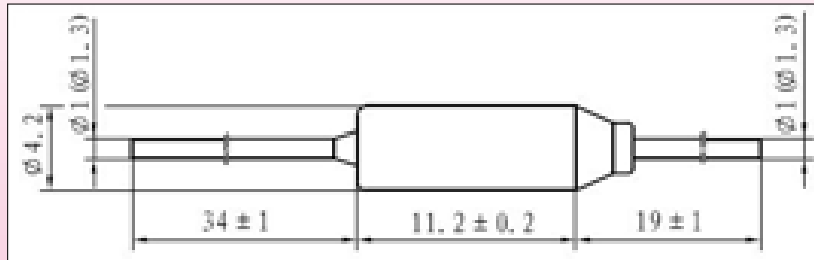


# Thermal cut outs, 10 and 16A 250V, axial wires, type 5MA3

## DIMENSIONS



## TECHNICAL FEATURES

- Main application:** Overheat protection of electrical or electronic equipment, home appliances, electrical coils and heating components.
- Important notice:** The proper function of this component not only depends of its rated temperature, but also of its assembly position, connection and electrical current.
- Housing:** Silver plated copper. This is a non-insulated electric life part. Protect from human contact and use appropriate design to avoid electrical shocks and hazards. Do not bend or make holes in housing
- Ingress protection:** TCO are not waterproof, do not immerse in liquid.
- Insulation:** 95% alumina, epoxy sealed. Do not submit epoxy sealing to temperature over 200°C
- Melting pellet:** Organic compound
- Mechanism type:** spring operated movable contact, operated by the melting pellet
- Terminals:** tin plated copper wires
- Wiring rules:**
- Mechanical resistance:* do not submit TCO wires to pulling force over 16N or pushing force over 4N
  - Bending:* do not bend or cut wires at less than 6 mm from epoxy sealing or housing
  - Crimping:* Do not submit to impact or mechanical force during terminals crimping. Wrong crimping will overheat the wire by Joule effect, fuse will melt, and epoxy seal will burn down.
- Parts crimped to TCO wires must with have enough mechanical strength and hardness to withstand normal vibration and impact, and it must not cause stresses due to heat dilatation
- Tin welding:* it is not allowed to use tin welding for fuse with rated temperature under 184°C without proper wire cooling solution to avoid fuse to melt.
- Electrical welding:* proper wire cooling solution must be used to avoid fuse to melt wire, and welding current cannot go through the fuse;
- Shrinkable sleeves:** do not use shrinkable sleeves, it will melt down the TCO during the shrinking process
- Environment corrosion:** TCO must be protected from corrosive environment, air or fumes.
- Rated voltage:** 250V(AC)
- Rated current:** 10A and 16A (2 different types)
- The rated current is the max current that the TCO can carry without opening or change in calibration temperature, when submitted at a limited temperature named "Holding temperature" (Th), during a limited time.
- Rated temperature (Tf):** it is the fuse contact opening temperature measured inside calibration oven, with a current lower than 10 mA and a temperature rise of 0.5 to 1°C/min. Opening temperature cannot be below Tf-10°C and not higher than Tf. It is this temperature that is printed on the TCO.
- Holding temperature (TC):**
- TCO must not open or be destroyed when submitted during 168 hours at Th-6°C, at nominal voltage and rating
- Max ultimate temperature (Tm):** It is the maximum temperature that the fuse can withstand, after opening, without change in its mechanical and insulation properties
- Electrical strength between contacts after opening:** ≥500V
- Insulation resistance between contacts after opening:** ≥ 0.2MΩ under 500 V.
- Joule effect temperature increase:** lower than 15°C measured at the center of the fuse under nominal load.
- Standard:** DIN EN60691(VDE 0821):2007-09  
EN60691:2003+A1: 2007.IEC60691(ed.3);am1
- Product identification:**
- SPF169: model number
  - TF172C: rated operation temperature (Tf)
  - 10A250V: rated current and voltage
  - 088: production number
- Installation and safety instructions:**
- Choose TCO temperature fuse which electrical insulation will not be effected by equipment overheat.
  - TCO replacement must be made by exactly the same model of the same supplier

## Main references

Reference with 10A rating	Reference with 16A rating	Rated functioning temperature °C/°F (Tf)	Holding temperature °C/°F (Th)	Maximum temperature °C/°F (Tm)
5MA3SPF070019340	5MA3SPF070H19340	73°C/163.4°F	45°C/113°F	115°C/239°F
5MA3SPF077019340	5MA3SPF077H19340	79°C/174.2°F	52°C/125.6°F	125°C/257°F
5MA3SPF084019340	5MA3SPF084H19340	85°C/185°F	57°C/134.6°F	125°C/257°F
5MA3SPF091019340	5MA3SPF091H19340	94°C/201.2°F	66°C/150.8°C	140°C/284°F
5MA3SPF096019340	5MA3SPF096H19340	99°C/210.2°F	71°C/159.8°F	140°C/284°F
5MA3SPF106019340	5MA3SPF106H19340	108°C/226.4°F	77°C/170.6°F	145°C/293°F
5MA3SPF109019340	5MA3SPF109H19340	113°C/235.4°F	84°C/183.2°F	150°C/302°F
5MA3SPF121019340	5MA3SPF121H19340	122°C/251.6°F	94°C/201.2°F	175°C/347°F
5MA3SPF129019340	5MA3SPF129H19340	133°C/271.4°F	101°C/213.8°F	175°C/347°F
5MA3SPF139019340	5MA3SPF139H19340	142°C/287.6°F	114°C/237.2°F	185°C/365°F
5MA3SPF152019340	5MA3SPF152H19340	157°C/314.6°F	127°C/260.6°F	195°C/383°F
5MA3SPF165019340	5MA3SPF165H19340	167°C/332.6°F	130°C/266°F	205°C/401°F
5MA3SPF169019340	5MA3SPF169H19340	172°C/341.6°F	145°C/293°F	215°C/419°F
5MA3SPF182019340	5MA3SPF182H19340	184°C/363.2°F	156°C/312.8°F	225°C/437°F
5MA3SPF188019340	5MA3SPF188H19340	192°C/377.6°F	164°C/327.2°F	245°C/473°F
5MA3SPF216019340	5MA3SPF216H19340	216°C/420.8°F	189°C/372.2°F	280°C/536°F
5MA3SPF227019340	5MA3SPF227H19340	227°C/440.6°F	190°C/374°F	295°C/563°F
5MA3SPF240019340	5MA3SPF240H19340	240°C/464°F	190°C/374°F	305°C/581°F

