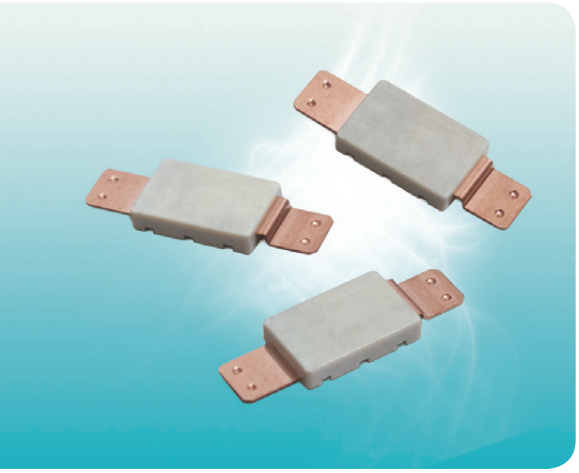



# Product Overview

## Metal Hybrid PPTC Devices with Thermal Activation (MHP-TA Series)

Resettable overtemperature protection for Lithium Polymer (LiP) and prismatic cells used in various portable electronic applications.

TE connectivity



## KEY FEATURES

- $9V_{DC}$ rating
- Two levels of current carrying capacity:
  low current (approximately 6A
  hold current @25°C)
  high current (approximately 15A
  hold current @25°C)
- Multiple activation temperature ratings (72°C, 77°C, 82°C, 85°C, 90°C)
- Miniature size allows for compact battery pack designs

The rapidly expanding market for ultra-thin portable electronic devices such as media tablets and ultra-thin PCs has created demand for very thin, low-profile, light-weight and high-capacity Lithium Polymer (LiP) and prismatic cells.

A new MHP (Metal Hybrid PPTC) device, the MHP-TA, offers a $9V_{DC}$ rating and a higher current rating than typical battery strap devices to meet the battery safety requirements of higher-capacity LiP and prismatic batteries found in the latest tablet and ultra-thin computing products. Hybrid MHP technology connects a bimetal protector in parallel with a PPTC (polymeric positive temperature coefficient) device. The resulting MHP-TA device helps provide resettable overtemperature protection, while utilizing the PPTC device to act as a heater and to help keep the bimetal latched until the fault is removed.

## APPLICATIONS

- Battery cell protection for high-capacity Lithium Polymer and prismatic cells used in:
  - Media tablets
  - Ultra-thin notebook PCs
  - E-readers

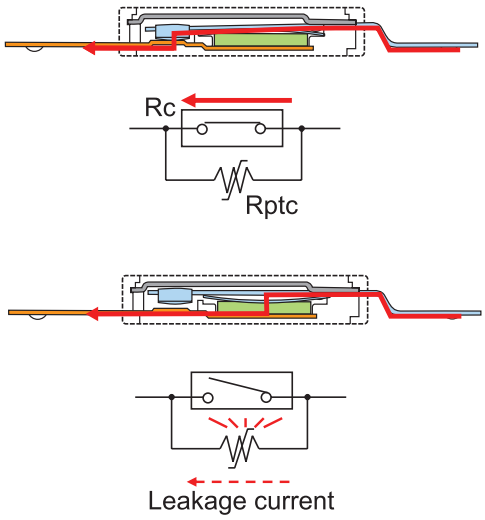
## BENEFITS

- Capable of handling the higher voltages and battery discharge rates found in high-capacity LiP and prismatic cell applications.
- Provides resettable overtemperature protection in high-capacity LiP and prismatic cell applications.

## DESIGN CONCEPT

In normal operation, current passes through the bimetal contact due to its low contact resistance. During an abnormal event, the device reacts to the rise in cell temperature causing the bimetal contact to open at the specified temperature and its contact resistance to increase.

At this point, the current shunts to the lower resistance PPTC which acts as a heater and helps keep the bimetal protector open and in a latched position until the fault is removed.



