



# Mounting and Handling Recommendations for ISOA Resistors With Phase Change Thermal Interface Material (PC-TIM)

By Frederic Lovera

## 1. ISOA RESISTOR OVERVIEW

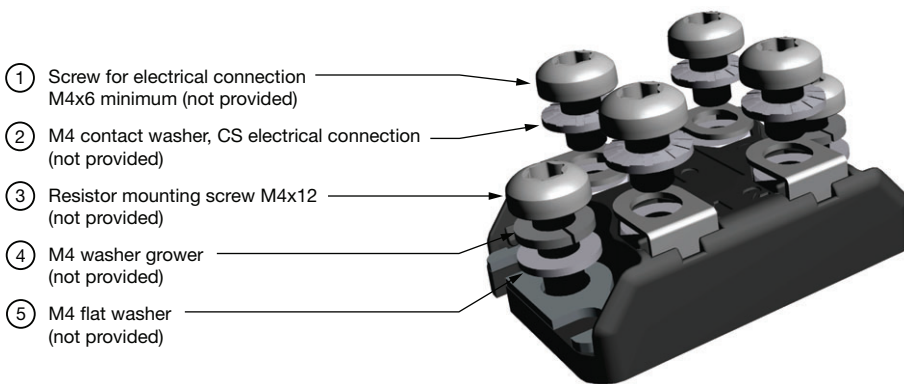


Fig. 1

## 2. TRANSPORT AND STORAGE

Resistors must be kept inside their original packaging in a dry place, in accordance to the environmental conditions given in the device's datasheet. A horizontal storage position is preferred, but is not mandatory. However, mechanical contact with the phase change thermal interface material (PC-TIM) must be avoided.

## 3. HEATSINK MOUNTING

Make sure that the dissipation area of the heatsink has been properly set up to ensure the expected performance. The maximum size for flatness defects must not exceed 0.025 mm / 25 mm, and the interface between the heatsink and the resistor has to be free of any holes, scratches, flaws, or foreign objects. The heatsink contact surface roughness must be less than Ra 6.3  $\mu$ .

Special attention should be taken to avoid any kind of contact with the PC-TIM during resistor handling.

Mount the resistor on the heatsink following steps A, B, C, and D.

### STEP A

Clean the heatsink (Fig. 2) with an ethanol-soaked wipe.

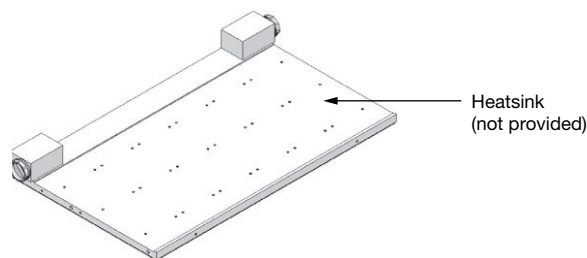
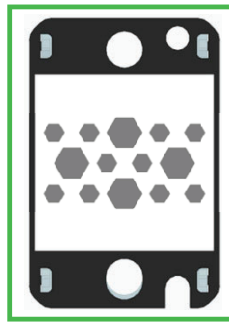


Fig. 2

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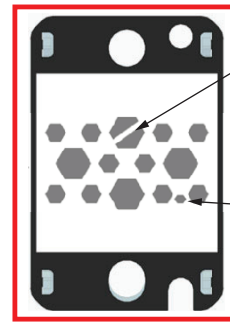
#### STEP B

Check that the PC-TIM's functional surface has been protected against contact or contamination by dust, grease, oils, and humidity, or a lack of thermal paste on the active area (Fig. 3 and Fig. 4).



OK

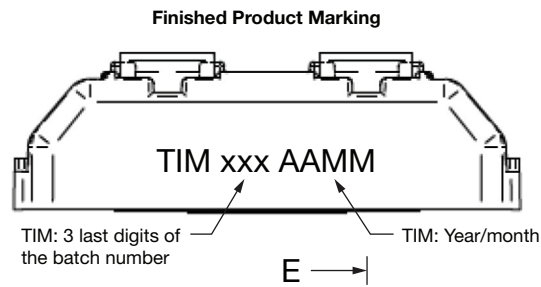
Fig. 3



NOT OK

Fig. 4

Best if used after a maximum of 6 months after the part manufacturing date displayed on the side of the resistor.



Example: TIM 625 2105 → best if used by November 2021

#### STEP C

Make sure that the threading depth matches the screws used. Apply a preliminary hand tightening on each screw until they touch the contact washer CS or spring washer (both are recommended washers). Then apply the nominal tightening torque of 1.8 Nm ( $\pm 0.2$  Nm). It is also possible to mount the resistor using a three-step sequence:

- Apply a pre-tightening torque of 0.8 Nm maximum on the first screw
- Apply a nominal tightening torque of 1.8 Nm ( $\pm 0.2$  Nm) on the second screw

We recommend for the mechanical mounting:

- ③ 2 x resistor mounting screw M4x12, minimum advised screw length (not provided)
- ④ 2 x M4 washer grower (not provided)
- ⑤ 2 x contact washers CS (not provided)

#### STEP D

PC-TIM must be activated to get full thermal performance by applying temperature or power to get a temperature of 60 °C minimum on the bottom case of the component during 60 seconds minimum.



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### 4. ELECTRICAL INTERFACE SET UP

The following equipment must be used:

① 4 x M4x6 screws for electrical connection, minimum advised screw length. To check the maximum size of the electrical screws you can use, the minimum available screw hole given on the part drawing together with the overall electrical connection thickness

② 4 x CS contact washers for electrical connections (not provided)

Apply a nominal tightening torque of 1.3 Nm ( $\pm$  0.2 Nm) to the electrical connections.

### 5. REPLACEMENT

In the event of resistor disassembly, the thermal interface will be permanently damaged when removed from its original mounting slot. The resistor cannot be reused without proper repair or cleaning by the manufacturer.

In order to ease disassembly, a heatsink can be used that heats up to 50 °C to soften the PC-TIM.

### 6. PRODUCT END OF LIFE

In order to preserve, protect, and improve the quality of the environment, as well as to protect the health of human beings and to use natural resources prudently, users are asked to treat the product at the end of its life in accordance with regulations in force in the country of use.

Packaging materials (cardboard, plastics, pallets) can be reused or recycled in a specialized sector for the treatment of packaging materials.

Plastic and metallic parts can be separated from the resistor and recycled in a specialized sector for their treatment. The rest of the product must be considered as ordinary industrial waste (OIW).