vh]	±4V±1.5% (RL=10kΩ)		
Residual output [Vo]	Within ±30mV		
Output linearity	Within ±0.5%		
Response time	Within 3μs (at di/dt=If/μs)		
Response performance	Within 20%		
Hysteresis voltage range	Within 50mV		
Output Temp. Coef.	Within ±0.04%/℃		
Residual output Temp. Coef.	Within ±1mV/℃		
Control power supply	±15V±5%		
Consumption current	20mA+(Input current x N)/1270		
Operating Temp.	-10℃~+80℃		
Storage Temp.	-15℃~+85℃		
Dielectric withstand voltage	2500V AC 50/60Hz 1minute		
Insulation resistance	Not less than 500MΩ 500V DC		

Note1) The indicated residual output is the one after the core hysteresis is removed.

Note2) Energization time of saturation current shall be within 1 second.

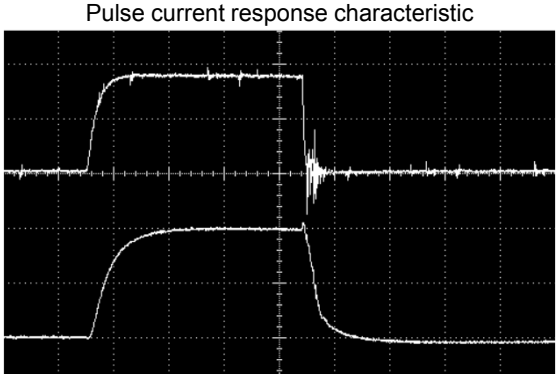
Note3) Energization time of continuous live DC current x150% shall be within 1 minute.

Characteristics chart

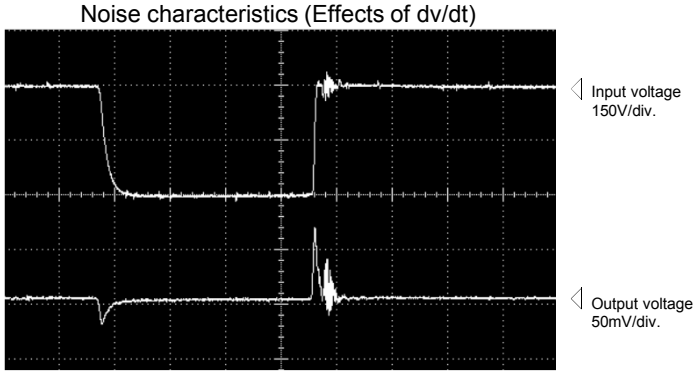
HS-PHB35V4B15 (RL=10kΩ)

Time base: 5μs/div.

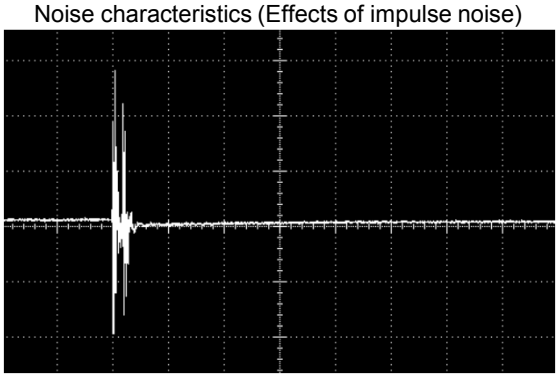
Pulse current response characteristic



Noise characteristics (Effects of dv/dt)

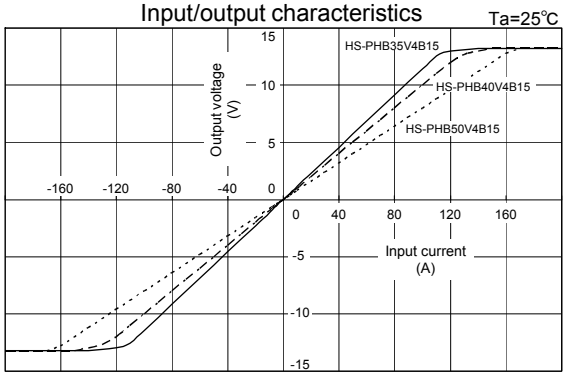


Noise characteristics (Effects of impulse noise)



Input/output characteristics

Ta=25℃



Note: The marks " ◁ " means 0V or 0A.

HS-PKF

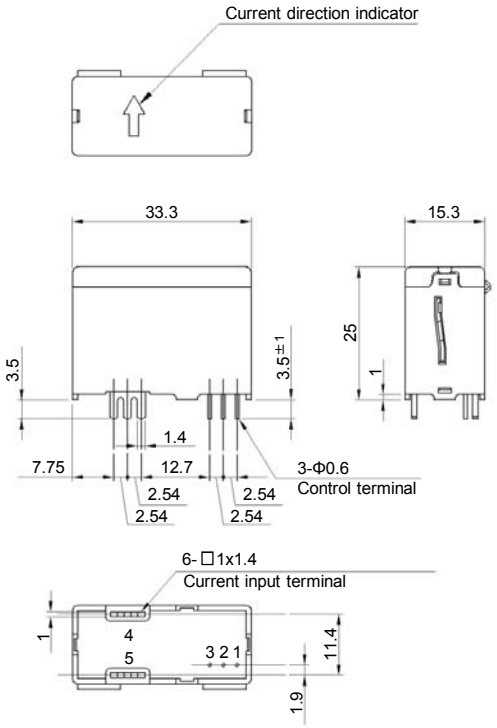
- Rated current 50A ~ 100A
- Realized high precision and compact size
- Superior in response, linearity and temperature characteristics

Applications

Inverters, Servo drivers, Power supply equipment, NC machine tools

Dimensions

(mm)



Terminal No.
1 - Output
2 - Supply voltage (+)
3 - Supply voltage (-)
4 - Input current (+)
5 - Input current (-)

Weight : 16g

General tolerance: ±0.5

Specification

Ta=25℃

		Voltage output type	
Type		HS-PKF050A0025B15	HS-PKF100A005B15
Rated current [If]		±50A	±100A
Continuously flowing DC current		±50A	±71A
Saturation current [Is]		±100A	±160A
Linearity limits		0~±100A (RL=45Ω)	0~±160A (RL=45Ω)
Rated output [Ih]	+If	I0+25mA±0.5%	I0+50mA±0.5%
	-If	I0-25mA±0.5%	I0-50mA±0.5%
Residual output [I0]		Within ±0.2mA	
Output linearity		Within ±0.15% at If	
Second coil resistance		Approx. 82Ω	
Response time		Within 0.5μs (at di/dt=If/μs)	
Response performance		Within 10% (at di/dt=If/μs)	
Hysteresis voltage range		Within 0.15mA	
Output Temp. Coef.		Within ±0.01%/℃	
Residual output Temp. Coef.		Within ±0.005mA/℃	
Control power supply		±15V±5%	
Consumption current		20mA+(Input current/2000)	
Operating Temp.		-25℃~+85℃	
Storage Temp.		-40℃~+90℃	
Dielectric withstand voltage		2500V AC 50/60Hz 1minute	
Insulation resistance		Not less than 500MΩ 500V DC	

Note1) The indicated residual output is the one after the core hysteresis is removed.

Note2) Energization time of saturation current shall be within 1 second.

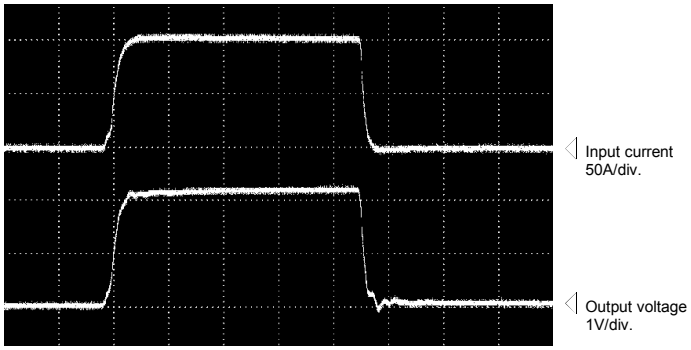
Note3) Energization time of continuous live DC current x150% shall be within 1 minute.

Characteristics chart

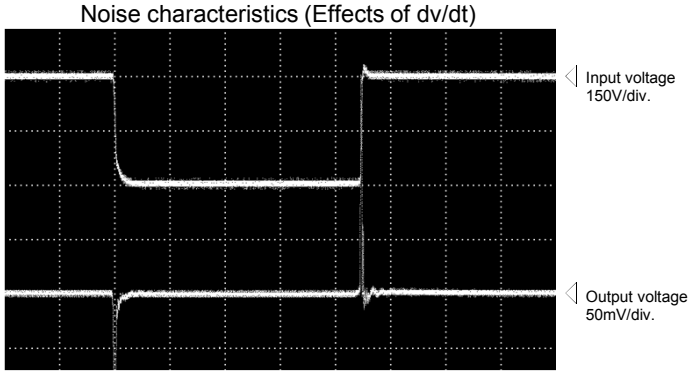
HS-PKF100A005B15 (RL=45Ω)

Time base: 5μs/div.

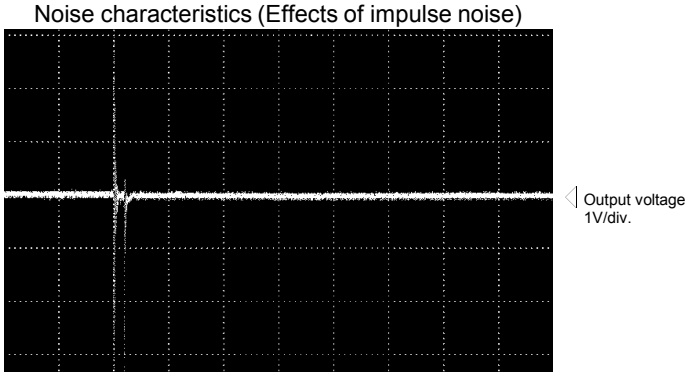
Pulse current response characteristic



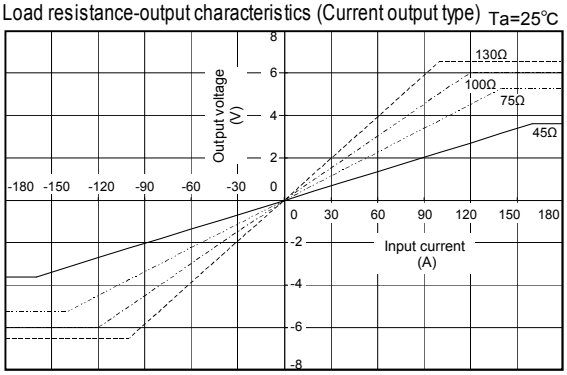
Noise characteristics (Effects of dv/dt)



Noise characteristics (Effects of impulse noise)



Load resistance-output characteristics (Current output type) Ta=25℃



Note: The marks " ◁ " means 0V or 0A.

HS-P series

Small-sized, small current range
PCB-mounting type

HS-P

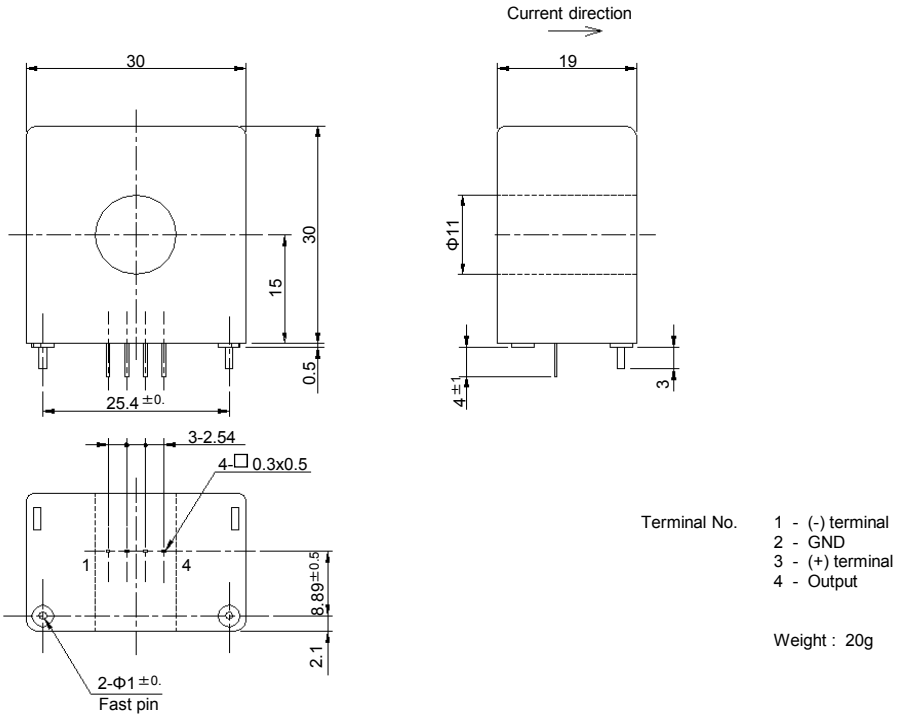
- Rated current 50A ~ 100A
- Superior in response, linearity and temperature characteristics
- Both the voltage output and the current output were prepared

Applications

Inverters, Srevo drivers, Power supply equipment, NC machine tools

Dimensions

(mm)



Terminal No.
1 - (-) terminal
2 - GND
3 - (+) terminal
4 - Output

Weight : 20g

General tolerance: ±0.5

Specification

Ta=25℃

	Voltage output type		Current output type	
Type	HS-P050V4B15	HS-P100V4B15	HS-P050A005B15	HS-P100A005B15
Rated current [If]	±50A	±100A	±50A	±100A
Continuously flowing DC current	±50A	±100A	±50A	±100A
Saturation current [Is]	±100A	±150A	±80A	±150A
Linearity limits	0~±100A	0~±150A	0~±80A (RL=50Ω)	0~±150A (RL=40Ω)
Rated output [Vh,	±4V±1% (RL=10kΩ)		±50mA±1%	
Residual output [V0,	Within ±20mV		Within ±0.2mA	
Output linearity	Within ±0.5%			
Second coil resistance	Approx. 100Ω		Approx. 51Ω	Approx. 100Ω
Response time	Within 1μs (The smaller one on either at di/dt = 100A/μs or If/μs.)			
Response performance	Within 10%			
Hysteresis voltage range	Within 30mV		Within 0.2mA	
Output Temp. Coef.	Within ±0.02%/℃			
Residual output Temp. Coef.	Within ±1mV/℃		Within ±0.01mA/℃	
Control power supply	±15V±5%			
Consumption current	20mA+(Input current/2000)		20mA+(Input current/1000)	20mA+(Input current/2000)
Operating Temp.	-10℃~+80℃			
Storage Temp.	-15℃~+85℃			
Dielectric withstand voltage	2500V AC 50/60Hz 1minute			
Insulation resistance	Not less than 500MΩ 500V DC			

Note1) The indicated residual output is the one after the core hysteresis is removed.

Note2) Energization time of saturation current shall be within 1 second.

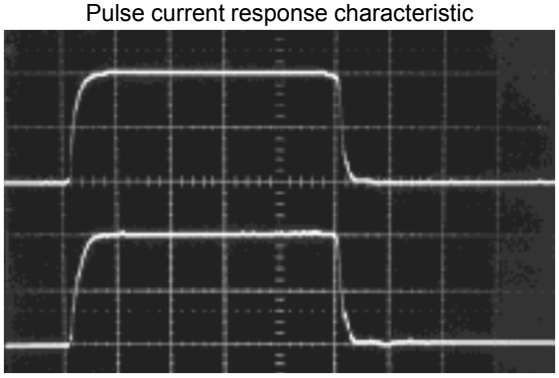
Note3) Energization time of continuous live DC current x150% shall be within 1 minute.

Characteristics chart

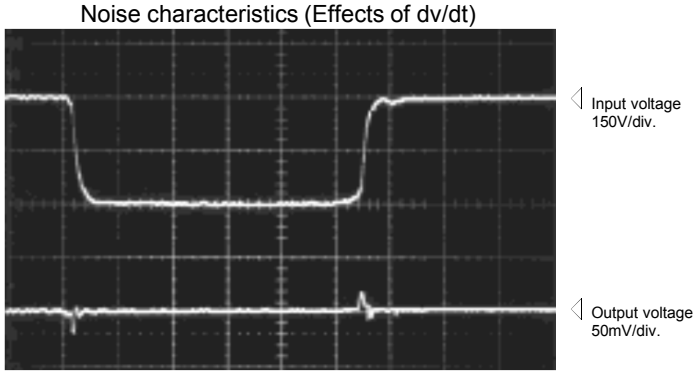
HS-P100A005B15 (RL=20Ω)

Time base: 5μs/div.

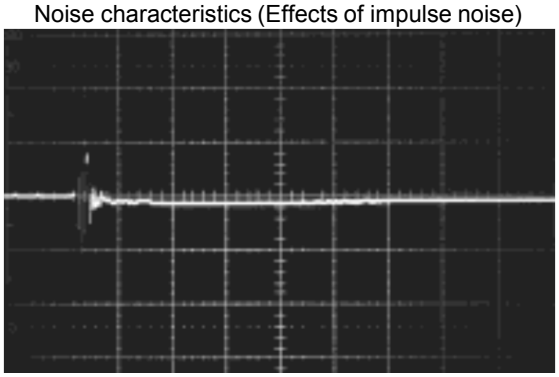
Pulse current response characteristic



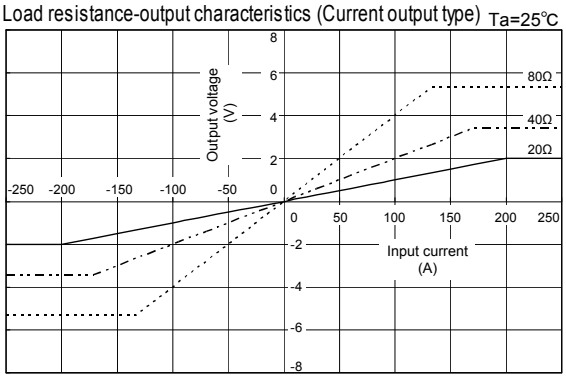
Noise characteristics (Effects of dv/dt)



Noise characteristics (Effects of impulse noise)



Load resistance-output characteristics (Current output type) Ta=25℃

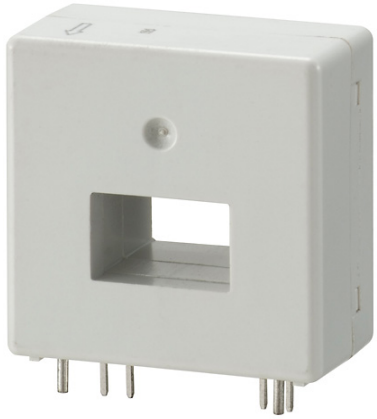


Note: The marks " ◁ " means 0V or 0A.

HS-PKD series

Small-sized, small current range
PCB-mounting type

HS-PKD



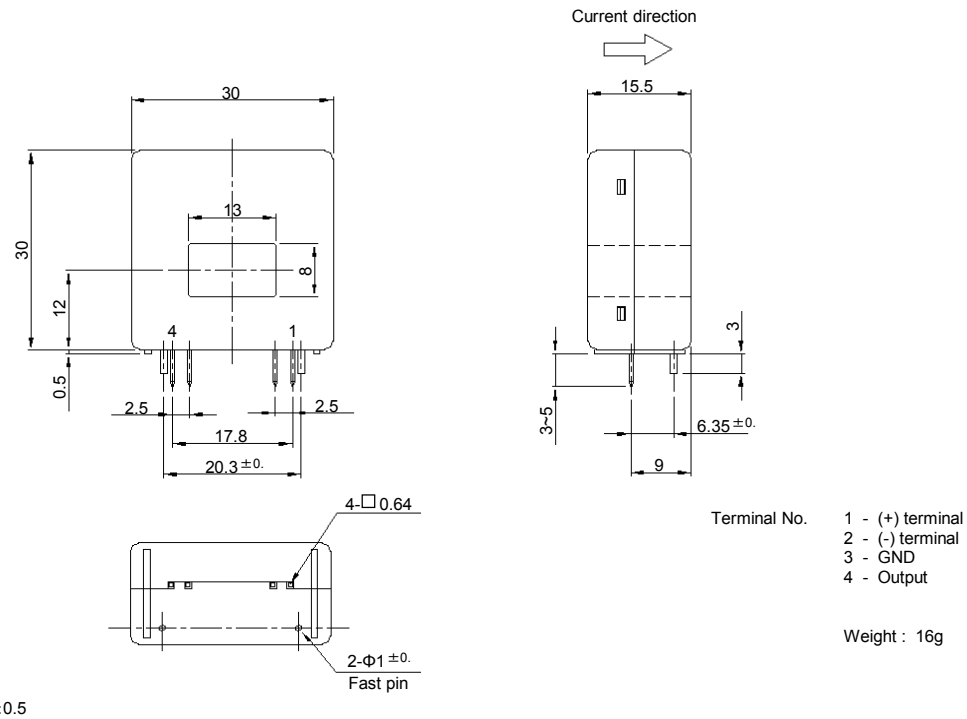
- Rated current 50A ~ 150A
- Realized high precision and compact size
- Superior in response, linearity and temperature characteristics
- Both the voltage output and the current output were prepared

Applications

Inverters, Servo drivers, Power supply equipment, NC machine tools

Dimensions

(mm)



Terminal No.
1 - (+) terminal
2 - (-) terminal
3 - GND
4 - Output

Weight : 16g

General tolerance: ±0.5

Specification

Ta=25℃

		Voltage output type			Current output type	
Type		HS-PKD050V4B15	HS-PKD100V4B15S	HS-PKD150V4B15S	HS-PKD050A0025B15	HS-PKD100A005B15
Rated current [If]		±50A	±100A	±150A	±50A	±100A
Continuously flowing DC current		±50A	±72A	±108A	±50A	±72A
Saturation current [Is]		±125A	±250A	±375A	±100A	±150A
Linearity limits		0~±100A	0~±200A	0~±300A	0~±100A (RL=100~180Ω)	0~±150A (RL=120Ω)
Rated output [Vh,	+If	V0+4V±1% (RL=10kΩ)			I0+25mA±1%	I0+50mA±1%
	-If	V0-4V±1% (RL=10kΩ)			I0-25mA±1%	I0-50mA±1%
Residual output [V0, I0]		Within ±20mV			Within ±0.2mA	
Output linearity		Within ±0.5%				
Second coil resistance		Approx. 47Ω		Approx. 63Ω	Approx. 38Ω	
Response time		Within 1μs (The smaller one on either at di/dt = 100A/μs or If/μs.)				
Response performance		Within 10%				
Hysteresis voltage range		Within 20mV			Within 0.2mA	
Output Temp. Coef.		Within ±0.01%/℃				
Residual output Temp. Coef.		Within ±0.8mV/℃			Within ±0.01mA/℃	
Control power supply		±15V±5%				
Consumption current		20mA+(Input current/2500)		20mA+(Input current/3200)	20mA+(Input current/2000)	
Operating Temp.		-10℃~+80℃				
Storage Temp.		-15℃~+85℃				
Dielectric withstand voltage		2500V AC 50/60Hz 1minute				
Insulation resistance		Not less than 500MΩ 500V DC				

Note1) The indicated residual output is the one after the core hysteresis is removed.

Note2) Energization time of saturation current shall be within 1 second.

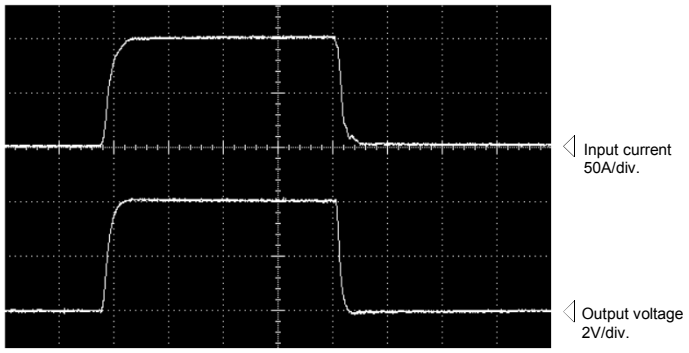
Note3) Energization time of continuous live DC current x150% shall be within 1 minute.

Characteristics chart

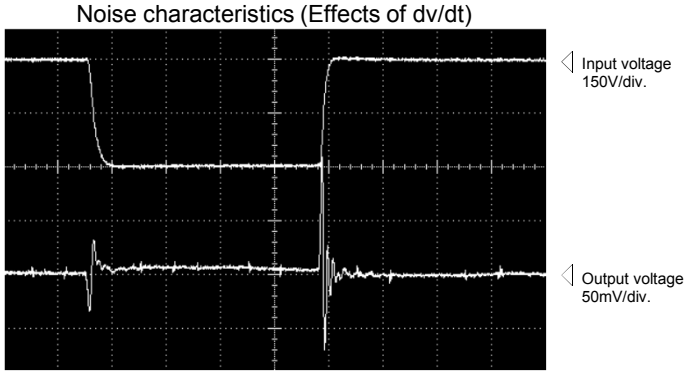
HS-PKD100V4B15S

Time base: 5μs/div.

