BYD Microelectronics Co., Ltd.

BSX1-80/200/250IOV1HA

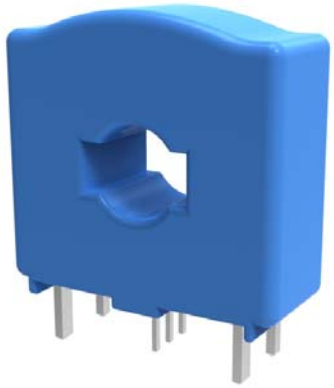
Current Sensors

Description

For the electronic measurement of currents: DC, AC, pulsed, mixed, with a galvanic isolation between the primary circuit and the secondary circuit.

Features

- Open loop transducer using the Hall effect
- Low voltage application
- Unipolar +5VDC power supply
- Operating temperature range: -40℃< T_A<+125℃
- Output voltage: fully ratio-metric(gain and offset)



I_{PN} = 80...250A

Advantages

- High accuracy
- Excellent linearity
- Low temperature drift
- Hermetic package

Industrial applications

- Standard battery monitoring
- Hybrid and EV battery pack current sensing
- Fuel cell current control
- DC/DC converters and AC/DC inverters
- Hybrid and EV motor inverter drive
- EPS and X-by-wire applications
- Electric compressors for air conditioning

TYPES OF PRODUCTS

Type	Primary nominal current I_{PN} (A)	Primary current measuring range I_P (A)
BSX1-80IOV1HA	80	±80
BSX1-200IOV1HA	200	±200
BSX1-250IOV1HA	250	±250

Parameters Table

PARAMETERS	SYMBOL	UNIT	VALUE			CONDITIONS
			Min.	Typ.	Max.	
Electrical data						
Supply voltage	Vcc	V	-	5	-	
Current consumption	Icc	mA	-	8.2	10	@T_A = 25°C
Output Load Resistance	R_L	kΩ	4.7	-	-	
Output Load Capacitance	C_L	nF	-	-	10	@V_{OUT} to GND
Output Resistance	R_{OUT}	Ω	-	1.5	-	
Output voltage	V_{OUT}	V	Vc /5 ×(2.5+0.025×Ip)@80A Vc /5 ×(2.5+0.01×Ip) @200A Vc /5 ×(2.5+0.008×Ip)@ 250A			@T_A = 25°C
Output Linearity	ε_L	%	-1%	-	+1%	@T_A = 25°C
Accuracy	X	%	-2%	-	+2%	@T_A = 25°C
Quiescent Output Voltage(1)	V_{OUTQ}	V	2.5V±20mV			@T_A = 25°C B=0
Performance data						
Magnetic Sensitivity	S_{ENS}	mV/G	1.75	-	11.25	@T_A = 25°C
Sensitivity Temperature Coefficient	TCS_{ENS}	%/°C	-0.016	0.05	0.104	@T_A = 25°C
Output Bandwidth	BW	kH	-	20	-	@-3dB
Noise	V_N	mV	–	14	26	@peak-to-peak, C_{LOAD} > 1 nF, 2.5 mV/G
Phase Shift	ΔΦ	(°)	-	3	-	@Magnetic signal freq. = 1000 Hz
Response time	t_r	μS	-	15	20	
Rms voltage isolation test	V_d	kV	-	-	2	@AC 50Hz 1Min
General data						
Ambient operating temperature	T_A	℃	-40～+125			
Ambient storage temperature	T_S	℃	-40～+125			

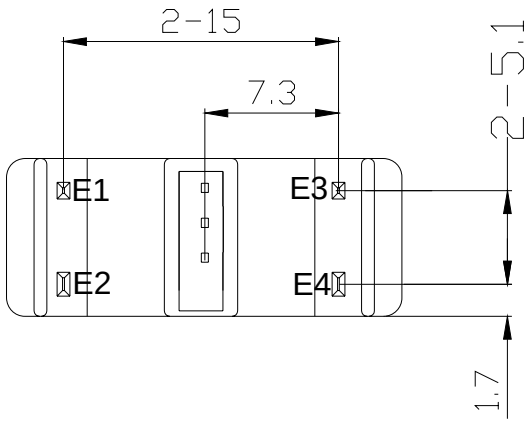
Notes:

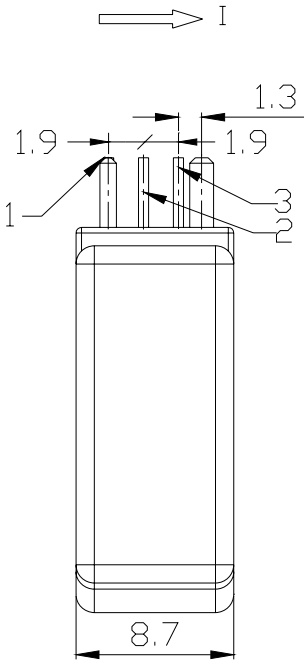
(1) The indicated offset voltage is the one after the core hysteresis is removed.

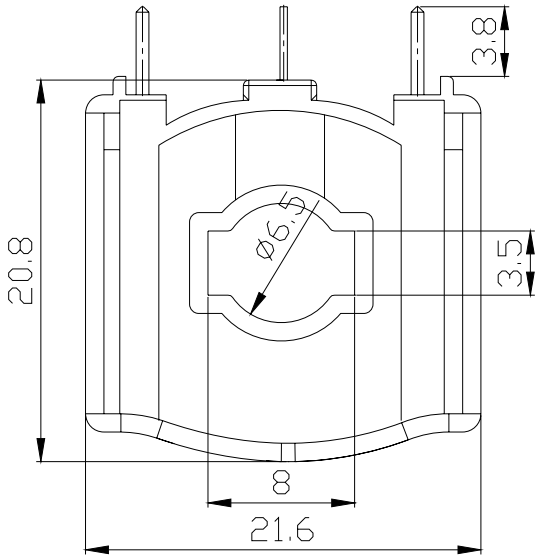
Dimensions BSX1-IOV1HA (in mm. 1 mm = 0.0394 inch)

Pin Out	
1	Vout
2	Ground
3	Vcc(5V)
E1 to E4	Ground

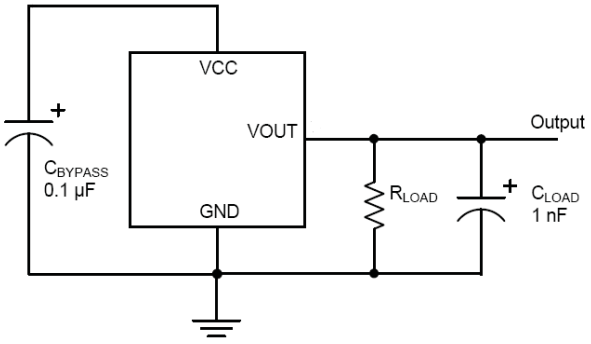
General tolerance： ±0.2mm







Connection schematic



◆Instructions of use

1. When the test current passes through the sensors, you can get the size of the output voltage. (Warning: wrong connection may lead to sensors damage.)
2. Based on user needs, the output range of the sensors can be appropriately regulated.
3. According to user needs, different rated input currents and output voltages of the sensors can be customized.

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