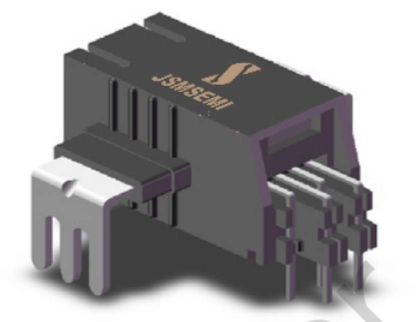
Description:

The SHLSR- xx-P/SP33 series products are open-loop loop current sensors based High stability, High Precision, Fast Response, Low Noise on the Hall principle. It has advantages such as ultra-low temperature coefficient of 30ppm/K, ultra-low sensitivity error of 0.15%, accuracy @ IPN reaching 0.2%, etc.Suitable for measuring various types and sizes of currents such as DC, AC, pulse, etc.



Features:

- Open-loop current sensor with selectable ranges
- Voltage output
- 3.3V power supply (SHLSR- xx-P/SP33)
- Electrical offset voltage ±2mV
- Primary conductor and signal terminals electrically isolated
- Temperature coefficient of VOE ±0.05mV/℃
- Gallium Arsenide Packaging Material
- Low power consumption
- Compact design suitable for PCB surface mounting
- Factory calibration
- High bandwidth

Applications:

- Servo motor drives
- DC motor drives
- UPS
- SMPS
- Welding power supplies
- Inverters
- MPPT
- AC variable speed
- Battery supplied applications

Application Circuits

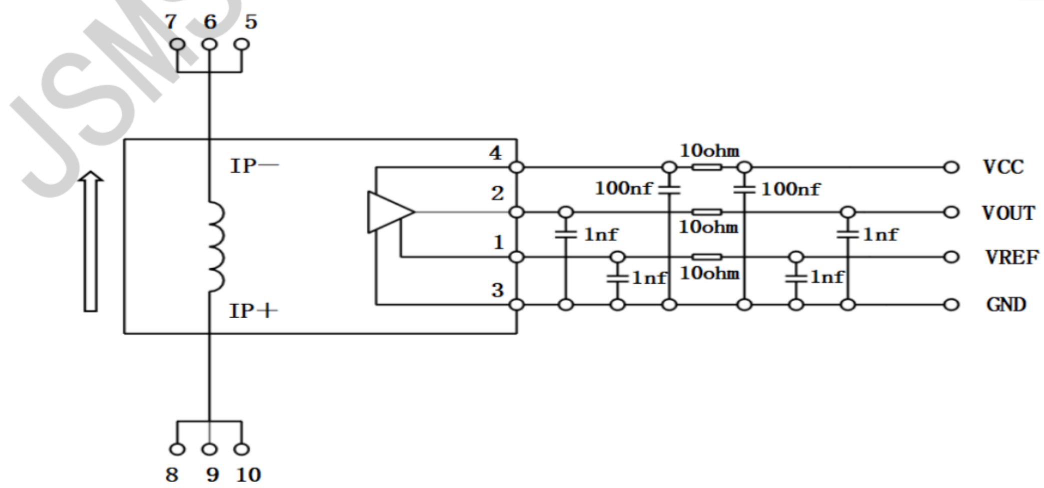


Figure 1. Typical Application Circuit

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Selection Guide:

Part Number	Output	Measuring Current I_{PR}(A)	Sensitivity (mV/A) V_{CC}=3.3V	Operating Temp. Range T_A (°C)	Packing
SHLSR- 10-P	Fixed Output	10	46	–40 to 105℃	Tray
SHLSR- 16-P		16	29		
SHLSR- 20-P		20	23		
SHLSR- 32-P		32	14		
SHLSR- 40-P		40	12		
SHLSR- 50-P		50	9		

1.ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Unit	Comment	Min	Typ	Max
Supply voltage	V_{CC}	V	T_A=25℃	-0.3	-	6.5
Working current	I_{CC}	mA	T_A=25℃			40
Ambient Temperature	T_A	℃		-40		105
Storage temperature	T_S	℃		-55		150

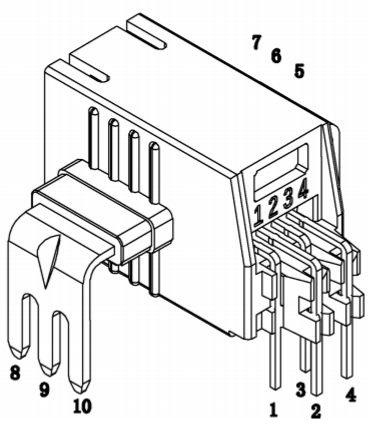
2.ESD CHARACTERISTICS

Parameter	Symbol	Unit	Comment	Min
Manikin	V_{HBM}	kV	ESD between any two pins	±6

3.ISOLATION CHARACTERISTICS

Parameter	Symbol	Unit	Comment	Min
Isolation and voltage resistance	V_{ISO}	VRMS	Primary and secondary conducting AC voltage 50HZ/1min	4700
Impulse voltage	V_{SURGE}	V	Withstand pulse voltage 1.2/50us	6000
Electrical distance	D_{CL}	mm	The shortest path through air	8
creepage	D_{CR}	mm	Take the shortest path along the device itself	8
Application examples	-	V	Absolute insulation, CAT III, PD 2, compliant with EN 50178 and IEC 61010 in non-uniform scenarios	600
Application examples	-	V	Absolute insulation, CAT III, PD 2, compliant with EN 50178 and IEC 61010 in non-uniform scenarios	1000
Application examples	-	V	CAT III, PD 2, according to UL 508	600

