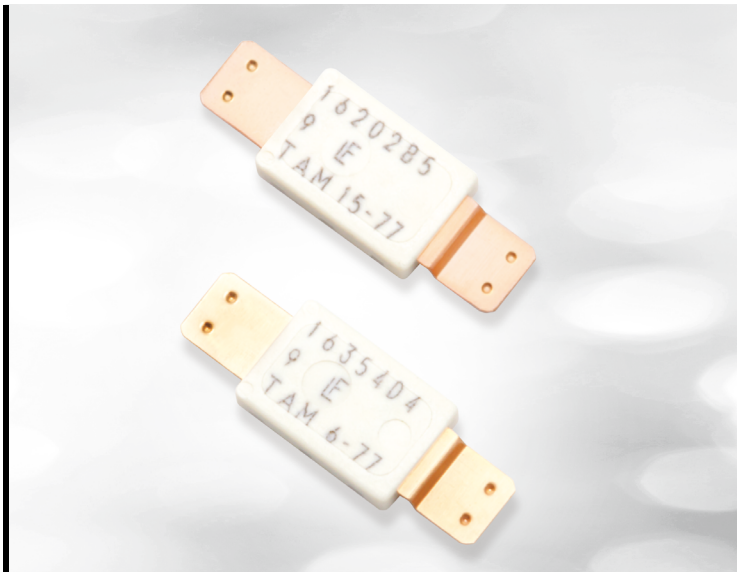
MHP-TAM DEVICES

Overtemperature Protection

For Lithium Polymer (LiP) and prismatic cells used in various portable electronic applications



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Overtemperature Protection

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-TAM, 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-TAM 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.

Benefits

- Capable of handling voltages and battery charge rates found in high-capacity LiP and prismatic cells used in cutting-edge applications
- Helps provide resettable and accurate overtemperature protection
- Compact size and thin form factor facilitates circuit protection in ultra-thin battery pack designs
- Customization of welding leads available to facilitate design

Features

- Two levels of hold current:
  - Low current (nominal 6A hold current @25°C)
  - High current (nominal 15A hold current @25°C)
- Multiple temperature ratings
  - (72°C, 77°C, 82°C, 85°C, 90°C)
- Compact size (L:5.8mm x W:3.85mm x H:1.15mm)

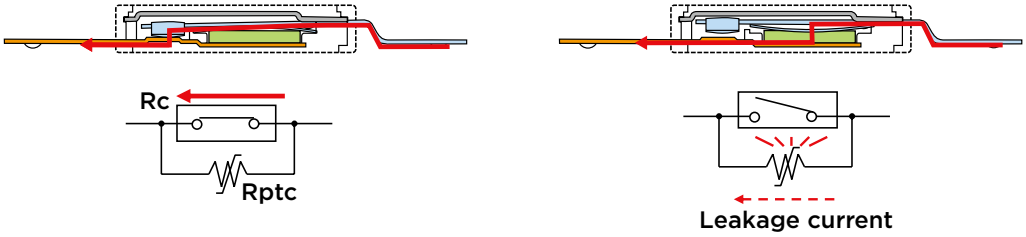
Applications

- Battery cell protection for high-capacity Lithium Polymer and prismatic cells used in:
  - Notebook PCs
  - Ultra-book
  - Tablets
  - Smart phones

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.

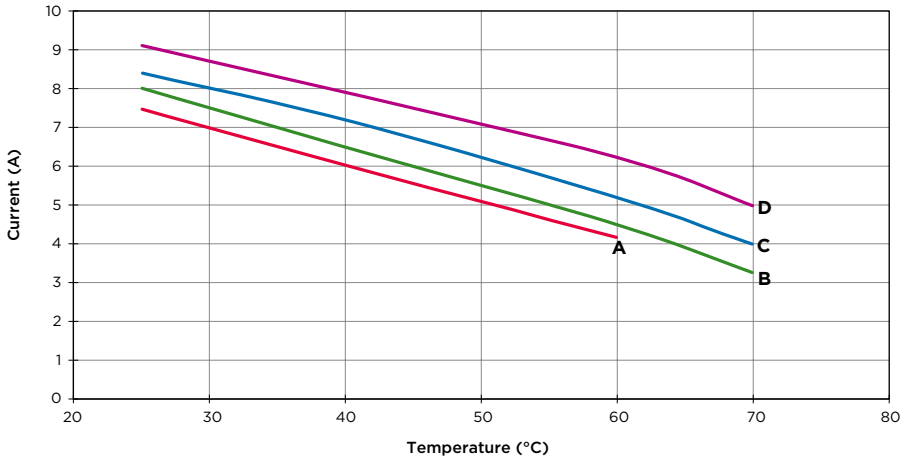


Electrical Characteristics (Typical)

Series	Model Number	Rating [°C] Nominal	Operation Temperature [°C]		Reset Temperature [°C]		Reference Resistance [mohms] 25°C	
			Min	Max	Min	DT	Typ	Max
MHP-TAM6 Series								
Typical Electrical Rating (25°C) Max. Breaking Current $5V_{DC}$/40A (100 cycles) Contact Rating $9V_{DC}$/12A (6000 cycles)	MHP-TAM6-9-72	72	67	77	≥40	≥7	10	15
	MHP-TAM6-9-77	77	72	82	≥40	≥10	10	15
	MHP-TAM6-9-82	82	77	87	≥40	≥10	10	15
	MHP-TAM6-9-85	85	80	90	≥40	≥10	10	15
MHP-TAM15 Series								
Typical Electrical Rating (25°C) Max. Breaking Current $5V_{DC}$/80A (100 cycles) Contact Rating $9V_{DC}$/25A (6000 cycles)	MHP-TAM15-9-72	72	67	77	≥40	*≥7	2.5	5
	MHP-TAM15-9-77	77	72	82	≥40	*≥10	2.5	5
	MHP-TAM15-9-82	82	77	87	≥40	*≥10	2.5	5
	MHP-TAM15-9-85	85	80	90	≥40	*≥10	2.5	5
	MHP-TAM15-9-90	90	85	95	≥40	*≥10	2.5	5

