Nov. 13, 2025

HT10000-R Reliability Report

Solstice

Environmental Aging Test

Test Items

Aging conditions

- **Thermal Baking:**
  - Samples together with the fixtures are maintained at 150℃ thermal baking chamber
  - 1000hrs in total
  - 3 batches with 3 samples per batch were tested
- **High temperature & high humidity：**
  - Samples together with the fixtures are maintained at 85℃ temperature and 85% high humidity environment
  - 1000hrs in total
  - 3 batches with 3 samples per batch were tested
- **Thermal Shock：**
  - Samples together with the fixtures are transitioned between -40℃ and 150 ℃ with 1hr for one cycle, the transfer time is less than 10 seconds
  - 1000 cycles in total
  - 3 batches with 3 samples per batch were tested

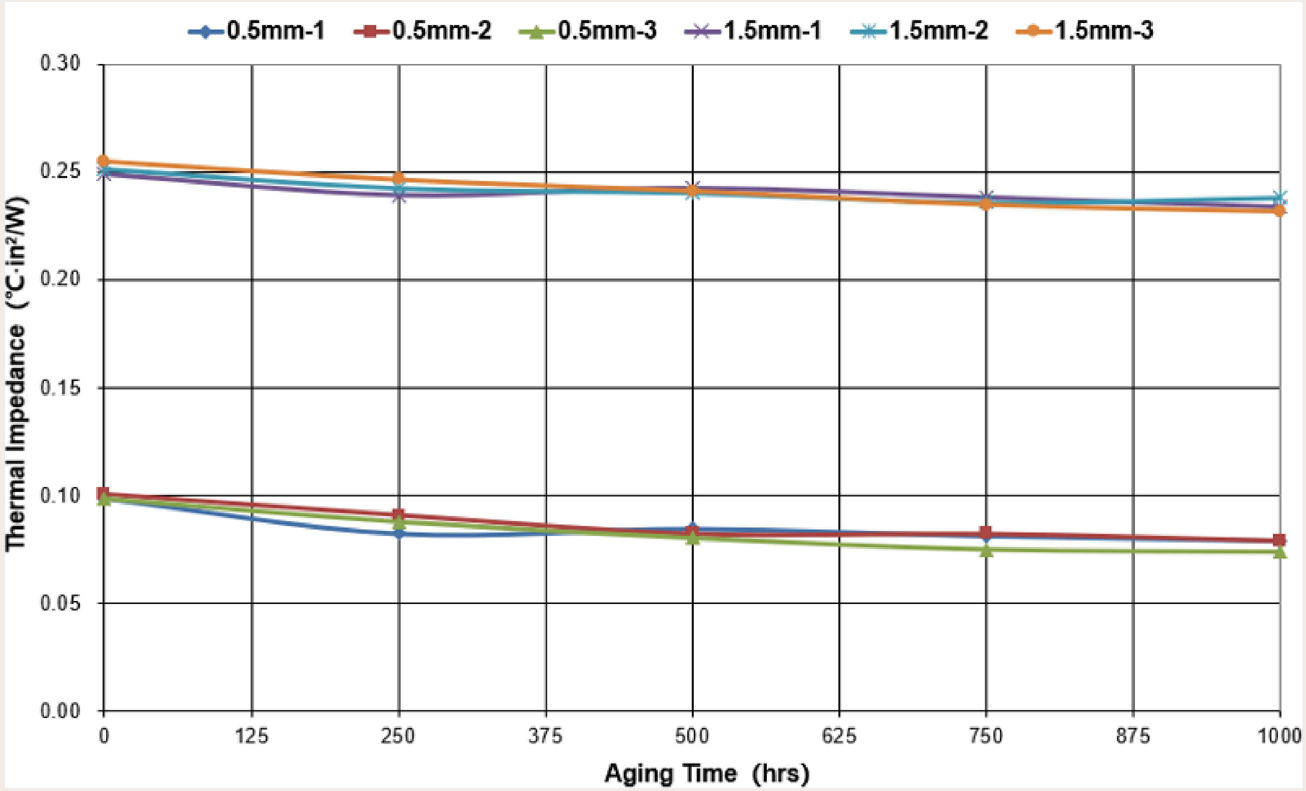
Test Method

Dimension of the thermal reliability test fixture is about 125mm long and 50mm wide. It consists of an aluminum heating plate with oxidized surface, and a heat sink cool plate. The heating plate has 3 holes for inserting heating rods. Three groups of thermocouple holes are set at the surface layer position directly above the heating rod of the heating plate and the surface layer position corresponding to the cool plate to measure the surface temperature of the fixture.

