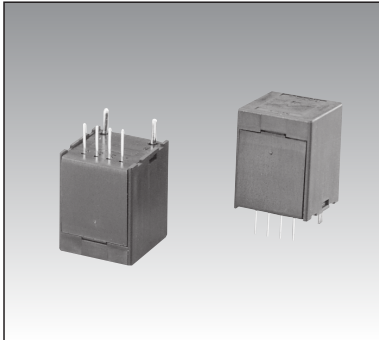


# Generic DC current sensor with primary coil

## Super small size for PCB mounting with primary coil corresponding to +12V power supply

DC current sensor

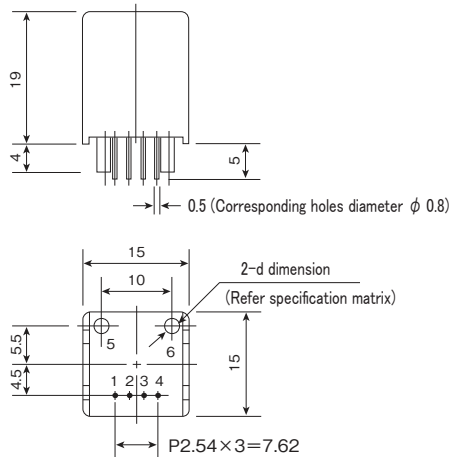


**Model** HPS-AS series

**[Features]**

- Corresponding to +12V control power supply
- Possible to discriminate the direction by output swing with 0.5 ~ 4.5V range at the midpoint 2.5V
- Possible to measure with isolation
- Possible to measure until bandwidth of DC ~ 20kHz high frequency (In the case of use with high frequency, there is the case not to use until the rating current)
- No destruction even if over current (within max pulse width)
- High speed response within 3  $\mu$  s

**[Outline drawing]**



**[Terminal arrangement]**

No.1	+ 12V
No.2	N.C.
No.3	OUTPUT
No.4	GND
No.5	INPUT (+)
No.6	INPUT (-)

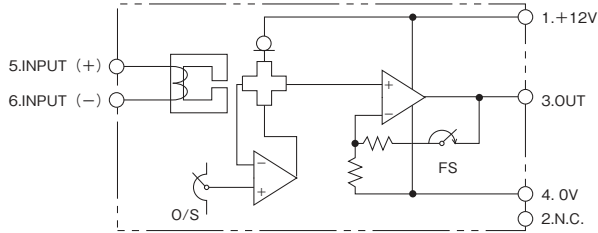
**[Specification]**

Model	HPS- (Rating current) -AS					
Rating current (FS)	$\pm 3A$	$\pm 5A$	$\pm 10A$	$\pm 15A$	$\pm 20A$	$\pm 25A$
Under saturated maximum current	$\pm 3A$	$\pm 5A$	$\pm 10A$	$\pm 15A$	$\pm 20A$	$\pm 25A$
Output voltage	2.5V $\pm$ 2V/Rating current (without load, output range $\pm$ 2V at the midpoint of 2.5V, Recommended load resistor $\geq$ 10k $\Omega$ )					
Residual voltage	2.5V within $\pm$ 20mV (no load)					
Noise level	Less than 40mVp-p (no load)					
Accuracy	Within $\pm$ 1%FS					
Linearity	Within $\pm$ 1%FS					
Hysteresis(FS $\rightarrow$ 0)	Within $\pm$ 8mV					
Response time	Less than 3 $\mu$ s (at di/dt = FS/2 $\mu$ s)					
Output voltage temperature coefficient	$\pm$ 0.1% / $^{\circ}$ C typ					
Residual voltage temperature coefficient	$\pm$ 1mV / $^{\circ}$ C typ					
Power supply	DC+12V $\pm$ 5% (25mA typ) uni-polar power supply					
Primary windings diameter	$\phi$ 0.6	$\phi$ 0.9	$\phi$ 1.1	$\phi$ 1.4	$\phi$ 1.7	$\phi$ 1.8
Primary windings resistance	28m $\Omega$ typ	8.0m $\Omega$ typ	2.8m $\Omega$ typ	1.3m $\Omega$ typ	0.7m $\Omega$ typ	0.4m $\Omega$ typ
Inductance	16 $\mu$ H typ	5.1 $\mu$ H typ	1.5 $\mu$ H typ	0.7 $\mu$ H typ	0.4 $\mu$ H typ	0.2 $\mu$ H typ
Maximum pulse current	Rating current X 10 times/50msec					
Withstand voltage	AC2000V(50/60Hz), 1min (Primary coil-output terminal in a lump)					
Insulation resistance	DC500V, $\geq$ 500M $\Omega$ (Primary coil-output terminal in a lump)					
Operating temperature	$-10^{\circ}$ C ~ $+60^{\circ}$ C, $\leq$ 85%RH, no condensation					
Storage temperature	$-15^{\circ}$ C ~ $+65^{\circ}$ C, $\leq$ 85%RH, no condensation					
Mass	approximately 8g					

