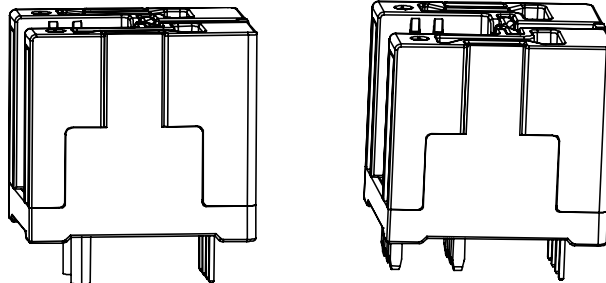


# AN5V PB00 SERIES

## Current sensor

### Model Number:

AN5V 5 PB00  
 AN5V 10 PB00  
 AN5V 15 PB00  
 AN5V 20 PB00  
 AN5V 25 PB00  
 AN5V 50 PB00



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

### Features

- ✧ Open loop current sensor using the Hall Effect
- ✧ Galvanic separation between primary and secondary.
- ✧ Insulating plastic case recognized according to UL 94-V0
- ✧ No insertion loss.
- ✧ Small size.
- ✧ Standards:
  - EN50178: 1997
  - IEC 61010-1: 2000
  - UL 508: 2010

### Applications

- ✧ AC variable speed.
- ✧ Static converters for DC motor drives.
- ✧ Uninterruptible Power Supply (UPS).
- ✧ Photovoltaic inverter
- ✧ Module power supply.
- ✧ Switch Mode Power Supplies (SMPS).
- ✧ Battery Management.

## Safety

The sensor must be used according to IEC 61010-1.

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

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## Absolute maximum ratings((not operating )

| Parameter                     | Symbol | Unit | Value   |
|-------------------------------|--------|------|---------|
| Supply voltage                | $V_C$  | V    | ± 15.75 |
| Primary conductor temperature | $T_B$  | °C   | 100     |

- ※ 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 | $T_A$                          | °C   | -40 |     | 85  |         |
| Ambient storage temperature   | $T_S$                          | °C   | -40 |     | 90  |         |
| Mass                          | $m$                            | g    |     | 8   |     |         |
| Standards                     | EN 50178, IEC 61010-1, UL 508C |      |     |     |     |         |

## Insulation coordination

| Parameter   | Symbol   | Unit | Value               | Comment  |
|---|----------|------|---------------------|--|
| Rms voltage for AC insulation test, @50 Hz, 1 min | $V_d$    | kV   | 3.0                 |  |
| Impulse withstand voltage 1.2/50µs                | $V_W$    | kV   | 6.0                 |  |
| Clearance (pri.- sec.)                            | $d_{cl}$ | mm   | 5.5                 |  |
| Creepage distance (pri.- sec.)                    | $d_{cp}$ | mm   | 5.5                 |  |
| Plastic case                                      | -        | -    | UL94-V0             |  |
| Application example                               | -        | -    | 300V<br>CAT III PD2 | Reinforced insulation, according to EN 50178, EN 61010-1 |
| Application example                               | -        | -    | 600V<br>CAT III PD2 | Basic insulation, according to EN 50178, EN 61010-1      |

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## Electrical data

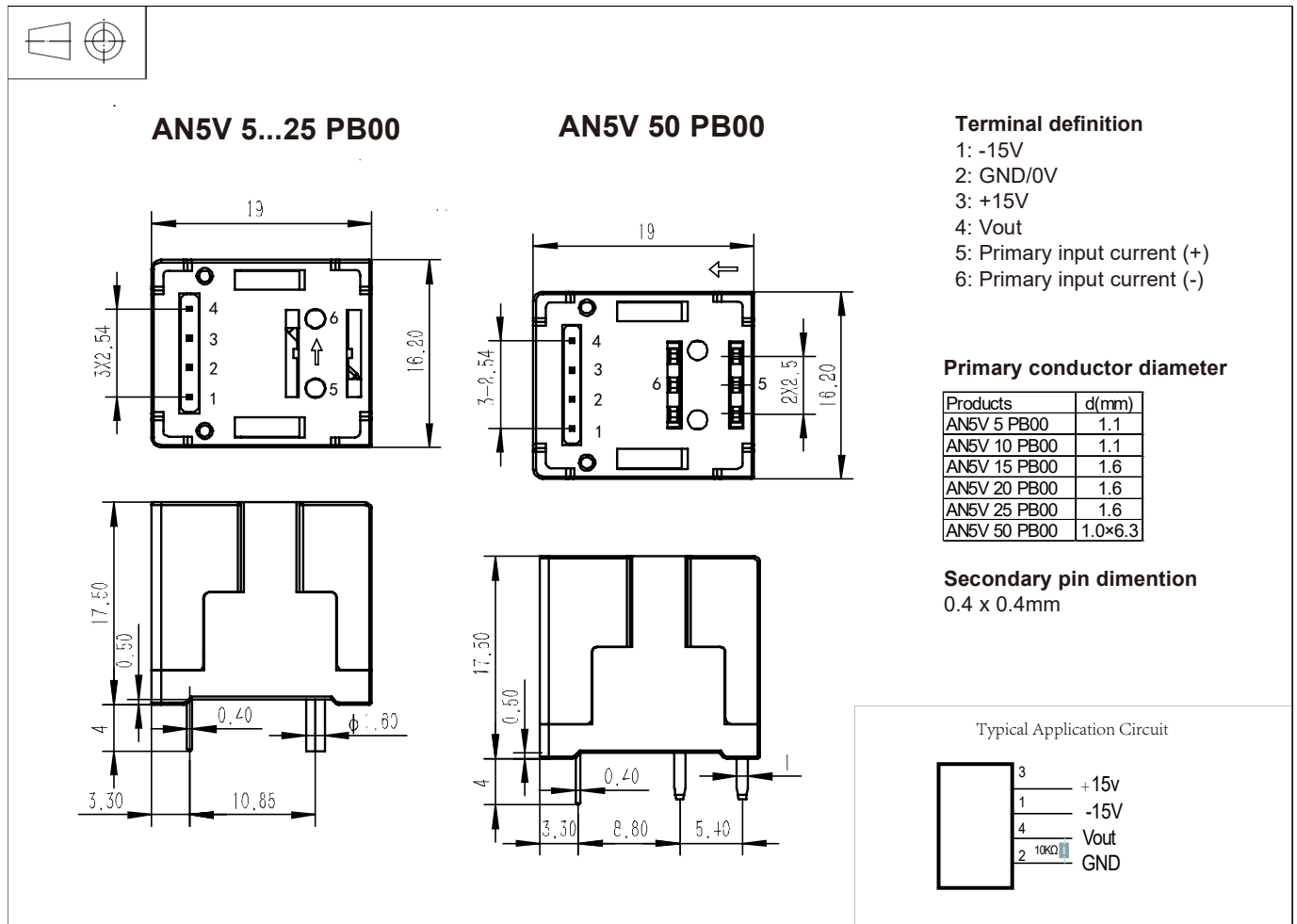
※ With  $T_A = 25^\circ\text{C}$ ,  $V_C = \pm 15\text{V}$ ,  $R_L = 10\text{k}\Omega$ , unless otherwise noted.

