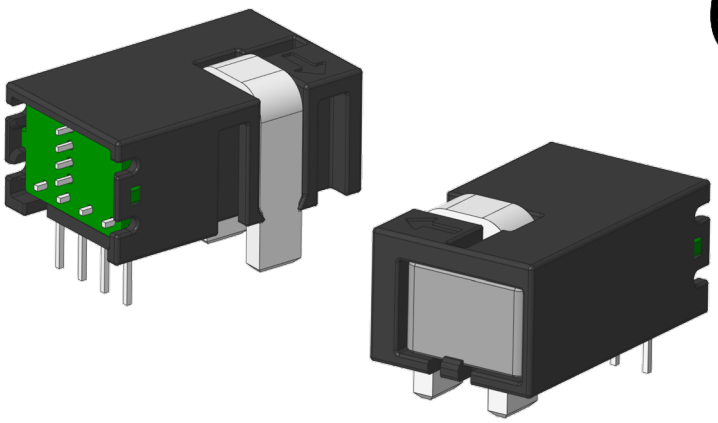
AN6V PB50 SERIES

Current sensor

Model Number:

AN6V 20 PB50
AN6V 32 PB50
AN6V 40 PB50
AN6V 50 PB50



For the electronic measurement of current: DC, AC, pulsed…, with galvanic insulation between the primary and the secondary circuit.

Features

- Open loop current sensor using the Hall Effect
- Galvanic insulation between primary and secondary
- Insulating plastic case recognized according to UL 94-V0
- No insertion loss
- Supply voltage: +5V
- Height h=10.15mm
- Standards:
  - IEC 60664-1:2020
  - IEC 61800-5-1:2022
  - IEC 62109-1:2010

Applications

- AC variable speed
- Servo drive
- Static converters for DC motor drives
- Uninterruptible Power Supply (UPS)
- Module power supply
- Switch Mode Power Supplies (SMPS)
- Combiner box
- MPPT

Safety

The sensor must be used according to IEC 61800-5-1.
The sensor must be used in electric/electronic equipment with respect to applicable standards and safety requirements in accordance with the following manufacture's operating instructions.

Caution,risk of electrical shock !

When operating the sensor, certain parts of the module can carry hazardous voltage (e.g., Primary busbar,power supply). Ignore this warning can lead to injury and/or cause serious damage.
This sensor is a built-in device, whose conducting parts must be inaccessible after installation. A protective housing or additional shield could be used.
Main supply must be able to be disconnected

Absolute maximum ratings((not operating)

Parameter	Symbol	Unit	Value
Supply voltage	V_C	V	6.5
Primary conductor temperature	T_B	℃	120

※ Stresses above these ratings may cause permanent damage.

※ Exposure to absolute maximum ratings for extended periods may degrade reliability.

Environmental and mechanical characteristics

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Ambient operating temperature	T_A	℃	-40		105	
Ambient storage temperature	T_S	℃	-40		105	
Mass	m	g		5.8		

Insulation coordination

Parameter	Symbol	Unit	Value	Comment
Rms voltage for AC insulation test, @50 Hz, 1 min	V_d	kV	3	According to IEC 60664-1
Impulse withstand voltage 1.2/50μs	V_W	kV	5.4	According to IEC 60664-1
Clearance (pri.- sec.)	d_{Cl}	mm	9.85	
Creepage distance (pri.- sec.)	d_{Cp}	mm	10.35	
Plastic case	-	-	UL94-V0	
Comparative traking index	CTI	PLC	Level Ⅰ	
Application example	-	-	600V	Reinforced insulation,according to IEC 61800-5-1, IEC 62109-1CATⅢ, PD2
Application example	-	-	1000V	Basic insulation,according to IEC 61800-5-1, IEC 62109-1CATⅢ, PD2

Electrical data

AN6V 20 PB50

※ With T_A = 25℃, V_C = +5V, R_L = 10kΩ,unless otherwise noted.

