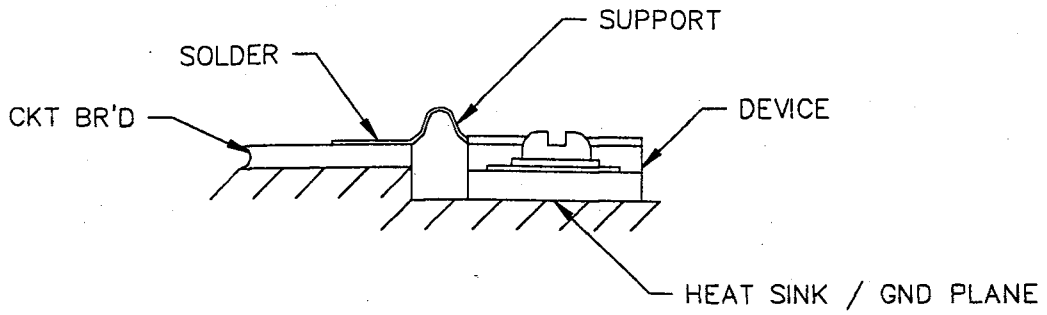
MOUNTING HIGH POWER DEVICES

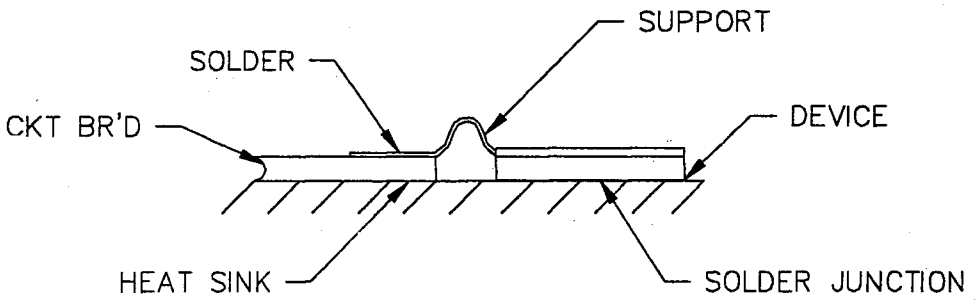
The area under the device should be flat to less than .001" and be free of burrs and scratches. The main criteria when mounting flange power devices is to make intimate contact with the heat sink. Air gaps at this interface will cause a very high thermal resistance barrier and must be avoided. Prior to drilling and tapping threads for the mounting screws, countersink the locations. This operation will prevent raising the threads above the mounting surface while tapping. The heat sink can now be given a coat of thermal grease, keeping the thickness to about .001 to .002 inches. The thermal grease will fill any small air gaps helping maintain good thermal contact. Before mounting the device, a small strain relief should be formed within the tab. While forming a small half loop, the tab should be supported to prevent excessive force toward the cover substrate. Pretinning the tab prior to installation and wicking off the excess will remove most of the gold plating. This is highly recommended as it will prevent gold embrittlement in the final solder connection. Seat the device into the thermal grease, install screws with a lock and flat washer, and torque as specified in the following table:

Thread No.	Mounting Torque
4-40	6 inch-lbs
6-32	8 inch-lbs
8-32	12 inch-lbs
10-24	18 inch-lbs

Position the tab over the circuit and solder in place. SN63 is recommended for all solder operations.



When mounting an unflanged device, pretinning the device ground plane and the heat sink are necessary. In this operation, the device and the heat sink will become an integral part. SN62 solder is used here because it reduces the amount of leaching between the silver in the ground plane and the solder. The tab contacts are treated the same way as a flanged device. Reflow the solder and position the device on the heat sink. Apply a downward force overcoming the surface tension of the solder, and settle the device down to the heat sink surface. The goal is to eliminate air voids and make the solder junction thin. While maintaining the downward force, allow the solder to cool.



It is recommended that a small amount of RMA flux (per MIL-F-14256) be used in any of the soldering operations. Remove flux when complete with isopropyl alcohol.