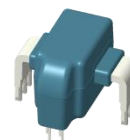


霍尔电流传感器 Hall Effect Current Sensor

KPLSB-XXA/2.5V±0.8V



本产品是一种电流传感器，采用电磁感应原理研制而成的开环电流传感器。传感器内置温漂补偿电路，在原副边电气隔离的情况下，可以精确测量直流、交流和脉冲等形式的电流信号。功耗低，体积小，具备出色的频响特性。

This product is a current sensor. It is an open-loop current sensor developed by the principle of electromagnetic induction. The built-in temperature drift compensation circuit of the sensor can accurately measure the current signals in the form of DC, AC and pulse when the primary secondary side is electrically isolated. Low power consumption, small size, with excellent frequency response characteristics.

产品特点 Product characteristics	应用 Application
- 集成霍尔技术 - Integrated Hall technology - 频带宽，高速响应 (>150kHz) - Wide frequency band, high speed response (>150kHz) - 绝缘耐压 4KV/AC - Insulation voltage 4KV/AC - 单电源供电 - Single power supply - PCB 安装 - PCB installation	- 光伏逆变器 - Photovoltaic inverter - 开关电源 - Switching power supply - 变频调速系统 - Frequency conversion speed control system - 直流电机驱动 - DC motor drive - 电焊机电源 - Power supply for welding machine
优势 Advantages	标准 Standard
- 高精度 - High precision - 低温漂 - Low temperature bleaching - 低磁滞 - Low hysteresis	- EN50178 - IEC61326-1:2012 - UL508
应用领域 Application area	
工业 Industry	

产品选型表 Product selection table

型号 Type	额定测量电流 (A) Nominal Measuring Current (A)	测量电流范围 (A) Measuring current range (A)
KPLSB-80A/2.5V±0.8V	80	±200
KPLSB-100A/2.5V±0.8V	100	±250
KPLSB-120A/2.5V±0.8V	120	±300
KPLSB-150A/2.5V±0.8V	150	±375
KPLSB-180A/2.5V±0.8V	180	±450

绝对最大额定值 Absolute maximum ratings

参数 Parameter	符号 Symbol	单位 Unit	值 Value	备注 Remark
电压 Voltage	V _c	V	6.5	

隔离参数 Isolation parameters

参数 Parameter	符号 Symbol	单位 Unit	值 Value	备注 Remark
绝缘电压 Insulation voltage	V _d	kV	4	@50HZ, AC, RMS, 2mA,1min
外壳材料 Shell material			V0 according to UL94	

环境和机械特性 Environmental and mechanical characteristics

参数 Parameter	标志 Symbol	单位 Unit	最小值 Minimum value	典型值 Typical value	最大值 Maximum value	备注 Remark
工作温度 Working temperature	T _A	°C	-40		105	
存储温度 Storage temperature	T _S	°C	-40		105	
质量 Quality	m	g		10		
标准 Standard	EN50178,IEC61010-1,UL508					

KPLSB-80A/2. 5V±0. 8V 性能参数 Performance parameter

除特殊说明外 TA=25° C, VCC=5V, RL=10kΩ

参数 Parameter	符号 Symbol	条件 Condition	数值 Value			单位 Unit
			最小值 Minimum value	典型值 Typical value	最大值 Maximum value	
常规指标 Conventional index						
额定测量电流 Nominal measuring current	I_{PN}		-	± 80	-	A
测量电流范围 Measuring current range	I_{PM}		-200	-	200	A
灵敏度 sensitivity	S		-	10	-	mV/A
零点偏置电压 Zero bias voltage	V_{OFF}	$I_P=0$	-	2.5	-	V
输出电压 Output voltage	V_{OUT}	$I_P=0\sim\pm I_{PN}$	-	$V_{REF}\pm 0.8\times I_P/I_{PN}$	-	V
供电电压 Supply voltage	V_{CC}		4.75	5	5.25	V
电流消耗 Current consumption	I_C	$I_P=0$	-	10	15	mA
原边导体电阻 Primary side conductor resistance	R_{IN}	$T_A=25^{\circ}C$	-	0.1	-	mΩ
输出内阻 Output internal resistance	R_{OUT}	-	-	2	5	Ω
电阻负载 Resistive load	R_L	$I_P=0\sim\pm I_{PN}$	5	10	-	kΩ
静态指标						