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary nominal rms current	I_{PN}	A	-20		20	
Primary current, measuring range	I_{PM}	A	-50		50	@V_C>4.7V
Supply voltage	V_C	V	4.5	5.0	5.5	
Current consumption	I_C	mA		7	11	
Load resistance V_{OUT}	R_L	kΩ	5.1			
Load resistance V_{REF}	R_{REF}	kΩ	5.1			
Load capacitor V_{OUT}	C_L	nF		1	10	
Load capacitor V_{REF}	C_{REF}	nF			1	
Reference output voltage	V_{REF}	V	2.48	2.5	2.52	
Output voltage range	V_{OUT} -V_{REF}	V	-2		2	
Electrical offset voltage	V_{OE}	mV	-5		5	V_{OUT} -V_{REF}@ I_P=0A
Temperature Drift of Zero Output Voltage	TCV_{OE}	mV		±3		@T_A=-40℃~105℃
Theoretical sensitivity	G_{th}	mV/A		40		
Temperature of G	TCG	%	-1.6		1.6	@T_A=-40℃~105℃
Linearity error	ε_L	% of I_{PN}	-0.5		0.5	Exclusive of V_{OE}
Linearity error	ε_L	% of I_{PM}	-0.5		0.5	Exclusive of V_{OE}
Hysteresis offset voltage	V_{OM}	mV	-5		5	@V_C=5V, After ±I_{PN}
Accuracy@I_{PN}	X	% of I_{PN}	-0.8		0.8	
Response time@ 90% of I_{PN}	t_r	μs		2.5		@C_L=1nF
Frequency bandwidth(-3dB)	BW	kHz		250		@C_L=1nF
Output noise	Vno	mV_{RMS}		5		@C_L=1nF

Electrical data

AN6V 32 PB50

※ With T_A = 25℃, V_C = +5V, R_L = 10kΩ,unless otherwise noted.

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary nominal rms current	I_{PN}	A	-32		32	
Primary current, measuring range	I_{PM}	A	-80		80	@V_C>4.7V
Supply voltage	V_C	V	4.5	5.0	5.5	
Current consumption	I_C	mA		7	11	
Load resistance V_{OUT}	R_L	kΩ	5.1			
Load resistance V_{REF}	R_{REF}	kΩ	5.1			
Load capacitor V_{OUT}	C_L	nF		1	10	
Load capacitor V_{REF}	C_{REF}	nF			1	
Reference output voltage	V_{REF}	V	2.48	2.5	2.52	
Output voltage range	V_{OUT} -V_{REF}	V	-2		2	
Electrical offset voltage	V_{OE}	mV	-5		5	V_{OUT} -V_{REF}@ I_P=0A
Temperature Drift of Zero Output Voltage	TCV_{OE}	mV		±3		@T_A=-40℃~105℃
Theoretical sensitivity	G_{th}	mV/A		25		
Temperature of G	TCG	%	-1.6		1.6	@T_A=-40℃~105℃
Linearity error	ε_L	% of I_{PN}	-0.5		0.5	Exclusive of V_{OE}
Linearity error	ε_L	% of I_{PM}	-0.5		0.5	Exclusive of V_{OE}
Hysteresis offset voltage	V_{OM}	mV	-5		5	@V_C=5V, After ±I_{PN}
Accuracy@I_{PN}	X	% of I_{PN}	-0.8		0.8	
Response time@ 90% of I_{PN}	t_r	μs		2.5		@C_L=1nF
Frequency bandwidth(-3dB)	BW	kHz		250		@C_L=1nF
Output noise	Vno	mV_{RMS}		2		@C_L=1nF

Electrical data

AN6V 40 PB50

※ With T_A = 25℃, V_C = +5V, R_L = 10kΩ,unless otherwise noted.