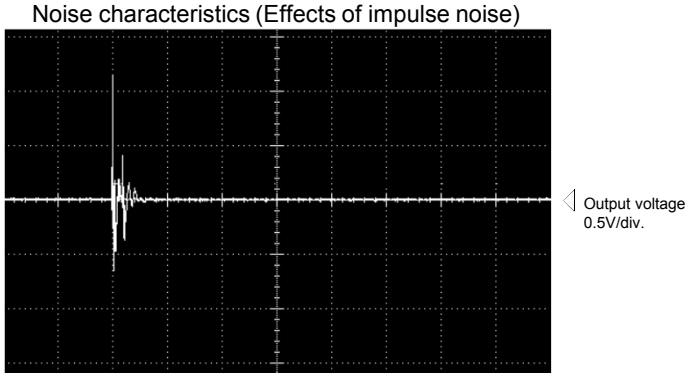
Pulse current response characteristic



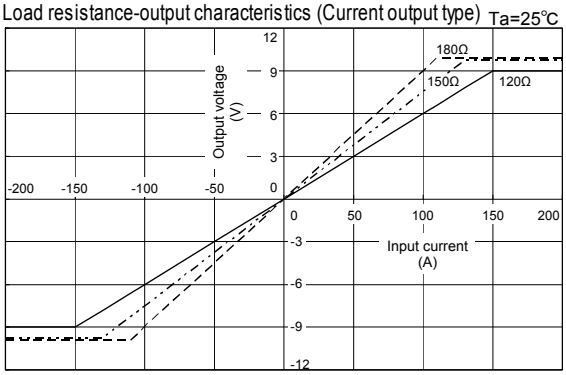
Noise characteristics (Effects of dv/dt)



Noise characteristics (Effects of impulse noise)



Load resistance-output characteristics (Current output type) Ta=25℃



Note: The marks " ◁ " means 0V or 0A.

HS-PTA series

Medium-sized, small current range
Bolt on type

HS-PTA

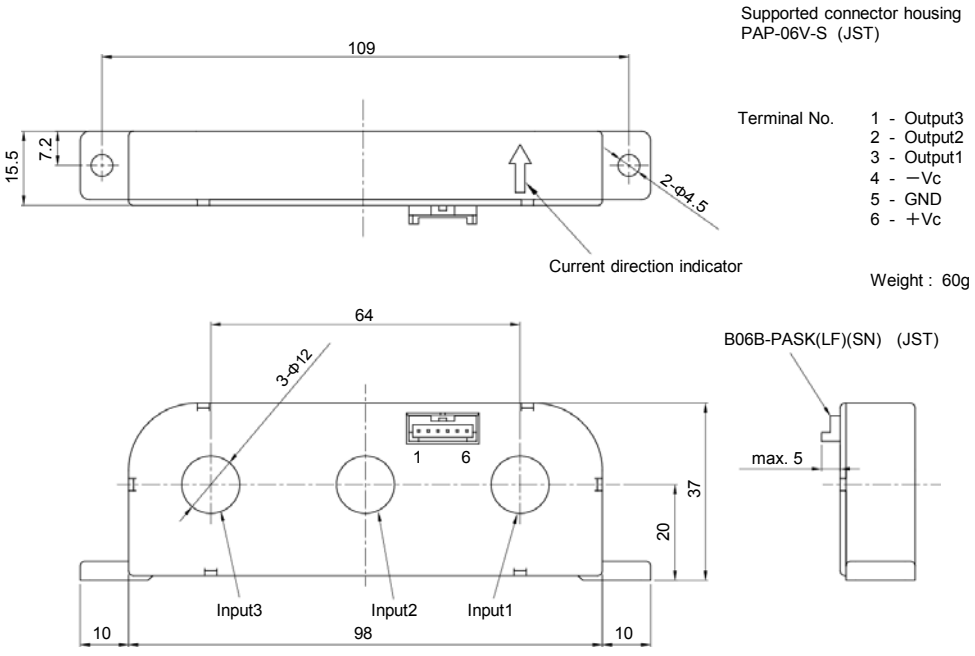
- Rated current 50A ~ 100A
- Three circuits can be measured at the same time
- Realized high precision and compact size
- Superior in response, linearity and temperature characteristics
- Both the voltage output and the current output were prepared

Applications

Inverters, Servo drivers, Power supply equipment, NC machine tools

Dimensions

(mm)



General tolerance: ±0.5

Specification

Ta=25℃

	Current output type	
Type	HS-PTA050A00125B15	HS-PTA100A0025B15
Rated current [If]	±50A	±100A
Continuously flowing DC current	±50A	±100A
Saturation current [Is]	±150A	±200A
Linearity limits	0~±150A (RL=10~100Ω)	0~±200A (RL=10~50Ω)
Rated output [Ih]	I0±12.5mA±1%	I0±25mA±1%
Residual output [I0]	Within ±0.2mA	
Output linearity	Within ±0.3%	
Second coil resistance	Approx. 120Ω	
Response time	Within 1μs (The smaller one on either at di/dt = 100A/μs or If/μs.)	
Response performance	Within 10%	
Hysteresis voltage range	Within 0.2mA	
Output Temp. Coef.	Within ±0.02%/℃	
Residual output Temp. Coef.	Within ±0.01mA/℃	
Control power supply	±15V±5%	
Consumption current	60mA+(Input current/4000)	
Operating Temp.	-15℃~+80℃	
Storage Temp.	-25℃~+85℃	
Dielectric withstand voltage	2500V AC 50/60Hz 1minute	
Insulation resistance	Not less than 500MΩ 500V DC	

Note1) The indicated residual output is the one after the core hysteresis is removed.

Note2) Energization time of saturation current shall be within 1 second.

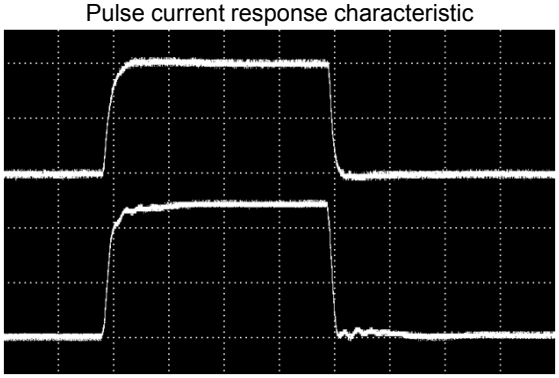
Note3) Energization time of continuous live DC current x150% shall be within 1 minute.

Characteristics chart

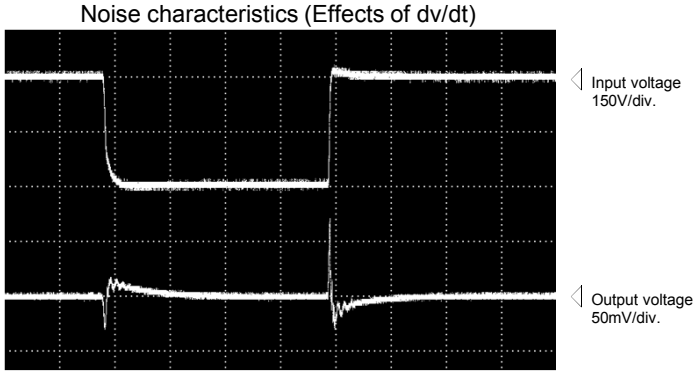
HS-PTA100A0025B15 (RL=50Ω)

Time base: 5μs/div.

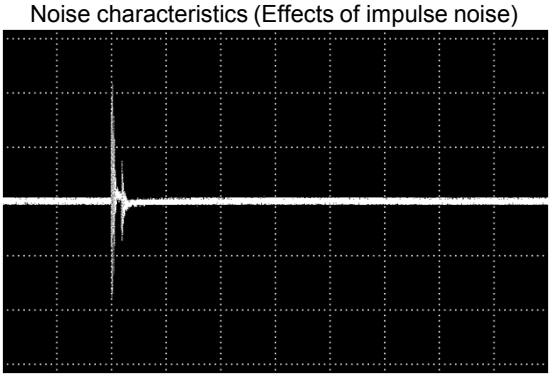
Pulse current response characteristic



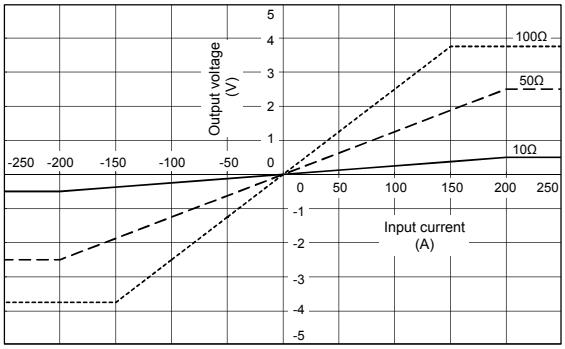
Noise characteristics (Effects of dv/dt)



Noise characteristics (Effects of impulse noise)



Load resistance-output characteristics (Current output type) Ta=25℃



Note: The marks " ◁ " means 0V or 0A.

HS-U

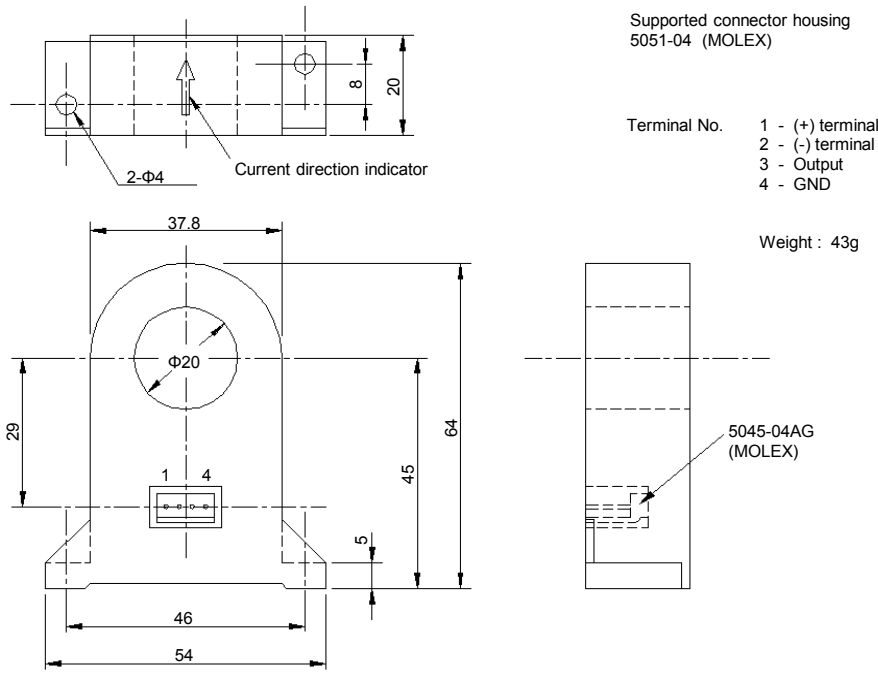
- Rated current 50A ~ 300A
- Superior in response, linearity and temperature characteristics
- Both the voltage output and the current output were prepared

Applications

Inverters, Servo drivers, Power supply equipment, NC machine tools

Dimensions

(mm)



Supported connector housing
5051-04 (MOLEX)

Terminal No.
1 - (+) terminal
2 - (-) terminal
3 - Output
4 - GND

Weight : 43g

General tolerance: ±0.5

Specification

Ta=25℃

	Voltage output type			Current output type		
Type	HS-U050V4B15	HS-U100V4B15	HS-U300V4B15	HS-U050A005B15	HS-U100A005B15	HS-U300A015B15
Rated current [If]	±50A	±100A	±300A	±50A	±100A	±300A
Continuously flowing DC current	±50A	±100A	±150A	±50A	±100A	±300A
Saturation current [Is]	±150A	±300A	±390A	±150A	±300A	±300A
Linearity limits	0~±150A	0~±300A	0~±360A	0~±150A (RL=50Ω)	0~±300A (RL=20Ω)	0~±300A (RL=20Ω)
Rated output [Vh,	±4V±1% (RL=10kΩ)			±50mA±1%		±150mA±1
Residual output [V0,	Within ±20mV			Within ±0.2mA		
Output linearity	Within ±0.5%					
Second coil resistance	Approx. 25Ω	Approx. 50Ω		Approx. 25Ω	Approx. 50Ω	
Response time	Within 1μs (The smaller one on either at di/dt = 100A/μs or If/μs.)					
Response performance	Within 10%					
Hysteresis voltage range	Within 20mV			Within 0.2mA		
Output Temp. Coef.	Within ±0.02%/℃					
Residual output Temp. Coef.	Within ±1mV/℃			Within ±0.01mA/℃		
Control power supply	±15V±5%					
Consumption current	20mA+(Input current/1000)	20mA+(Input current/2000)		20mA+(Input current/1000)	20mA+(Input current/2000)	
Operating Temp.	-10℃~+80℃					
Storage Temp.	-15℃~+85℃					
Dielectric withstand voltage	2500V AC 50/60Hz 1minute					
Insulation resistance	Not less than 500MΩ 500V DC					

Note1) The indicated residual output is the one after the core hysteresis is removed.

Note2) Energization time of saturation current shall be within 1 second.

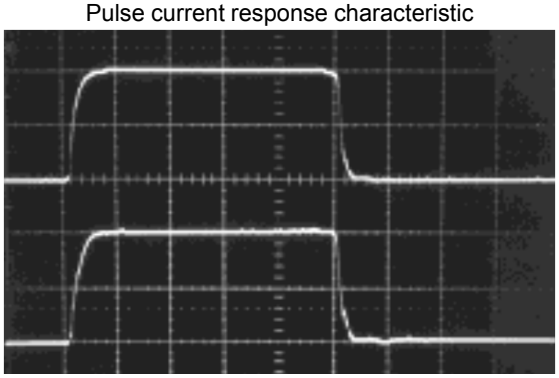
Note3) Energization time of continuous live DC current x150% shall be within 1 minute.

Characteristics chart

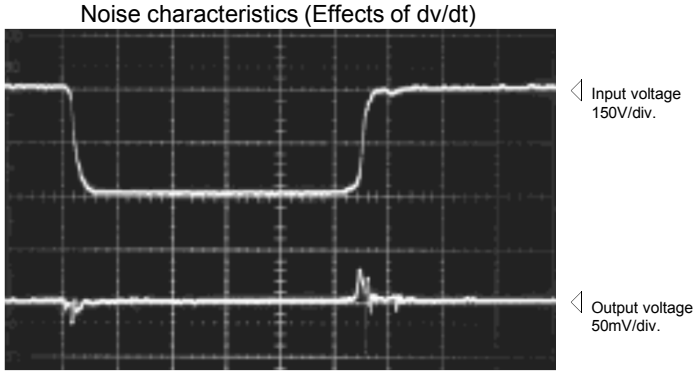
HS-U100A005B15 (RL=20Ω)

Time base: 5μs/div.

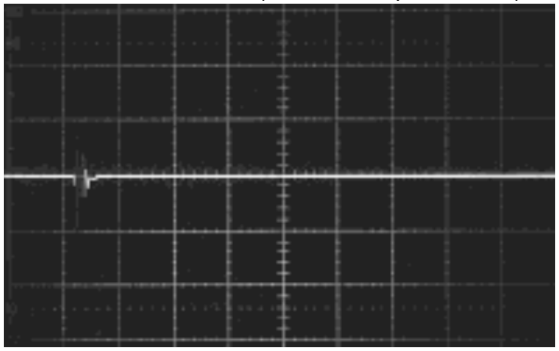
Pulse current response characteristic



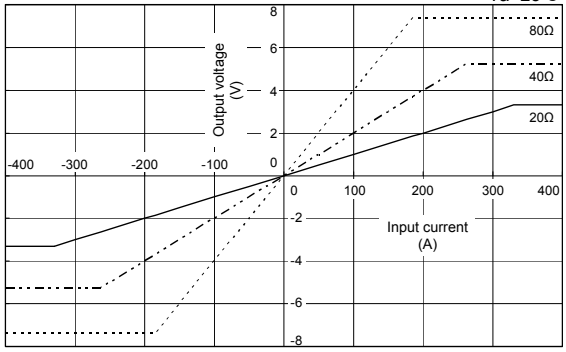
Noise characteristics (Effects of dv/dt)



Noise characteristics (Effects of impulse noise)



Load resistance-output characteristics (Current output type) Ta=25℃



Note: The marks " ◁ " means 0V or 0A.

HS-UFB series

Medium-sized, medium current range
Bolt on type

HS-UFB

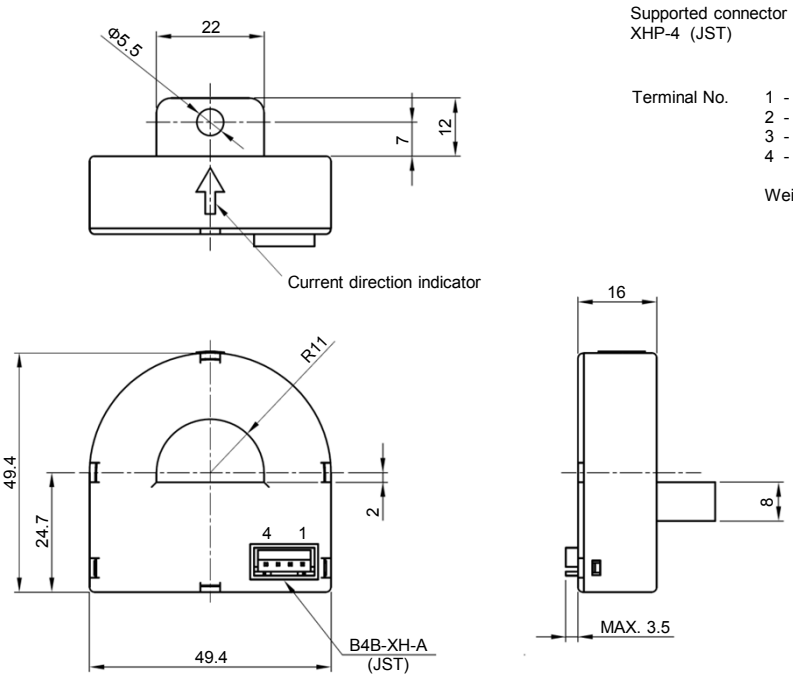
- Rated current 100A ~ 300A
- Superior in response, linearity and temperature characteristics
- Both the voltage output and the current output were prepared

Applications

Inverters, Servo drivers, Power supply equipment, NC machine tools

Dimensions

(mm)



Supported connector housing
XHP-4 (JST)

Terminal No.
1 - (+) terminal
2 - (-) terminal
3 - Output
4 - GND

Weight : 36g

General tolerance: ±0.5

Specification

Ta=25℃

	Voltage output type			Current output type		
Type	HS-UFB100V4B15	HS-UFB200V4B15	HS-UFB300V4B15	HS-UFB100A0025B15	HS-UFB200A005B15	HS-UFB300A0075B15
Rated current [If]	±100A	±200A	±300A	±100A	±200A	±300A
Continuously flowing DC current	±100A	±200A	±230A	±100A	±200A	±230A
Saturation current [Is]	±300A	±600A	±750A	±300A (RL=90Ω)	±600A (RL=5Ω)	±750A (RL=5Ω)
Linearity limits	0~±250A	0~±500A	0~±700A	0~±250A (RL=5~90Ω)	0~±500A (RL=5~20Ω)	0~±700A (RL=5Ω)
Rated output [Vh, Ih]	V0±4V±1% (RL=10kΩ)			I0±25mA±1%	I0±50mA±1%	I0±75mA±1%
Residual output [V0, I0]	Within ±20mV			Within ±0.2mA		
Output linearity	Within ±0.3%					
Second coil resistance	Approx. 53Ω					
Response time	Within 1μs (at di/dt=100A/μs)					
Response performance	Within 10%					
Hysteresis voltage range	Within 20mV			Within 0.2mA		
Output Temp. Coef.	Within ±0.02%/℃					
Residual output Temp. Coef.	Within ±1mV/℃			Within ±0.01mA/℃		
Control power supply	±15V±5%					
Consumption current	20mA+(Input current/4000)					
Operating Temp.	-15℃~+80℃					
Storage Temp.	-25℃~+85℃					
Dielectric withstand voltage	2500V AC 50/60Hz 1minute					
Insulation resistance	Not less than 500MΩ 500V DC					

Note1) The indicated residual output is the one after the core hysteresis is removed.

Note2) Energization time of saturation current shall be within 1 second.

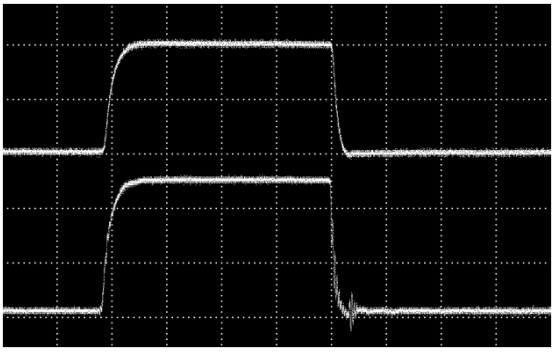
Note3) Energization time of continuous live DC current x150% shall be within 1 minute.

Characteristics chart

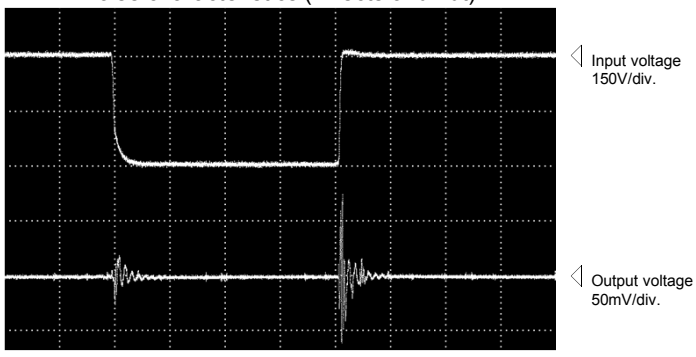
HS-UFB200A005B15 (RL=10Ω)

Time base: 5μs/div.

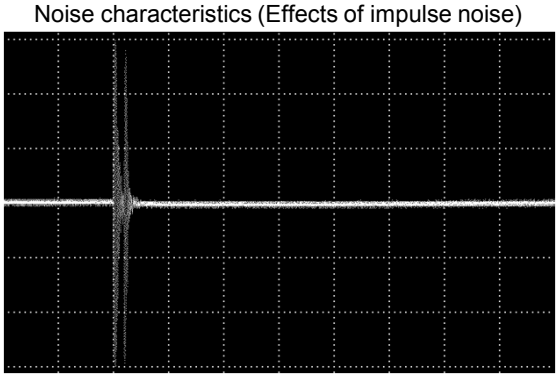
Pulse current response characteristic



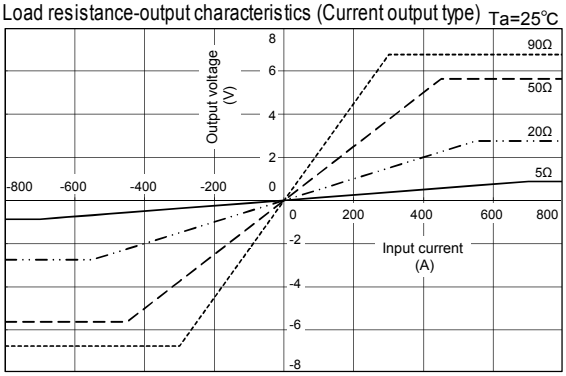
Noise characteristics (Effects of dv/dt)



Noise characteristics (Effects of impulse noise)



Load resistance-output characteristics (Current output type) Ta=25℃



Note: The marks " ◁ " means 0V or 0A.