Static index						
综合误差 Combined error	X_G	$T_A=25^{\circ}\text{C}, I_P=0\sim\pm I_{PN}$	-	± 1	-	$\%I_{PN}$
		$T_A=-40^{\circ}\text{C}\sim+105^{\circ}\text{C}, I_P=0\sim\pm I_{PN}$	-3	± 2	3	
线性度误差 Linearity error	ϵ_L	$I_P=0\sim\pm I_{PN}$	-	0.5	1	$\%I_{PN}$
		$I_P=0\sim\pm I_{PM}$	-	1	1.5	$\%I_{PM}$
灵敏度误差 Sensitivity error	ϵ_S	$T_A=25^{\circ}\text{C}, I_P=0\sim\pm I_{PN}$	-1	-	1	%
		$T_A=-40^{\circ}\text{C}\sim+105^{\circ}\text{C}, I_P=0\sim\pm I_{PN}$	-1.5	-	1.5	
参考输出电压 Reference output voltage	V_{REF}	$T_A=25^{\circ}\text{C}$	2.49	2.5	2.51	V
		$T_A=-40^{\circ}\text{C}\sim+105^{\circ}\text{C}$	2.48	2.5	2.52	
零点失调电压 Zero offset voltage	V_{OE}	$T_A=25^{\circ}\text{C}, I_P=0$	-10	-	10	mV
		$T_A=-40^{\circ}\text{C}\sim+105^{\circ}\text{C}, I_P=0$	-20	± 10	20	
磁滞 Hysteresis	V_{OH}	$I_P=\pm I_{PM}\rightarrow 0$	-	± 5	-	mV
动态指标 Dynamic index						
阶跃响应时间 Step response time	t_R	$di/dt > 100\text{A}/\mu\text{s}$, 90% of I_{PN} to 90% of V_{OUT}	-	3	-	μs
带宽 Bandwidth	BW	-3dB	-	150	-	kHz

KPLSB-100A/2.5V $\pm$ 0.8V 性能参数 Performance parameter

除特殊说明外 $T_A=25^{\circ}\text{C}$, $V_{CC}=5\text{V}$, $R_L=10\text{k}\Omega$

参数 Parameter	符号 Symbol	条件 Condition	数值 Value			单位 Unit
			最小值 Minimum value	典型值 Typical value	最大值 Maximum value	
常规指标 Conventional index						
额定测量电流 Nominal measuring current	I _{PN}		-	±100	-	A

测量电流范围 Measuring current range	I_{PM}		-250	-	250	A
灵敏度 sensitivity	S		-	8	-	mV/A
零点偏置电压 Zero bias voltage	V_{OFF}	$I_P=0$	-	2.5	-	V
输出电压 Output voltage	V_{OUT}	$I_P=0 \sim \pm I_{PN}$	-	$V_{REF} \pm 0.8 \times I_P/I_{PN}$	-	V
供电电压 Supply voltage	V_{CC}		4.75	5	5.25	V
电流消耗 Current consumption	I_C	$I_P=0$	-	10	15	mA
原边导体电阻 Primary side conductor resistance	R_{IN}	$T_A=25^\circ\text{C}$	-	0.1	-	m Ω
输出内阻 Output internal resistance	R_{OUT}	-	-	2	5	Ω
电阻负载 Resistive load	R_L	$I_P=0 \sim \pm I_{PN}$	5	10	-	k Ω
静态指标 Static index						
综合误差 Combined error	X_G	$T_A=25^\circ\text{C}, I_P=0 \sim \pm I_{PN}$	-	± 1	-	% I_{PN}
		$T_A=-40^\circ\text{C} \sim +105^\circ\text{C}, I_P=0 \sim \pm I_{PN}$	-3	± 2	3	
线性度误差 Linearity error	ϵ_L	$I_P=0 \sim \pm I_{PN}$	-	0.5	1	% I_{PN}
		$I_P=0 \sim \pm I_{PM}$	-	1	1.5	% I_{PM}
灵敏度误差 Sensitivity error	ϵ_S	$T_A=25^\circ\text{C}, I_P=0 \sim \pm I_{PN}$	-1	-	1	%
		$T_A=-40^\circ\text{C} \sim +105^\circ\text{C}, I_P=0 \sim \pm I_{PN}$	-1.5	-	1.5	
参考输出电压 Reference output	V_{REF}	$T_A=25^\circ\text{C}$	2.49	2.5	2.51	V
		$T_A=-40^\circ\text{C} \sim +105^\circ\text{C}$	2.48	2.5	2.52	

