



HBC-LSP Closed loop series Hall current sensor

HBC-LSP series single-supply Hall current sensor is a closed-loop Hall current sensor developed by applying Hall effect principle. It can measure DC, AC, pulse and various irregular waveforms of current under the condition of electrical isolation.

Product Feature		Application
• High precision	• Fast response time	• Solar energy junction box
• Good linearity	• Good overload capability	• Inverter appliance
• low power consumption	• High stability	• AC/DC VSD
• Strong anti-interference ability	• Small package structure	• Battery Management

Electrical characteristics: (The following parameters, if not specified, are tested at room temperature 25°C, +5VDC)

HBC-LSP	HBC06LSP	HBC20LSP	HBC25LSP	HBC50LSP
Rated Current I_{pn} (A) PEAK	06	20	25	50
Measurement Range I_p (A)	0 ~ ±6	0 ~ ±20	0 ~ ±25	0 ~ ±50
Measuring Resistance R_m (Ω), 25PPM	100 ± 0.1%	100 ± 0.1%	50 ± 0.1%	50 ± 0.1%
Turns Per Coil $N_s(T)$	960	1000	625	1250
Sensitivity G (mV/A)	120	100	80	40
Output Voltage V_o (V)	2.5 ± 2.0 * (I_p / I_{pn})			
Power Supply V_c (V)	+5VDC ±5%			
Isolation Voltage V_d (V)	50/60Hz, 1min, 4.0kV; RMS			
Surge V_w (V)	@ at 1.2/50μs, >8.0KV			
Output Load Capacitance C_l (nF)	<10nF @ $V_o \sim$ GND			

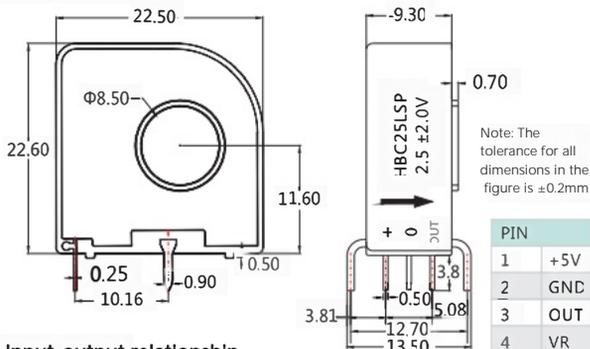
Dynamic Characteristics

Precision X_g	@ $I_{pn}, T = 25^\circ C$	< ±0.7	%
Zero Offset Voltage V_{oe}	@ $I_p = 0, T = 25^\circ C$	< ±50	mV
Offset Voltage Temperature Drift V_{ot}	@ -40°C ~ +85°C	< ±0.5	mV/°C
Linearity E_r		≤ 0.1	%FS
di/dt		> 50	A / μs
response time t_{ra}	@ 90% of I_{pn}	< 1.0	μs
Operating Bandwidth BW	-1dB	DC-200	KHz
Current Loss I_c	@ +5VDC	10 + I_s	mA

General Characteristic

Operating Temperature	-40 ~ +85	°C
Storage Temperature	-40 ~ +125	°C
Actual Weight	10	g

Structure Chart (mm)



Input-output relationship

Taking HBC20LSP as an example, the relationship between input current and output voltage is shown in Figure 1 and Table 1:

Table 1 : Input/output relationships

Input Current(A)	-20	-15	-10	-5	0	5	10	15	20
Output voltage (V)	0.5	1	1.5	2	2.5	3	3.5	4	4.5

Note: VR is an external reference voltage of 2.5V specially provided by our company for customers to facilitate the real acquisition and comparison of customers' signals; This reference voltage is the reference voltage used by the internal circuit of our product, and the error between it and the offset voltage of the product is small; Customers can choose to use it or leave it vacant, and there is no impact on the performance and use of the product itself.

Instructions

1. Access the current according to the calibration direction of the wiring diagram; Pay attention to the positive and negative currents;
2. According to the functional pin defined in the structure diagram to connect;
3. The temperature of the primary conductor should not exceed 100 degrees Celsius;
4. The busbar should be completely full of primary perforation dynamic response and DI/DT following accuracy is the best;
5. The above specifications are calibration specifications, our company can customize products according to customer requirements.
6. If our products have new changes, please do not notice, based on the actual product parameters.

Figure 1. Relationship between input current and output voltage