HS-UD

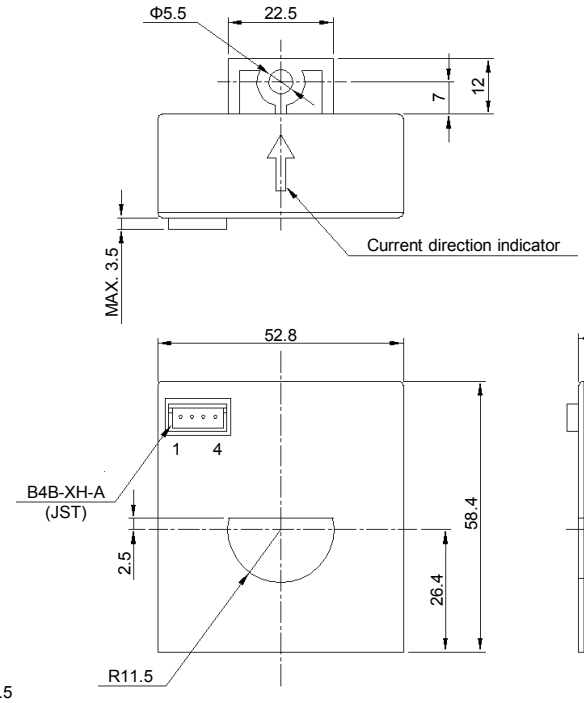
- Rated current 300A ~ 500A
- Superior in response, linearity and temperature characteristics
- Both the voltage output and the current output were prepared

Applications

Inverters, Servo drivers, Power supply equipment, NC machine tools

Dimensions

(mm)



Supported connector housing
XHP-4 (JST)

Terminal No.
1 - (+) terminal
2 - (-) terminal
3 - Output
4 - GND

Weight : 81g

General tolerance: ±0.5

Specification

Ta=25℃

	Voltage output type			Current output type		
Type	HS-UD300V4B15	HS-UD400V4B15	HS-UD500V4B15	HS-UD300A015B15	HS-UD400A020B15	HS-UD500A025B15
Rated current [If]	±300A	±400A	±500A	±300A	±400A	±500A
Continuously flowing DC current	±450A	±450A	±450A	±450A	±450A	±450A
Saturation current [Is]	±900A	±1200A	±1200A	±800A	±1000A	±1200A
Linearity limits	0~±900A	0~±1200A	0~±1200A	0~±800A (RL=10Ω)	0~±1000A (RL=5Ω)	0~±1200A (RL=1Ω)
Rated output [Vh,	±4V±1% (RL=10kΩ)			±150mA±1	±200mA±1	±250mA±1
Residual output [V0,	Within ±20mV			Within ±0.2mA		
Output linearity	Within ±0.5%					
Second coil resistance	Approx. 16.8Ω					
Response time	Within 1μs (The smaller one on either at di/dt = 100A/μs or If/μs.)					
Response performance	Within 10%					
Hysteresis voltage range	Within 20mV			Within 0.2mA		
Output Temp. Coef.	Within ±0.02%/℃					
Residual output Temp. Coef.	Within ±1mV/℃			Within ±0.01mA/℃		
Control power supply	±15V±5%					
Consumption current	20mA+(Input current/2000)					
Operating Temp.	-10℃~+80℃					
Storage Temp.	-15℃~+85℃					
Dielectric withstand voltage	2500V AC 50/60Hz 1minute					
Insulation resistance	Not less than 500MΩ 500V DC					

Note1) The indicated residual output is the one after the core hysteresis is removed.

Note2) Energization time of saturation current shall be within 1 second.

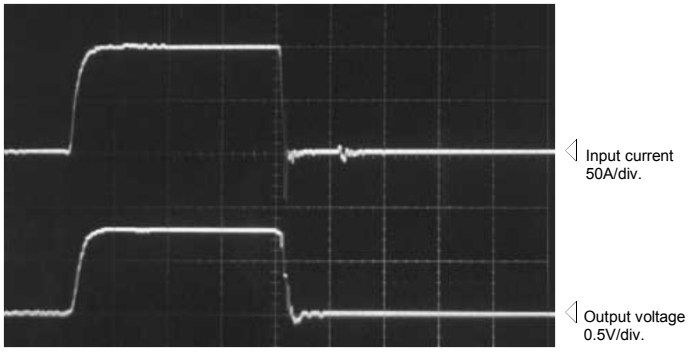
Note3) Energization time of continuous live DC current x150% shall be within 1 minute.

Characteristics chart

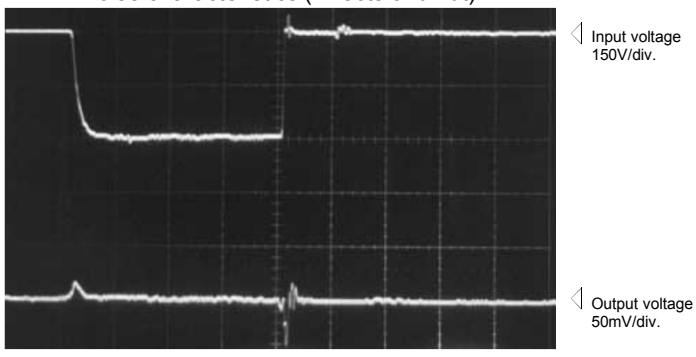
HS-UD500V4B15

Time base: 5μs/div.

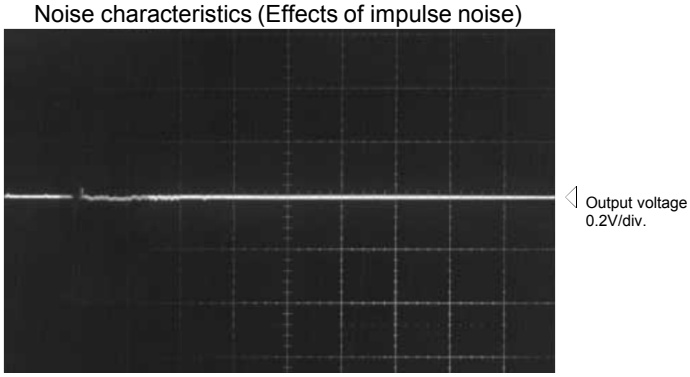
Pulse current response characteristic



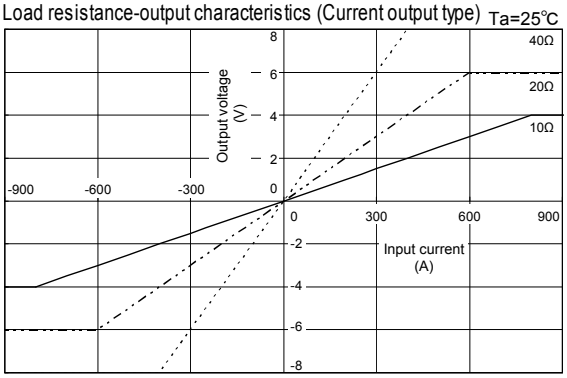
Noise characteristics (Effects of dv/dt)



Noise characteristics (Effects of impulse noise)



Load resistance-output characteristics (Current output type) Ta=25℃



Note: The marks " ◁ " means 0V or 0A.

HS-K

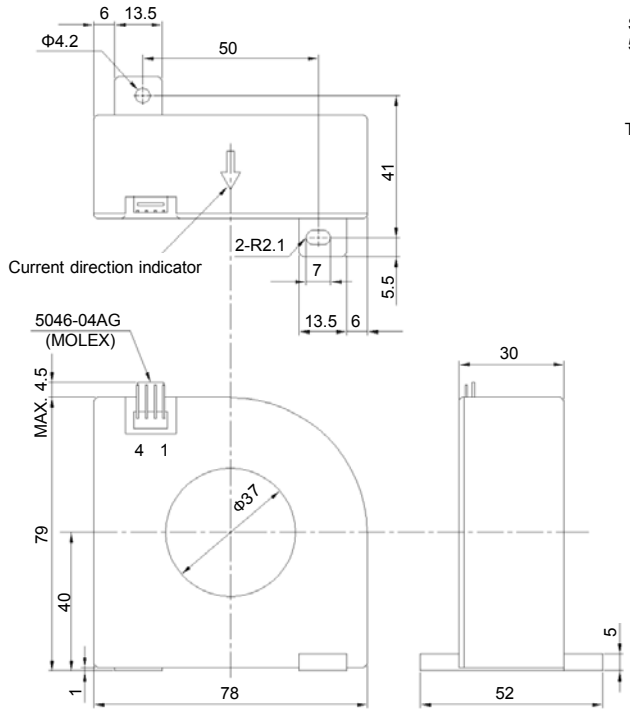
- Rated current 300A ~ 500A
- Superior in response, linearity and temperature characteristics
- Both the voltage output and the current output were prepared

Applications

Inverters, Power supply equipment

Dimensions

(mm)



Supported connector housing
5051-04 (MOLEX)

Terminal No.
1 - (+) terminal
2 - (-) terminal
3 - Output
4 - GND

Weight : 226g

General tolerance: ±0.5

Specification

Ta=25℃

	Voltage output type			Current output type		
Type	HS-K300V4B15	HS-K400V4B15	HS-K500V4B15	HS-K300A0075B15	HS-K400A010B15	HS-K500A010B15
Rated current [If]	±300A	±400A	±500A	±300A	±400A	±500A
Continuously flowing DC current	±600A	±800A	±1000A	±600A	±800A	±1000A
Saturation current [Is]	±600A	±800A	±1000A	±600A	±800A	±1000A
Linearity limits	0~±600A	0~±800A	0~±1000A	0~±600A (RL=30Ω)	0~±800A (RL=10Ω)	0~±1000A (RL=1Ω)
Rated output [Vh, Ih]	±4V±1% (RL=10kΩ)			±75mA±1%	±100mA±1%	
Residual output [V0, I0]	Within ±20mV			Within ±0.2mA		
Output linearity	Within ±0.5%					
Second coil resistance	Approx. 31Ω		Approx. 42Ω	Approx. 31Ω		Approx. 42Ω
Response time	Within 1μs (at di/dt=100A/μs)					
Response performance	Within 20%					
Hysteresis voltage range	Within 20mV			Within 0.2mA		
Output Temp. Coef.	Within ±0.02%/℃					
Residual output Temp. Coef.	Within ±1mV/℃			Within ±0.01mA/℃		
Control power supply	±15V±5%					
Consumption current	20mA+(Input current/4000)		20mA+(Input current/5000)	20mA+(Input current/4000)		20mA+(Input current/5000)
Operating Temp.	-10℃~+80℃					
Storage Temp.	-15℃~+85℃					
Dielectric withstand voltage	2500V AC 50/60Hz 1minute					
Insulation resistance	Not less than 500MΩ 500V DC					

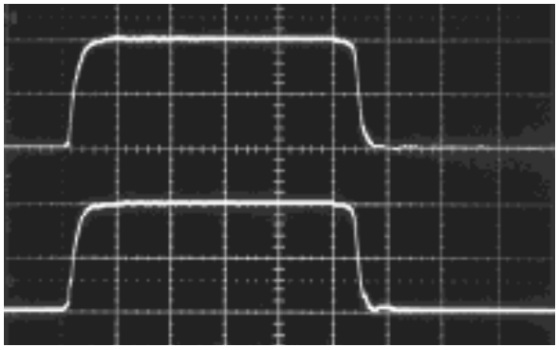
Note1) The indicated residual voltage is the one after the core hysteresis is removed.

Characteristics chart

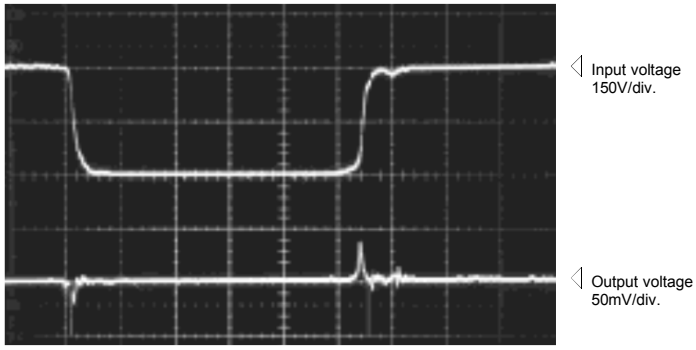
HS-K500A010B15 (RL=10Ω)

Time base: 5μs/div.

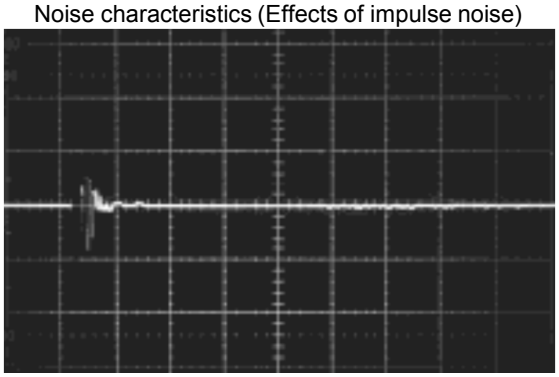
Pulse current response characteristic



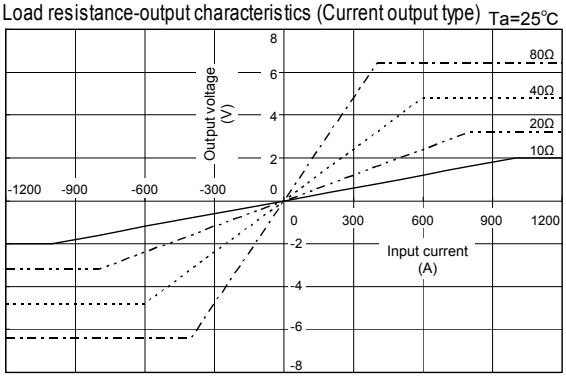
Noise characteristics (Effects of dv/dt)



Noise characteristics (Effects of impulse noise)



Load resistance-output characteristics (Current output type) Ta=25℃



Note: The marks " ◁ " means 0V or 0A.

HC-AK

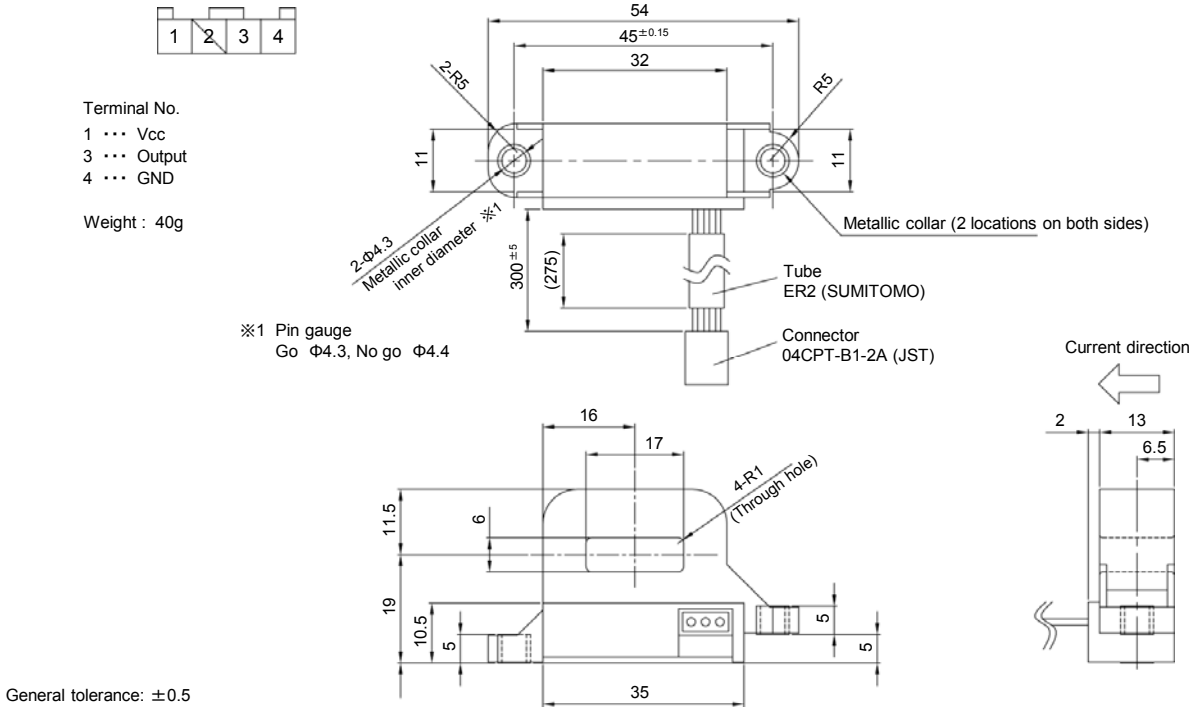
- Rated current 200A ~ 500A
- Small and thin design
- Bolt-on fixing, Wire harness connection
- 5V single power supply ratio metric specifications
- Attached to chassis, cable output specifications

Applications

HEV inverters, EV inverters, Current detection in automotive applications

Dimensions

(mm)



Specification

Ta=25℃

Type		HC-AK200V2PP5-1	HC-AK300V2PP5-1	HC-AK400V2PP5-1	HC-AK500V2PP5-1
Rated current [If]		±200A	±300A	±400A	±500A
Saturation current [Is]		±220A	±330A	±440A	±550A
Linearity limits		0~±200A	0~±300A	0~±400A	0~±500A
Rated output [Vh]	I=+If	Within V0+2V×(Vcc/5)±1.5% (RL=10kΩ)			
	I=-If	Within V0-2V×(Vcc/5)±1.5% (RL=10kΩ)			
Residual output [V0]		Within Vcc/2±30mV			
Output linearity		Within ±1%			
Response time		Within 10μs (at di/dt=100A/μs)			
Response performance		Within 10%			
Hysteresis voltage range		Within 30mV	Within 22mV	Within 16mV	Within 13mV
Output Temp. Coef.		Within ±0.04%/℃			
Residual output Temp. Coef.		Within ±2mV/℃	Within ±1.7mV/℃	Within ±1.3mV/℃	Within ±0.9mV/℃
Control power supply [Vcc]		+5V±4%			
Power variation characteristics change [+5V±4%]	I=±If	3.5~4.5%			
	I=0	3~5%	3.1~4.9%	3.2~4.8%	3.3~4.7%
Consumption current		Within 30mA			
Operating Temp.		-40℃~+105℃			
Storage Temp.		-40℃~+105℃			
Dielectric withstand voltage		2500V AC 50/60Hz 1minute			
Insulation resistance		Not less than 500MΩ 500V DC			

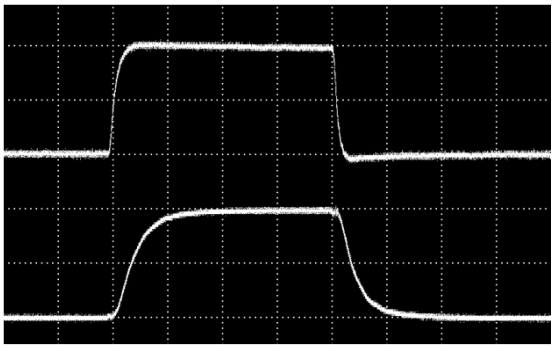
Note1) The indicated residual voltage is the one after the core hysteresis is removed.
Note2) Output specifications include 100-Ω output resistance and 1-mA maximum output current.
Note3) Since residual output is ratiometric output, it varies according to the control power supply value.
Note4) Code at the end of the model name represents harness specifications.

Characteristics chart

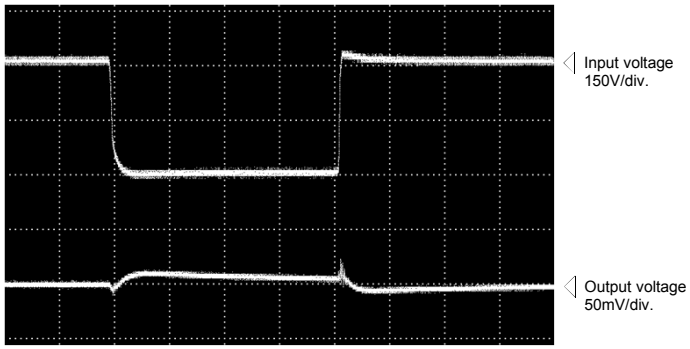
HC-AK200V2PP5-1

Time base: 5μs/div.

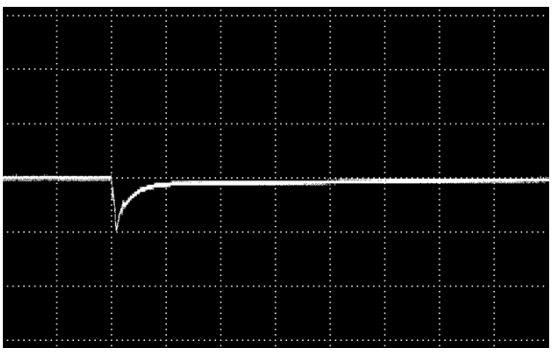
Pulse current response characteristic



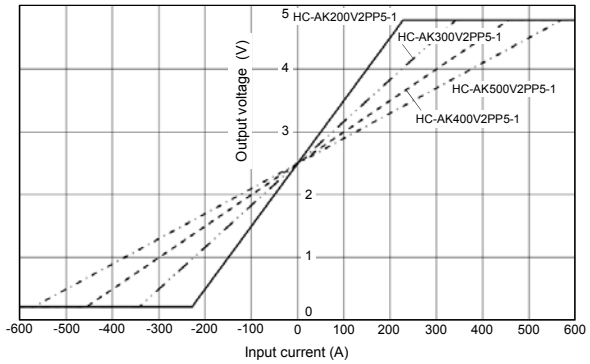
Noise characteristics (Effects of dv/dt)



Noise characteristics (Effects of impulse noise)



Input/output characteristics



Note: The marks " ◁ " means 0V or 0A.

HC-ASA

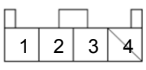
- Rated current 200A ~ 800A
- Small size handles large current (MAX 800A)
- Ensures broad operating temperature range (-40°C ~ +125°C)
- 5V single power supply ratio metric specifications
- Attached to chassis, cable output specifications

Applications

HEV inverters, EV inverters, Current detection in automotive applications

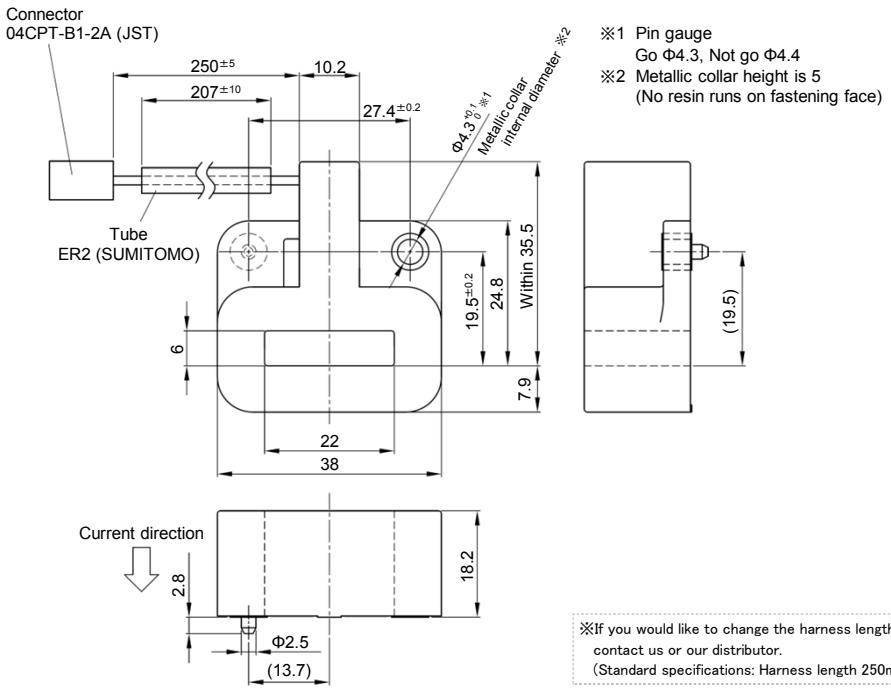
Dimensions

(mm)



Terminal No.
1 ··· (+) terminal
2 ··· GND
3 ··· Output

Weight : 60g



※1 Pin gauge
Go Φ4.3, Not go Φ4.4
※2 Metallic collar height is 5
(No resin runs on fastening face)

※If you would like to change the harness length, contact us or our distributor.
(Standard specifications: Harness length 250mm)

General tolerance: ±0.5

Specification

Ta=25℃

Type		HC-ASA200V2PP5-16	HC-ASA400V2PP5-16	HC-ASA600V2PP5-16	HC-ASA800V2PP5-16
Rated current [If]		±200A	±400A	±600A	±800A
Saturation current [Is]		±220A	±440A	±660A	±880A
Linearity limits		0~±200A	0~±400A	0~±600A	0~±800A
Rated output [Vh]	I=+If	Within V0+2V×(Vcc/5)±1.5% (RL=10kΩ)			
	I=-If	Within V0-2V×(Vcc/5)±1.5% (RL=10kΩ)			
Residual output [V0]		Within Vcc/2±30mV			
Output linearity		Within ±1%			
Response time		Within 10μs (at di/dt=100A/μs)			
Response performance		Within 10%			
Hysteresis voltage range		Within 30mV	Within 22mV	Within 16mV	Within 13mV
Output Temp. Coef.		Within ±0.04%/℃			
Residual output Temp. Coef.		Within ±1mV/℃	Within ±0.6mV/℃	Within ±0.5mV/℃	Within ±0.4mV/℃
Control power supply [Vcc]		+5V±4%			
Power variation characteristics change [+5V±4%]	I=±If	3.5～4.5%			
	I=0	3.2～4.8%	3.5～4.5%		
Consumption current		Within 30mA			
Operating Temp.		-40℃~+125℃			
Storage Temp.		-40℃~+125℃			
Dielectric withstand voltage		2500V AC 50/60Hz 1minute			
Insulation resistance		Not less than 500MΩ 500V DC			

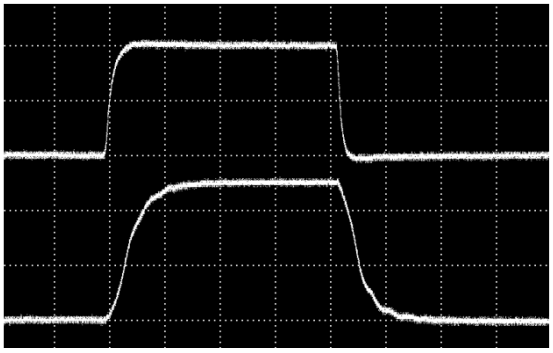
Note1) The indicated residual voltage is the one after the core hysteresis is removed.
Note2) Output specifications include 100-Ω output resistance and 1-mA maximum output current.
Note3) Since residual output is ratiometric output, it varies according to the control power supply value.
Note4) Code at the end of the model name represents harness specifications.