voltage						
零点失调电压 Zero offset voltage	V_{OE}	$T_A=25^{\circ}\text{C}, I_P=0$	-10	-	10	mV
		$T_A=-40^{\circ}\text{C}\sim+105^{\circ}\text{C}, I_P=0$	-20	± 10	20	
磁滞 Hysteresis	V_{OH}	$I_P=\pm I_{PM}\rightarrow 0$	-	± 5	-	mV
动态指标 Dynamic index						
阶跃响应时间 Step response time	t_R	$di/dt > 100\text{A}/\mu\text{s}$, 90% of I_{PN} to 90% of V_{OUT}	-	3	-	μs
带宽 Bandwidth	BW	-3dB	-	150	-	kHz

KPLSB-120A/2.5V $\pm 0.8\text{V}$ 性能参数 Performance parameter

除特殊说明外 $T_A=25^{\circ}\text{C}$, $V_{CC}=5\text{V}$, $R_L=10\text{k}\Omega$

参数 Parameter	符号 Symbol	条件 Condition	数值 Value			单位 Unit
			最小值 Minimum value	典型值 Typical value	最大值 Maximum value	
常规指标 Conventional index						
额定测量电流 Nominal measuring current	I _{PN}		-	±120	-	A
测量电流范围 Measuring current range	I _{PM}		-300	-	300	A
灵敏度 sensitivity	S		-	6.667	-	mV/A
零点偏置电压 Zero bias voltage	V _{OFF}	I _P =0	-	2.5	-	V
输出电压 Output	V _{OUT}	I _P =0~±I _{PN}	-	V _{REF} ±0.8× I _P /I _{PN}	-	V

voltage						
供电电压 Supply voltage	V_{CC}		4.75	5	5.25	V
电流消耗 Current consumption	I_C	$I_P=0$	-	10	15	mA
原边导体电阻 Primary side conductor resistance	R_{IN}	$T_A=25^{\circ}C$	-	0.1	-	mΩ
输出内阻 Output internal resistance	R_{OUT}	-	-	2	5	Ω
电阻负载 Resistive load	R_L	$I_P=0\sim\pm I_{PN}$	5	10	-	kΩ
静态指标 Static index						
综合误差 Combined error	X_G	$T_A=25^{\circ}C, I_P=0\sim\pm I_{PN}$	-	± 1	-	% I_{PN}
		$T_A=-40^{\circ}C\sim+105^{\circ}C, I_P=0\sim\pm I_{PN}$	-3	± 2	3	
线性度误差 Linearity error	ε_L	$I_P=0\sim\pm I_{PN}$	-	0.5	1	% I_{PN}
		$I_P=0\sim\pm I_{PM}$	-	1	1.5	% I_{PM}
灵敏度误差 Sensitivity error	ε_S	$T_A=25^{\circ}C, I_P=0\sim\pm I_{PN}$	-1	-	1	%
		$T_A=-40^{\circ}C\sim+105^{\circ}C, I_P=0\sim\pm I_{PN}$	-1.5	-	1.5	
参考输出电压 Reference output voltage	V_{REF}	$T_A=25^{\circ}C$	2.49	2.5	2.51	V
		$T_A=-40^{\circ}C\sim+105^{\circ}C$	2.48	2.5	2.52	
零点失调电压 Zero offset voltage	V_{OE}	$T_A=25^{\circ}C, I_P=0$	-10	-	10	mV
		$T_A=-40^{\circ}C\sim+105^{\circ}C, I_P=0$	-20	± 10	20	
磁滞 Hysteresis	V_{OH}	$I_P=\pm I_{PM}\rightarrow 0$	-	± 5	-	mV
动态指标 Dynamic index						