4.TERMINAL LIST & FUNCTIONAL BLOCK



PIN	Pin Definition
1	VREF
2	VOUT
3	GND
4	VCC

Figure 2. Pin diagram

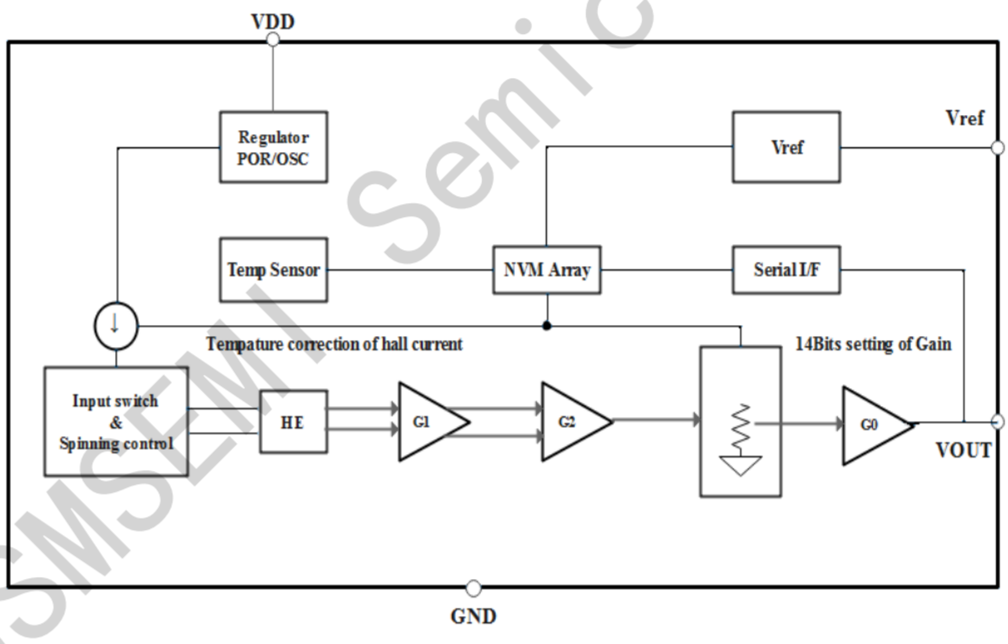


Figure 3. Functional Block Diagram

5.COMMON ELECTRICAL CHARACTERISTICS

SHLSR 10-P/SP33 Electrical Performance

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Range	I_{PN}	A		10		
Current measuring range	I_{PM}	A	-25		25	V_{DD}>3.3V
Primary conductor turns	N_P			1		
Primary conductive resistance @ TA=25 ℃	R_P	mΩ		0.21		
Primary conductive resistance @ TA=105 ℃	R_P	mΩ		0.32		
Supply Voltage	V_{DD}	V	3.135	3.3	3.465	
Drive current	I_C	mA		8	10	
Reference voltage (output)	V_{ref}	V	1.63	1.65	1.67	Internal reference
I_{PM} output voltage range	V_{out}-V_{ref}	V	-2		2	
V_{ref} Output resistor	R_{ref}	Ω		1	10	
V_{out} Output resistor	R_{out}	Ω		1	10	
Load Capacitance	C_L	nF		1	10	
Unbalanced voltage @ IP=0	V_{OE}	mV	-5		5	V_{out}-V_{ref}@V_{ref}=2.5V
Equivalent offset current	I_{OE}	mA	-62.5		62.5	
V_{ref} Temperature drift	TCV_{ref}	ppm/K	-150		150	-40℃ to 105℃
Zero temperature drift	TCV_{OE}	mV/K	-0.075		0.075	-40℃ to 105℃
I_{OE} Temperature coefficient	TCI_{OE}	mA/K	-0.94		0.94	-40℃ to 105℃
Theoretical sensitivity	G_{th}	mV/A		46		460mV@I_{PN}
Sensitivity error	ε_G	%	-0.5		0.5	Factory adjustment
Sensitivity temperature drift	TCG	ppm/K	-200		200	
Linear error 0~I_{PN}	ε_L	% of I_{PN}	-0.4		0.4	
linearity error 0~I_{PM}	ε_L	% of I_{PM}	-0.4		0.4	
Hysteresis equivalent current error	I_{OM}	A	-0.2		0.2	
Response time@90% of I_{PN}	t_r	μs		1.6		@50A/μs
Bandwidth（-3dB）	BW	kHz		250		
Accuracy @ I_{PN} @T_A=25℃	X	% of I_{PN}	-1		1	
Accuracy @ I_{PN} @T_A=-40-105℃	X	% of I_{PN}	-2.5		2.5	

SHLSR 16-P/SP33 Electrical Performance

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Range	I_{PN}	A		16		
Current measuring range	I_{PM}	A	-40		40	VDD >3.3V
Primary conductor turns	N_P			1		
Primary conductive resistance @ TA=25 ℃	R_P	mΩ		0.21		
Primary conductive resistance @ TA=105 ℃	R_P	mΩ		0.32		
Supply Voltage	V_{DD}	V	3.135	3.3	3.465	
Drive current	I_C	mA		8	10	
Reference voltage (output)	V_{ref}	V	1.63	1.65	1.67	Internal reference
I_{PM} output voltage range	V_{out}-V_{ref}	V	-2		2	
V_{ref} Output resistor	R_{ref}	Ω		1	10	
V_{out} Output resistor	R_{out}	Ω		1	10	
Load Capacitance	C_L	nF		1	10	
Unbalanced voltage @ IP=0	V_{OE}	mV	-5		5	V_{out}-V_{ref}@V_{ref}=2.5V
Equivalent offset current	I_{OE}	mA	-100		100	
V_{ref} Temperature drift	TCV_{ref}	ppm/K	-150		150	-40℃ to 105℃
Zero temperature drift	TCV_{OE}	mV/K	-0.075		0.075	-40℃ to 105℃
I_{OE} Temperature coefficient	TCI_{OE}	mA/K	-1.5		1.5	-40℃ to 105℃
Theoretical sensitivity	G_{th}	mV/A		29		460mV@I_{PN}
Sensitivity error	ε_G	%	-0.5		0.5	Factory adjustment
Sensitivity temperature drift	TCG	ppm/K	-200		200	
Linear error 0~I_{PN}	ε_L	% of I_{PN}	-0.4		0.4	
linearity error 0~I_{PM}	ε_L	% of I_{PM}	-0.4		0.4	
Hysteresis equivalent current error	I_{OM}	A	-0.2		0.2	
Response time@90% of I_{PN}	t_r	μs		1.6		@50A/μs
Bandwidth（-3dB）	BW	kHz		250		
Accuracy @ I_{PN} @T_A=25℃	X	% of I_{PN}	-1		1	
Accuracy @ I_{PN} @T_A=-40-105℃	X	% of I_{PN}	-2.5		2.5	

