

# Application Note AN-1027

## ADD-A-Pak Module Mounting Instructions

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This application note discusses the proper mounting and exchanger surface preparation, important to optimize the heat transfer from module to heatsink and maintain the contact thermal resistance value specified on the data sheet.

# Application Note

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## ADD-A-Pak Module Mounting Instructions

Proper mounting and exchanger surface preparation are generally very important to optimize the heat transfer from module to heatsink and maintain the contact thermal resistance value specified on the data sheet. The following procedure is recommended:

### Heatsink Preparation

The contact surface of heatsink must be flat, with unevenness remaining after grinding those areas must be less than 20 $\mu$ m; the roughness less than 10 $\mu$ m

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 in thickness 0.05mm (2 mils), provided thermal compound is used.

### Visual Inspection

Inspect the power module to insure that the contact surface of the base is clean, that there are no lumps or bulges on the base plate that could damage the base or reduce heat transfer across the surfaces.

### Thermal Compound

Coat uniformly the heatsink mounting surfaces and power module base plate with a good quality thermal compound. Do not exceed with

the compound, a very thin layer (around 100 $\mu$ m) is sufficient.

A good thermal grease is the Dow Corning 340. Apply uniform pressure on the package to force the compound to spread over the entire contact area.

### Module Fastening

Bolt the module to the heatsink using the two fixing holes. The recommended torque is 5 Nm  $\pm$  10%.

An even amount of torque should be applied for each individual mounting screw.

A torque wrench, accurate in the specified range, must be used in mounting module, in order to achieve optimum results. The mounting screws must be tightened in sequence.

After a period of about 3 hours, recheck the torque with a final tightening in opposite sequence to allow the spread of the compound.

### Electrical Connection

Tighten the M5 screws to the power terminals applying a torque of 3 Nm  $\pm$  10% avoiding any pressure on the module.

The gate and auxiliary cathode connections should be made via the flying leads as supplied. If International Rectifier hardware is not available, use only fast-on connectors 2.8mm x 0.8mm. The length of the flying leads should be kept as short as is physically possible.

Gate circuit return connection should always be accomplished by way of the auxiliary cathode connection.