阶跃响应时间 Step response time	t_R	$di/dt > 100A/\mu s$, 90% of I_{PN} to 90% of V_{OUT}	-	3	-	μs
带宽 Bandwidth	BW	-3dB	-	150	-	kHz

KPLSB-150A/2. 5V±0. 8V 性能参数 Performance parameter

除特殊说明外 TA=25° C, VCC=5V, RL=10k Ω

参数 Parameter	符号 Symbol	条件 Condition	数值 Value			单位 Unit
			最小值 Minimum value	典型值 Typical value	最大值 Maximum value	
常规指标 Conventional index						
额定测量电流 Nominal measuring current	I _{PN}		-	±150	-	A
测量电流范围 Measuring current range	I _{PM}		-375	-	375	A
灵敏度 sensitivity	S		-	5.334	-	mV/A
零点偏置电压 Zero bias voltage	V _{OFF}	I _P =0	-	2.5	-	V
输出电压 Output voltage	V _{OUT}	I _P =0~±I _{PN}	-	V _{REF} ±0.8× I _P /I _{PN}	-	V
供电电压 Supply voltage	V _{CC}		4.75	5	5.25	V
电流消耗 Current consumption	I _C	I _P =0	-	10	15	mA
原边导体电阻 Primary side conductor resistance	R _{IN}	T _A =25℃	-	0.1	-	mΩ
输出内阻 Output internal resistance	R _{OUT}	-	-	2	5	Ω
电阻负载 Resistive load	R _L	I _P =0~±I _{PN}	5	10	-	kΩ
静态指标 Static index						

综合误差 Combined error	X_G	$T_A=25^{\circ}\text{C}, I_P=0\sim\pm I_{PN}$	-	± 1	-	% I_{PN}
		$T_A=-40^{\circ}\text{C}\sim+105^{\circ}\text{C}, I_P=0\sim\pm I_{PN}$	-3	± 2	3	
线性度误差 Linearity error	ϵ_L	$I_P=0\sim\pm I_{PN}$	-	0.5	1	% I_{PN}
		$I_P=0\sim\pm I_{PM}$	-	1	1.5	% I_{PM}
灵敏度误差 Sensitivity error	ϵ_S	$T_A=25^{\circ}\text{C}, I_P=0\sim\pm I_{PN}$	-1	-	1	%
		$T_A=-40^{\circ}\text{C}\sim+105^{\circ}\text{C}, I_P=0\sim\pm I_{PN}$	-1.5	-	1.5	
参考输出电压 Reference output voltage	V_{REF}	$T_A=25^{\circ}\text{C}$	2.49	2.5	2.51	V
		$T_A=-40^{\circ}\text{C}\sim+105^{\circ}\text{C}$	2.48	2.5	2.52	
零点失调电压 Zero offset voltage	V_{OE}	$T_A=25^{\circ}\text{C}, I_P=0$	-10	-	10	mV
		$T_A=-40^{\circ}\text{C}\sim+105^{\circ}\text{C}, I_P=0$	-20	± 10	20	
磁滞 Hysteresis	V_{OH}	$I_P=\pm I_{PM}\rightarrow 0$	-	± 5	-	mV
动态指标 Dynamic index						
阶跃响应时间 Step response time	t_R	$di/dt>100\text{A}/\mu\text{s}$, 90% of I_{PN} to 90% of V_{OUT}	-	3	-	μs
带宽 Bandwidth	BW	-3dB	-	150	-	kHz