SHLSR 20-P/SP33 Electrical Performance

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Range	I_{PN}	A		20		
Current measuring range	I_{PM}	A	-50		50	VDD >3.3V
Primary conductor turns	N_P			1		
Primary conductive resistance @ TA=25 ℃	R_P	mΩ		0.21		
Primary conductive resistance @ TA=105 ℃	R_P	mΩ		0.32		
Supply Voltage	V_{DD}	V	3.153	3.3	3.465	
Drive current	I_C	mA		8	10	
Reference voltage (output)	V_{ref}	V	1.63	1.65	1.67	Internal reference
I_{PM} output voltage range	V_{out}-V_{ref}	V	-2		2	
V_{ref} Output resistor	R_{ref}	Ω		1	10	
V_{out} Output resistor	R_{out}	Ω		1	10	
Load Capacitance	C_L	nF		1	10	
Unbalanced voltage @ IP=0	V_{OE}	mV	-5		5	V_{out}-V_{ref}@V_{ref}=2.5V
Equivalent offset current	I_{OE}	mA	-125		125	
V_{ref} Temperature drift	TCV_{ref}	ppm/K	-170		170	-40℃ to 105℃
Zero temperature drift	TCV_{OE}	mV/K	-0.075		0.075	-40℃ to 105℃
I_{OE} Temperature coefficient	TCI_{OE}	mA/K	-1.88		1.88	-40℃ to 105℃
Theoretical sensitivity	G_{th}	mV/A		23		460mV@I_{PN}
Sensitivity error	ε_G	%	-0.5		0.5	Factory adjustment
Sensitivity temperature drift	TCG	ppm/K	-200		200	
Linear error 0~I_{PN}	ε_L	% of I_{PN}	-0.4		0.4	
linearity error 0~I_{PM}	ε_L	% of I_{PM}	-0.4		0.4	
Hysteresis equivalent current error	I_{OM}	A	-0.2		0.2	
Response time@90% of I_{PN}	t_r	μs		1.6		@50A/μs
Bandwidth（-3dB）	BW	kHz		250		
Accuracy @ I_{PN} @T_A=25℃	X	% of I_{PN}	-1		1	
Accuracy @ I_{PN} @T_A=-40-105℃	X	% of I_{PN}	-2.5		2.5	

SHLSR 32-P/SP33 Electrical Performance

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Range	I_{PN}	A		32		
Current measuring range	I_{PM}	A	-80		80	VDD >3.3V
Primary conductor turns	N_P			1		
Primary conductive resistance @ TA=25 ℃	R_P	mΩ		0.21		
Primary conductive resistance @ TA=105 ℃	R_P	mΩ		0.32		
Supply Voltage	V_{DD}	V	3.153	3.3	3.465	
Drive current	I_C	mA		8	10	
Reference voltage (output)	V_{ref}	V	1.63	1.65	1.67	Internal reference
I_{PM} output voltage range	V_{out}-V_{ref}	V	-2		2	
V_{ref} Output resistor	R_{ref}	Ω		1	10	
V_{out} Output resistor	R_{out}	Ω		1	10	
Load Capacitance	C_L	nF		1	10	
Unbalanced voltage @ IP=0	V_{OE}	mV	-5		5	V_{out}-V_{ref}@V_{ref}=2.5V
Equivalent offset current	I_{OE}	mA	-200		200	
V_{ref} Temperature drift	TCV_{ref}	ppm/K	-170		170	-40℃ to 105℃
Zero temperature drift	TCV_{OE}	mV/K	-0.05		0.05	-40℃ to 105℃
I_{OE} Temperature coefficient	TCI_{OE}	mA/K	-3		3	-40℃ to 105℃
Theoretical sensitivity	G_{th}	mV/A		14		460mV@I_{PN}
Sensitivity error	ε_G	%	-0.5		0.5	Factory adjustment
Sensitivity temperature drift	TCG	ppm/K	-200		200	
Linear error 0~I_{PN}	ε_L	% of I_{PN}	-0.4		0.4	
linearity error 0~I_{PM}	ε_L	% of I_{PM}	-0.4		0.4	
Hysteresis equivalent current error	I_{OM}	A	-0.2		0.2	
Response time@90% of I_{PN}	t_r	μs		1.6		@50A/μs
Bandwidth（-3dB）	BW	kHz		250		
Accuracy @ I_{PN} @T_A=25℃	X	% of I_{PN}	-1		1	
Accuracy @ I_{PN} @T_A=-40-105℃	X	% of I_{PN}	-2.5		2.5	

SHLSR 40-P/SP33 Electrical Performance

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Range	I_{PN}	A		40		
Current measuring range	I_{PM}	A	-100		100	VDD >3.3V
Primary conductor turns	N_P			1		
Primary conductive resistance @ TA=25 ℃	R_P	mΩ		0.21		
Primary conductive resistance @ TA=105 ℃	R_P	mΩ		0.32		
Supply Voltage	V_{DD}	V	3.153	3.3	3.465	
Drive current	I_C	mA		8	10	
Reference voltage (output)	V_{ref}	V	1.63	1.65	1.67	Internal reference
I_{PM} output voltage range	V_{out}-V_{ref}	V	-2		2	
V_{ref} Output resistor	R_{ref}	Ω		1	10	
V_{out} Output resistor	R_{out}	Ω		1	10	
Load Capacitance	C_L	nF		1	10	
Unbalanced voltage @ IP=0	V_{OE}	mV	-5		5	V_{out}-V_{ref}@V_{ref}=2.5V
Equivalent offset current	I_{OE}	mA	-200		200	
V_{ref} Temperature drift	TCV_{ref}	ppm/K	-170		170	-40℃ to 105℃
Zero temperature drift	TCV_{OE}	mV/K	-0.05		0.05	-40℃ to 105℃
I_{OE} Temperature coefficient	TCI_{OE}	mA/K	-3		3	-40℃ to 105℃
Theoretical sensitivity	G_{th}	mV/A		12		460mV@I_{PN}
Sensitivity error	ε_G	%	-0.5		0.5	Factory adjustment
Sensitivity temperature drift	TCG	ppm/K	-200		200	
Linear error 0~I_{PN}	ε_L	% of I_{PN}	-0.4		0.4	
linearity error 0~I_{PM}	ε_L	% of I_{PM}	-0.4		0.4	
Hysteresis equivalent current error	I_{OM}	A	-0.2		0.2	
Response time@90% of I_{PN}	t_r	μs		1.6		@50A/μs
Bandwidth（-3dB）	BW	kHz		250		
Accuracy @ I_{PN} @T_A=25℃	X	% of I_{PN}	-1		1	
Accuracy @ I_{PN} @T_A=-40-105℃	X	% of I_{PN}	-2.5		2.5	

