

CLAIMS:

1. An integrated circuit device testing system comprising:
a socket configured to receive an integrated circuit device,
wherein the socket comprises:
a base member having a plurality of electrical contacts;
a circuit board supported by the base member via at least one spring, the circuit board having a plurality of openings configured to receive electrical contacts of the integrated circuit device and electrically engage with the electrical contacts of the base member through the openings of the circuit board; and
at least one conductive trace positioned on or within the circuit board and extending around the plurality of openings of the circuit board to detect temperature of the integrated circuit device when the integrated circuit device is engaged with the electrical contacts of the base member, the conductive trace being made of a material with a resistivity that is a function of temperature; and
a controller or active circuit configured to determine a temperature at the surface of the integrated circuit device based on a measured resistance of the at least one conductive trace while the integrated circuit device is engaged with the electrical contacts of the base member.
2. The integrated circuit device testing system of claim 1, wherein the circuit board comprises a flexible circuit board.
3. The integrated circuit device testing system of claim 1, wherein the at least one conductive trace is etched in the circuit board.
4. The integrated circuit device testing system of claim 1, wherein the conductive trace comprises copper.
5. The integrated circuit device testing system of claim 1, wherein the openings are arranged in columns corresponding to columns of electrical contacts of the integrated circuit device, and the at least one conductive trace is located between the columns of openings.
6. The integrated circuit device testing system of claim 1, wherein the circuit board is a multilayer structure that includes a metal core.

7. The integrated circuit device testing system of claim 1, wherein the circuit board is a multilayer structure comprising a ceramic material.
8. The integrated circuit device testing system of claim 1, wherein the circuit board comprises anodized aluminum or AlN.
9. The integrated circuit device testing system of claim 1, further comprising a load board configured to electrically connect the at least one conductive trace to the controller.
10. The integrated circuit device testing system of claim 1, wherein the active circuit is located in a load board that is electrically connected to the at least one conductive trace.
11. The system of claim 1, wherein the at least one conductive trace is electrically connected to the controller or active circuit via a four wire Kelvin connection.
12. The integrated circuit device testing system of claim 1, further comprising a thermal unit configured to heat and/or cool the integrated circuit device based on the detected temperature of the integrated circuit device.