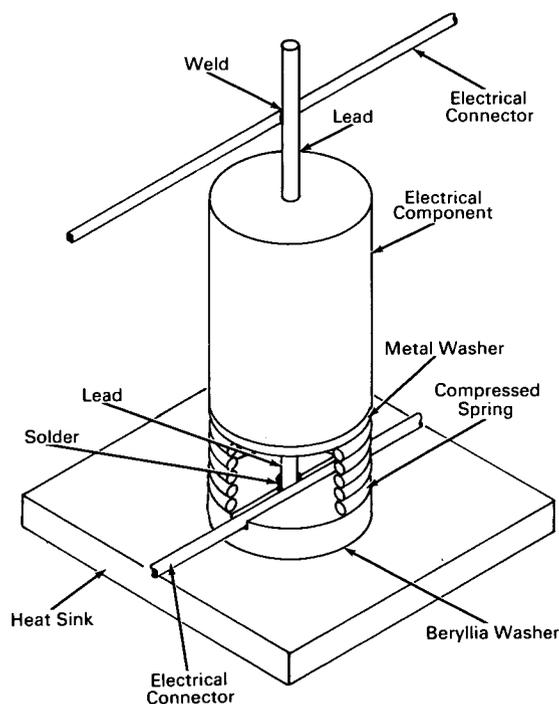


NASA TECH BRIEF



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Mounting Improves Heat-Sink Contact with Beryllia Washer



The problem:

Conducting heat away from electrical components that must be electrically insulated from a metal heat sink. Beryllia (beryllium oxide) washers, which have been used as heat-sink spacers because they combine high thermal conductivity with high electrical resistivity, must be properly mounted to ensure an effective thermal path between the electrical component and the heat sink.

The solution:

Place a metal washer and a coil spring between one end of the electrical component and the beryllia washer mounted on the heat sink.

How it's done:

The beryllia washer containing a metallized cavity (for soldering to the lower component lead) is seated on the heat sink. The lower lead of the electrical component is passed through a snug-fitting hole in a metal washer, and the exposed face of the washer is then placed on a coil spring which has been positioned on the beryllia washer. In mounting the electrical component on the spring sufficient pressure is applied to bring the spring coils into contact when the upper lead is soldered or welded to an electrical connector. The assembly is completed by soldering the lower lead to the cavity in the beryllia washer and to a second elec-

(continued overleaf)

trical connector. Heat transfer to the heat sink is effected through the paths formed by the lower component lead, the base of the component, the metal washer, the compressed spring, and the beryllia washer.

Notes:

1. This method of employing a beryllia washer for heat sinking would be particularly applicable to encapsulated components (e.g., resistors and capacitors) with electrical leads protruding from two ends.
2. The use of indium foil in conjunction with beryllia washers for heat sinking of power transistors is described in NASA Tech Brief B63-10033, April, 1964.

3. Inquiries concerning this innovation may be directed to:

Technology Utilization Officer
Manned Spacecraft Center
Houston, Texas, 77001
Reference: B66-10144

Patent status:

No patent action is contemplated by NASA.

Source: Collins Radio Company
under contract to
Manned Spacecraft Center
(MSC-194)