SHLSR 50-P/SP33 Electrical Performance

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Range	I_{PN}	A		50		
Current measuring range	I_{PM}	A	-125		125	VDD >3.3V
Primary conductor turns	N_P			1		
Primary conductive resistance @ TA=25 ℃	R_P	mΩ		0.21		
Primary conductive resistance @ TA=105 ℃	R_P	mΩ		0.32		
Supply Voltage	V_{DD}	V	3.153	3.3	3.465	
Drive current	I_C	mA		8	10	
Reference voltage (output)	V_{ref}	V	1.63	1.65	1.67	Internal reference
I_{PM} output voltage range	V_{out}-V_{ref}	V	-2		2	
V_{ref} Output resistor	R_{ref}	Ω		1	10	
V_{out} Output resistor	R_{out}	Ω		1	10	
Load Capacitance	C_L	nF		1	10	
Unbalanced voltage @ IP=0	V_{OE}	mV	-5		5	V_{out}-V_{ref}@V_{ref}=2.5V
Equivalent offset current	I_{OE}	mA	-313		313	
V_{ref} Temperature drift	TCV_{ref}	ppm/K	-170		170	-40℃ to 105℃
Zero temperature drift	TCV_{OE}	mV/K	-0.05		0.05	-40℃ to 105℃
I_{OE} Temperature coefficient	TCI_{OE}	mA/K	-3.125		3.125	-40℃ to 105℃
Theoretical sensitivity	G_{th}	mV/A		9		460mV@I_{PN}
Sensitivity error	ε_G	%	-0.5		0.5	Factory adjustment
Sensitivity temperature drift	TCG	ppm/K	-200		200	
Linear error 0~I_{PN}	ε_L	% of I_{PN}	-0.4		0.4	
linearity error 0~I_{PM}	ε_L	% of I_{PM}	-0.2		0.2	
Hysteresis equivalent current error	I_{OM}	A	-0.2		0.2	
Response time@90% of I_{PN}	t_r	μs		1.6		@50A/μs
Bandwidth（-3dB）	BW	kHz		250		
Accuracy @ I_{PN} @T_A=25℃	X	% of I_{PN}	-1		1	
Accuracy @ I_{PN} @T_A=-40-105℃	X	% of I_{PN}	-2.5		2.5	

6.Parameter Description

6.1 Sensitivity **Sens**

Definition: The output of a Hall current sensor changes with the I_P passing through the primary conductor. Sensitivity **Sens** is the product of magnetic circuit sensitivity **(Gs/A;1Gs = 0.1mT)** and linear IC sensitivity **(mV/Gs)** .

The gain of linear ICs can be programmed before leaving the factory, ensuring high-precision output of current sensors with different ranges at different operating temperatures.

6.2 Sensitivity error E_{Sens}

Definition: Sensitivity error ESens is the percentage of deviation between actual sensitivity and ideal sensitivity.

For example, when VCC=3.3V:

$$E_{Sens} = \frac{Sens_{Meas(5V)} - Sens_{Ideal(3.3V)}}{Sens_{IDEAL(3.3V)}} \times 100\%$$

6.3 Sensitivity temperature drift $\Delta Sens_{TC}$ (%)

The sensitivity temperature drift within the entire temperature range is defined as:

$$\Delta Sens T_C = \frac{SensTA - Sens_{EXPECTED(TA)}}{Sens_{EXPECTED(TA)}} \times 100\%$$

6.4 Saturated output voltage $V_{OUT-SAT(H/L)}$

Definition:The maximum output of the chip under a positive magnetic field when $V_{OUT-SAT(H)}$ is **I_{OUT}=2.0/0.5mA** ;

The minimum output of the chip under negative magnetic field when $V_{OUT-SAT(L)}$ is **I_{OUT}=2.0/0.5mA** .

6.5 Zero point output voltage $V_{IOUT(Q)}$

The output voltage $V_{IOUT(Q)}$ of the sensor when **I_P=0** .

For bidirectional devices, the output voltage **$V_{IOUT(Q)}=V_{CC}\times0.5$;**

For unidirectional devices, the output voltage **$V_{IOUT(Q)}=V_{CC}\times0.1$**。

The variation of $V_{IOUT(Q)}$ can be adjusted by the built-in IC programming combined with the variation of temperature drift.

6.6 Zero offset voltage V_{OE}

Used to measure the influence of external non-magnetic factors, it refers to the relationship between the actual output voltage and the static voltage.

6.7 Zero point output voltage temperature $\Delta V_{OUT(Q)TC}$ (V)

Due to internal component tolerances and heat dissipation, the static output voltage $V_{OUT(Q)}$ may deviate by $\Delta V_{OUT(Q)TC}$ with changes in operating temperature.

It is defined as:

$$\Delta V_{OUT(Q)TC} = V_{OUT(Q)(TA)} - V_{OUT(Q)EXPECTED(TA)}$$

$\Delta V_{OUT(Q)TC}$ should be calculated using actual test values and expected values, rather than programmed target values.

6.8 Noise V_N

Definition: Noise is the macroscopic sum of internal thermal noise, granular noise, etc. in a current sensor. The minimum current that the device can resolve can be obtained by dividing the noise (mV) by the sensitivity (mV/A).

6.9 Symmetry E_{SYM}

Definition: The relationship between the actual output voltage and the forward half range and reverse half range outputs. Formula:

$$E_{SYM} = 100\% \left(\frac{V_{IOUT+half\text{-}scale\ amperes} - V_{IOUT(Q)}}{V_{IOUT(Q)} - V_{IOUT-half\text{-}scale\ amperes}} \right)$$

6.10 Nonlinearity E_{LIN}

The design output of this device shows a linear relationship with the measured current.

Ideally, under the same voltage and temperature conditions, the output sensitivity of the device is the same for two different current levels I1 and I2. However, in reality, there is a difference in sensitivity for measuring two different current levels I1 and I2, and nonlinearity E_{LIN} is a description of this difference.

The definitions of positive current nonlinearity E_{LINPOS} and negative current nonlinearity E_{LINNEG} are as follows:

$$E_{LINPOS} = 100\,(\%) \times \{1 - (Sens_{IPOS2} / Sens_{IPOS1})\}$$
$$E_{LINNEG} = 100\,(\%) \times \{1 - (Sens_{INEG2} / Sens_{INEG1})\}$$

AS

$$Sens_{Ix} = \left(V_{IOUT(Ix)} - V_{IOUT(Q)}\right) / Ix$$

I_{POSx}、I_{NEGx} are positive and negative currents

$$I_{POS2} = 2 \times I_{POS1}$$
$$I_{NEG2} = 2 \times I_{NEG1}$$

Due to the hysteresis effect of the magnetic core, there is magnetic saturation at high currents. Therefore, when the measured current exceeds 200A, the nonlinear error will increase.