Characteristics chart

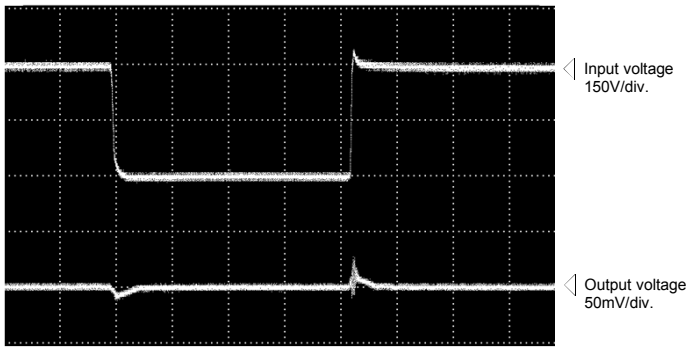
HC-ASA800V2PP5-16

Time base: 5μs/div.

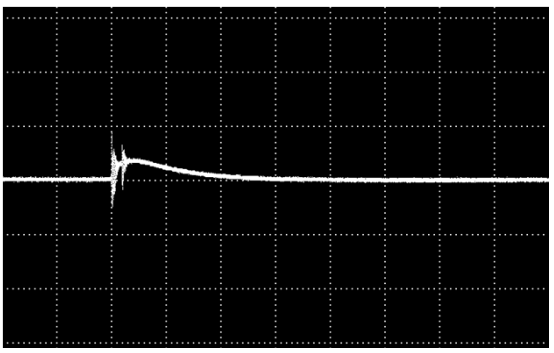
Pulse current response characteristic



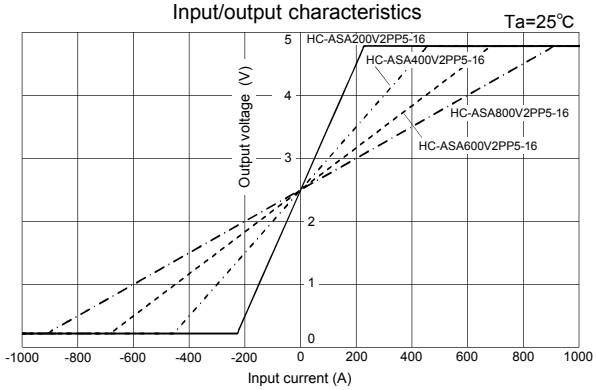
Noise characteristics (Effects of dv/dt)



Noise characteristics (Effects of impulse noise)



Input/output characteristics



Note: The marks " ◁ " means 0V or 0A.

HC-ASB

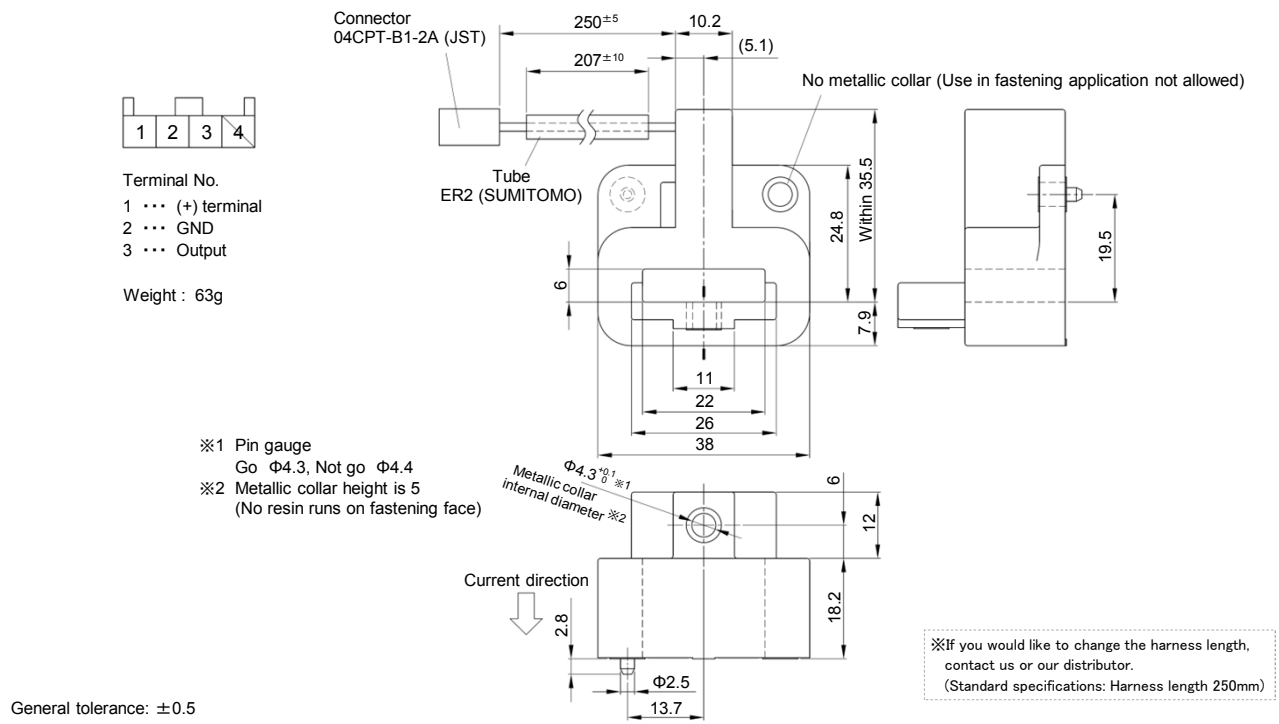
- Rated current 200A ~ 800A
- Small size handles large current (MAX 800A)
- Ensures broad operating temperature range (-40°C ~ +125°C)
- 5V single power supply ratio metric specifications
- Attached to bus-bar, cable output specifications

Applications

HEV inverters, EV inverters, Current detection in automotive applications

Dimensions

(mm)



Specification

Ta=25℃

Type		HC-ASB200V2PP5-16	HC-ASB400V2PP5-16	HC-ASB600V2PP5-16	HC-ASB800V2PP5-16
Rated current [If]		±200A	±400A	±600A	±800A
Saturation current [Is]		±220A	±440A	±660A	±880A
Linearity limits		0~±200A	0~±400A	0~±600A	0~±800A
Rated output [Vh]	I=+If	Within V0+2V×(Vcc/5)±1.5% (RL=10kΩ)			
	I=-If	Within V0-2V×(Vcc/5)±1.5% (RL=10kΩ)			
Residual output [V0]		Within Vcc/2±30mV			
Output linearity		Within ±1%			
Response time		Within 10μs (at di/dt=100A/μs)			
Response performance		Within 10%			
Hysteresis voltage range		Within 30mV	Within 22mV	Within 16mV	Within 13mV
Output Temp. Coef.		Within ±0.04%/℃			
Residual output Temp. Coef.		Within ±1mV/℃	Within ±0.6mV/℃	Within ±0.5mV/℃	Within ±0.4mV/℃
Control power supply [Vcc]		+5V±4%			
Power variation characteristics change [+5V±4%]	I=±If	3.5~4.5%			
	I=0	3.2~4.8%	3.5~4.5%		
Consumption current		Within 30mA			
Operating Temp.		-40℃~+125℃			
Storage Temp.		-40℃~+125℃			
Dielectric withstand voltage		2500V AC 50/60Hz 1minute			
Insulation resistance		Not less than 500MΩ 500V DC			

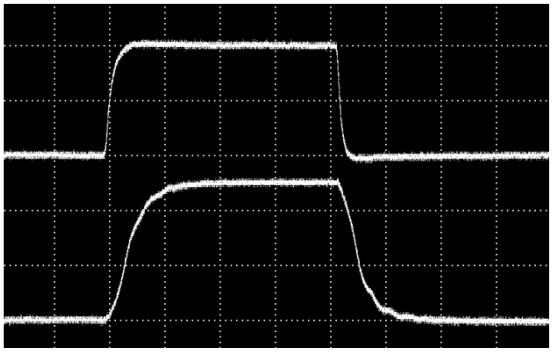
Note1) The indicated residual voltage is the one after the core hysteresis is removed.
Note2) Output specifications include 100-Ω output resistance and 1-mA maximum output current.
Note3) Since residual output is ratiometric output, it varies according to the control power supply value.
Note4) Code at the end of the model name represents harness specifications.

Characteristics chart

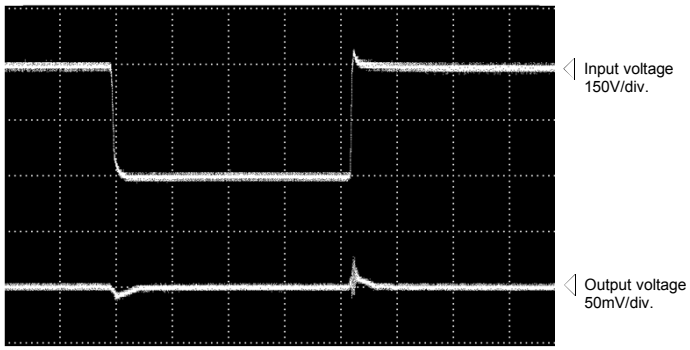
HC-ASB800V2PP5-16

Time base: 5μs/div.

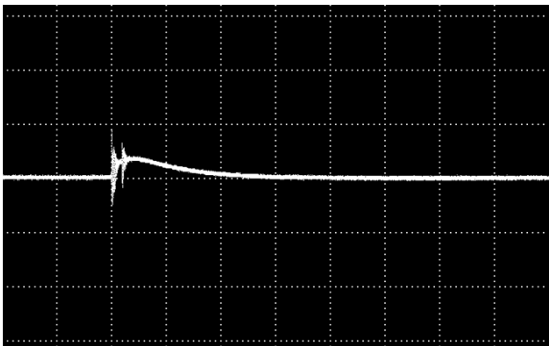
Pulse current response characteristic



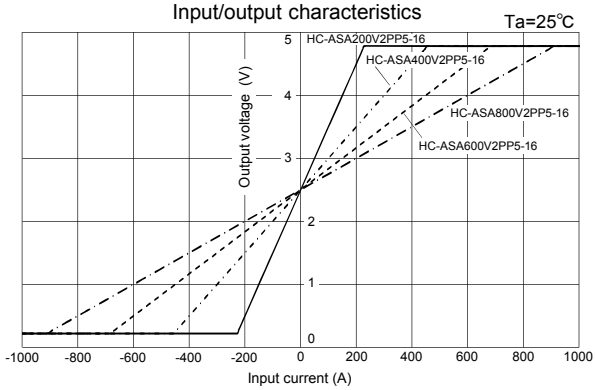
Noise characteristics (Effects of dv/dt)



Noise characteristics (Effects of impulse noise)

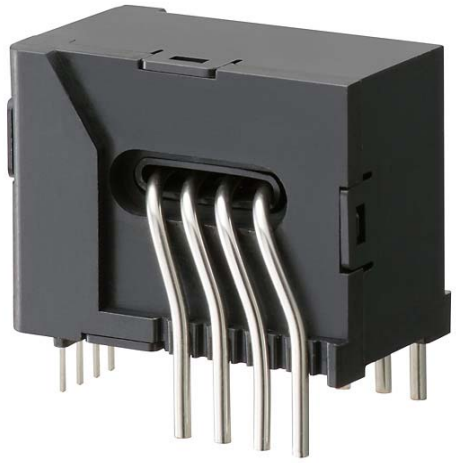


Input/output characteristics



Note: The marks " ◁ " means 0V or 0A.

HF-A



- Rated current 6A ~ 50A
- High accuracy current sensor using fluxgate technology
- Handles 5V single power supply and reference voltage (Vref)
- Excellent temperature characteristics
- High speed response
- Over-current protection circuit built-in

Applications

Inverters, Servo drivers, Power supply equipment, Uninterruptible power supply (UPS), NC machine tools, Welders

Dimensions

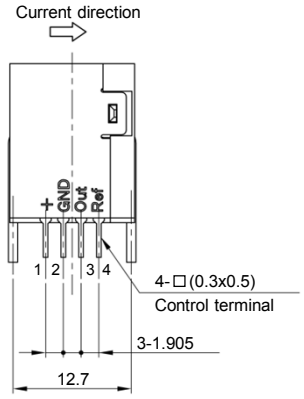
(mm)

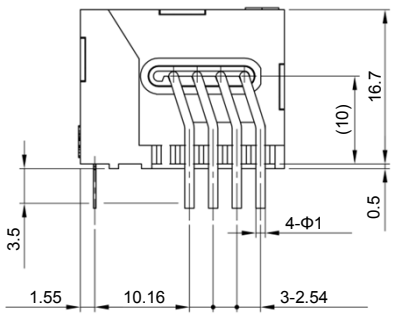
General tolerance: ±0.5

Terminal No.

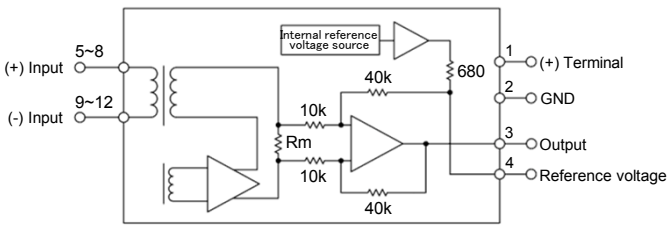
1 ··· (+) terminal
2 ··· GND
3 ··· Output
4 ··· Reference voltage
5 ··· (+) input
6 ··· (+) input
7 ··· (+) input
8 ··· (+) input
9 ··· (-) input
10 ··· (-) input
11 ··· (-) input
12 ··· (-) input

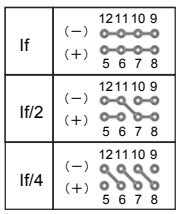
Weight : 9g

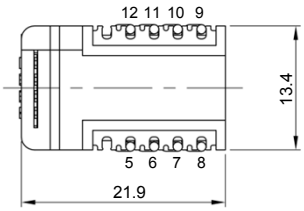




Circuit connection diagram







Specification

Ta=25℃

Type	HF-A06V0625PP5D	HF-A15V0625PP5D	HF-A25V0625PP5D	HF-A50V0625PP5D
Rated current [If]	±6A	±15A	±25A	±50A
Continuously flowing DC current	±20A	±51A	±55A	±55A
Saturation current [Is]	±20A	±51A	±85A	±150A
Linearity limits	0~±18A	0~±45A	0~±75A	0~±100A
Internal reference voltage [Vref] (I=0)	+2.5±5mV			
External reference voltage [Vref]	0～4V			
Rated output [Vh] (I=If, output-Vref)	±0.625V±0.7%			
Residual output [Vo] (I=0, output-Vref)	Within ±5.3mV	Within ±2.2mV	Within ±1.35mV	Within ±0.725mV
Output linearity	Within ±0.1%			
Response time	Within 0.3μs (at di/dt=If/μs)			
Response performance	Within 10%			
Hysteresis voltage range	Within 1mV			
Output Temp. Coef.	Within ±0.004%/℃			
Residual output Temp. Coef.	Within ±0.035mV/℃	Within ±0.015mV/℃	Within ±0.01mV/℃	Within ±0.0075mV/℃
Internal reference voltage Temp. Coef.	Within ±0.125mV/℃			
Control power supply	+5V±5%			
Consumption current	20mA+(Input current/1760)			20mA+(Input current/1768)
Operating Temp.	-40℃~+85℃			
Storage Temp.	-40℃~+105℃			
Dielectric withstand voltage	4000V AC 50/60Hz 1minute			
Insulation resistance	Not less than 500MΩ 500V DC			

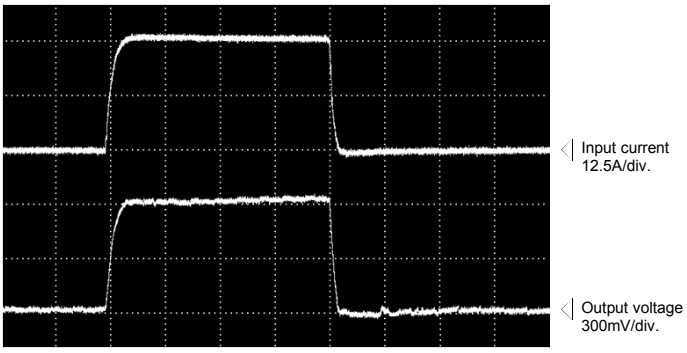
Note1) The indicated residual output is the one after the core hysteresis is removed.
Note2) Energization time of saturation current shall be within 1 second.
Note3) Energization time of continuous live DC current x150% shall be within 1 minute.
Note4) In this specification, accuracy was determined with reference to the reference voltage (Vref).
Note5) For the reference voltage, there are 2 types of modes of internal reference output and external reference input.

Characteristics chart

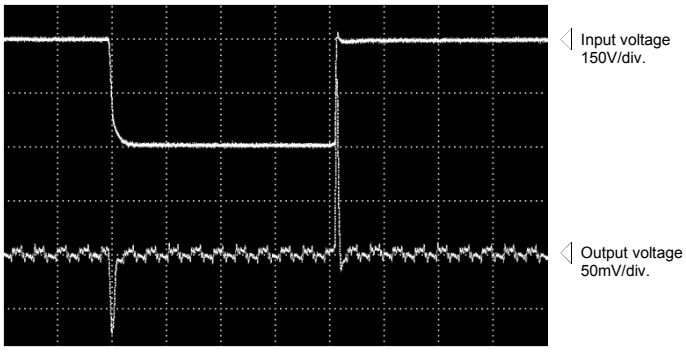
HF-A25V0625PP5D

Time base: 5μs/div.

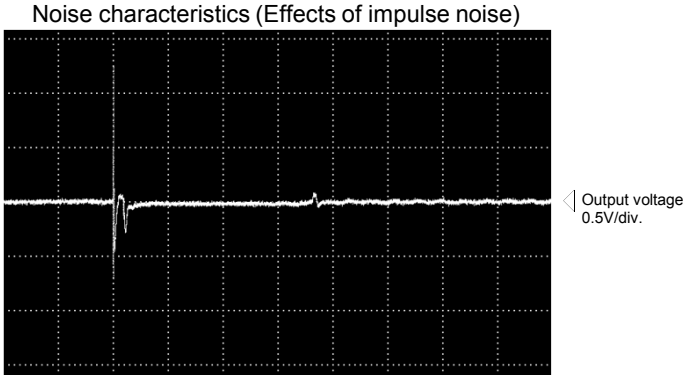
Pulse current response characteristic



Noise characteristics (Effects of dv/dt)

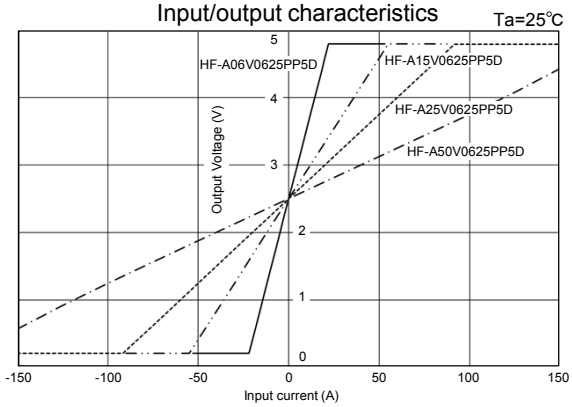


Noise characteristics (Effects of impulse noise)



Input/output characteristics

Ta=25℃



Note: The marks " ◁ " means 0V or 0A.

HM-A

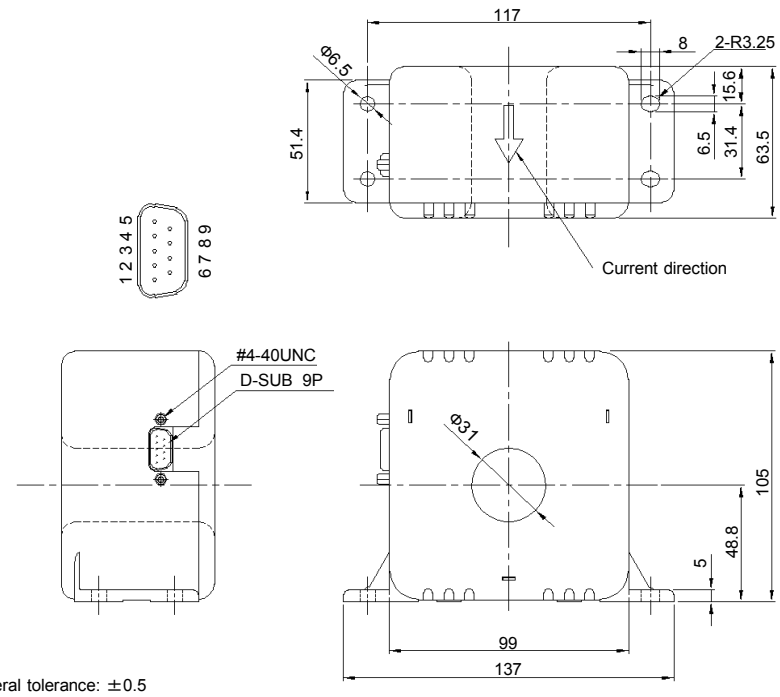
- Rated current 300A ~ 600A
- High accuracy current sensor using fluxgate technology
- Very low output noise

Applications

High precision power supply, Medical equipment, High precision inverter, Test equipment

Dimensions

(mm)



Terminal No.

1 - N.C.
2 - N.C.
3 - Status output -
4 - GND
5 - -15 supply voltage
6 - Current output
7 - N.C.
8 - Status output +
9 - +15 supply voltage

Weight : 1000g

General tolerance: ±0.5

Specification

Ta=25℃

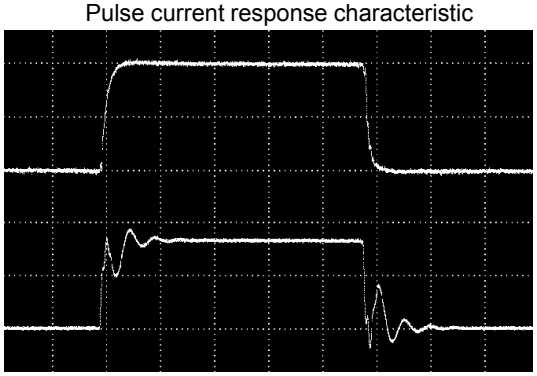
		Current output type	
Type		HM-A300A02B15B	HM-A600A04B15B
Rated current	[If]	±300A	±600A
Continuously flowing DC current		±600A	±600A
Min.overload trip current [Is] (Note3)		≧±750A (RL≦5Ω) ≧±850A (RL≦2.5Ω)	
Linearity limits (Note4)		0~±650A(RL≦5Ω) 0~±750A(RL≦2.5Ω)	
Rated output [Ih]	+If	I0+200mA±300ppm	I0+400mA±300ppm
	-If	I0-200mA±300ppm	I0-400mA±300ppm
Residual output	[I0]	Within ±10μA	
Output linearity		Within ±10ppm	
Second coil resistance		Approx. 16Ω	
Response time		Within 1μs (at di/dt=100A/μs)	
Response performance		Within 35%	
Hysteresis voltage range		Within 15μA	
Output Temp. Coef.		Within ±5ppm/℃	
Residual output Temp. Coef.		Within ±0.2μA/℃	
Control power supply		±15V±5%	
Consumption current		250mA+(Input current/1500)	
Operating Temp.		+10℃~+50℃	
Storage Temp.		0℃~+60℃	
Operation status(Photocupuler output) (Note5)		Open collector (Imax=6mA Vmax=+15V), Active low (Normal operation)	
Dielectric withstand voltage		2500V AC 50/60Hz 1minute	
Insulation resistance		Not less than 500MΩ 500V DC	

Note1) The indicated residual output is the one after the core hysteresis is removed.
Note2) Energization time of continuous live DC current x110% shall be within 1 minute.
Note3) If the current is higher than this, the inside circuit will shut down and the output will be almost zero.
Note4) Denotes the range of the input current value for which the output is within 0.1% of the estimate output voltage.
Note5) It is a signal that indicates the inside circuit operation; it indicates Lo level under normal operation, and Hi level when the inner circuit is shut down because of an over current.

