

### Introduction

The device to heat sink interface establishes the heat transfer path along with RF ground. Special care must be taken during the mounting of RF high power devices to ensure maximum performance and reliability. This application note describes the heat sink surface preparation, the maximum torque required for tightening the screws and the proper procedure in connecting the leads.

### Mounting Surface Considerations

The heat sink surface should be flat and free of foreign debris before mounting the package. It must not contain chips, burrs or excessive oxidation. **The mounting surface of the heat sink should be no more than 0.4 mils/inch (0.4um/mm). A surface finish of R32 or 0.03 mils (0.8um), or better, is required.** These values can be met by a milling operation.

### Thermal Interface Material

If oxidation of the heat sink surface has occurred, it should be removed either chemically or mechanically before applying the thermal compound. Both device and heat sink mounting surfaces should be clean before applying the thermal compound. Apply a thin layer of thermal compound to the back of the flange. Spread evenly.

*Note: Too much compound is worse than using none.*

**Recommended thermal compounds:**  
**T-grease 880 from Laird Technologies**  
**T-grease 2500 from Laird Technologies**  
 Or other similar compounds

### Mounting Procedure

The holes for the mounting screws must be free of burrs. **Using #4-40 screws and split washers, tighten the mounting screws in three steps:**

Note: A split washer should be used to provide the necessary thermal expansion and compression of the bolted joint.

1. **Tighten both screws on the individual device to what is commonly called 'finger tightening'.**
2. **With the torque wrench, partially tighten each screw.**
3. **After both screws are partially tightened, tighten each screw to a full rated torque of 5.0 in-lb (5.8 kg-cm).**

### Connecting the Leads

**In soldering the leads to the PCB, use an ESD-safe soldering station with  $\pm 10^{\circ}\text{C}$  temperature control. The solder tip temperature should not exceed  $20^{\circ}\text{C}$  above the melting point of the solder and should not be applied to the device leads for more than 20 seconds at the rated temperature.**

**Recommended solders:**  
**63/37 Sn/Pb**  
**95/5 Sn/Ag**

**The device leads should be flat or deflected downwards as shown in Figure 1. The maximum lead tip deflection should be 0.010" (0.25 mm).**

Note: The direction of the lead deflection is important in controlling the stresses on the component and the solder joint. The leads should not be bent upward.

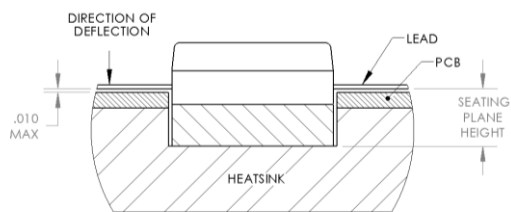


FIGURE 1: COMPONENT SEATING PLANE HEIGHT AND LEAD DEFLECTION.



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