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary nominal rms current	I_{PN}	A	-40		40	
Primary current, measuring range	I_{PM}	A	-100		100	@V_C>4.7V
Supply voltage	V_C	V	4.5	5.0	5.5	
Current consumption	I_C	mA		7	11	
Load resistance V_{OUT}	R_L	kΩ	5.1			
Load resistance V_{REF}	R_{REF}	kΩ	5.1			
Load capacitor V_{OUT}	C_L	nF		1	10	
Load capacitor V_{REF}	C_{REF}	nF			1	
Reference output voltage	V_{REF}	V	2.48	2.5	2.52	
Output voltage range	V_{OUT} -V_{REF}	V	-2		2	
Electrical offset voltage	V_{OE}	mV	-5		5	V_{OUT} -V_{REF}@ I_P=0A
Temperature Drift of Zero Output Voltage	TCV_{OE}	mV		±3		@T_A=-40℃~105℃
Theoretical sensitivity	G_{th}	mV/A		20		
Temperature of G	TCG	%	-1.6		1.6	@T_A=-40℃~105℃
Linearity error	ε_L	% of I_{PN}	-0.5		0.5	Exclusive of V_{OE}
Linearity error	ε_L	% of I_{PM}	-0.5		0.5	Exclusive of V_{OE}
Hysteresis offset voltage	V_{OM}	mV	-5		5	@V_C=5V, After ±I_{PN}
Accuracy@I_{PN}	X	% of I_{PN}	-0.8		0.8	
Response time@ 90% of I_{PN}	t_r	μs		2.5		@C_L=1nF
Frequency bandwidth(-3dB)	BW	kHz		250		@C_L=1nF
Output noise	Vno	mV_{RMS}		2.7		@C_L=1nF