KPLSB-180A/2.5V $\pm$ 0.8V 性能参数 Performance parameter

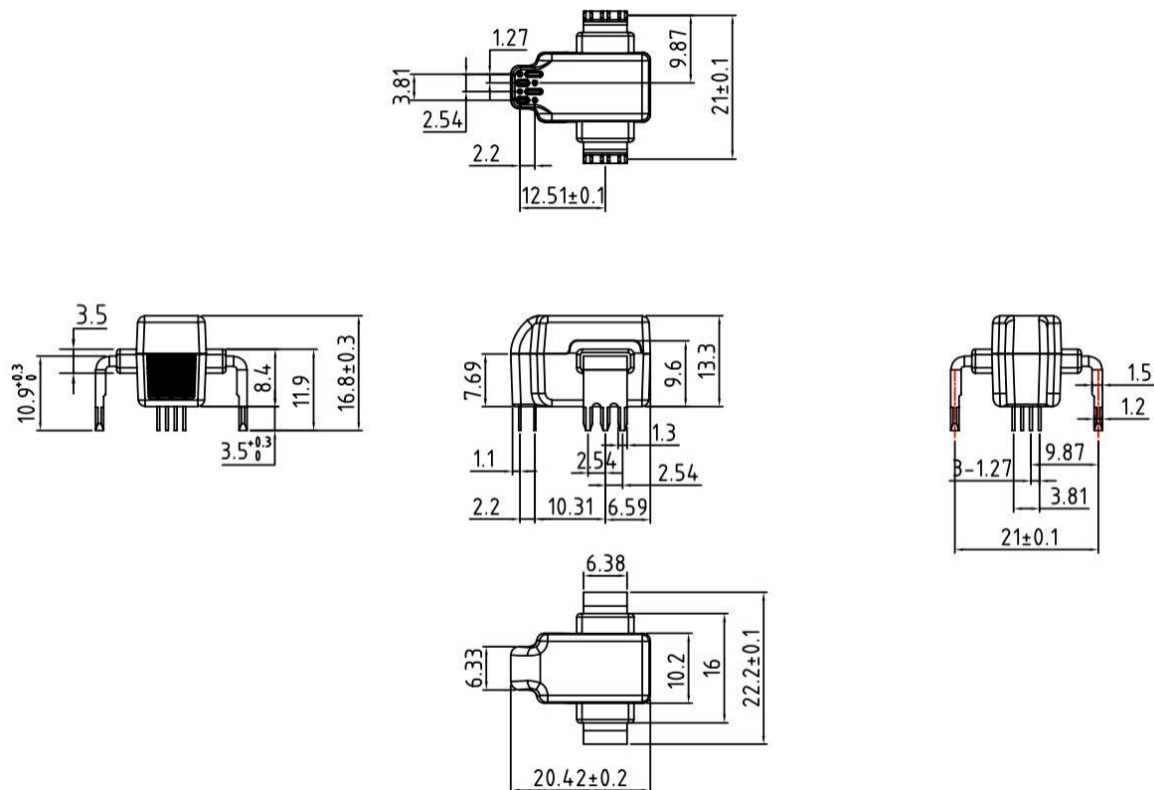
除特殊说明外 $T_A=25^{\circ}\text{C}$, $V_{CC}=5\text{V}$, $R_L=10\text{k}\Omega$

参数 Parameter	符号 Symbol	条件 Condition	数值 Value			单位 Unit
			最小值 Minimum value	典型值 Typical value	最大值 Maximum value	
常规指标 Conventional index						