* The minimum temperature differential between the actual operation temperature of the device and the reset temperature

Hold Current vs. Temperature Curves



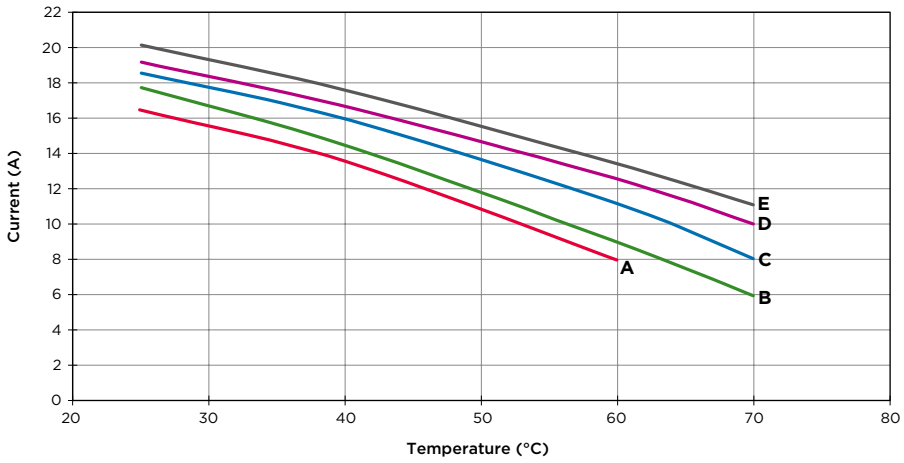
MHP-TAM6 Series

A - MHP-TAM6-9-72

B - MHP-TAM6-9-77

C - MHP-TAM6-9-82

D - MHP-TAM6-9-85



MHP-TAM15 Series

A - MHP-TAM15-9-72

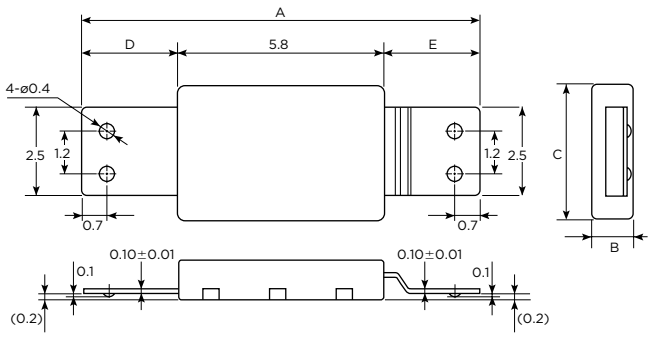
B - MHP-TAM15-9-77

C - MHP-TAM15-9-82

D - MHP-TAM15-9-85

E - MHP-TAM15-9-90

Dimensions In Millimeters



MHP-TAM6 and MHP-TAM15 Series:

	Min	Max
A	10.9	11.4
B	-	1.15
C	3.75	3.85
D	2.6	2.8
E	2.6	2.8

Unless otherwise specified, all tolerances are 0.1mm.

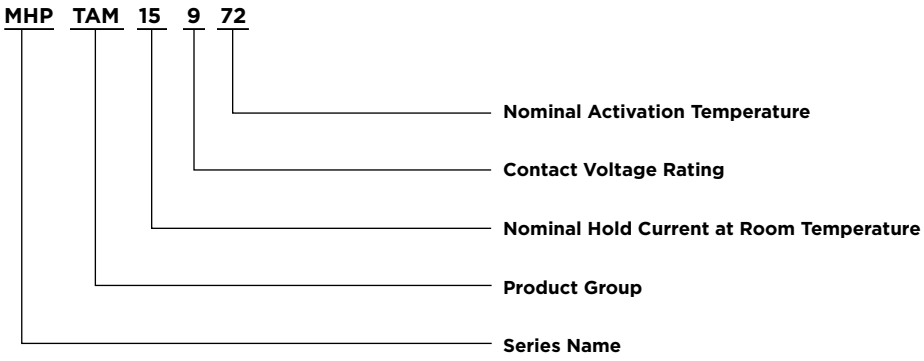
Packaging and Marking Information

Part Number	Bag Quantity	Standard Package	Part Marking
MHP-TAM6 Series	1,000	20,000	Lot ID#, Control# & Co. Logo, Product #
MHP-TAM15 Series	1,000	20,000	Lot ID#, Control# & Co. Logo, Product #

Agency Recognition

Part Number	Agency Recognition
MHP-TAM6 Series	UL & cUL File No. E349829; CB File No. US-23966-M1-UL
MHP-TAM15 Series	UL & cUL File No. E349829; CB File No. US-24160-UL

Part Numbering System



Physical Characteristics

Terminals	Copper Alloy
Molding Plastic	LCP (Liquid Crystal Polymer)

RoHS and Halogen-free Compliance

RoHS Compliant

Halogen Free per IEC 61249-2-21