6.Parameter Description (Continued)

6.11 Nonlinearity error ***ρ [%F.S.]*** (%)

The ratio of the maximum vertical difference between the B-VOUT curve (fitted by least squares method) and the measured curve to the difference in full-scale output voltage (VH-VL). Calculation formula: ***ρ=100*MFD/F.S.=100* MFD/***$(V_H - V_L)$

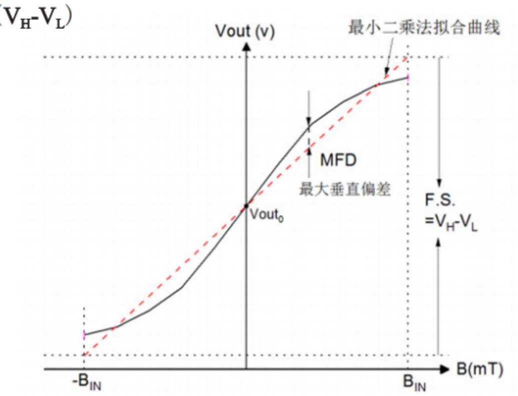


Figure 3. Schematic diagram of linearity calculation

6.12 Magnetic offset error(I_{ERROM})

Magnetic offset is caused by the residual magnetism of the magnetic core material. The magnetic offset error is maximum when the mag netic circuit is saturated, usually when the device is at full range or i n a current overload state. The magnetic offset error largely depends on the magnetic core material. Usually, the lower the temperature, t he greater the magnetic offset error.

6.13 Total output error(E_{TOT})

Definition: The difference betw een th e test current corresponding to th e output and th e actual current(I_P) (eq uivalent to th e difference betw een th e ideal output voltage and th e actual output voltage), divided by th e product of th e ideal sensitivity and th e primary conductor current:

$$E_{TOT\,(I_P)} = + \frac{V_{IOUT}(I_P) - V_{IOUT(ideal)}(I_P)}{Sens_{\varphi\,(ideal)} \times I_{PM}} \times 100\%$$

Among them, the total output error E_{TOT} includes all error sources and is a function of I_P

$$V_{IOUT\,(ideal)(IP)} = V_{IOUT\,(Q)} + (Sens_{IDEAL} \times I_P)$$

At relatively high currents, E_{TOT} is mainly sensitivity error, while at relatively low currents, E_{TOT} is mainly bias voltage (V_{OE}). When t he I_P approaches zero, calculate E_{TOT} to approach infinity.

6.14 Dynamic response characteristics

6.14.1 Power on delay(***T_POD***)

When the power supply rises to the operating voltage, the device needs a limited period of time to supply power to internal components before it can respond to the measured magnetic field. The power on delay T_{POD} is defined as the time required for the output voltage to stabilize within a range of ± 10% under the action of an external magnetic field after the power supply reaches its minimum specified operating voltage **Vcc**， as shown in the figure.

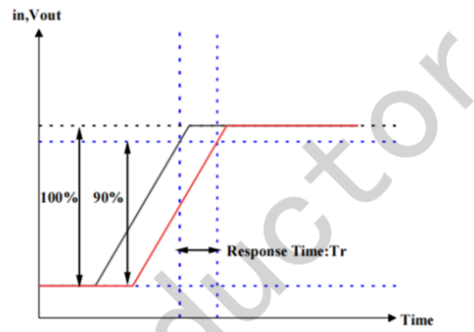


Figure 4. Schematic diagram of time definitions for dynamic corresponding characteristics

6.14.2 Rise time(T_r)

The time interval between the sensor reaching 10% of its full-scale output and 90% of its full-scale value.

6.14.3 Transmission delay(T_{PROP})

The time interval between the measured current reaching 20% of its full value and the sensor output reaching 20% of its full output.

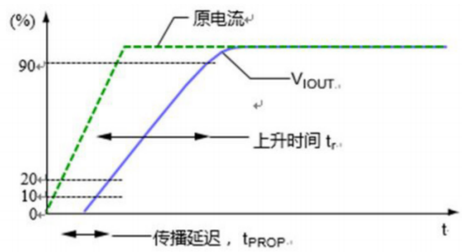


Figure 5. Rise time （T_R）and propagation delay （T_{PROP}）

6.14.4 Response time($T_{RESPONSE}$)

The time interval between when the measured current reaches 90% of its full value and when the sensor reaches its corresponding full outp ut of 90%.