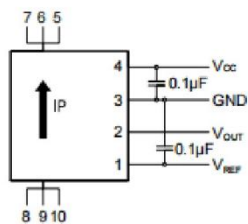
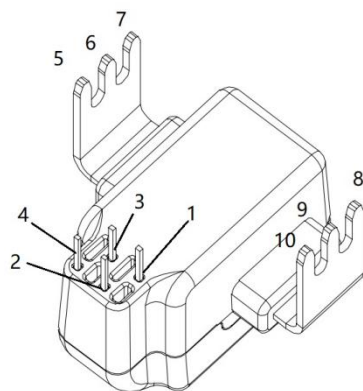
额定测量电流 Nominal measuring current	I_{PN}		-	± 180	-	A
测量电流范围 Measuring current range	I_{PM}		-450	-	450	A
灵敏度 sensitivity	S		-	4.445	-	mV/A
零点偏置电压 Zero bias voltage	V_{OFF}	$I_P=0$	-	2.5	-	V
输出电压 Output voltage	V_{OUT}	$I_P=0 \sim \pm I_{PN}$	-	$V_{REF} \pm 0.8 \times I_P/I_{PN}$	-	V
供电电压 Supply voltage	V_{CC}		4.75	5	5.25	V
电流消耗 Current consumption	I_C	$I_P=0$	-	10	15	mA
原边导体电阻 Primary side conductor resistance	R_{IN}	$T_A=25^\circ\text{C}$	-	0.1	-	m Ω
输出内阻 Output internal resistance	R_{OUT}	-	-	2	5	Ω
电阻负载 Resistive load	R_L	$I_P=0 \sim \pm I_{PN}$	5	10	-	k Ω
静态指标 Static index						
综合误差 Combined error	X_G	$T_A=25^\circ\text{C}, I_P=0 \sim \pm I_{PN}$	-	± 1	-	% I_{PN}
		$T_A=-40^\circ\text{C} \sim +105^\circ\text{C}, I_P=0 \sim \pm I_{PN}$	-3	± 2	3	
线性度误差 Linearity error	ϵ_L	$I_P=0 \sim \pm I_{PN}$	-	0.5	1	% I_{PN}
		$I_P=0 \sim \pm I_{PM}$	-	1	1.5	% I_{PM}
灵敏度误差 Sensitivity error	ϵ_S	$T_A=25^\circ\text{C}, I_P=0 \sim \pm I_{PN}$	-1	-	1	%
		$T_A=-40^\circ\text{C} \sim +105^\circ\text{C}, I_P=0 \sim \pm I_{PN}$	-1.5	-	1.5	

参考输出电压 Reference output voltage	V_{REF}	$T_A = 25^{\circ}\text{C}$	2.49	2.5	2.51	V
		$T_A = -40^{\circ}\text{C} \sim +105^{\circ}\text{C}$	2.48	2.5	2.52	
零点失调电压 Zero offset voltage	V_{OE}	$T_A = 25^{\circ}\text{C}, I_P = 0$	-10	-	10	mV
		$T_A = -40^{\circ}\text{C} \sim +105^{\circ}\text{C}, I_P = 0$	-20	± 10	20	
磁滞 Hysteresis	V_{OH}	$I_P = \pm I_{PM} \rightarrow 0$	-	± 5	-	mV
动态指标 Dynamic index						
阶跃响应时间 Step response time	t_R	$di/dt > 100\text{A}/\mu\text{s}$, 90% of I_{PN} to 90% of V_{OUT}	-	3	-	μs
带宽 Bandwidth	BW	-3dB	-	150	-	kHz

结构参数 Dimensions(in mm)

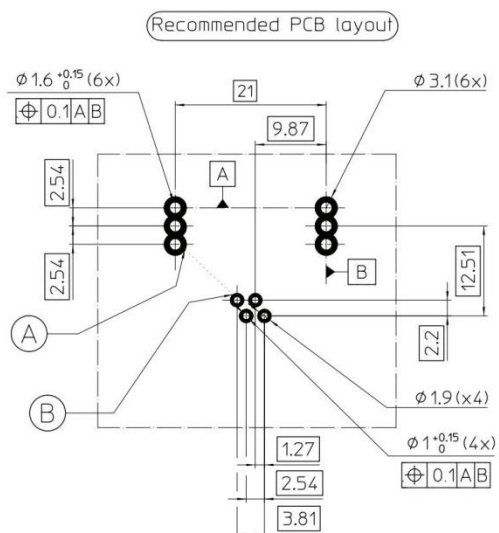


引脚定义及接线图 Pin definition and wiring diagram



引脚序号	引脚名	功能
1	V_{REF}	参考电压输出
2	V_{OUT}	电压输出
3	GND	电源地
4	V_{CC}	电源
5~7	I_p^-	原边电流（反向）
8~10	I_p^+	原边电流（正向）

参考封装 Assembly on PCB



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

- 波峰焊:260°C@10 秒
- 推荐 PCB 二次引脚孔径 1.2mm