CT, Low Current AC

Overview

The CT series low-alternating current sensors can be used to detect very low current levels and for overcurrent protection in electronic appliances.

Applications

Typical applications include overcurrent detection in microcontroller-based equipment, refrigerators, air conditioners, inductive heating, servo motors, inverters, UPSs and SMPS.

Benefits

- High sensitivity
- High-performance
- Compact and lightweight
- Mountable on printed circuit boards
- RoHS compliant

CT-05 Type

CT-06 Type

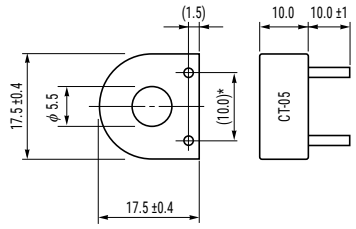
CT-07 Type

Ordering Information

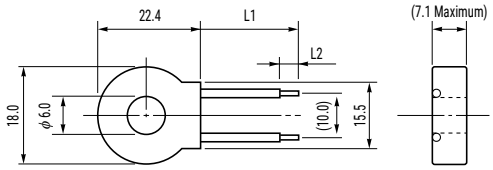
CT-	06-	50
Series	Shape Classification	Number of Turns
CT	05 06 07	Blank (CT–05 only) = 500 turns 50 = 500 turns 75 = 750 turns 100 = 1,000 turns

Dimensions in mm

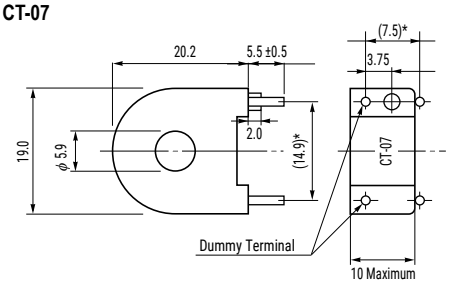
CT-05



CT-06



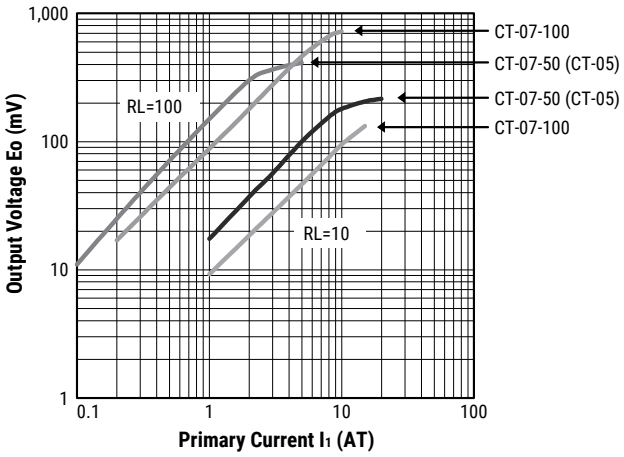
CT-07



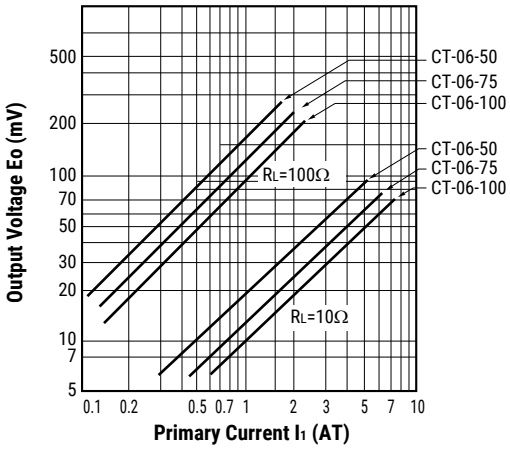
Part Number	L1 (±5)	L2 (±2)
CT-06-50	56.0	4.0
CT-06-75		
CT-06-100	85.0	5.0

AC Output Characteristics

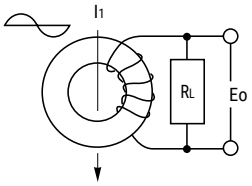
CT-05, CT-07 (example)



CT-06 (example)



Measuring Circuit



I_1 : primary current (AT)
R_L : load resistance (Ω)
Eo : output voltage (mV_{rms})

Environmental Compliance

All CT sensors are RoHS compliant.

Specifications

Item	Performance Characteristics
Hole Diameter	5.5 – 6.0 mm
Turns	500 – 1,000
Operating Temperature Range	–20°C to +80°C
Storage Temperature Range	–5°C to +40°C

Table 1 – Ratings & Part Number Reference

Part Number	Hole Diameter (mm)	Turns	Core	Lead Wires	Material	Weight (g)
CT-05	Φ 5.5	500	Permalloy	Φ 0.6 mm pin connectors	Phenolic resin case, epoxy-filled	4.4
CT-06-50	Φ 6.0	500	Permalloy	Polyethylene sheath Φ 0.5 mm single wire	Phenolic resin case, silicon-filled	4.5
CT-06-75	Φ 6.0	750	Permalloy	Polyethylene sheath Φ 0.5 mm single wire	Phenolic resin case, silicon-filled	4.8
CT-06-100	Φ 6.0	1,000	Permalloy	Polyethylene sheath Φ 0.5 mm single wire	Phenolic resin case, silicon-filled	5.0
CT-07-50	Φ 5.9	500	Permalloy	Φ 0.8 mm pin connectors	Phenolic resin case, epoxy-filled	5.4
CT-07-100	Φ 5.9	1,000	Permalloy	Φ 0.8 mm pin connectors	Phenolic resin case, epoxy-filled	5.6

Soldering Process

CT-05 & CT-07 Type

Flow Soldering	Preheating temperature	90 – 150°C
	Preheating time	within 90 seconds
	Heating temperature	260°C
	Heating time	within 5 seconds
Iron Soldering	Temperature of tip	350°C or lower
	Worktime	within 3 seconds

CT-06 Type

Iron Soldering	Temperature of tip	350°C or lower
	Worktime	within 3 seconds

Packaging

Type	Packaging Type	Pieces Per Box
CT-05	Tray	1,200
CT-06		560
CT-07		1,200

Handling Precautions

Precautions for Product Storage

Current sensors should be stored in normal working environments. While the sensors are quite robust in other environments, exposure to high temperatures, high humidity, corrosive atmospheres, and long-term storage degrade solderability.

KEMET recommends that maximum storage temperature not exceed 40°C and maximum storage humidity not exceed 70% relative humidity. Atmospheres should be free of chlorine and sulfur-bearing compounds. Temperature fluctuations should be minimized to avoid condensation on the parts. Avoid storage near strong magnetic fields, as they can magnetize the product and cause its characteristics to change.

For optimized solderability, the stock of current sensors should be used within 12 months of receipt.

Before Using Low Alternating Current Sensors

- Do NOT drop or apply any other mechanical stress, as such stresses may change performance characteristics.
- Conduct a preliminary study when heating by current conduction (required).
- Do NOT use the low alternating current sensors opened between secondary output terminals. Heat build-up in the magnetic core may occur, resulting in damage to the parts by coil melting.

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