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Current Carrying Capability of PariPoser® Material (1.0 and 1.27 mm pitch)

Introduction

The Current Carrying Capability (CCC) of an electrical contact is dependent on the contact's electrical and thermal resistance. Most contacts are single point contacts which highly limit the current carrying capability. Paricon's PariPoser contact material is a distributed contact structure with many parallel contacts. The material is also very thin (under 0.015"). As a result, the electrical and thermal resistance per unit area is very low. This makes it possible for the PariPoser contact to carry a higher current density than conventional, separable, contacts. The following describes the experimental procedure used to demonstrate that a 1.0 and 1.27 mm pitch PariPoser contact, used per the Application Guidelines, can continuously carry more than 10 amps with a temperature rise of ~40C°.

As a general rule, the PariPoser contact is capable of carrying more current than the associated PWB via.

Test Procedure

The test apparatus consisted of an HP 6012B current source connected to a .080" diameter brass rod necked down to .024" diameter that contacted the 1.0 mm pitch PariPoser material which in turn contacted a gold plated copper block at electrical ground. The applied load was set to 50 grams. A Fluke 53 thermometer and fine wire thermocouple were used to measure the temperature of the contact. The voltage drop across the PariPoser material was measured with a HP3468A multimeter. The force applied to the brass rod was established with brass weights. The test was repeated with 1.27 mm pitch PariPoser and a .030" diameter contact pad and a load of 80 grams.

Results

For a 40C° temperature rise the 1.27mm pitch material conducted 12 amps and the 1.0 mm pitch material conducted 10 amps. No damage to either PariPoser contact was observed.



Figure 1 – Test Setup 10 amps 40 C° rise in temperature



Figure 2 - close up of the PariPoser material and pad.