

SECURITY CODE		MITSUBISHI ELECTRIC CORPORATION							
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	DATE	Aug.28.1996			May.17.2002		Jun.3.1998		Apr.19.2001

## Recommended Mounting Procedure for HVIGBT

### 1. General

In order to obtain the maximum heat transfer and minimize the contact thermal impedance, it is necessary to ensure as large a contacted area as possible between the module and the heatsink.

### 2. Heat sink flatness and finish

The heatsink must be finished in the module mounting area to surface roughness less than 12µm and have a flatness of less than 100µm.

### 3. Lubricated contact surface

A thermal grease should be evenly applied to the entire module base plate surface to fill imperfections and air voids between the module base plate and the heatsink. The grease must have a high thermal conductivity and have stable characteristics over the module base plate operating temperature range for the intended service life of the application (e.g., DC340 @ 0.42W/m-K, Shinetsu G746 @ 0.92W/m-K, or Shinetsu G747 @ 1.09W/m-K). The grease should be applied in a relatively uniform thickness of 50µm to 100µm for DC340 or 50µm to 200µm for Shinetsu G746 and G747.

The grease thickness can estimate like the following formula from weight.

$$\text{Weight} = \text{Thickness} \times \text{Specific gravity of grease} \times \text{Base plate area}$$

The grease is placed on the base plate and the grease should be applied to become uniform by using such as roller.

### 4. Installation of mounting bolts

The module mounting bolts are to be installed and tightened in a progressive pattern that ensures that the minimum contact thermal resistance is achieved (i.e., the base plate does not become tipped or cocked) and no adverse bending stress is applied to the base plate that might damage the silicon chips or internal isolation. The mounting bolts are to be installed with a torque wrench using the following procedure:

- a) Place the module on the heatsink and install all mounting bolts so that the bolt head just touches the mounting hole surface.
- b) Tighten each bolt to 60% of rated torque in the tightening pattern shown in Figure 1 and Figure 2.
- c) Complete installation by tightening each bolt to 100% of rated torque in the tightening pattern shown in Figure 1 and Figure 2.

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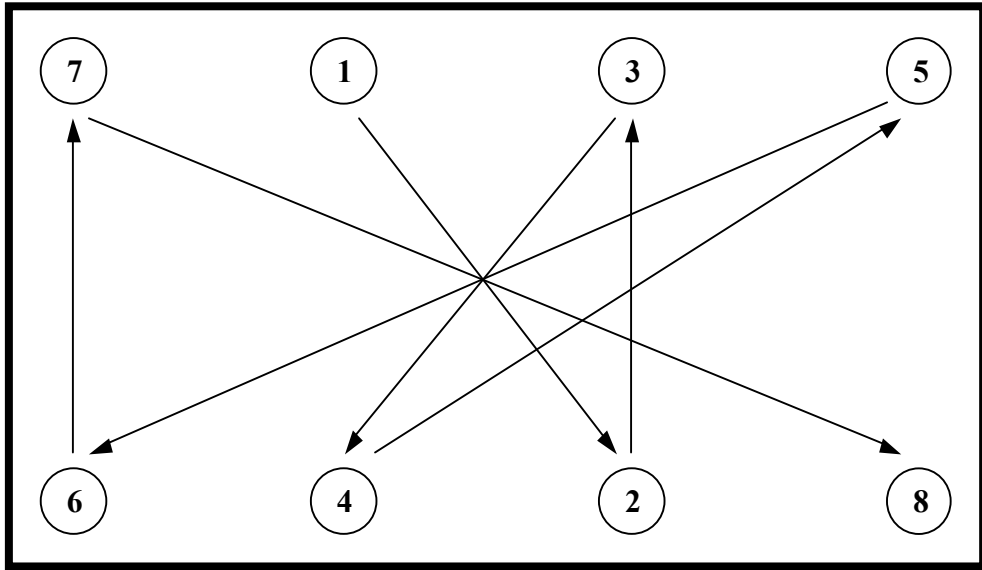


Figure 1 Tightening order of mounting screws for HVIGBT (8 points tightening module)

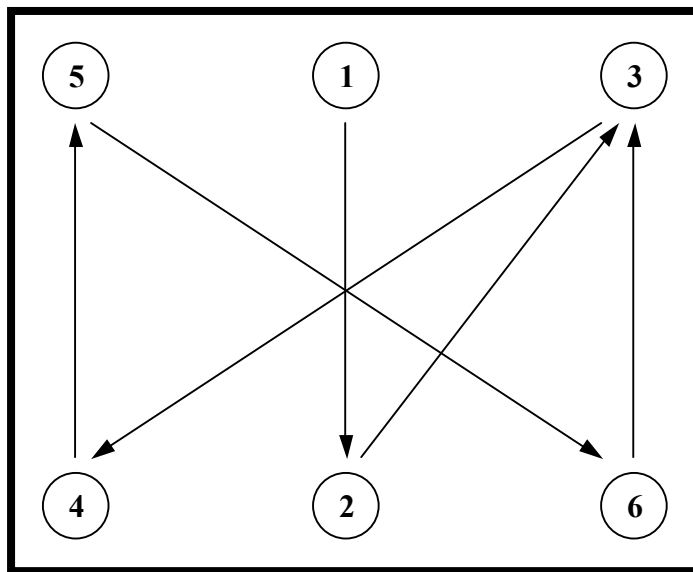


Figure 2 Tightening order of mounting screws for HVIGBT (6 points tightening module)