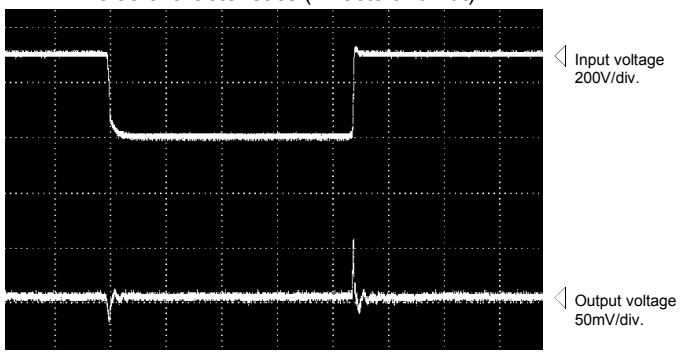
Characteristics chart

HM-A600A04B15B (RL=5Ω) Time base: 5μs/div.

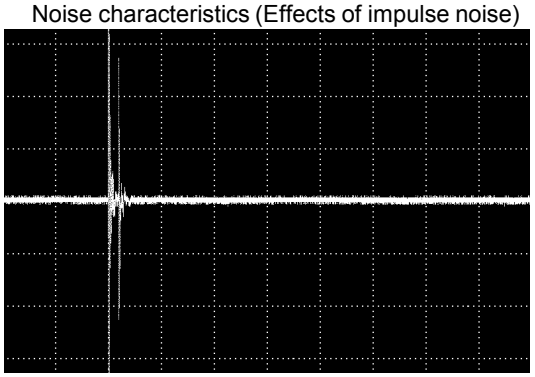
Pulse current response characteristic



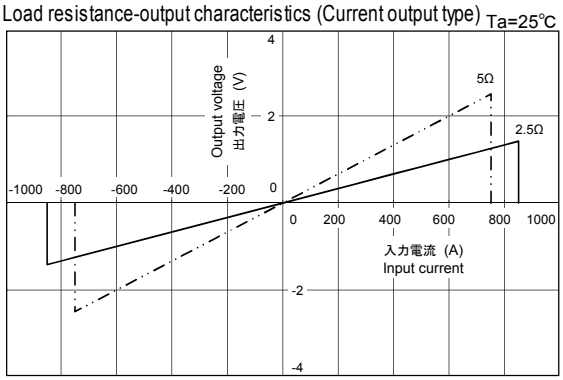
Noise characteristics (Effects of dv/dt)



Noise characteristics (Effects of impulse noise)



Load resistance-output characteristics (Current output type) Ta=25℃



Note: The marks " ◁ " means 0V or 0A.

HM-D

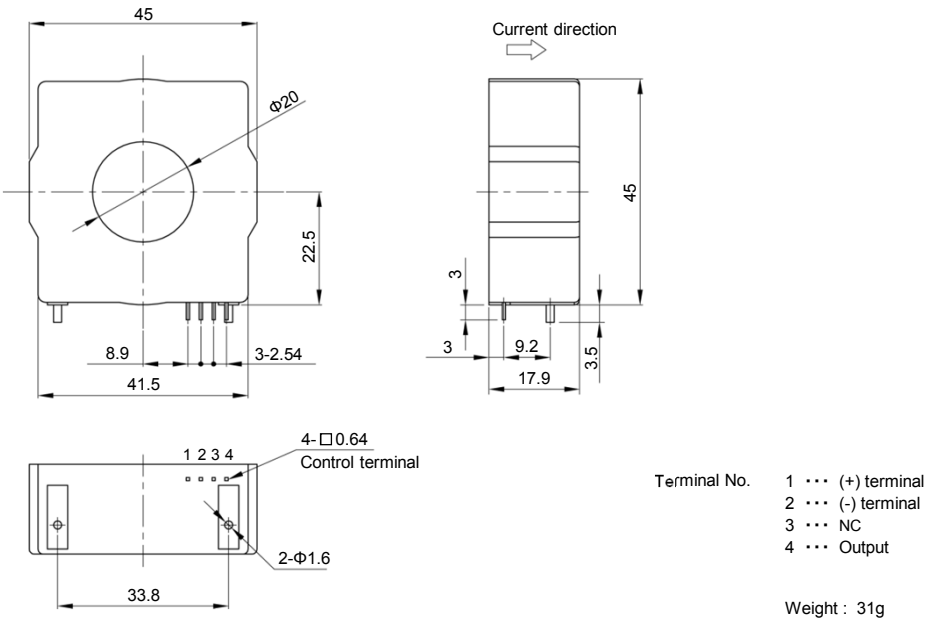
- Rated current 100A ~ 200A
- Optimum for high precision current detection application for power conditioning systems etc.
- Small offset drift
- Excellent output linearity
- Fast response speed

Applications

Power conditioning systems, Inverters, Servo drivers, Battery chargers

Dimensions

(mm)



Terminal No.
1 ··· (+) terminal
2 ··· (-) terminal
3 ··· NC
4 ··· Output

Weight : 31g

General tolerance: ±0.5

Specification

Ta=25℃

		Current output type	
Type		HM-D100A003125B15	HM-D200A00625B15
Rated current [If]		±100A	±200A
Continuously flowing DC current		±100A	±200A (RL=30Ω)
Saturation current [Is]		±220A	±320A
Linearity limits		0~±200A	0~±300A
Rated output [Ih]	+If	I0+31.25mA±0.5%	I0+62.5mA±0.5%
	-If	I0-31.25mA±0.5%	I0-62.5mA±0.5%
Residual output [I0]		Within ±0.01mA	
Load resistance range [RL]		10~70Ω	10~30Ω
Output linearity		Within ±0.1%	
Second coil resistance		Approx. 100Ω	
Response time		Within 1μs (at di/dt=100A/μs)	
Response performance		Within 10%	
Hysteresis voltage range		Within 0.05mA	
Output Temp. Coef.		Within ±0.003%/℃	
Residual output Temp. Coef.		Within ±1μA/℃	
Control power supply		±15V±5%	
Consumption current		35mA+(Input current/3200)	
Operating Temp.		-40℃~+80℃	
Storage Temp.		-40℃~+85℃	
Dielectric withstand voltage		3500V AC 50/60Hz 1minute	
Insulation resistance		Not less than 500MΩ 500V DC	

Note1) The indicated residual output is the one after the core hysteresis is removed.

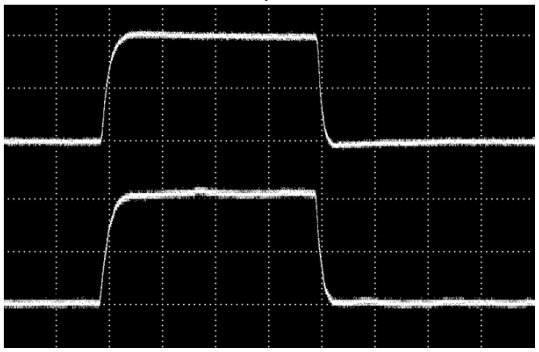
Note2) Energization time of continuous live DC current x150% shall be within 1 minute.

Characteristics chart

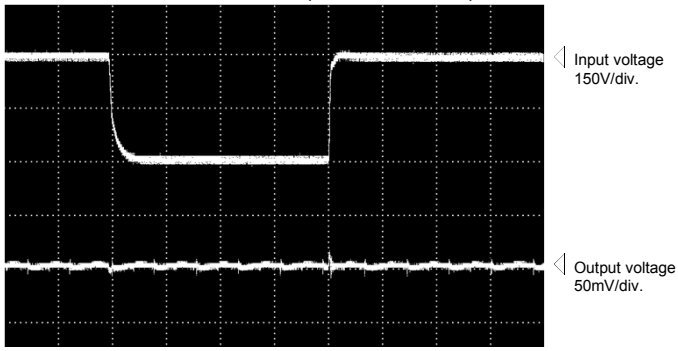
HM-D200A00625B15 (RL=10Ω)

Time base: 5μs/div.

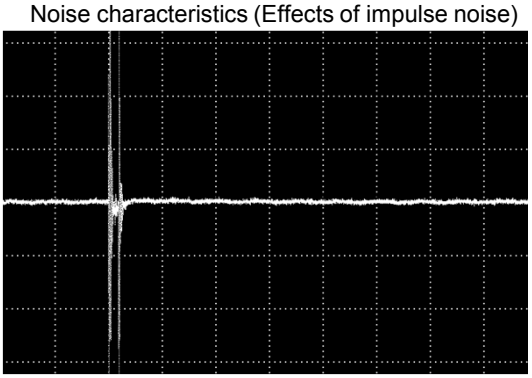
Pulse current response characteristic



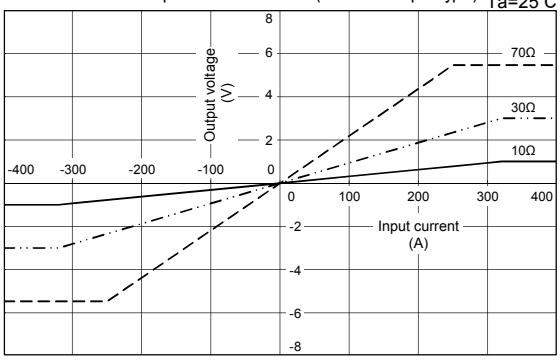
Noise characteristics (Effects of dv/dt)



Noise characteristics (Effects of impulse noise)



Load resistance-output characteristics (Current output type) Ta=25℃



Note: The marks " ◁ " means 0V or 0A.

HM-Z

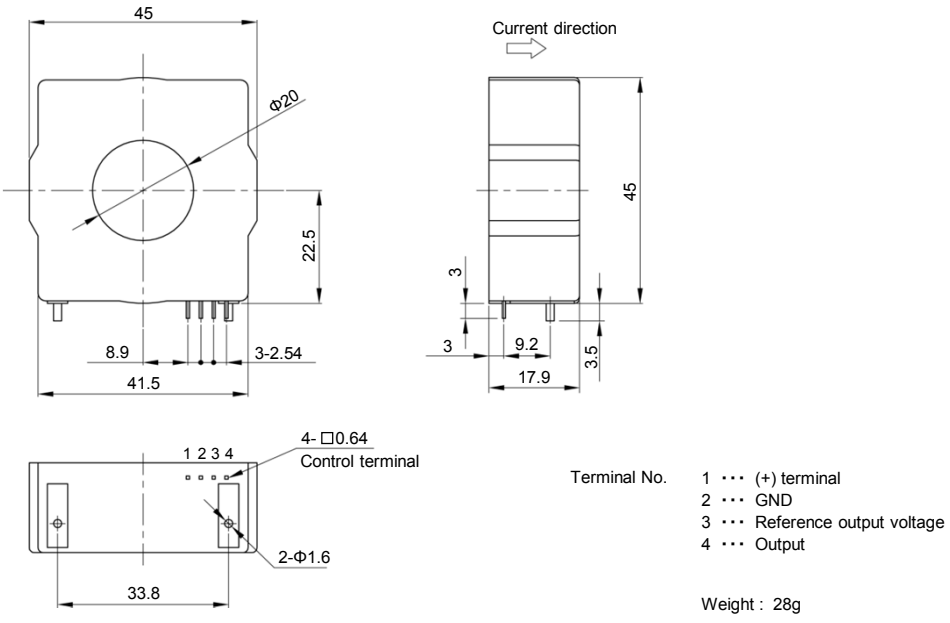
- Rated current 300mA, 600mA
- Optimum for direct current leakage detection application for power conditioning systems etc.
- Minute direct electric current detectable by electric wire penetration
- Small offset drift

Applications

Power conditioning systems, Inverters, Servo drivers

Dimensions

(mm)



Terminal No.
1 ··· (+) terminal
2 ··· GND
3 ··· Reference output voltage
4 ··· Output

Weight : 28g

General tolerance: ±0.5

Specification

Ta=25℃

	Voltage output type	
Type	HM-Z003V12PP5	HM-Z006V1486PP5
Rated current [If]	±300mA	±600mA
Continuously flowing DC current	±500mA	±850mA
Saturation current [Is]	±520mA	±870mA
Linearity limits	0~±500mA	0~±850mA
Internal reference voltage [Vref] (I=0)	+2.5V±5mV	
External reference input voltage [Vref]	1.5~4V	
Rated output RL>500kΩ [Vh] (I=If, output-Vref)	V0±1.2V±1.6%	V0±1.4856V±1%
Residual output [V0] (I=0, output-Vref)	Within ±96mV	Within ±60mV
Output linearity	Within ±1%	
Response time	Within 50μs (at di/dt=If/μs)	Within 30μs (at di/dt=If/μs)
Response performance	Within 10%	
Hysteresis voltage range	Within 10mV	
Output Temp. Coef.	Within ±0.04%/℃	Within ±0.01%/℃
Residual output Temp. Coef.	Within ±1.425mV/℃	Within ±1.3mV/℃
Internal reference voltage Temp. Coef.	Within ±0.125mV/℃	
Control power supply	+5V±5%	
Consumption current	25mA+(Input current/1000)	
Degauss mode	Operates when control power is turned on or at the time of recovery from external Vref input 0.8V or less.	
Operating Temp.	-40℃~+105℃	
Storage Temp.	-40℃~+105℃	
Dielectric withstand voltage	3500V AC 50/60Hz 1minute	
Insulation resistance	Not less than 500MΩ 500V DC	

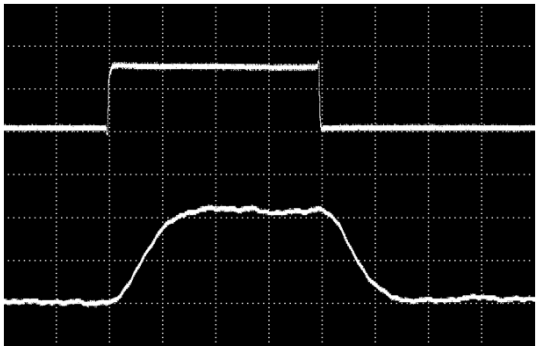
Note1) The indicated residual output is the one after the core hysteresis is removed.
Note2) Energization time of continuous live DC current x150% shall be within 1 minute.
Note3) In this specification, accuracy was determined with reference to the reference voltage (Vref).
Note4) For the reference voltage, there are 2 types of modes of internal reference output and external reference input.

Characteristics chart

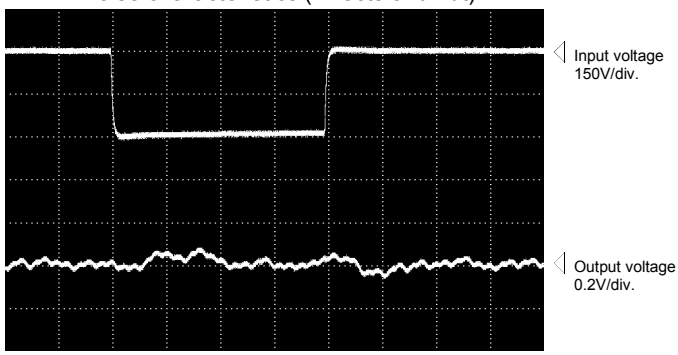
HM-Z003V12PP5

Time base: 5μs/div.

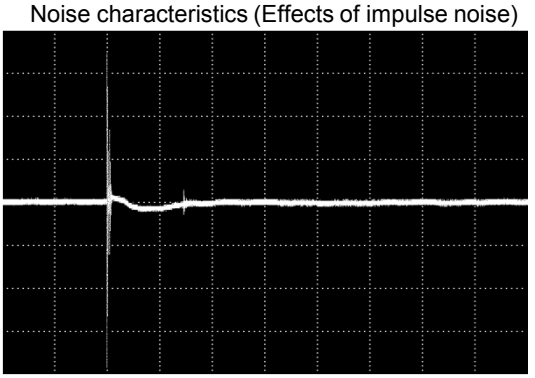
Pulse current response characteristic



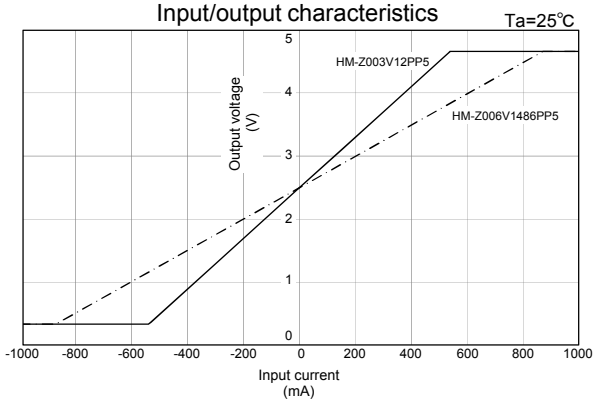
Noise characteristics (Effects of dv/dt)



Noise characteristics (Effects of impulse noise)



Input/output characteristics



Note: The marks " ◁ " means 0V or 0A.

HR-PA series

Small-sized, small current range
PCB-mounting type

HR-PA

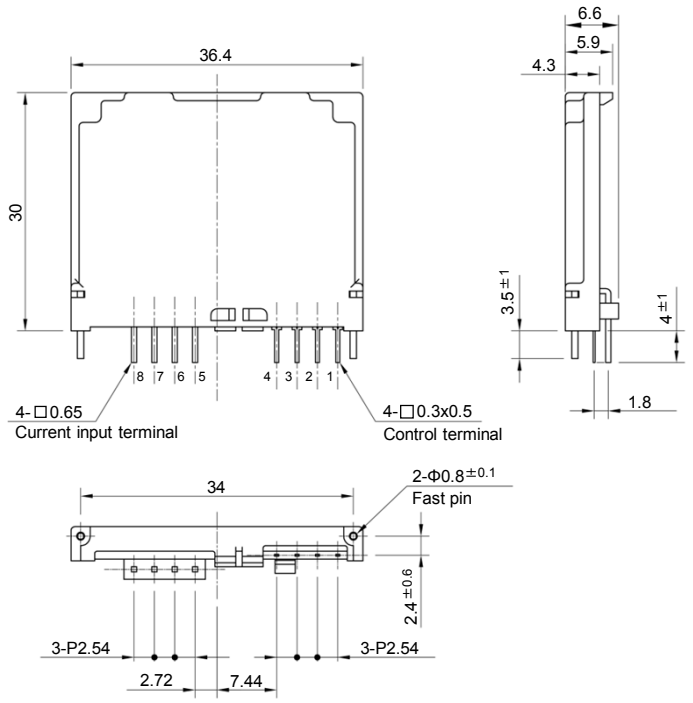
- Rated current 5A ~ 10A
- High accuracy current sensor using the MR element
- For coreless structure, realized low-profile, light-weight and small mounting surface
- Very little hysteresis characteristics
- Superior in response, linearity and temperature characteristics

Applications

Inverters, Servo drivers, Power supply equipment, Uninterruptible power supply (UPS), NC machine tools, Welders

Dimensions

(mm)



Terminal No.

1 ・・・ (-) terminal
2 ・・・ GND
3 ・・・ (+) terminal
4 ・・・ output
5 ・・・ (-) input
6 ・・・ (-) input
7 ・・・ (+) input
8 ・・・ (+) input

Weight : 6g

General tolerance: ±0.5

Specification

Ta=25℃

Type		HR-PA05V1B15H	HR-PA10V1B15H
Rated current [If]		±5A	±10A
Continuously flowing DC current		±4A	±4A
Saturation current [Is]		±10A	±20A
Linearity limits		0~±7.5A	0~±15A
Rated output [Vh]	+If	V0+1V±1% (RL=10kΩ)	
	-If	V0-1V±1% (RL=10kΩ)	
Residual output [V0]		Within ±20mV	
Output linearity		Within ±0.5%	
Response time		Within 10μs (at di/dt=If/μs.)	
Response performance		Within 10%	
Output Temp. Coef.		Within ±0.05%/℃	
Residual output Temp. Coef.		Within ±0.3mV/℃	
Control power supply		±15V±5%	
Consumption current		Within 15mA+(Input current/Approx.300)	
Operating Temp.		-25℃~+85℃	
Storage Temp.		-40℃~+90℃	
Dielectric withstand voltage		2000V AC 50/60Hz 1minute	
Insulation resistance		Not less than 500MΩ 500V DC	

Note1) Energization time of rated current shall be within 1 minute.

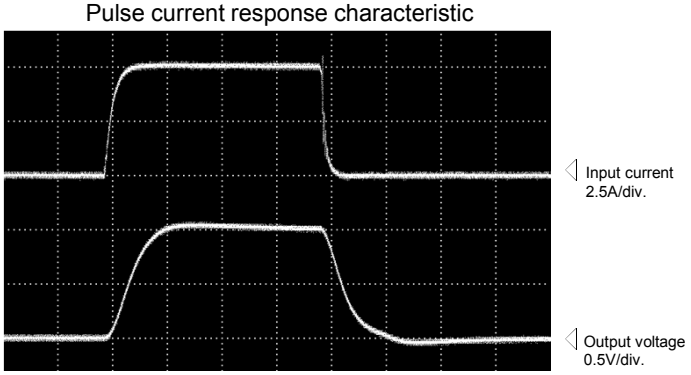
Note2) Energization time of over rated current shall be within 1 second.

Characteristics chart

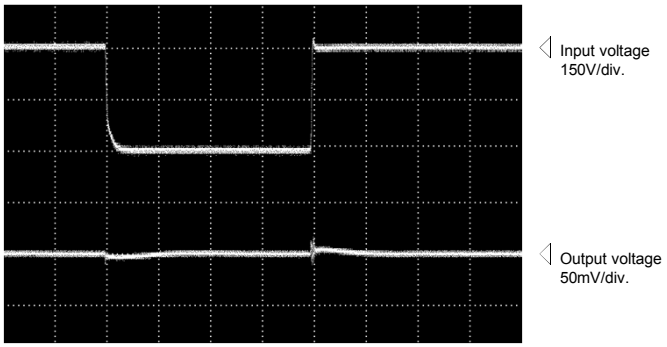
HR-PA05V1B15H

Time base: 5μs/div.

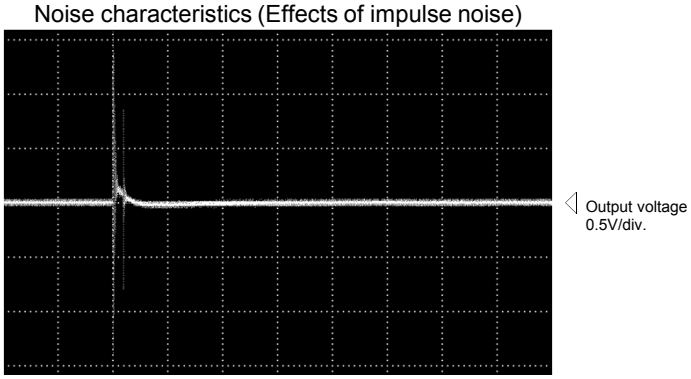
Pulse current response characteristic



Noise characteristics (Effects of dv/dt)

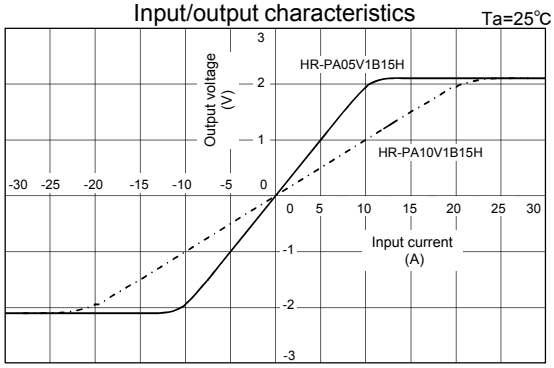


Noise characteristics (Effects of impulse noise)



Input/output characteristics

Ta=25℃



Note: The marks " ◁ " means 0V or 0A.

