# 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

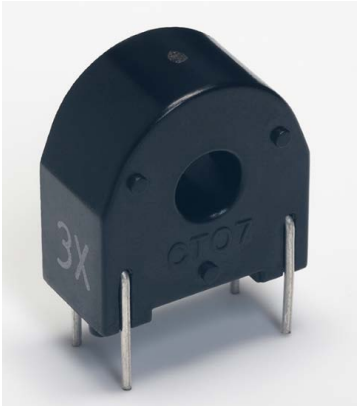
Typical applications include overcurrent detection in microcontroller-based equipment, refrigerators, air conditioners, inductive heating, servo motors, inverters, UPSs and SMPS.

## Benefits

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

CT-05 Type

CT-06 Type




CT-07 Type



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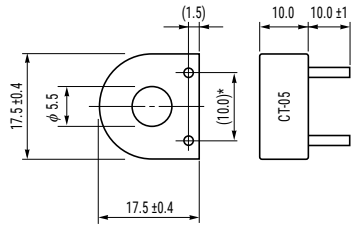
## Ordering Information

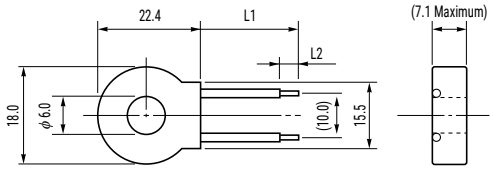
| CT- | 06- | 50 |
|---|---|---|
| Series | Shape Classification | Number of Turns |
| CT | 05<br>06<br>07 | Blank (CT–05 only) = 500 turns<br>50 = 500 turns<br>75 = 750 turns<br>100 = 1,000 turns |

## Dimensions in mm

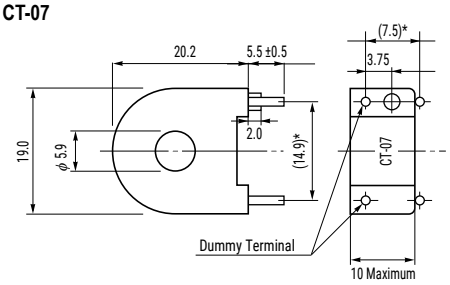
**CT-05**




**CT-06**



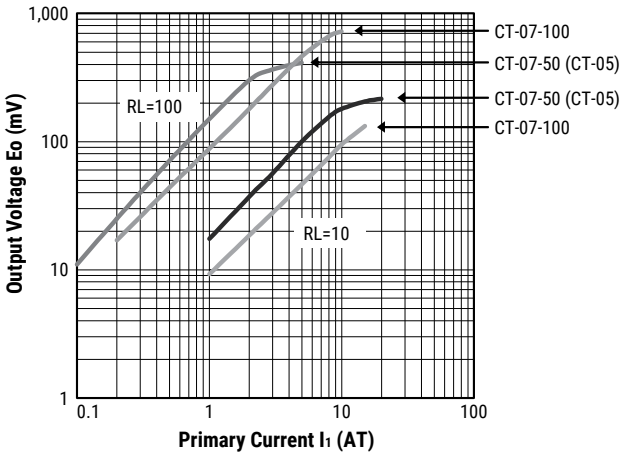

**CT-07**



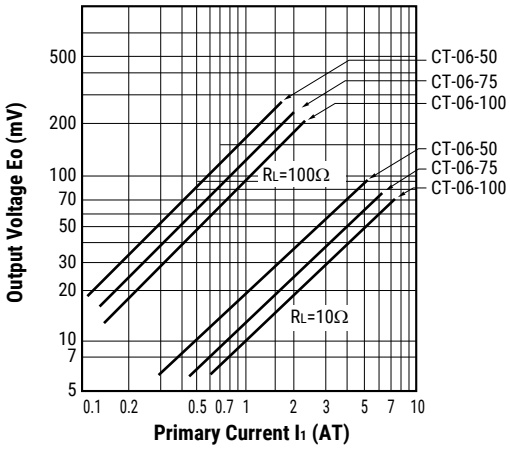

| Part Number | L1 (±5) | L2 (±2) |
|---|---|---|
| CT-06-50 | 56.0 | 4.0 |
| CT-06-75 | | |
| CT-06-100 | 85.0 | 5.0 |

## AC Output Characteristics

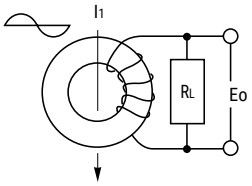
**CT-05, CT-07 (example)**




**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 |

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## 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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