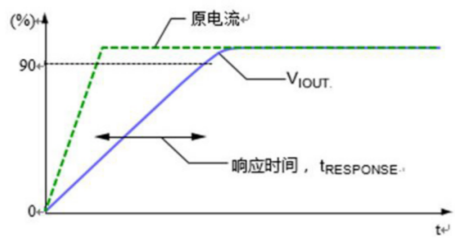


Figure 6. Response time（$T_{RESPONSE}$）

7.Electrical characteristic diagram

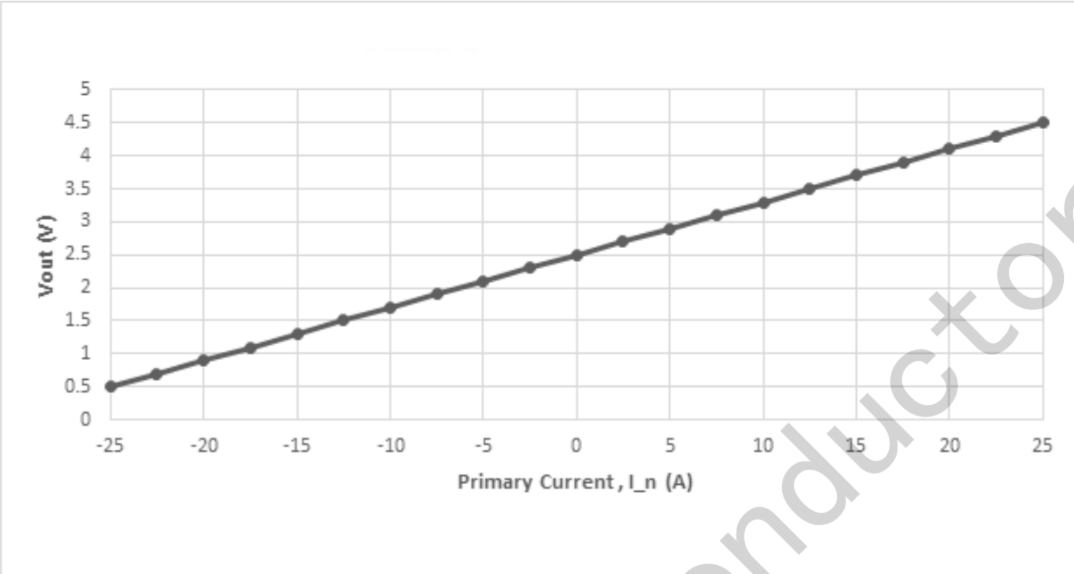


Figure 5. SHLSR 10-P/SP33 output characteristic curve

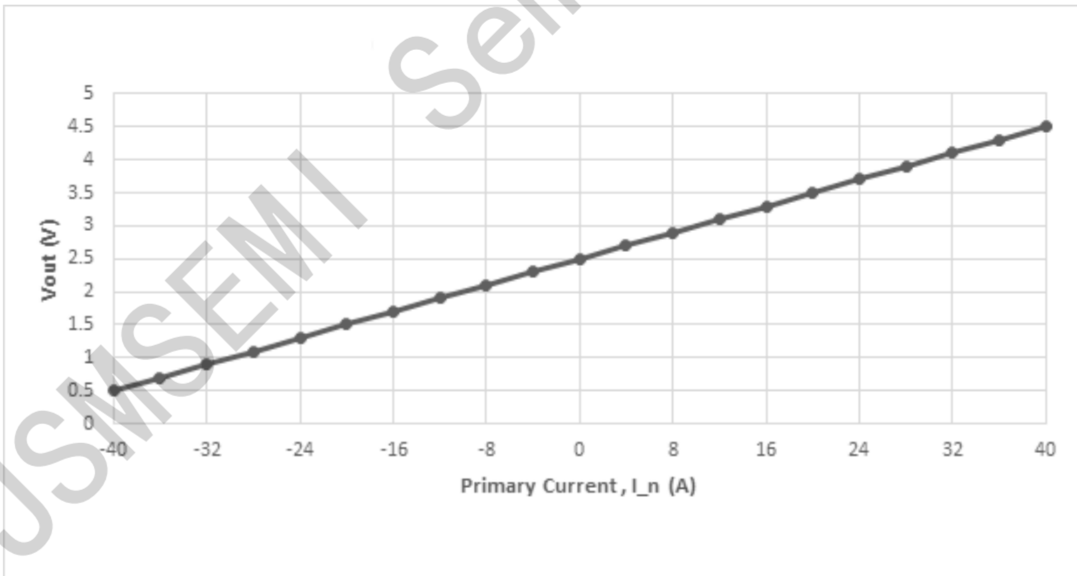


Figure 6. SHLSR 16-P/SP33 output characteristic curve

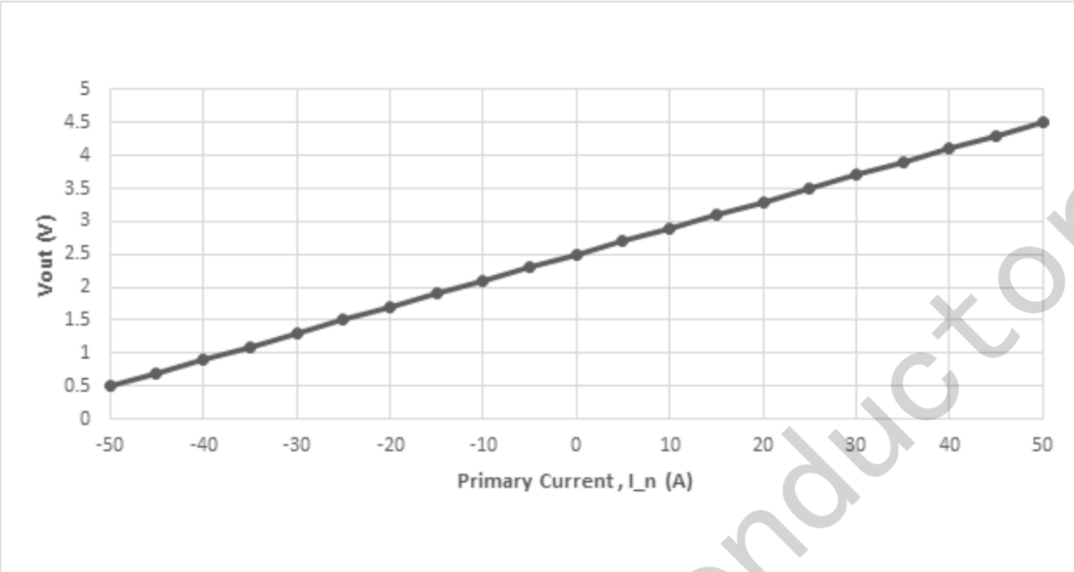


Figure 7. SHLSR 20-P/SP33 output characteristic curve

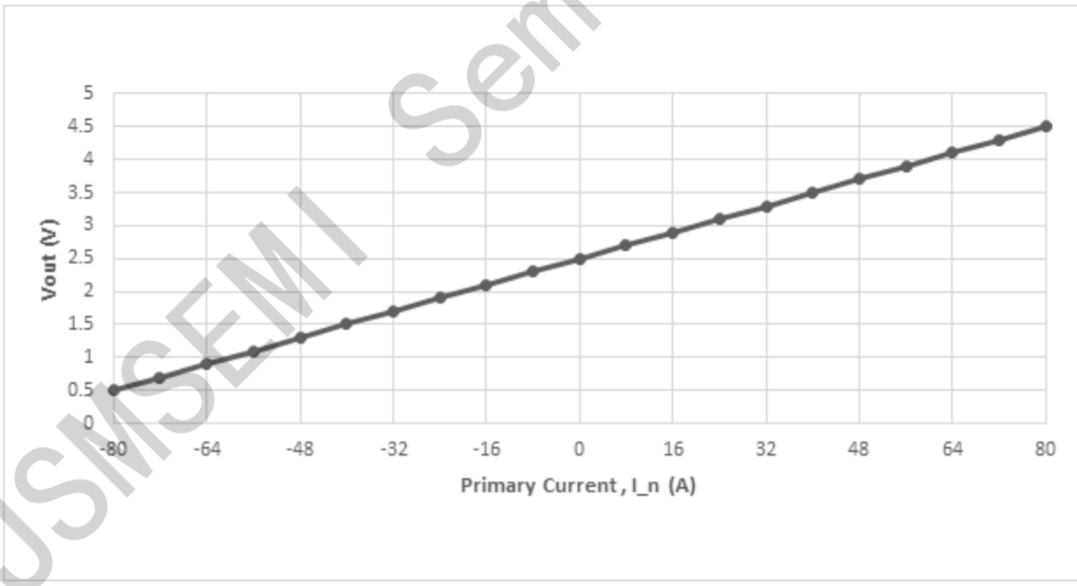


Figure 8. SHLSR 32-P/SP33 output characteristic curve

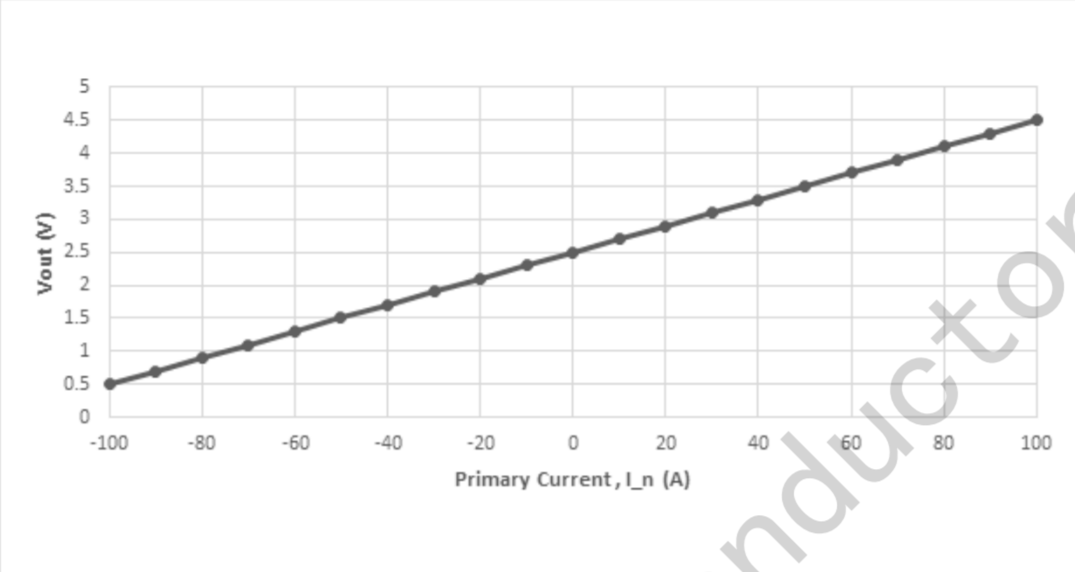


Figure 9. SHLSR 40-P/SP33 output characteristic curve

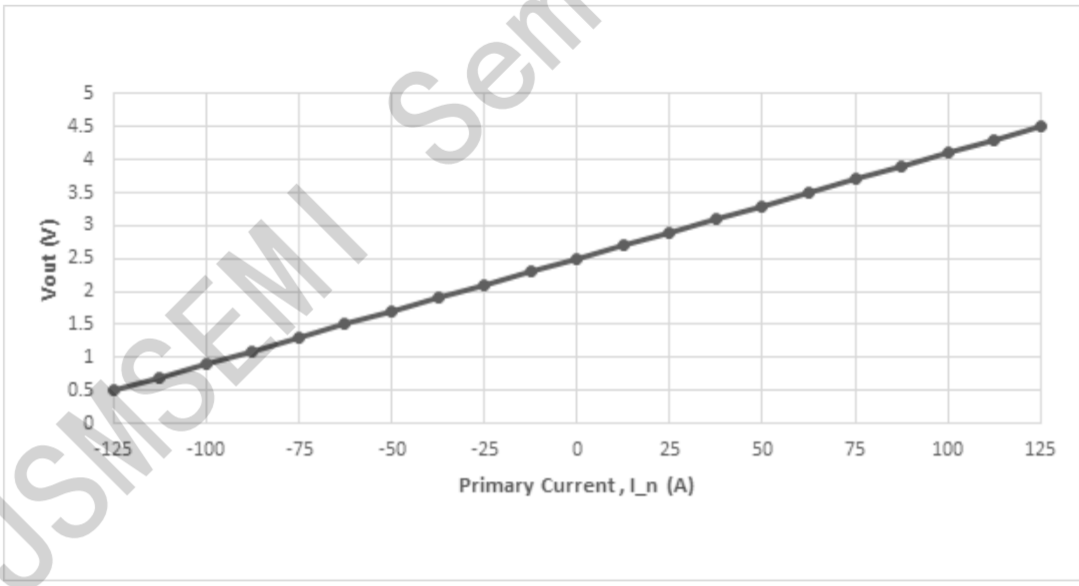


Figure 10. SHLSR 50-P/SP33 output characteristic curve

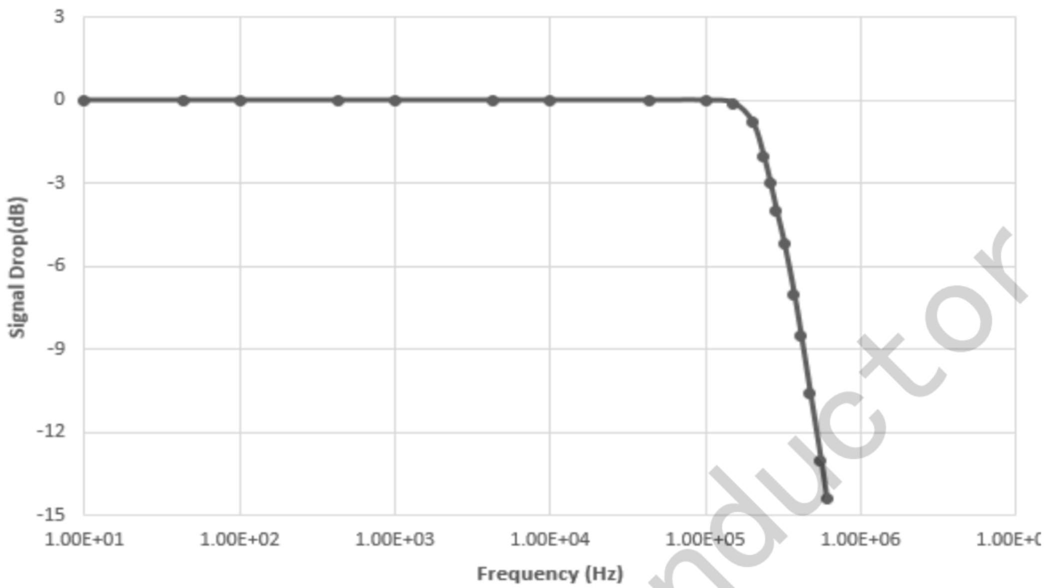


Figure 11. Amplitude frequency characteristic curve

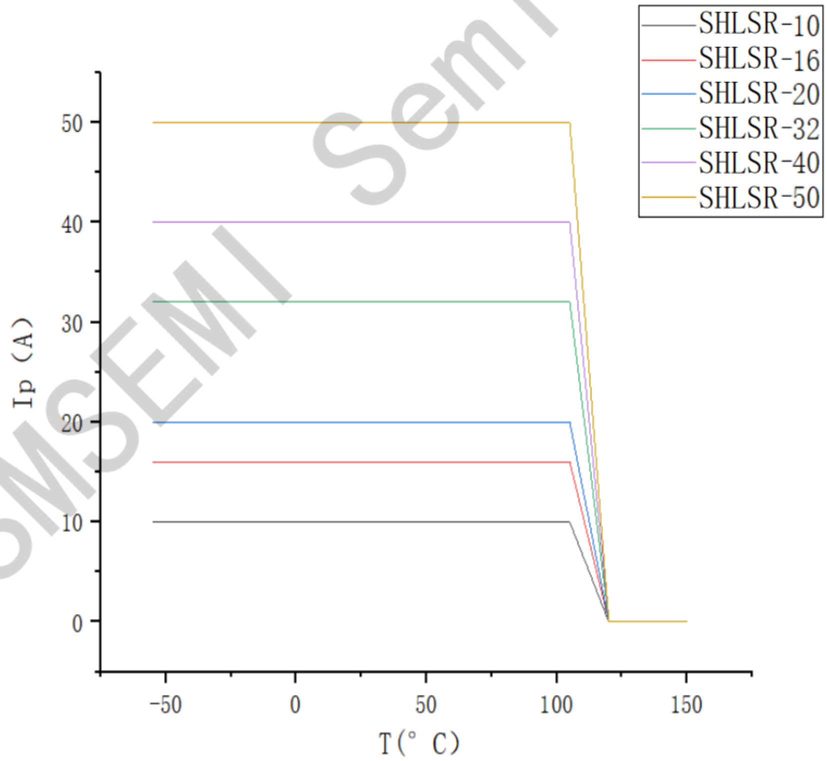