## ELECTRICAL CHARACTERISTICS (TYPICAL)

### Low Current Type:

| Typical Electrical Rating (25°C) |
|---|
| Contact rating: DC9V/12A (6000 cycles) |
| Max. breaking current: DC5V/40A (100 cycles) |

| | Rating | Operation Temperature | | Reset Temperature | | Reference Resistance | |
|---|---|---|---|---|---|---|---|
| | [°C] | [°C] | | [°C] | | [mohms] 25°C | |
| Model Number | Nominal | Min | Max | Min | ΔT[1] | Typ | Max |
| MHP-TA6-9-72 | 72 | 67 | 77 | ≥40 | ≥7 | 10 | 15 |
| MHP-TA6-9-77 | 77 | 72 | 82 | ≥40 | ≥10 | 10 | 15 |
| MHP-TA6-9-82 | 82 | 77 | 87 | ≥40 | ≥10 | 10 | 15 |
| MHP-TA6-9-85 | 85 | 80 | 90 | ≥40 | ≥10 | 10 | 15 |

[1] ΔT is the minimum temperature differential between the actual operation temperature of the device and the reset temperature.

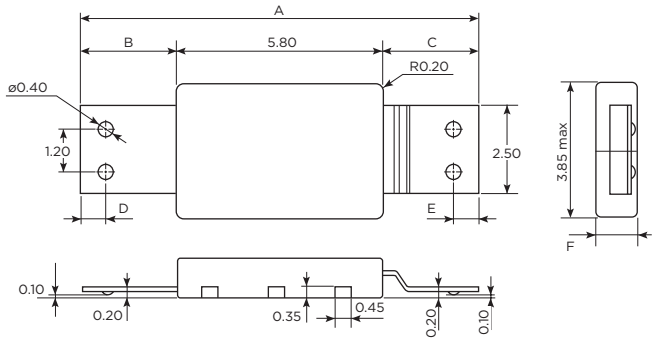
### High Current Type:

| Typical Electrical Rating (25°C) |
|---|
| Contact rating: DC9V/25A (6000 cycles) |
| Max. breaking current: DC5V/80A (100 cycles) |

| | Rating | Operation Temperature | | Reset Temperature | | Reference Resistance | |
|---|---|---|---|---|---|---|---|
| | [°C] | [°C] | | [°C] | | [mohms] 25°C | |
| Model Number | Nominal | Min | Max | Min | ΔT[1] | Typ | Max |
| MHP-TA15-9-72 | 72 | 67 | 77 | ≥40 | ≥7 | 2.5 | 5.0 |
| MHP-TA15-9-77 | 77 | 72 | 82 | ≥40 | ≥10 | 2.5 | 5.0 |
| MHP-TA15-9-82 | 82 | 77 | 87 | ≥40 | ≥10 | 2.5 | 5.0 |
| MHP-TA15-9-85 | 85 | 80 | 90 | ≥40 | ≥10 | 2.5 | 5.0 |
| MHP-TA15-9-90 | 90 | 85 | 95 | ≥40 | ≥10 | 2.5 | 5.0 |

[1] ΔT is the minimum temperature differential between the actual operation temperature of the device and the reset temperature.

## DIMENSIONS IN MILLIMETERS




| A | | B | | C | | D | | E | | F |
|---|---|---|---|---|---|---|---|---|---|---|
| Min | Max | Min | Max | Typ | Max | Min | Max | Typ | Max | Typ |
| 10.9 | 11.4 | 2.6 | 2.8 | 2.6 | 2.8 | 0.6 | 0.8 | 0.6 | 0.8 | 1.15 |

Unless otherwise specified, all tolerances are ±0.1mm.
• Corner tolerance should be less than 0.15mm.

## MARKING INFORMATION

□□□□□□□ — Lot Identification
□□TE — Control Number, Company Logo
MHP-TA□-□-□□ — Part Name

## AGENCY RECOGNITIONS

UL873

## FOR MORE INFORMATION

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*as defined www.te.com/leadfree

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RCP0136E 08/2012


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