



# Mounting Instructions for TO-208AA / TO-208AC Stud Thyristors

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This application note introduces Vishay's TO-208AA (TO-48) and TO-208AC (TO-65) stud thyristors and provides instructions for mounting them to a heatsink.

## INTRODUCTION

Vishay's TO-208AA (TO-48) / TO-208AC (TO-65) stud thyristors are distinguished by these key features:

- Metric threads versions available
- Up to 1200 V  $V_{DRM}/V_{RRM}$
- High reliability and exceptional stability at high temperatures

Important factors in the assembly process are:

- Heatsink design
- Distance from adjacent heat-generating parts

## HEATSINK SPECIFICATION

The contact surface of the heatsink must be flat, with a recommended tolerance of  $< 0.03$  mm ( $< 1.18$  mils) and a levelling depth (surface roughness) of  $< 0.02$  mm ( $< 0.79$  mils), according to DIN/ISO 1302. In general, a milled or machined surface is satisfactory if prepared with tools in good working condition. The heatsink mounting surface must be clean, with no dirt, corrosion, or surface oxides. It is very important to keep the mounting surface free from particles exceeding 0.05 mm (2 mils) in thickness.

## THERMAL COMPOUND

Apply thermal joint compound on the hex side of the device's surface prior to mounting. The use of the compound produces a low initial contact resistance that helps to seal out air and moisture, which can help to prevent oxidation or corrosion over the life of the stud. A silicone-based thermal joint compound or petroleum-based thermal joint compound such as Penetrox is the best choice for metal-to-metal joints.

## MOUNTING TO HEATSINK

Place a suitable amount of thermal compound on the hex side of the device's surface and spread it evenly with a spatula. Thermal grease contact and distribution will be improved during the first hours and after heating up the system for the first time. All mounting holes of the heatsink should be free of burrs. Bolt the stud with a nut and washer to the threaded heatsinkhole. Be sure the stud is inserted straight into the threaded hole without forcing it. Any mounting error may cause the hex base to warp and eventually crack the semiconductor die.



Fig. 1 - Example of TO-208AA (TO-48)



Fig. 2 - Example of TO-208AC (TO-65)