HA-06RS-C series

Small-sized
Clamp type AC-CT

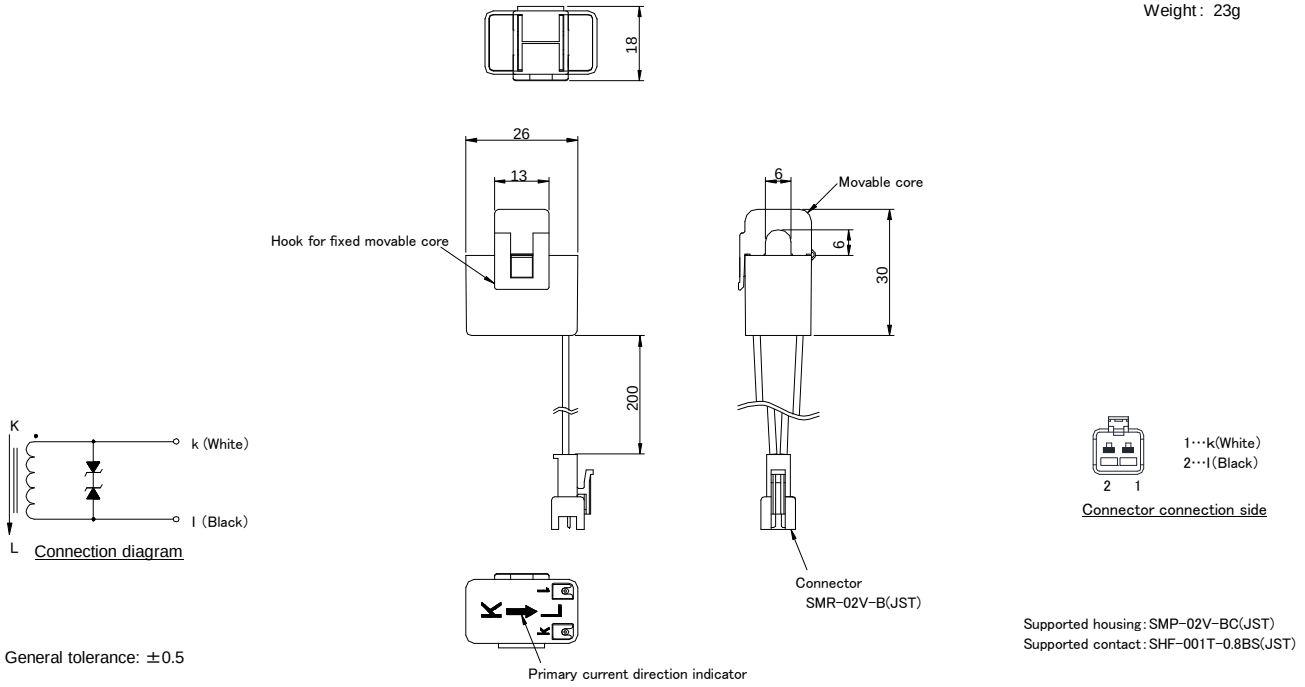
HA-06RS-C

- Rated primary current ・・・ 30A
- Suitable for energy measurement which is more less dispersion in ratio error and phase displacement
- Simple mounting for exiting panel which is clamp type
- Internal output protection circuit

Applications
Energy measurement unit

Dimensions

(mm)

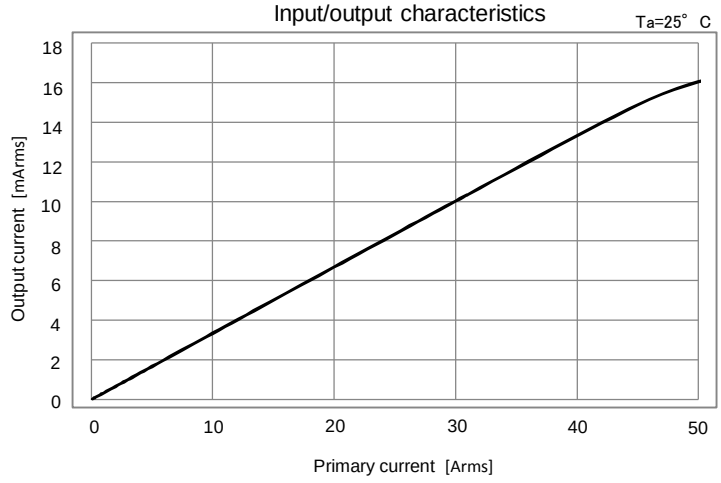


Specification

Ta=25° C

Type	HA-06RS030-10C
Rated primary current	30Arms
Measuring bound	1.5～30Arms
Frequency	45～65Hz
Saturation current	50Arms
Rated secondary current	10mArms
Ratio error	±1%(RL=10Ω)
Dispersion in phase displacement	±45minute(0.1If～If RL=10Ω) ±60minute(0.05If RL=10Ω)
Current transformation ratio	3000:1
Operating Temp.	-10℃～+55℃
Storage Temp.	-20℃～+60℃
Dielectric withstand voltage	1000V AC 1minute
Insulation resistance	Not less than 100MΩ 500V DC
Resisting grade	UL94-V0
Core materials	Ferrite
Weight	23g
Application standard	RoHS
Permission installation number of time	100
Others	Output line UL1007 AWG24 L=200mm Connector SMR-02V-B (JST) Internal output protection circuit

Characteristics chart



HA-06RP-C series

Small-sized
Clamp type AC-CT

HA-06RP-C

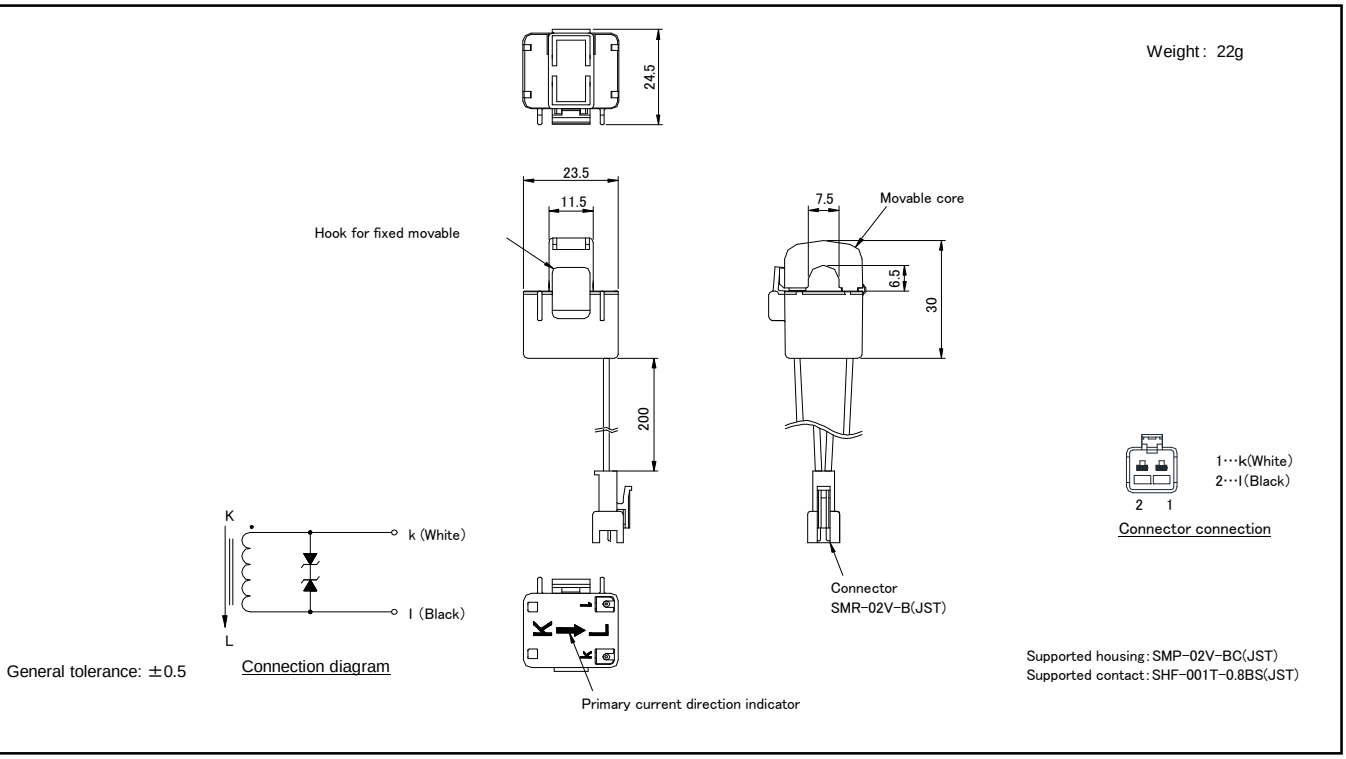
- ●Rated primary current ･･･ 30A
- ●Suitable for energy measurement which is more less dispersion in ratio error and phase displacement
- ●Simple mounting for exiting panel which is clamp type
- ●Internal output protection circuit

Applications

Energy measurement unit

Dimensions

(mm)

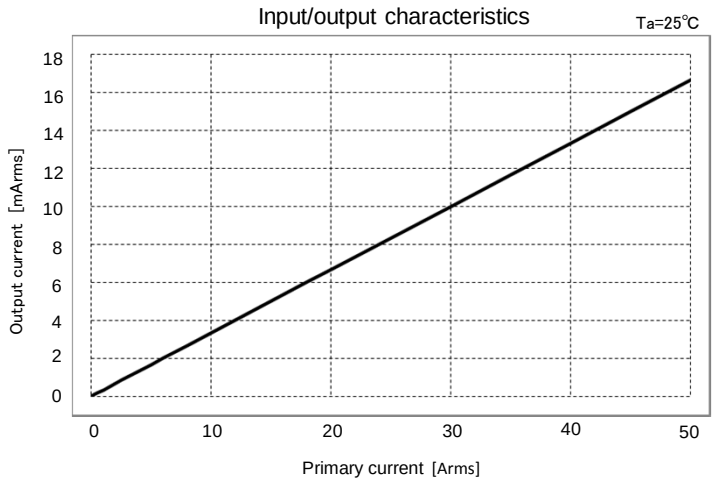


Specification

Ta=25° C

Type	HA-06RP030-10C
Rated primary current	30Arms
Measuring bound	1.5～30Arms
Frequency	45～65Hz
Saturation current	50Arms
Rated secondary current	10mArms
Ratio error	±1%(RL=10Ω)
Dispersion in phase displacement	±45minute(0.1If～If RL=10Ω) ±60minute(0.05If RL=10Ω)
Current transformation ratio	3000:1
Operating Temp.	-10℃～+55℃
Storage Temp.	-20℃～+60℃
Dielectric withstand voltage	1000V AC 1minute
Insulation resistance	Not less than 100MΩ 500V DC
Resisting grade	UL94-V0
Core materials	Ferrite
Weight	22g
Application standard	RoHS
Permission installation number of time	100
Others	Output line UL1007 AWG24 L=200mm Connector SMR-02V-B (JST) Internal output protection circuit

Characteristics chart



HA-12SS-C series

Medium-sized
Clamp type AC-CT

HA-12SS-C

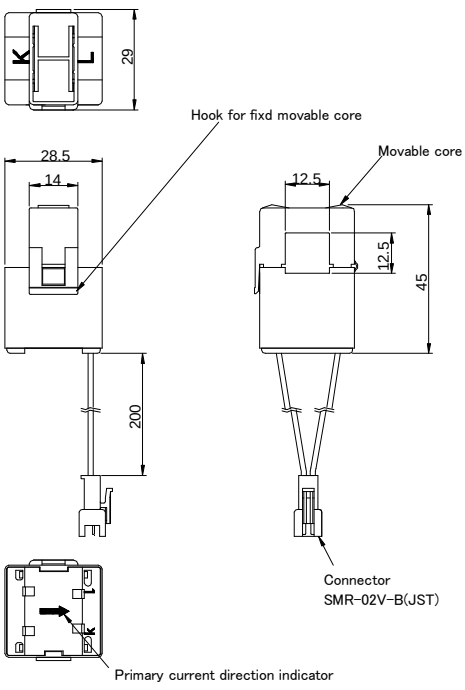
- Rated primary current ・・・ 50A
- Suitable for energy measurement which is more less dispersion in ratio error and phase displacement
- Simple mounting for exiting panel which is clamp type
- Internal output protection circuit

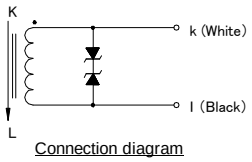
Applications
Energy measurement unit

Dimensions

(mm)

Weight: 48g





Connection diagram

1…k(White)
2…l(Black)

Connector connection side

General tolerance: ±0.5

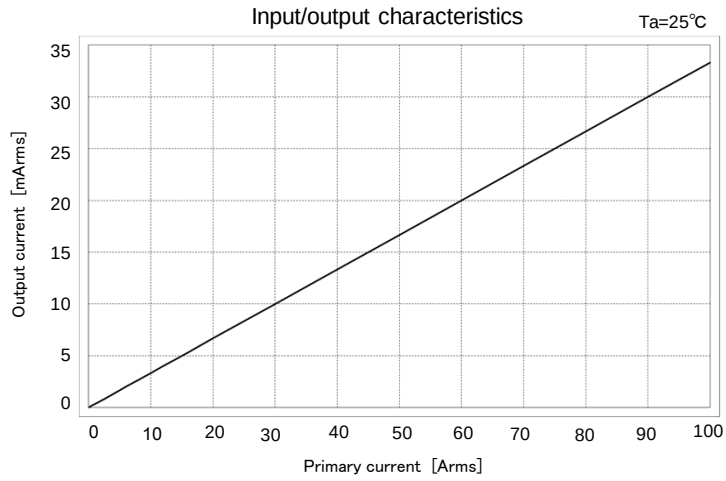
Supported housing: SMP-02V-BC(JST)
Supported contact: SHF-001T-0.8BS(JST)

Specification

Ta=25° C

Type	HA-12SS050-16C
Rated primary current	50Arms
Measuring bound	2.5～50Arms
Frequency	45～65Hz
Saturation current	100Arms
Rated secondary current	16.67mArms
Ratio error	±1%(RL=10Ω)
Dispersion in phase displacement	±45minute(0.1If～If RL=10Ω) ±60minute(0.05If RL=10Ω)
Current transformation ratio	3000:1
Operating Temp.	-10℃～+55℃
Storage Temp.	-20℃～+60℃
Dielectric withstand voltage	1000V AC 1minute
Insulation resistance	Not less than 100MΩ 500V DC
Resisting grade	UL94-V0
Core materials	Ferrite
Weight	48g
Application standard	RoHS
Permission installation number of time	100
Others	Output line UL1430 AWG22 L=200mm Connector SMR-02V-B (JST) Internal output protection circuit

Characteristics chart



HA-12SP-CK series

Medium-sized
Clamp type AC-CT

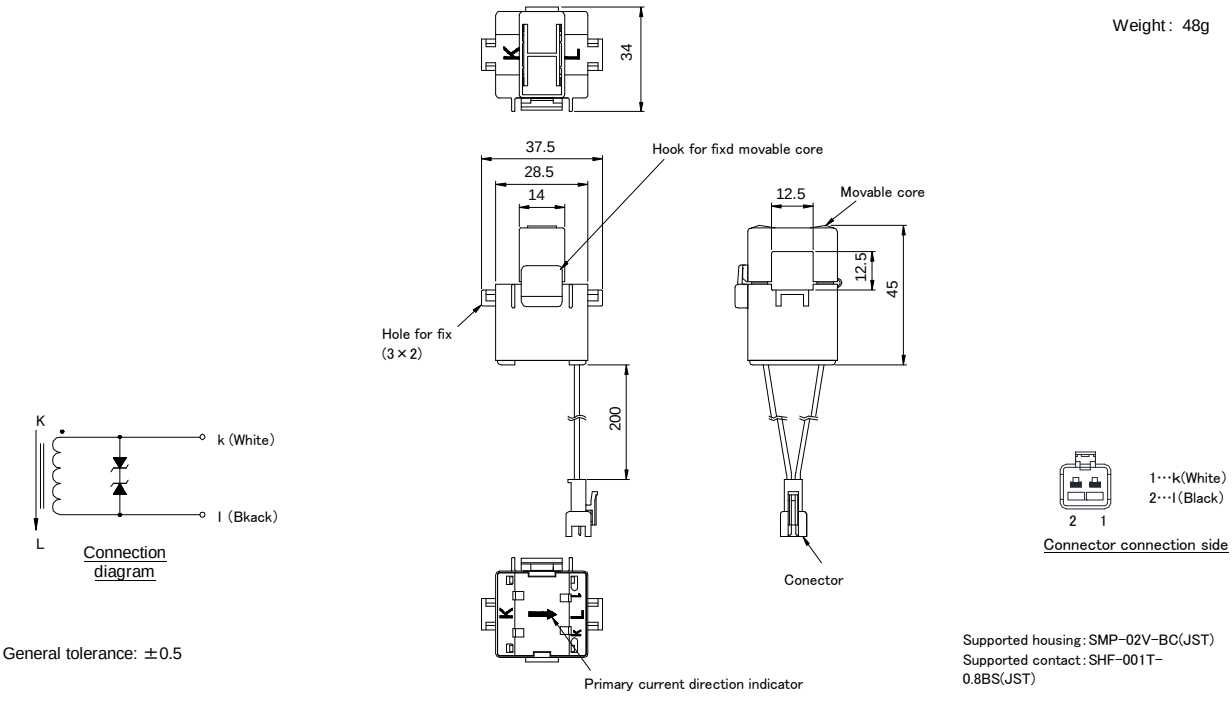
HA-12SP-CK

- Rated primary current ･･･ 50A
- Suitable for energy measurement which is more less dispersion in ratio error and phase displacement
- Simple mounting for exiting panel which is clamp type
- Internal output protection circuit

Applications
Energy measurement unit

Dimensions

(mm)

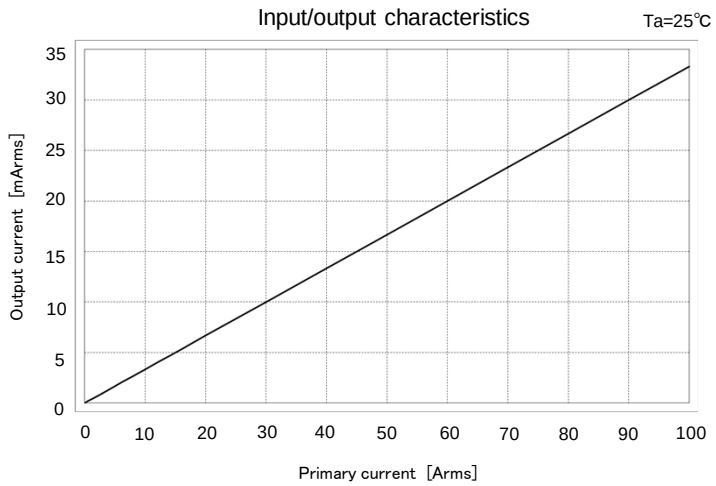


Specification

Ta=25° C

Type	HA-12SP050-16CK
Rated primary current	50Arms
Measuring bound	2.5～50Arms
Frequency	45～65Hz
Saturation current	100Arms
Rated secondary current	16.67mArms
Ratio error	±1%(RL=10Ω)
Dispersion in phase displacement	±45minute(0.1If～If RL=10Ω) ±60minute(0.05If RL=10Ω)
Current transformation ratio	3000:1
Operating Temp.	-10℃～+55℃
Storage Temp.	-20℃～+60℃
Dielectric withstand voltage	1000V AC 1minute
Insulation resistance	Not less than 100MΩ 500V DC
Resisting grade	UL94-V0
Core materials	Ferrite
Weight	48g
Application standard	RoHS
Permission installation number of time	100
Others	Output line UL1430 AWG22 L=200mm Connector SMR-02V-B (JST) Internal output protection circuit

Characteristics chart



HA-12SP-KM series

Medium-sized
Clamp type AC-CT

HA-12SP-KM

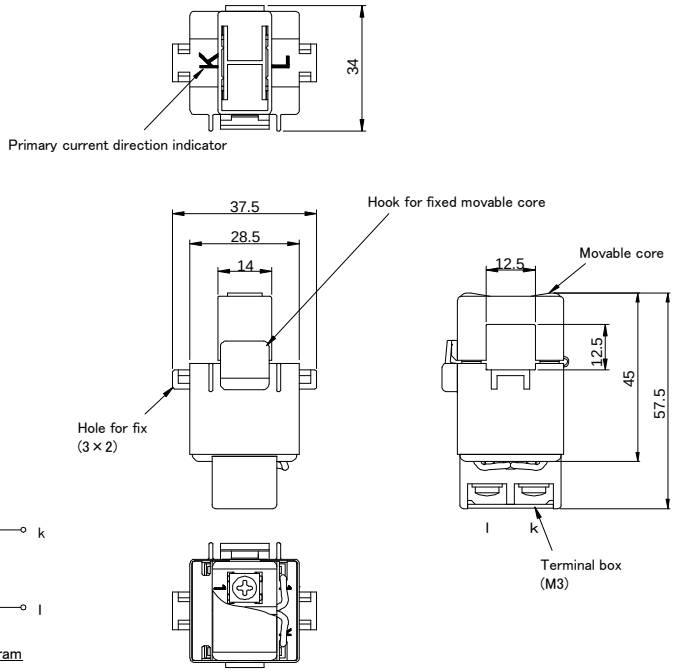
- Rated primary current ･･･ 50A
- Suitable for energy measurement which is more less dispersion in ratio error and phase displacement
- Simple mounting for exiting panel which is clamp type
- Internal output protection circuit

Applications
Energy measurement unit

Dimensions

(mm)

Weight : 53g



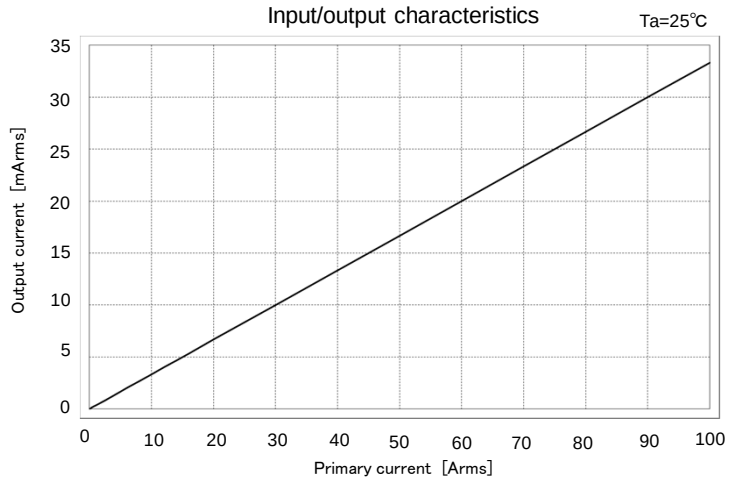
General tolerance: ±0.5

Specification

Ta=25° C

Type	HA-12SP050-16KM
Rated primary current	50Arms
Measuring bound	2.5～50Arms
Frequency	45～65Hz
Saturation current	100Arms
Rated secondary current	16.67mArms
Ratio error	±1%(RL=10Ω)
Dispersion in phase displacement	±45minute(0.1If～If RL=10Ω) ±60minute(0.05If RL=10Ω)
Current transformation ratio	3000:1
Operating Temp.	-10℃～+55℃
Storage Temp.	-20℃～+60℃
Dielectric withstand voltage	1000V AC 1minute
Insulation resistance	Not less than 100MΩ 500V DC
Resisting grade	UL94-V0
Core materials	Ferrite
Weight	53g
Application standard	RoHS
Permission installation number of time	100
Others	Terminal box M3 With cover Internal output protection circuit