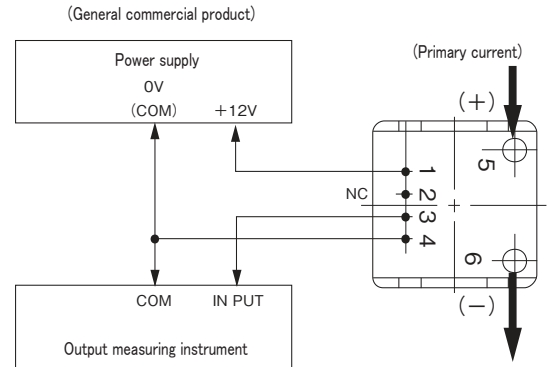
- [Remark]**
- (1) After overcurrent more than rating current, offset drift occur by proportional to that current, with hysteresis of core.
  - (2) Recommend to use more than 5% of nominal for practical range, because output includes various variation factors.
  - (3) There is possibility of heating by core loss for the application of high frequency and high current. Please check by contacting us. Ta=25 $^{\circ}$ C

HPS-AS series typical characteristic (HPS-5-AS)

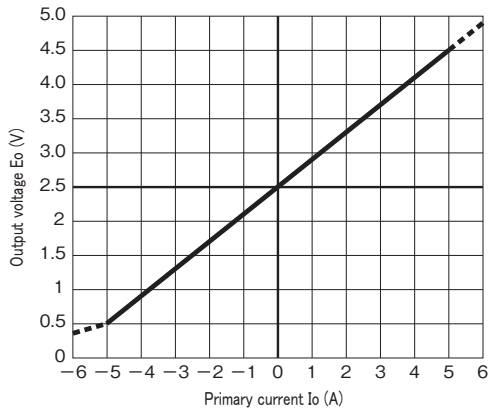
[Circuit diagram]



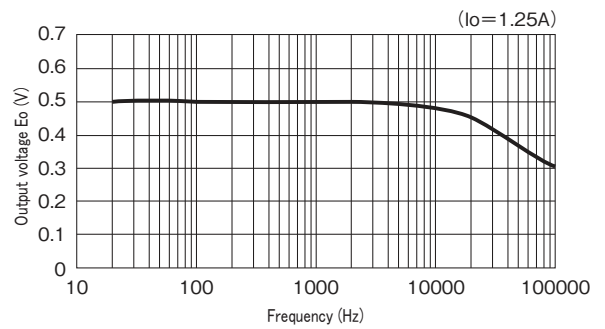
[Connection]



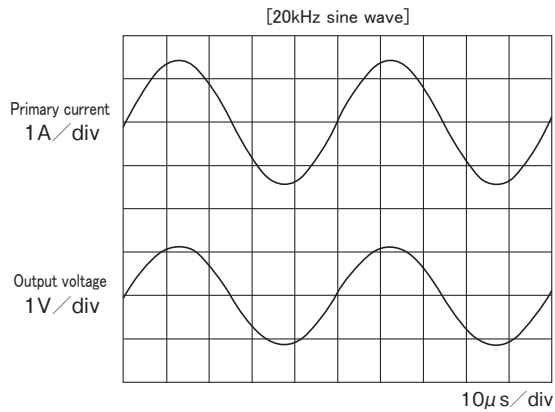
[Output voltage characteristic]



[Frequency characteristic]



[Output waveform] -1



[Output waveform] -2

