



IPC-TM-650 TEST METHODS MANUAL

Number 2.6.6	
Subject Temperature Cycling, Printed Wiring Board	
Date 12/87	Revision B
Originating Task Group N/A	

1.0 Scope This test is conducted for the purpose of determining the resistance of a material such as a laminate or multilayer circuit board, to the shock of repeated exposures to extremes of high and low temperatures for comparatively short periods of time.

2.0 Applicable documents None

3.0 Test specimen The test specimen for this test shall be a sheet of laminate material at least 6 inch x 6 inch by the thickness of the laminate. In the case of multilayer boards, the test specimen shall be the entire qualification specimen detailed in part 5.8.4 of this publication.

4.0 Apparatus A chamber automatic temperature cycling equipment suitable for the temperature extremes specified herein. The air temperature shall be maintained by forced air circulation. The chamber shall have sufficient heating or cooling capacity to maintain the specified air temperature.

5.0 Procedure

5.1 Conditions During the exposures, maintain the chamber at the temperatures shown below:

Step	Class A		Class B	
	Temp. (°C)	Time (Min.)	Temp. (°C)	Time (Min.)
1	125+3/-0	30	85+3/-0	30
2	25+10/-5	10-15	25+10/-5	10-15
3	-65+0/-5	30	-55+0/-5	30
4	25+10/-5	10-15	25+10/-5	10-15

5.2 Preparation The test specimen must be cleaned of dirt, grease, and other contaminants prior to the thermal exposure. The test specimen should be cleaned by wiping with a dry, clean lint-free cloth, or wiped with a clean lint-free cloth dampened with acetone or isopropyl alcohol. The specimen must be allowed to air dry prior to thermal exposure.

5.3 Test exposure The test specimen must be placed in the thermal chamber maintained at the temperature specified in Step 1 for the appropriate test condition. The test specimen must be maintained at each temperature in the order specified. Throughout the test, the specimen must be placed in such a position so that there is essentially no obstruction to the flow of air around them. The specimen should be subjected to the specified temperatures in the sequence specified for a total of five cycles performed continuously.

5.4 Upon copulation of the five temperature cycles, allow the specimen to return to room temperature. Visually inspect the specimen in accordance with detailed requirements.