Characteristics chart



HA-16SP-CK series

Medium-sized
Clamp type AC-CT

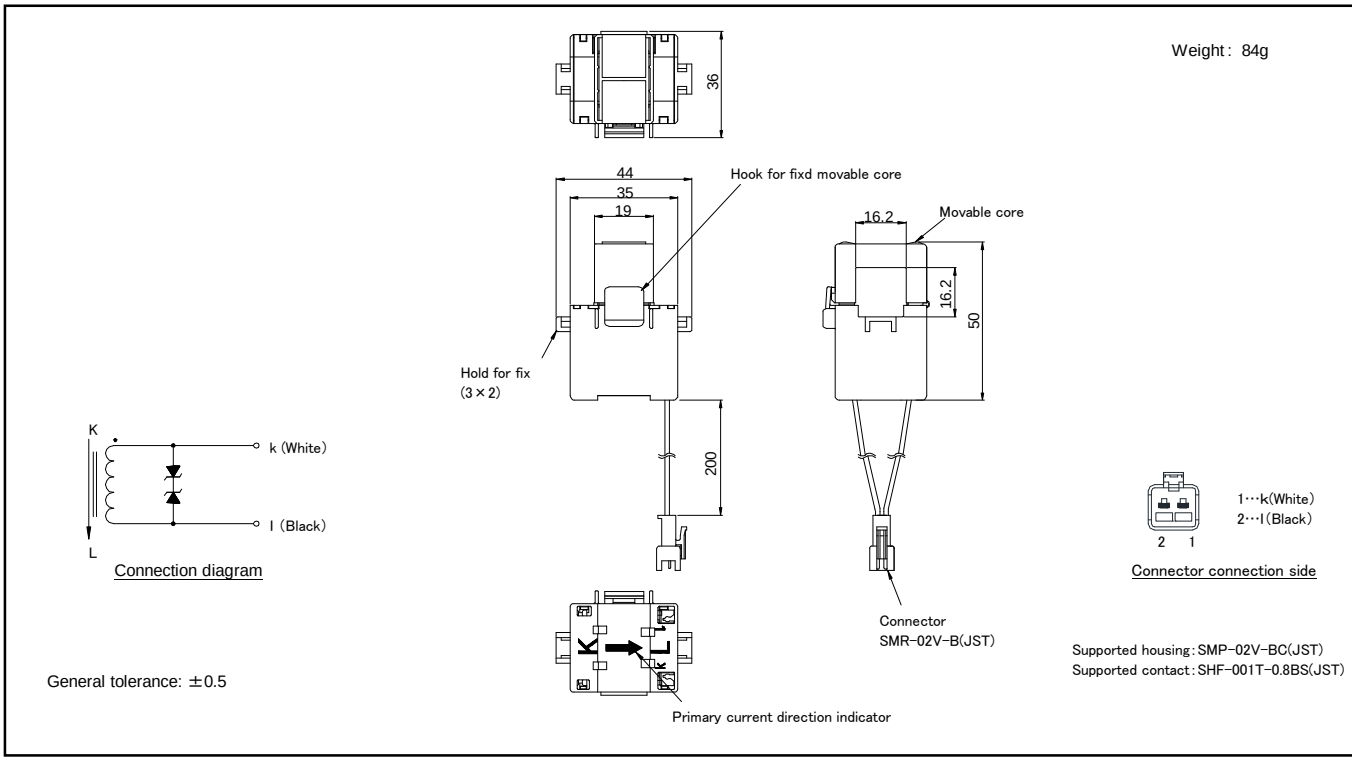
HA-16SP-CK

- ●Rated primary current ･･･ 100A
- ●Suitable for energy measurement which is more less dispersion in ratio error and phase displacement
- ●Simple mounting for exiting panel which is clamp type
- ●Internal output protection circuit

Applications
Energy measurement unit

Dimensions

(mm)

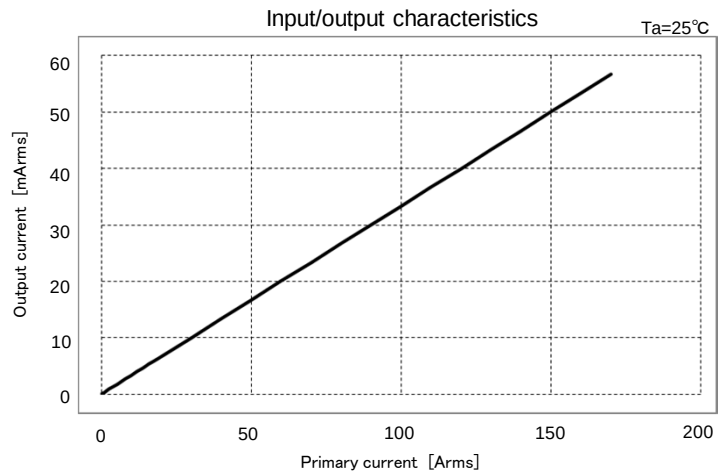


Specification

Ta=25° C

Type	HA-16SP100-33CK
Rated primary current	100Arms
Measuring bound	5～100Arms
Frequency	45～65Hz
Saturation current	170Arms
Rated secondary current	33.33mArms
Ratio error	±1%(RL=10Ω)
Dispersion in phase displacement	±45minute(0.1If～If RL=10Ω) ±60minute(0.05If RL=10Ω)
Current transformation ratio	3000:1
Operating Temp.	-10℃～+55℃
Storage Temp.	-20℃～+60℃
Dielectric withstand voltage	1000V AC 1minute
Insulation resistance	Not less than 100MΩ 500V DC
Resisting grade	UL94-V0
Core materials	Ferrite
Weight	84g
Application standard	RoHS
Permission installation number of time	100
Others	Output line UL1430 AWG22 L=200mm Connector SMR-02V-B (JST) Internal output protection circuit

Characteristics chart



HA-16SP-KM series

Medium-sized
Clamp type AC-CT

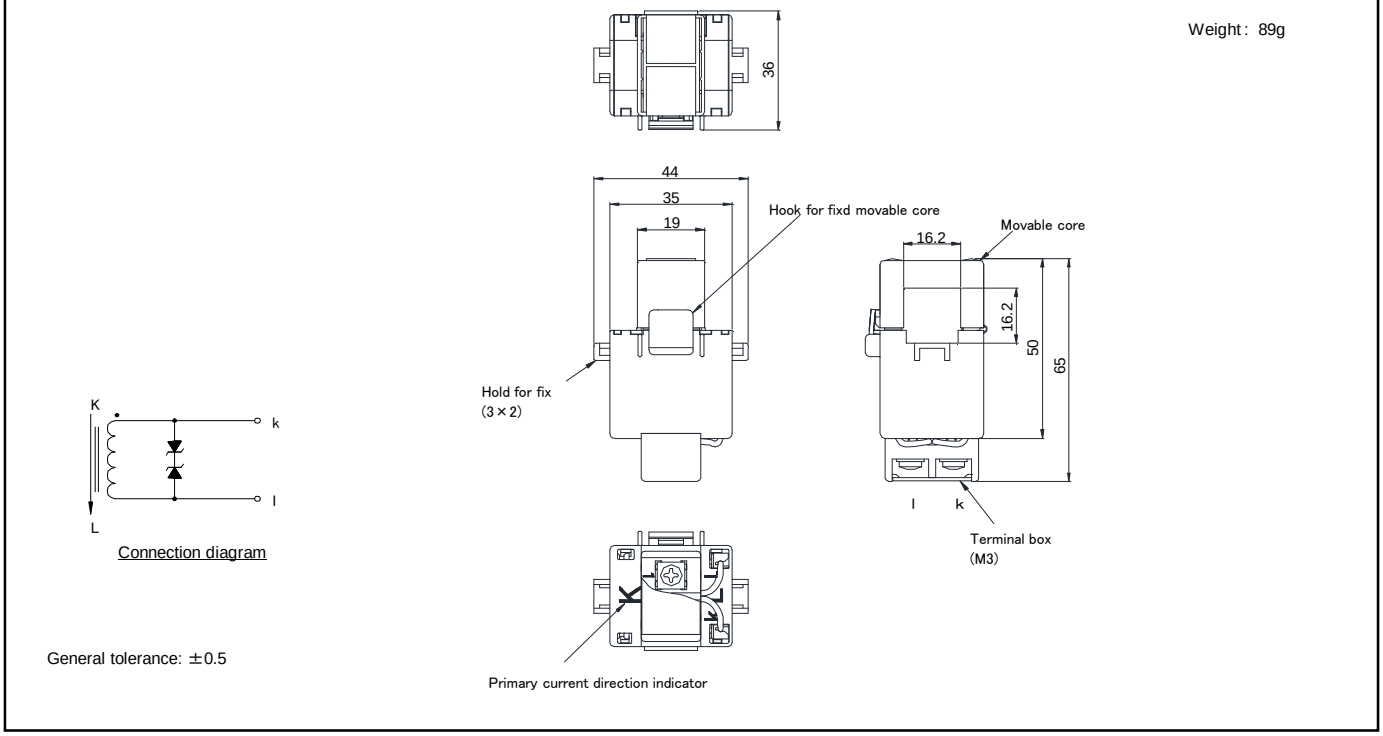
HA-16SP-KM

- Rated primary current ··· 100A
- Suitable for energy measurement which is more less dispersion in ratio error and phase displacement
- Simple mounting for exiting panel which is clamp type
- Internal output protection circuit

Applications
Energy measurement unit

Dimensions

(mm)

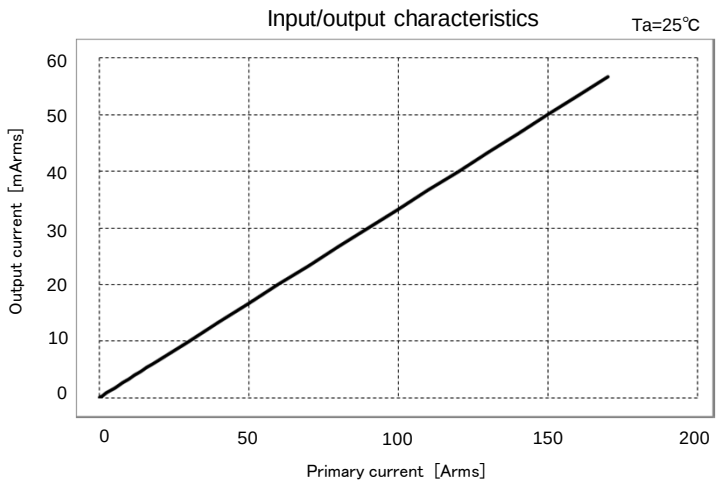


Specification

Ta=25° C

Type	HA-16SP100-33KM
Rated primary current	100Arms
Measuring bound	5～100Arms
Frequency	45～65Hz
Saturation current	170Arms
Rated secondary current	33.33mArms
Ratio error	±1%(RL=10Ω)
Dispersion in phase displacement	±45minute(0.1If～If RL=10Ω) ±60minute(0.05If RL=10Ω)
Current transformation ratio	3000:1
Operating Temp.	-10℃～+55℃
Storage Temp.	-20℃～+60℃
Dielectric withstand voltage	1000V AC 1minute
Insulation resistance	Not less than 100MΩ 500V DC
Resisting grade	UL94-V0
Core materials	Ferrite
Weight	89g
Application standard	RoHS
Permission installation number of time	100
Others	Terminal box M3 With cover Internal output protection circuit

Characteristics chart



HA-24RP-CK series

Large-sized
Clamp type AC-CT

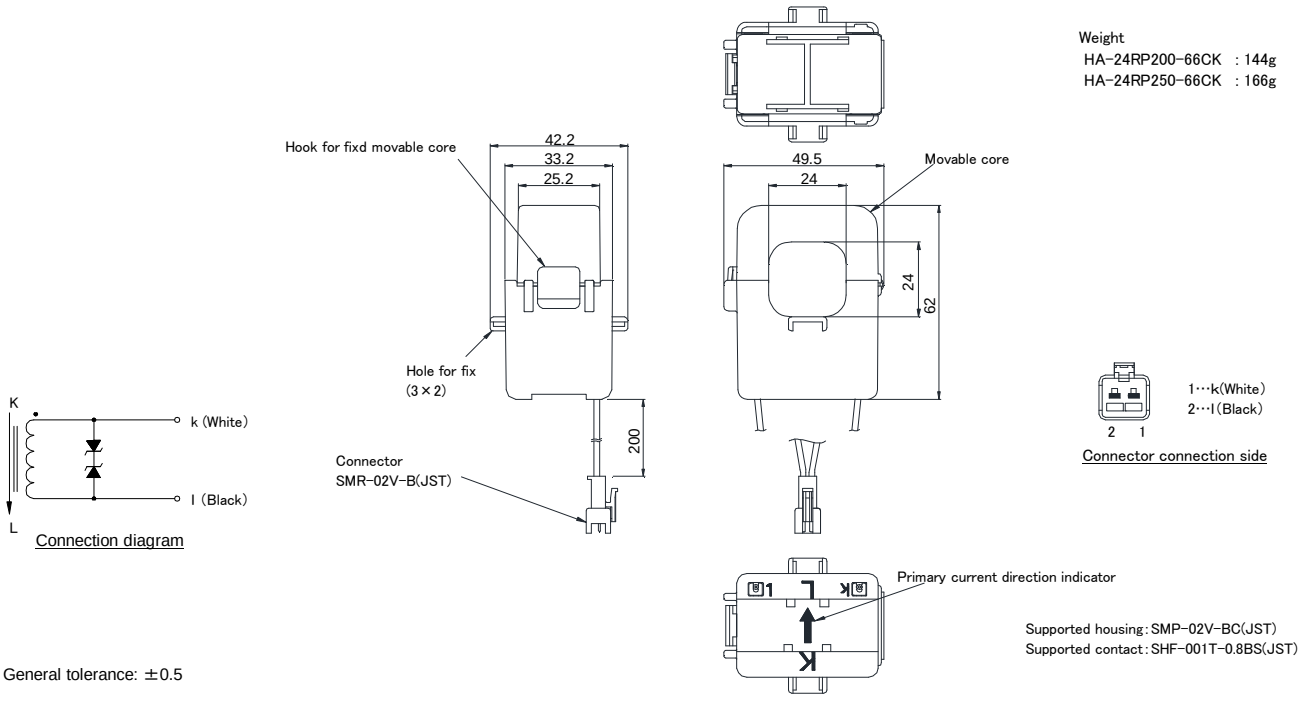
HA-24RP-CK

- ●Rated primary current ･･･ 200A ～ 250A
- ●Suitable for energy measurement which is more less dispersion in ratio error and phase displacement
- ●Simple mounting for exiting panel which is clamp type
- ●Internal output protection circuit

Applications
Energy measurement unit

Dimensions

(mm)

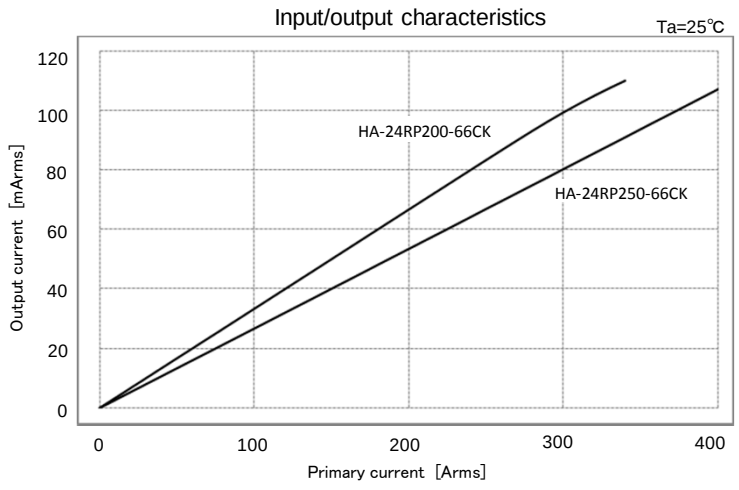


Specification

Ta=25° C

Type	HA-24RP200-66CK	HA-24RP250-66CK
Rated primary current	200Arms	250Arms
Measuring bound	10～200Arms	10～250Arms
Frequency	45～65Hz	
Saturation current	300Arms	350Arms
Rated secondary current	66.67mArms	66.67mArms
Ratio error	±1%(RL=10Ω)	
Dispersion in phase displacement	±40minute(0.1If～If RL=10Ω) ±45minute(0.05If RL=10Ω)	
Current transformation ratio	3000:1	3750:1
Operating Temp.	-10℃～+55℃	
Storage Temp.	-20℃～+60℃	
Dielectric withstand voltage	2000V AC 1minute	
Insulation resistance	Not less than 100MΩ 500V DC	
Resisting grade	UL94-V0	
Core materials	Ferrite	Silicon steel plate
Weight	144g	166g
Application standard	RoHS	
Permission installation number of time	100	
Others	Output line UL1430 AWG22 L=200mm Connector SMR-02V-B (JST) Internal output protection circuit	

Characteristics chart



HA-24RP-KM series

Large-sized
Clamp type AC-CT

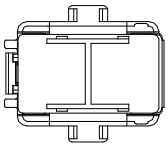
HA-24RP-KM

- ●Rated primary current ･･･ 200A ～ 250A
- ●Suitable for energy measurement which is more less dispersion in ratio error and phase displacement
- ●Simple mounting for exiting panel which is clamp type
- ●Internal output protection circuit

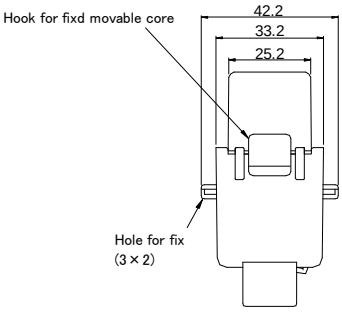
Applications
Energy measurement unit

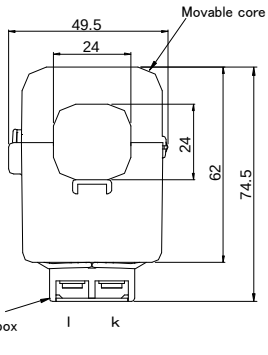
Dimensions

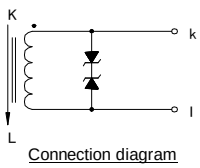
(mm)



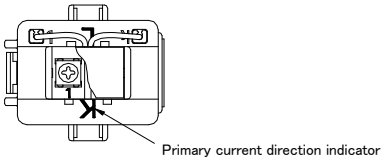
Weight
HA-24RP200-66KM : 148g
HA-24RP250-66KM : 170g







Connection diagram



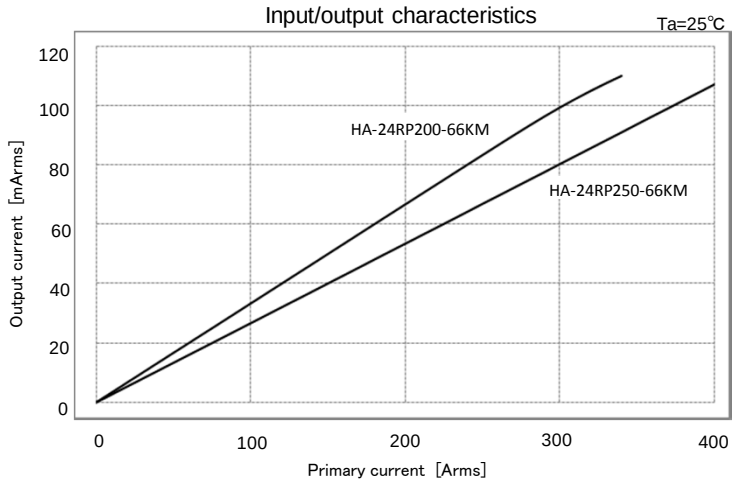
General tolerance: ±0.5

Specification

Ta=25° C

Type	HA-24RP200-66KM	HA-24RP250-66KM
Rated primary current	200Arms	250Arms
Measuring bound	10～200Arms	10～250Arms
Frequency	45～65Hz	
Saturation current	300Arms	350Arms
Rated secondary current	66.67mArms	66.67mArms
Ratio error	±1%(RL=10Ω)	
Dispersion in phase displacement	±40minute(0.1If～If RL=10Ω) ±45minute(0.05If RL=10Ω)	
Current transformation ratio	3000:1	3750:1
Operating Temp.	-10℃～+55℃	
Storage Temp.	-20℃～+60℃	
Dielectric withstand voltage	2000V AC 1minute	
Insulation resistance	Not less than 100MΩ 500V DC	
Resisting grade	UL94-V0	
Core materials	Ferrite	Silicon steel plate
Weight	148g	170g
Application standard	RoHS	
Permission installation number of time	100	
Others	Terminal box M3 With cover Internal output protection circuit	

Characteristics chart



HA-36RP-CK series

Large-sized
Clamp type AC-CT

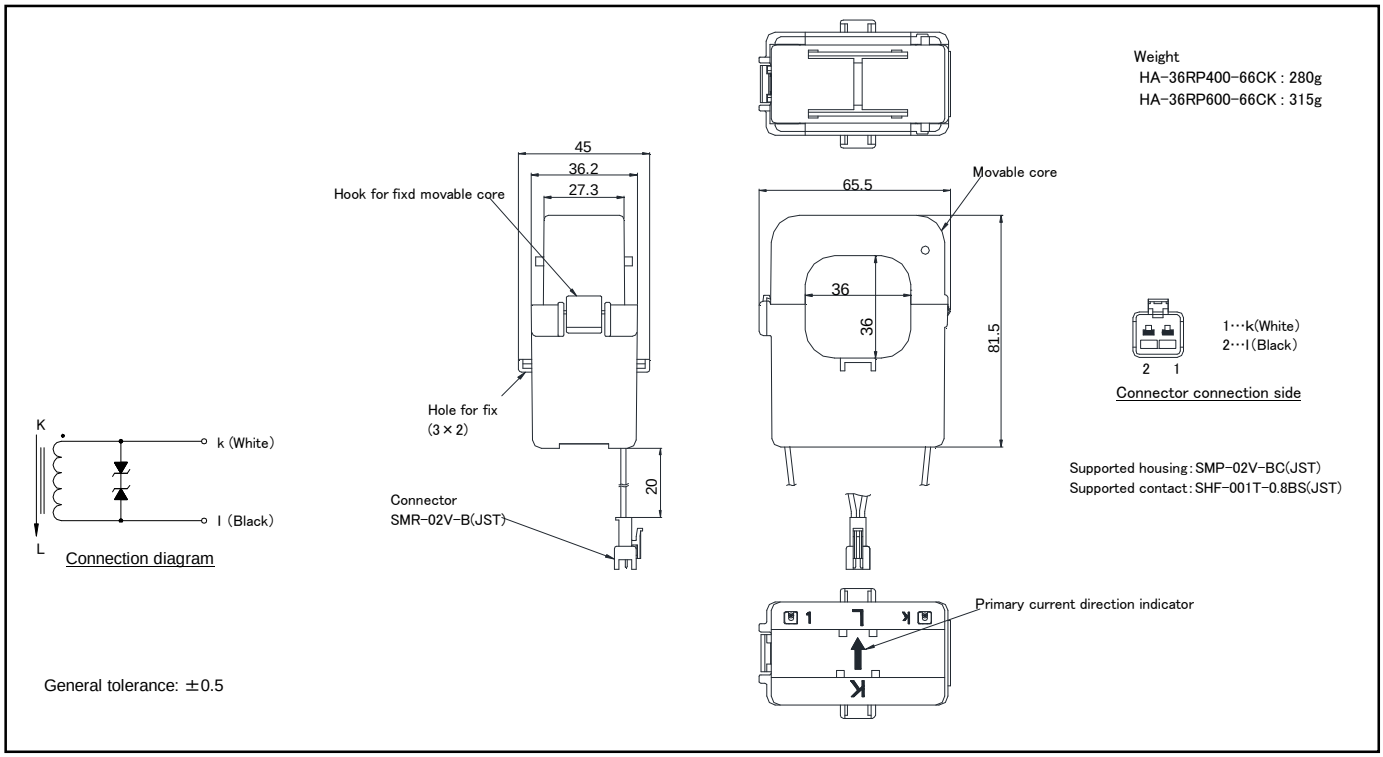
HA-36RP-CK

- ●Rated primary current ･･･ 400A ～ 600A
- ●Suitable for energy measurement which is more less dispersion in ratio error and phase displacement
- ●Simple mounting for exiting panel which is clamp type
- ●Internal output protection circuit

Applications
Energy measurement unit

Dimensions

(mm)

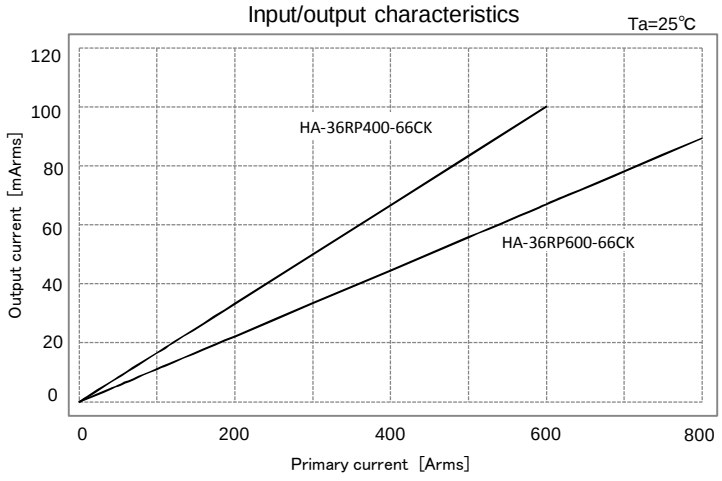


Specification

Ta=25° C

Type	HA-36RP400-66CK	HA-36RP600-66CK
Rated primary current	400Arms	600Arms
Measuring bound	20～400Arms	30～600Arms
Frequency	45～65Hz	
Saturation current	600Arms	800Arms
Rated secondary current	66.67mArms	
Ratio error	±1%(RL=10Ω)	
Dispersion in phase displacement	±30minute(0.1If～If RL=10Ω) ±45minute(0.05If RL=10Ω)	
Current transformation ratio	6000:1	9000:1
Operating Temp.	-10℃～+55℃	
Storage Temp.	-20℃～+60℃	
Dielectric withstand voltage	2000V AC 1minute	
Insulation resistance	Not less than 100MΩ 500V DC	
Resisting grade	UL94-V0	
Core materials	Silicon steel plate	
Weight	280g	315g
Application standard	RoHS	
Permission installation number of time	100	
Others	Output line UL1430 AWG22 L=200mm Connector SMR-02V-B (JST) Internal output protection circuit	

