



Thermal Shock Testing

Vipac's expertise in environmental testing allows us to simulate conditions that will provide detailed knowledge on how the product will operate and survive in its final environment.

Thermal Shock Testing is designed to thermally shock and stress the product as a result of rapid temperature change from extreme cold to hot environments. Product flaws are soon identified through accelerated aging of the material allowing you to align your products with the requirements of field use before they go into series production.



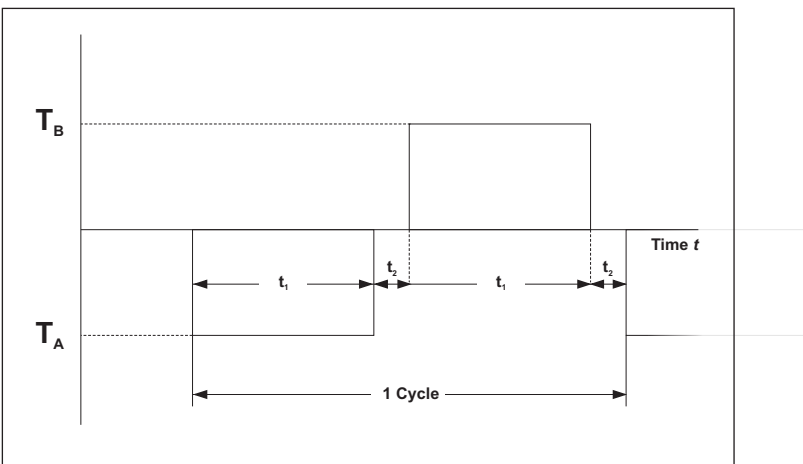
Thermal Shock Testing

Thermal Shock Facility

- Thermal Shock Chamber: -80°C to $+220^{\circ}\text{C}$ <30 sec transfer time
 Chamber Size: 625mm x 460mm x 410mm

The Science Behind It!

For general electrical components the acceleration mechanism for reliability is a function of the thermal coefficient of expansion of the materials used in the device under test (DUT). Along with the difference between the temperature extremes (ΔT) of the test environment, this coefficient determines the stresses introduced in the DUT and the reliability acceleration that is exhibited. Thermal shock conditions are produced by rapidly moving the DUT between two temperature extremes, and typically require that the transition time between the extremes is less than 5 minutes, thereby creating a shock condition. The time the DUT must remain at a temperature extreme before reaching equilibrium can vary from a few minutes to an hour, depending on the method of producing the temperature extremes, the capacity for heat transmission, and the mass of the DUT. Considering that the number of cycles for a complete test can range from hundreds to thousands of cycles, this equilibrium time is very significant.



Typical Thermal Shock Profile