Electrical data

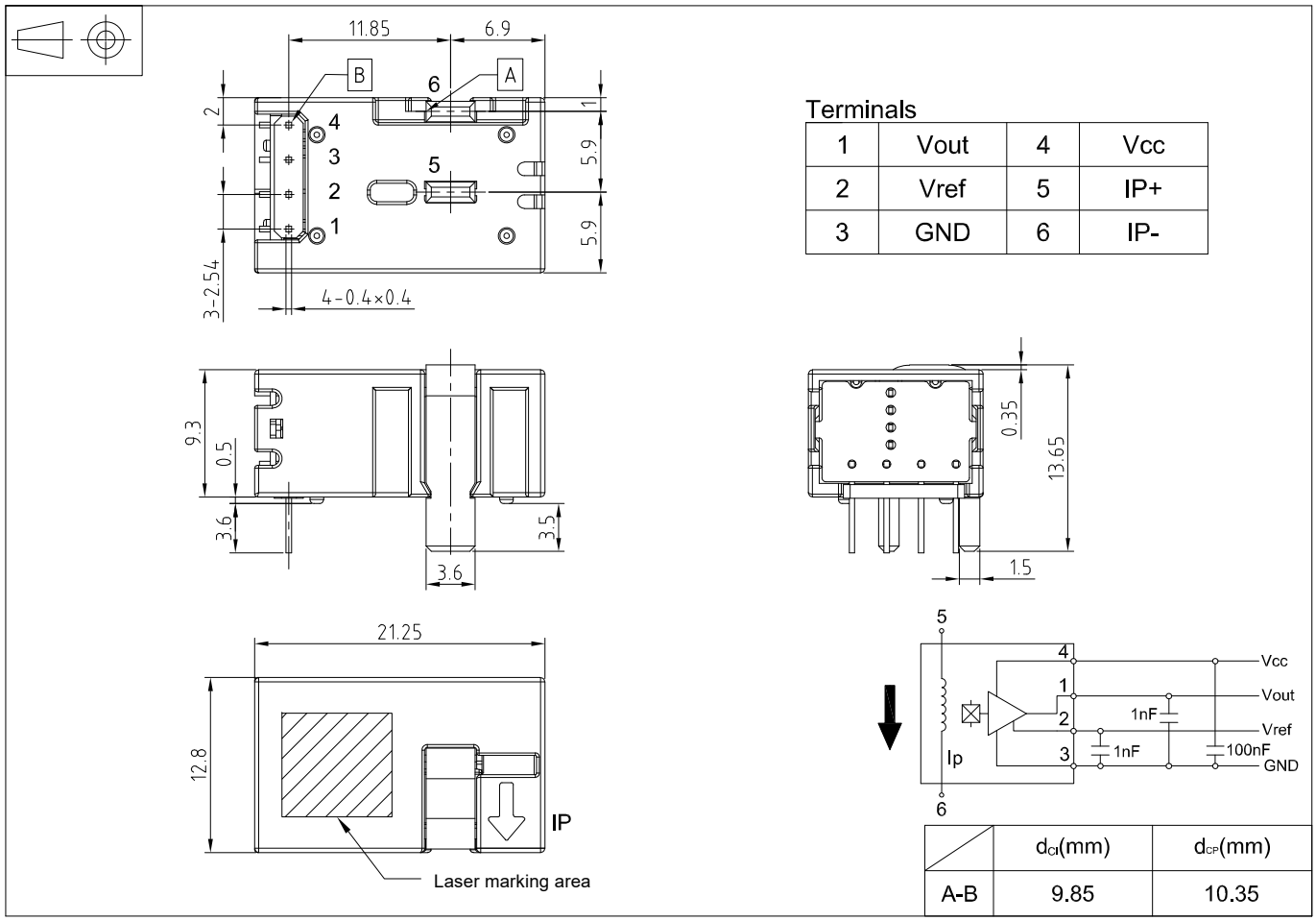
AN6V 50 PB50

※ With T_A = 25℃, V_C = +5V, R_L = 10kΩ,unless otherwise noted.

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary nominal rms current	I_{PN}	A	-50		50	
Primary current, measuring range	I_{PM}	A	-125		125	@V_C>4.7V
Supply voltage	V_C	V	4.5	5.0	5.5	
Current consumption	I_C	mA		7	11	
Load resistance V_{OUT}	R_L	kΩ	5.1			
Load resistance V_{REF}	R_{REF}	kΩ	5.1			
Load capacitor V_{OUT}	C_L	nF		1	10	
Load capacitor V_{REF}	C_{REF}	nF			1	
Reference output voltage	V_{REF}	V	2.48	2.5	2.52	
Output voltage range	V_{OUT} -V_{REF}	V	-2		2	
Electrical offset voltage	V_{OE}	mV	-5		5	V_{OUT} -V_{REF}@ I_P=0A
Temperature Drift of Zero Output Voltage	TCV_{OE}	mV		±3		@T_A=-40℃~105℃
Theoretical sensitivity	G_{th}	mV/A		16		
Temperature of G	TCG	%	-1.6		1.6	@T_A=-40℃~105℃
Linearity error	ε_L	% of I_{PN}	-0.5		0.5	Exclusive of V_{OE}
Linearity error	ε_L	% of I_{PM}	-0.5		0.5	Exclusive of V_{OE}
Hysteresis offset voltage	V_{OM}	mV	-5		5	@V_C=5V, After ±I_{PN}
Accuracy@I_{PN}	X	% of I_{PN}	-0.8		0.8	
Response time@ 90% of I_{PN}	t_r	μs		2.5		@C_L=1nF
Frequency bandwidth(-3dB)	BW	kHz		250		@C_L=1nF
Output noise	Vno	mV_{RMS}		1.7		@C_L=1nF

AN6V PB50 SERIES

Dimensions（in mm. 1 mm = 0.0394 inch）



Terminals

1	Vout	4	Vcc
2	Vref	5	IP+
3	GND	6	IP-

	d_{Cl}(mm)	d_{CP}(mm)
A-B	9.85	10.35

Mechanical characteristics

- ✧ General tolerance ±0.5 mm
- ✧ Primary coil Red copper with tin plating

Remarks

This is a series of standard models, for different versions (supply voltages, connectors…), please contact CHIPSENSE.