CV109-19 Series Current Sensor

The CV109-19 series is a current sensor based on the Hall effect. It provides electronic measurement of DC, AC or pulse currents at same time, and their combinations with galvanic between the primary (high current) and secondary circuits.

Features

- Only one design for wide current ratings range
- No insertion losses
- RoHs compliance (Lead-Free)

Advantages

- Low temperature drift
- Low power consumption
- High immunity to external interference
- Current overload capability

Applications

- AC variable speed drives
- Uninterruptible Power Supplies(UPS)
- Battery management systems
- Static converters for DC motor drives
- Switched Mode Power Supplies(SMPS)
- Power supplies for welding applications

Standards

- EN 50178:1997

Absolute maximum ratings

Symbol	Parameter	Min.	Max.	Unit
$V_{DD\ Max.}$	Maximum supply voltage (not destructive)	-0.3	6	V
T_{PC}	Primary conductor temperature		100	°C
T_A	Ambient operating temperature	-20	100	°C
T_S	Storage temperature range	-40	100	°C
$V_{ESD-HBM}$	ESD sensitivity HBM (Human Body Model)	4		kV

Stresses above these ratings may cause permanent damage. Exposure to absolute maximum ratings for extended periods may degrade reliability.

Specifications (T_A= 25°C, V_{DD}= 5.0V)

Symbol	Parameter	Test condition	Min.	Typ.	Max.	Unit
V_{DD}	Supply voltage		4.5	5	5.5	V
I_C	Current consumption	I_P=0A without load		14	17	mA
I_{PN}	Current nominal measuring range		-300		300	A
V_{OUT}	Output voltage	$\pm I_{PN}$ R_L=10kΩ		2.5±2		V
V_0	Zero current output voltage	I_P=0A		V_{DD}/2		V
V_{OE}	Offset voltage	I_P=0A		2.49-2.51		V
G	Nominal sensitivity	V_{DD}=5V		6.67		mV/A
ε_L	Non-linearity error	$\pm I_{PN}$ without offset		<±1		%/I_{PN}
T_{CVOE}	Temperature coefficient of V_{OE}	T_A=-20°C ...100°C		±0.31		mV/°C
T_{CVOUT}	Temperature coefficient of V_{OUT}	T_A=-20°C ...100°C (except T_{CVOE})		±0.5		mV/°C
TEB	Total error band	@I_{PN} T_A=-20°C ...100°C			2	%
T_R	Step response to 90% of I_{PN}			5		µs
BW	Frequency bandwidth(-3dB)			120		kHz

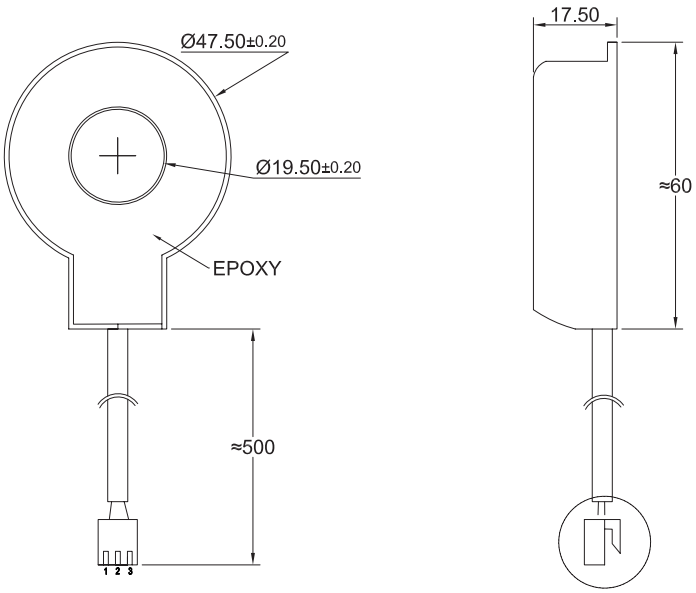
Insulation characteristics

Symbol	Parameter	Value	Unit	Comment
V_D	Insulation voltage for isolation, 50Hz, 1 min	2500	V	
R_{ISO}	Isolation resistance @500VDC	500	MΩ	

General characteristics

Symbol	Parameter	Value	Unit	Comment
m-HSE	Housing material	V0		Flame retardant UL 94
m-FC	Flux collector material	Oriented silicon steel		Superior magnetic permeability
m	Mass	55	grams	

Dimension (mm)



Unit: mm

Note:

Cable: white teflon 3 wires, AWG24, OD 3.2mm(cable cover is sulfuric acid-resistant, but wires are not)

Plastic housing: ABS

Electrical Connector: XHS-3Y(PA66)

3 pins connector compatible with 2.54 pitch socket

Pin	Symbol
1	V_{DD}
2	GND
3	V_{OUT}

Notes

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Safety and Environment

The product is to be installed by manufacturer trained personnel or competent person trained in accordance with manufacturer installation instructions.

With respect to applicable standards IEC 61010-1/ EN 61010-1 *safety requirements for electrical equipment for measurement, control and laboratory use part 1 general requirements*, the product should be used in limited energy secondary circuits.

Risk of electrical shock

Certain parts of the module can carry hazardous voltage during the operation process of the product because hazardous live voltage of primary conductor, power supply occurs, injury and/or serious damage will be caused if this warning is ignored.

Conducting parts must be inaccessible after installation of the product. Additional protection including shield or protective housing could be used according to IEC 60664 Insulation coordination for equipment within low-voltage supply systems.

Disconnection of the main supply will protect against possible injury and serious damage.

ESD protection

Damage from an ESD event will occur if the personnel is not well grounded when handling.

Important notice

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