Figure 12. Maximum Continuous DC Test Current

8.Packaging outline drawing

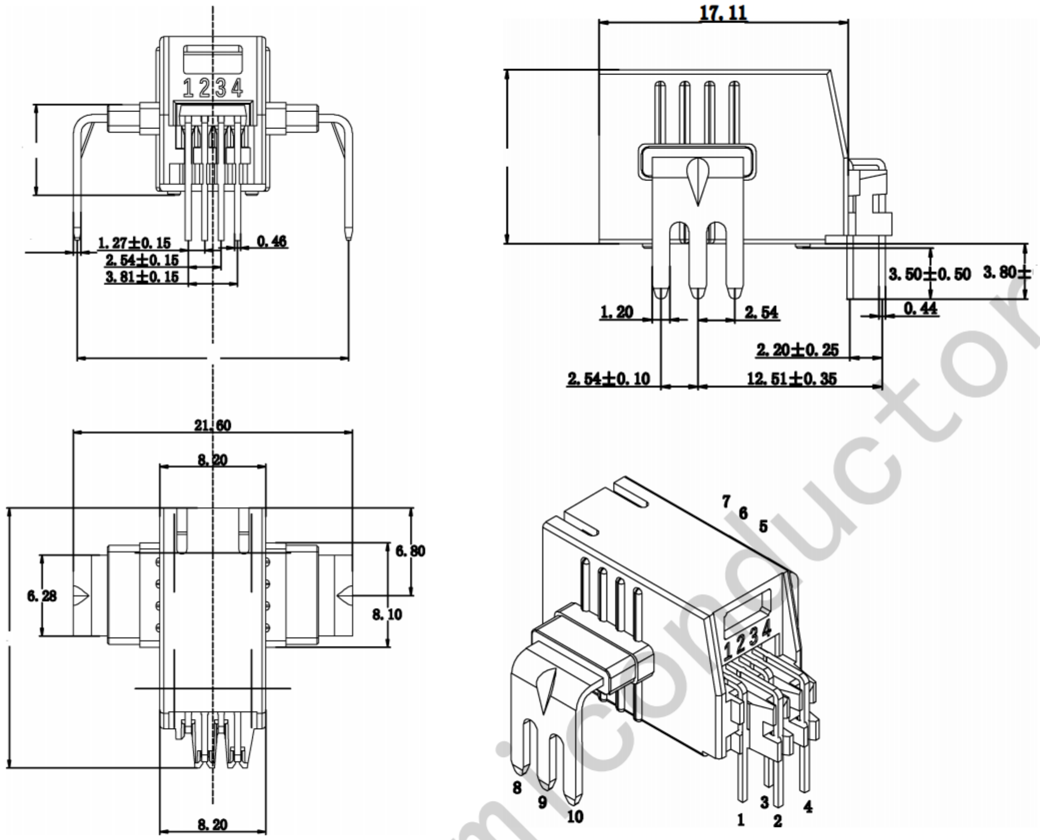
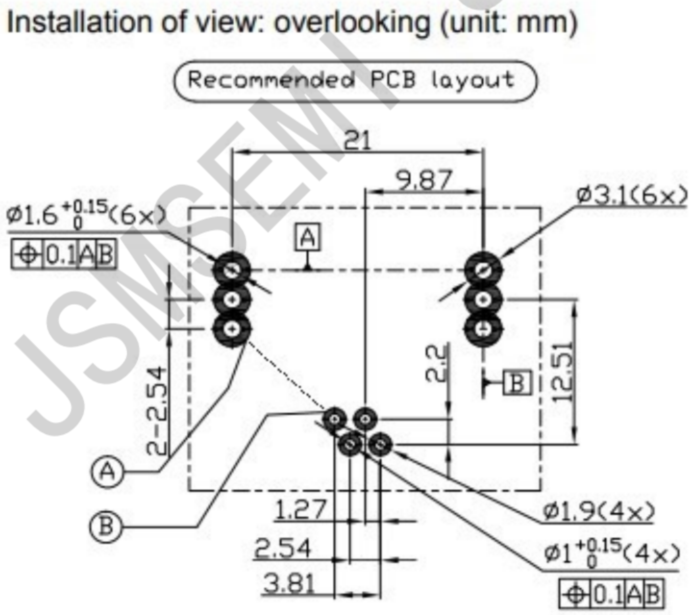


Figure 13. Appearance dimension diagram



	d_{CI}(mm)	d_{Cp}(mm)
A-B	9.42	9.42

Figure 14. PCB Dimensional Diagram

9.Packaging and storage

9.1 Packaging specifications

Palletizing

9.2 Storage method

9.2.1 The product should be stored in an appropriate temperature and humidity environment (5 to 35 ℃, 40% to 85% RH), and kept away from chlorine and corrosive gases.

9.2.2 Even under appropriate conditions, long-term storage may lead to a decrease in the weldability and electrical performance of the product. For products stored for a long time, their weldability should be checked before use.

9.2.3 If stored for more than 2 years, it is recommended to store in a nitrogen environment. The oxygen in the atmosphere will oxidize the leads of the product, resulting in a decrease in the weldability of the leads.

10.Ssafety warning

10.1 This product is sensitive to ESD (electrostatic discharge). When in contact with Hall elements marked with ESD Caution, the environmental requirements are as follows:

10.1.1Static charges are unlikely to occur in the environment (e.g. relative humidity exceeding 40% RH).

10.1.2When in contact with products, anti-static clothing and wristbands should be worn.

10.1.3Implement anti-static measures for equipment or containers that come into direct contact with the product.

10.2 Do not turn the product into gas, powder, or liquid through combustion, crushing, or chemical treatment.

10.3 When discarding this product, please comply with laws and company regulations.

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