| Parameter  | Symbol          | Unit          | Min         | Typ         | Max         | Comment                                     |
|--|-----------------|---------------|-------------|-------------|-------------|---|
| Primary nominal current rms                              | $I_{PN}$        | A             | -5          |             | 5           | AN5V 5 PB00                                 |
|  |                 |               | -10         |             | 10          | AN5V 10 PB00                                |
|  |                 |               | -15         |             | 15          | AN5V 15 PB00                                |
|  |                 |               | -20         |             | 20          | AN5V 20 PB00                                |
|  |                 |               | -25         |             | 25          | AN5V 25 PB00                                |
|  |                 |               | -50         |             | 50          | AN5V 50 PB00                                |
| Primary current, measuring range*1                       | $I_{PM}$        | A             | -15         |             | 15          | AN5V 5 PB00                                 |
|  |                 |               | -30         |             | 30          | AN5V 10 PB00                                |
|  |                 |               | -45         |             | 45          | AN5V 15 PB00                                |
|  |                 |               | -60         |             | 60          | AN5V 20 PB00                                |
|  |                 |               | -75         |             | 75          | AN5V 25 PB00                                |
|  |                 |               | -150        |             | 150         | AN5V 50 PB00                                |
| Supply voltage *1  | $V_C$           | V             | $\pm 12$    |             | $\pm 15$    | @ 5%  |
| Current consumption                                      | $I_C$           | mA            |             | 15          | 20          |   |
| Load resistance  | $R_L$           | k $\Omega$    | 10          |             |             |   |
| Output resisatance                                       | $R_{OUT}$       | $\Omega$      |             | 100         |             |   |
| Output voltage (analog)@ $I_{PN}$                        | $V_{OUT}$       | V             | $\pm 3.960$ | $\pm 4.000$ | $\pm 4.040$ |   |
| Electrical offset voltage                                | $V_{OE}$        | mV            | -40         |             | 40          |   |
| Temperature coefficient of $V_{OE}$ *2                   | $TCV_{OE}$      | mV/K          | -1          |             | 1           | @ $-40^\circ\text{C} \sim 85^\circ\text{C}$ |
| Theoretical sensitivity                                  | $G_{th}$        | mV/A          |             | 800.00      |             | AN5V 5 PB00                                 |
|  |                 |               |             | 400.00      |             | AN5V 10 PB00                                |
|  |                 |               |             | 266.67      |             | AN5V 15 PB00                                |
|  |                 |               |             | 200.00      |             | AN5V 20 PB00                                |
|  |                 |               |             | 160.00      |             | AN5V 25 PB00                                |
|  |                 |               |             | 80.00       |             | AN5V 50 PB00                                |
| Sensitivity error  | $\varepsilon_G$ | %             | -1          |             | 1           | Exclusive of $V_{OE}$                       |
| Temperature coefficient of G                             | $TCG$           | %/K           | -0.05       |             | 0.05        | @ $-40^\circ\text{C} \sim 85^\circ\text{C}$ |
| Linearity error 0.. $I_{PN}$                             | $\varepsilon_L$ | % of $I_{PN}$ | -1          |             | 1           | Exclusive of $V_{OE}$                       |
| Magnetic offset voltage@ $I_P=0$ after $1 \times I_{PN}$ | $V_{OM}$        | mV            | -15         |             | 15          |   |
| Accuracy@ $I_{PN}$                                       | $X$             | % of $I_{PN}$ | -1          |             | 1           | Exclusive of $V_{OE}$                       |
| Response time@ 90% of $I_{PN}$                           | $t_r$           | $\mu\text{s}$ |             |             | 3           |   |
| Frequency bandwidth(-3dB)                                | $BW$            | kHz           | 50          |             |             |   |

\*1: If  $I_{PN} \leq 300\text{A}$  and  $V_C = \pm 12\text{V}$ , the measuring range reduced to 2.5 times of  $I_{PN}$ .

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Dimensions (in mm. 1 mm = 0.0394 inch)



## Mechanical characteristics

◇ General tolerance ±0.5 mm

## Remarks

- ◇  $V_{OUT}$  and  $I_P$  are in the same direction, when  $I_P$  flows in the direction of arrow.
- ◇ Temperature of the primary conductor should not exceed 100°C

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