Characteristics chart



HA-36RP-KM series

Large-sized
Clamp type AC-CT

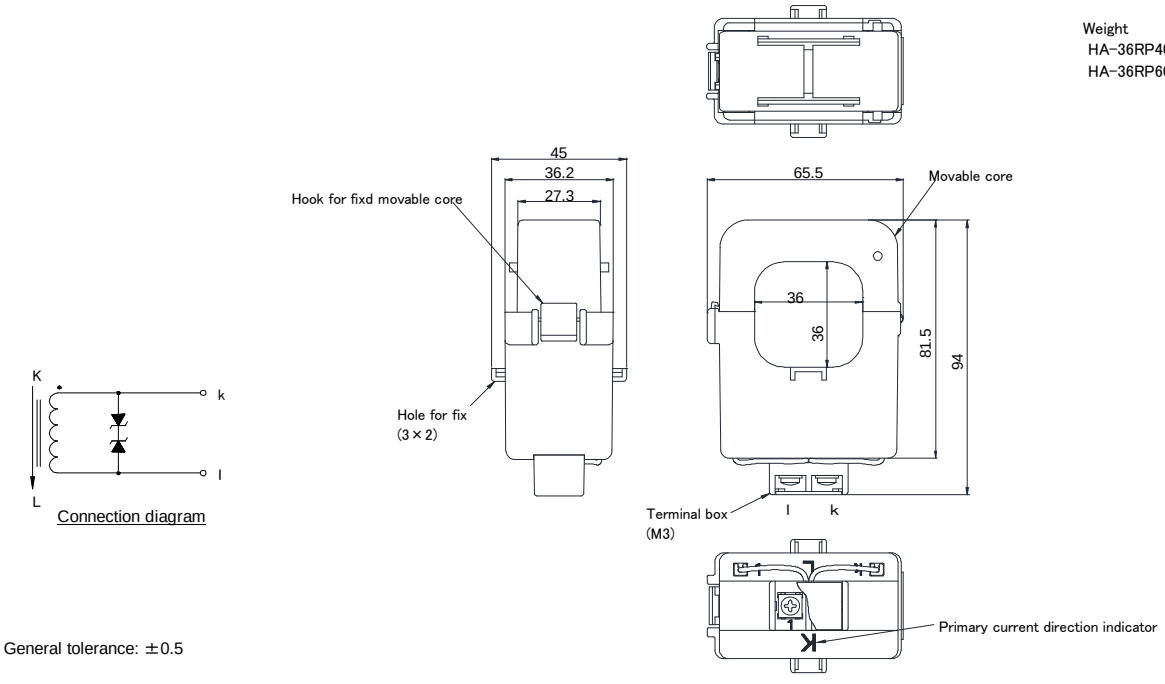
HA-36RP-KM

- ●Rated primary current ･･･ 400A ～ 600A
- ●Suitable for energy measurement which is more less dispersion in ratio error and phase displacement
- ●Simple mounting for exiting panel which is clamp type
- ●Internal output protection circuit

Applications
Energy measurement unit

Dimensions

(mm)

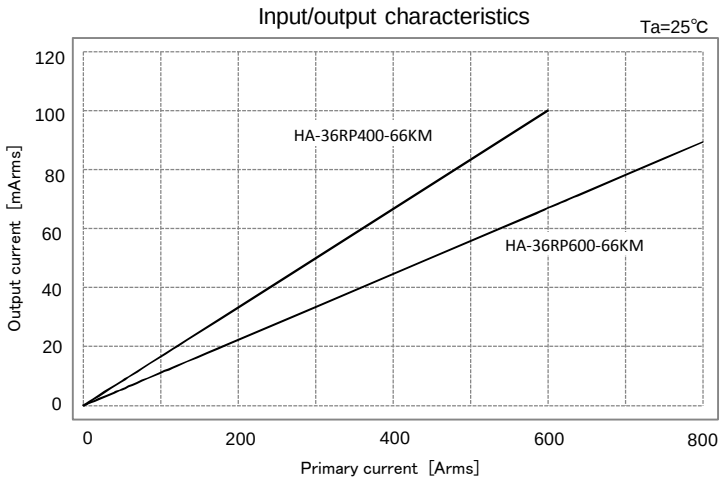


Specification

Ta=25° C

Type	HA-36RP400-66KM	HA-36RP600-66KM
Rated primary current	400Arms	600Arms
Measuring bound	20～400Arms	30～600Arms
Frequency	45～65Hz	
Saturation current	600Arms	800Arms
Rated secondary current	66.67mArms	
Ratio error	±1%(RL=10Ω)	
Dispersion in phase displacement	±30minute(0.1If～If RL=10Ω) ±45minute(0.05If RL=10Ω)	
Current transformation ratio	6000:1	9000:1
Operating Temp.	-10℃～+55℃	
Storage Temp.	-20℃～+60℃	
Dielectric withstand voltage	2000V AC 1minute	
Insulation resistance	Not less than 100MΩ 500V DC	
Resisting grade	UL94-V0	
Core materials	Silicon steel plate	
Weight	285g	319g
Application standard	RoHS	
Permission installation number of time	100	
Others	Terminal box M3 With cover Internal output protection circuit	

Characteristics chart



HA-A

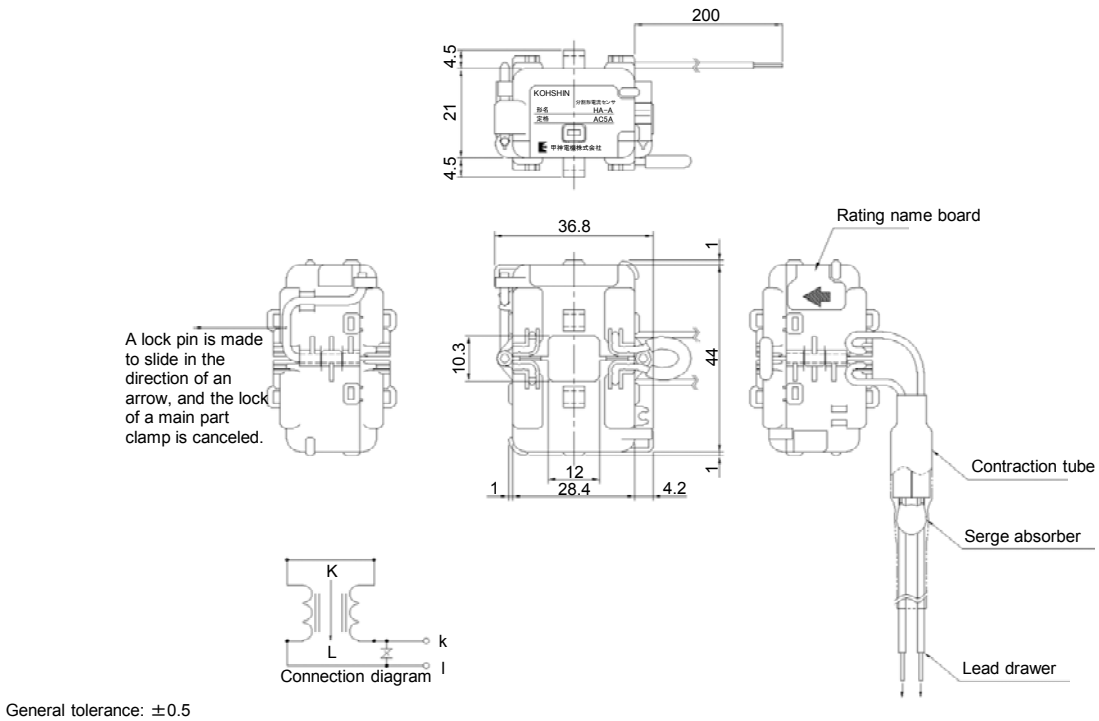
- Rated primary current 5A
- Most suitable for energy measurement which is more less dispersion in ratio error and phase displacement
- Symmetrical divided core prevents influence of external magnetic field
- Excellent frequency characteristics enabling pulse current measurement
- Simple mounting for exiting panel which is clamp type
- Internal output protection circuit

Applications

Energy measurement unit, Transmit detection of apparatus, Signal detection

Dimensions

(mm)



Weight : 61g

General tolerance: ±0.5

Specification

Ta=25℃

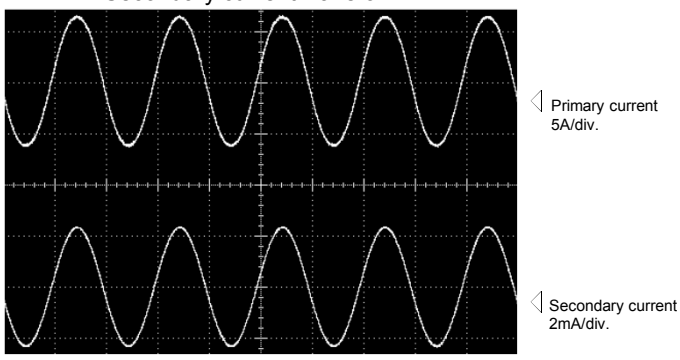
Type	HA-A005-016
Rated primary current [If]	5A
Measuring bound	0.25~5Arms
Frequency	45~65Hz
Saturation current [Is]	25A
Rated secondary current	1.67mArms
Ratio error	±1% (RL=200Ω)
Dispersion in phase displacement	±45minute (0.1If~If RL=200Ω) ±60minute (0.05If RL=200Ω)
Operating Temp.	-10℃~+55℃
Storage Temp.	-20℃~+60℃
Dielectric withstand voltage	1000V AC 1minute
Insulation resistance	Not less than 10MΩ 500V DC
Others	Internal output protection circuit

Characteristics chart

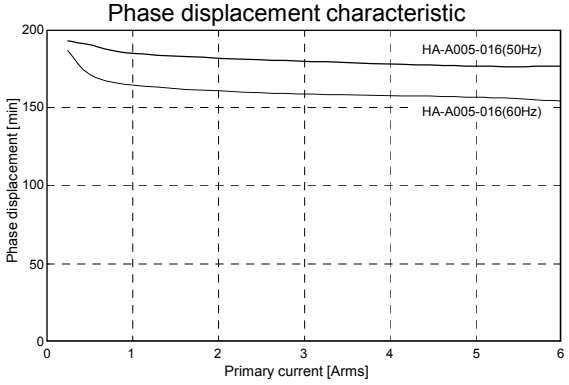
HA-A005-016

Time base: 10ms/div.

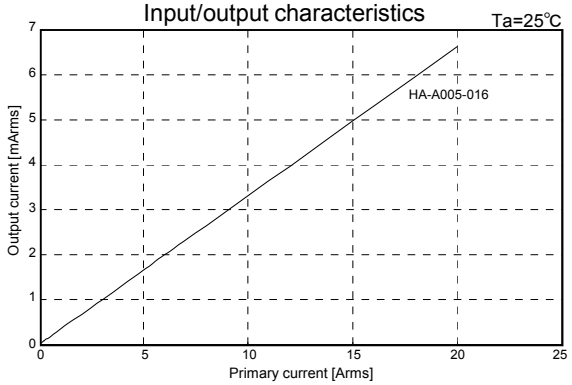
Secondary current waveform



Phase displacement characteristic



Input/output characteristics



Note: The marks " ◁ " means 0V or 0A.

HA-B, HA-C

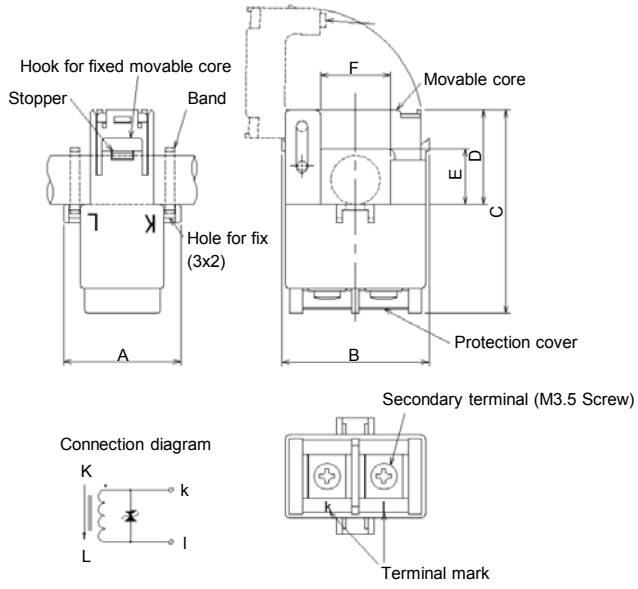
- Rated primary current 50A ~ 250A
- Most suitable for energy measurement which is more less dispersion in ratio error and phase displacement
- Simple mounting for exiting panel which is clamp type
- Internal output protection circuit

Applications

Energy measurement unit

Dimensions

(mm)



Type	A	B	C	D	E	F	Weight (g)
HA-B050-16 HA-B100-33	31.5	39.6	55.2	25.7	15.2	18.8	65
HA-C250-66	36.5	44	66	32.5	22	24	104

General tolerance: ±0.5

Specification

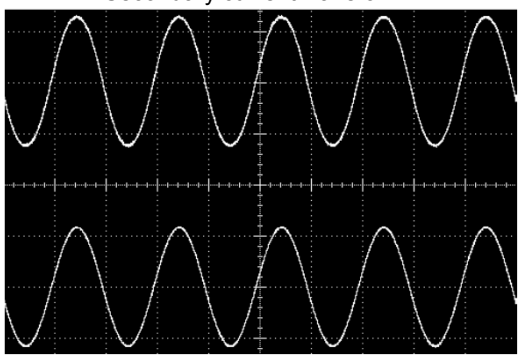
Ta=25℃

Type	HA-B050-16	HA-B100-33	HA-C250-66
Rated primary current [If]	50Arms	100Arms	250Arms
Measuring bound	2.5~50Arms	5~100Arms	12.5~250Arms
Frequency	45~65Hz		
Saturation current [Is]	140Arms		350Arms
Rated secondary current	16.67mArms	33.33mArms	66.67mArms
Ratio error	±1.2% (RL≦10Ω)		
Dispersion in phase displacement	±40minute (RL≦10Ω)		
Operating Temp.	-10℃~+55℃		
Storage Temp.	-20℃~+60℃		
Dielectric withstand voltage	2500V AC 1minute		
Insulation resistance	Not less than 10MΩ 500V DC		
Insulation distance	Not less than 8mm		
Others	Internal output protection circuit		

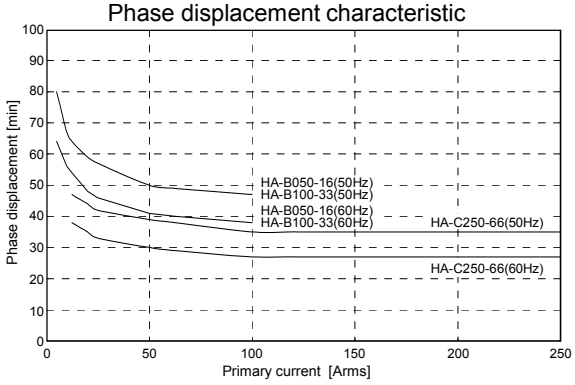
Characteristics chart

HA-B100-33 Time base: 10ms/div.

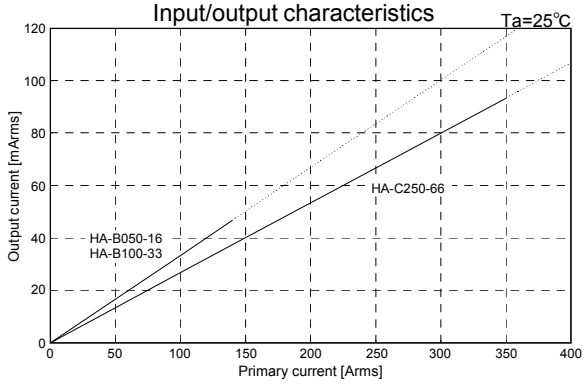
Secondary current waveform



Phase displacement characteristic



Input/output characteristics



Note: The solid lines indicate the possible range of a continuous flow of electricity.

Note: The marks " ◁ " means 0V or 0A.

HA-BV, HA-CV

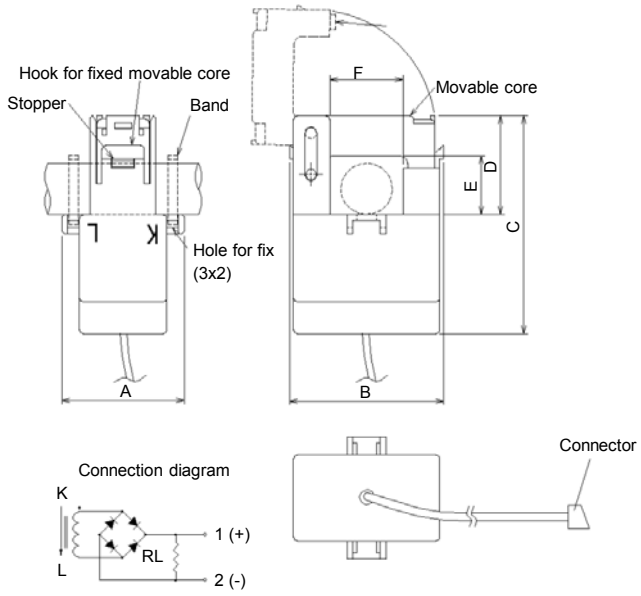
- Rated current 50A ~ 250A
- Simple mounting for exiting panel which is clamp type
- Internal rectification circuit DC-V output type

Applications

Energy measurement unit

Dimensions

(mm)



Type	A	B	C	D	E	F	Weight (g)
HA-B050-V5 HA-B100-V5	31.5	39.6	56.7	25.7	15.2	18.8	88
HA-C250-V5	36.5	44	67.4	32.5	22	24	124

General tolerance: ±0.5

Specification

Ta=25℃

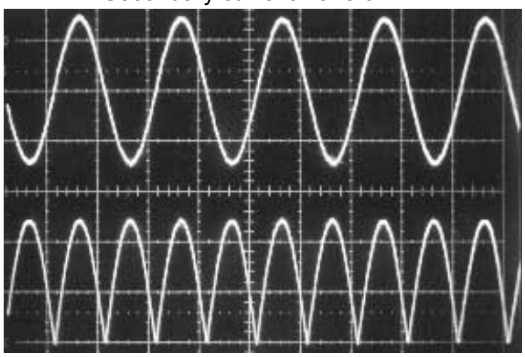
Type	HA-B050-V5	HA-B100-V5	HA-C250-V5
Rated current [If]	50Arms	100Arms	250Arms
Measuring bound	10~50Arms	10~100Arms	12.5~250Arms
Frequency	45~65Hz		
Rated output voltage	DC+5V (Peak) DC+3.21V (Average)		
Ratio error	±3%		
Operating Temp.	-10℃~+55℃		
Storage Temp.	-20℃~+60℃		
Dielectric withstand voltage	2500V AC 1minute		
Insulation resistance	Not less than 10MΩ 500V DC		
Insulation distance	Not less than 8mm		
Others	Output cable: VCTF wire 0.3mm^2 , L=2000mm Output connector: RISE housing 1-178128-2 (AMP) RISE contact 175195-2		

Characteristics chart

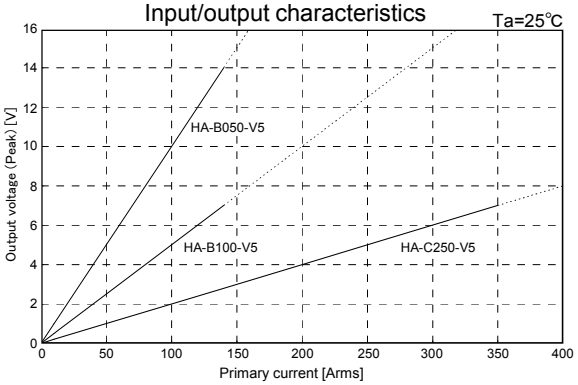
HA-B100-V5

Time base: 10ms/div.

Secondary current waveform



Input/output characteristics



Note: The solid lines indicate the possible range of a continuous flow of electricity.

Note: The marks " ◁ " means 0V or 0A.

HB-10RS series

Small-sized
Clamp type DC-CT

HB-10RS

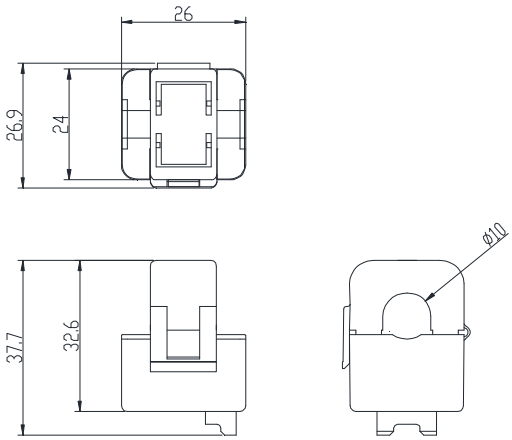
- Rated primary current ・・・ 15A
- Connector Specifications
- Simple mounting for exiting panel which is clamp type
- Rated primary current 50A also available
- Single-power supplies also available

Applications

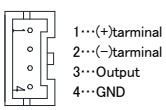
Energy measurement unit , power supply equipment

Dimensions

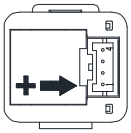
(mm)



Weight: 24g



Connection diagram



Supported housing
XARP-04V(JST)
XAP-04V-1(JST)

General tolerance: ±0.5

Specification

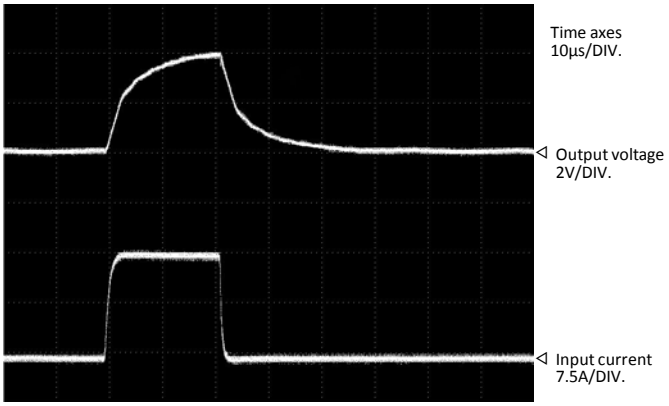
Ta=25° C

Type	HB-10R015V4B12C
Rated current	±15A
Saturation current	±33.75A
Linearity limits	0～±30A
Rated output	±4V±4.5%(RL=10kΩ)
Residual output	Within ±150mV
Output linearity	Within ±1%
Response time	Within 10μs
Response performance	Within 10%
Hysteresis voltage range	Within 200mV
Output Temp. Coef.	Within ±0.15%/℃
Residual output Temp. Coef.	Within ±14mV/℃
Control power supply	±12V±5%
Consumption current	Within 20mA
Operating Temp.	-20℃～+80℃
Storage Temp.	-20℃～+85℃
Dielectric withstand voltage	2500V AC50/60Hz 1minute
Insnlation resistance	Not less than 500MΩ 500V DC

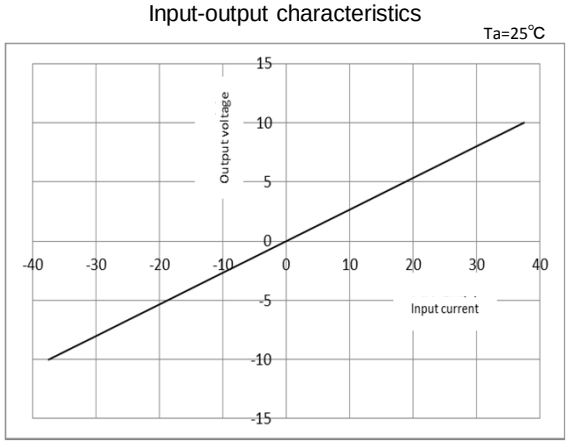
Notes
1) The indicated residual output is the one after the core hysteresis is removed.
2) Output specifications include 100-Ω output resistance and 2-mA maximum output current.
3) ±15V supplies also available

Characteristics chart

Pulse current response characteristics



Input-output characteristics



note : The mark" ◁ "means0V or

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○The performance and characteristics of the products are subject to change without prior notice.

○Issued in September, 2016