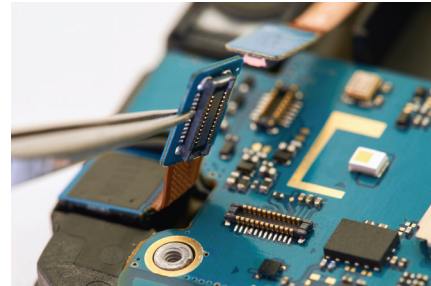


Testing for Connector Failure Due To Vibration or Shock

Mobile communications equipment needs reliable connectors that will not disconnect with shock or vibration.

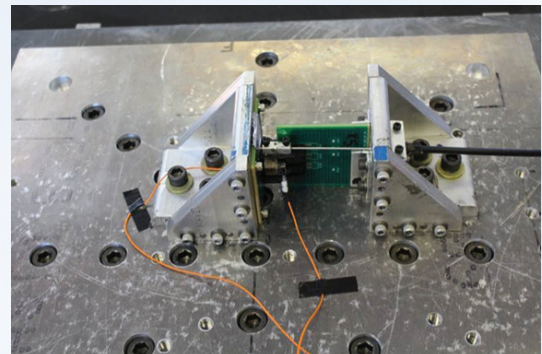


INTRODUCTION

A large multinational company approached MTI to provide a sensor capable of measuring displacement that also wouldn't load the target (connector). Shock and vibration testing would span 2-15G and the target connectors were very small.

APPLICATION

MTI's 2100 optical displacement sensor system is ideal for this kind of application because very small probes can be used and they measure displacement via reflected light. Of course, reflected light does not create any loading on the connector. Additionally, Fotronic probes have very high frequency responses typically above 100kHz. Bent tip probes can be fabricated to fit into tight spaces. Displacements as small as Angstrom can be measured.



Test set-up, probe face opposite connector

SOLUTION

A MTI 2062R probe was used with an active area of .050" diameter (1.25 mm). The probe was fastened to the electrodynamic shaker board with the tip facing the connector's plug. The connector body was fastened to the PCB and the sensor would observe if the connector's plug backed out of the connector under various shock and vibration conditions. An accelerometer was also attached to the PCB to monitor the vibration amplitudes for correlation. The vibration amplitudes of the accelerometer and Fotonic sensor accurately matched. Additionally, the Fotonic sensor is able to get down to much lower vibration frequencies than the accelerometer including static displacement.

Learn more by visiting www.MTIInstruments.com, email sales@MTIInstruments.com or schedule a free application review at www.Vitretek.com/demomti