0.5mm and 1.5mm thickness HiGel9000LV(M) material samples are made for reliability test, samples were set between aluminum heater plate and heatsink, shims are used to control thickness, and the test fixture was assembled with bolts. Heating rods are controlled by a separate power supply to achieve a constant surface temperature of the heating plate at 70 ℃. Three samples were made for each condition reliability test.

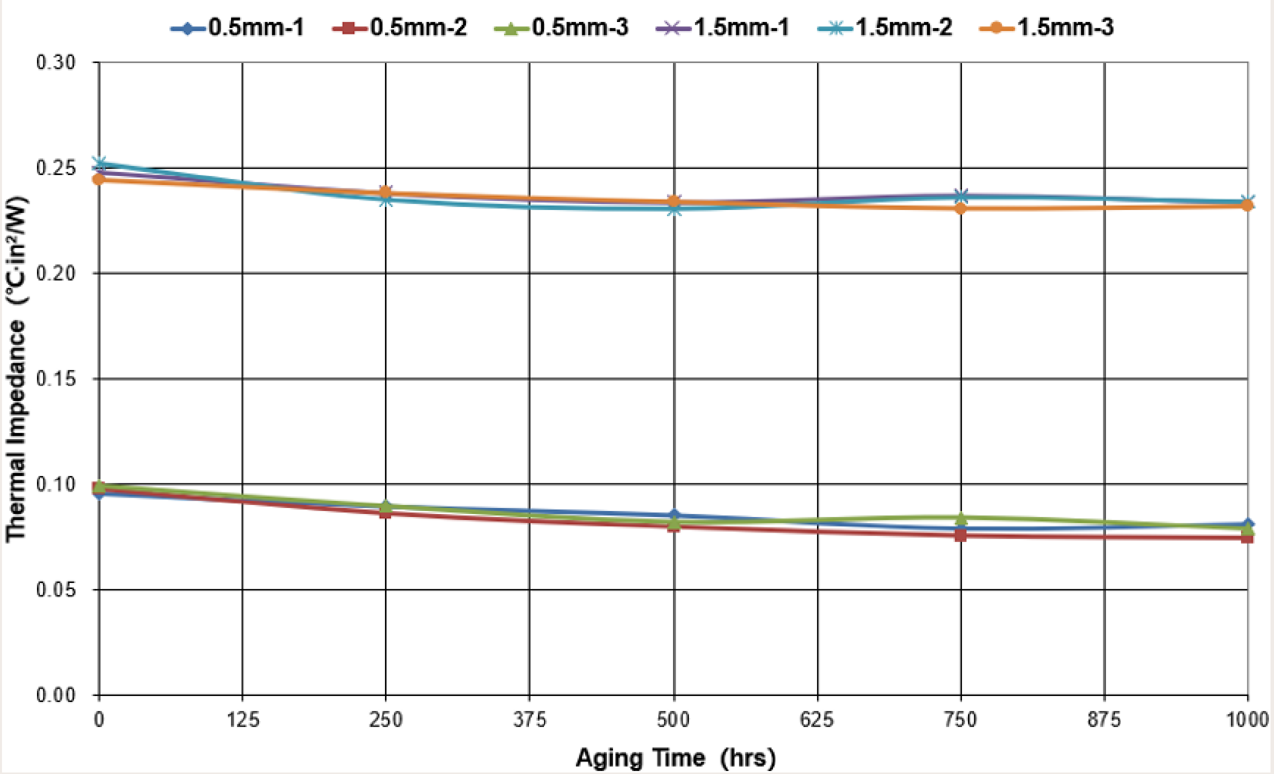
According to ASTM D5470, thermal impedance of the sample is TI=A*ΔT/Q. Among them, A: Sample area, Sample size of this test is 125/25.4*50/25.4= 9.69 in2, Q: Heat flow rate, heat flow rate for this test is provided by the power supply, power supply for this test is 90.7W. According to above formula and the temperature difference data, sample thermal impedance before and after aging test was calculated.

Test result_ TI tracking at 150°C baking



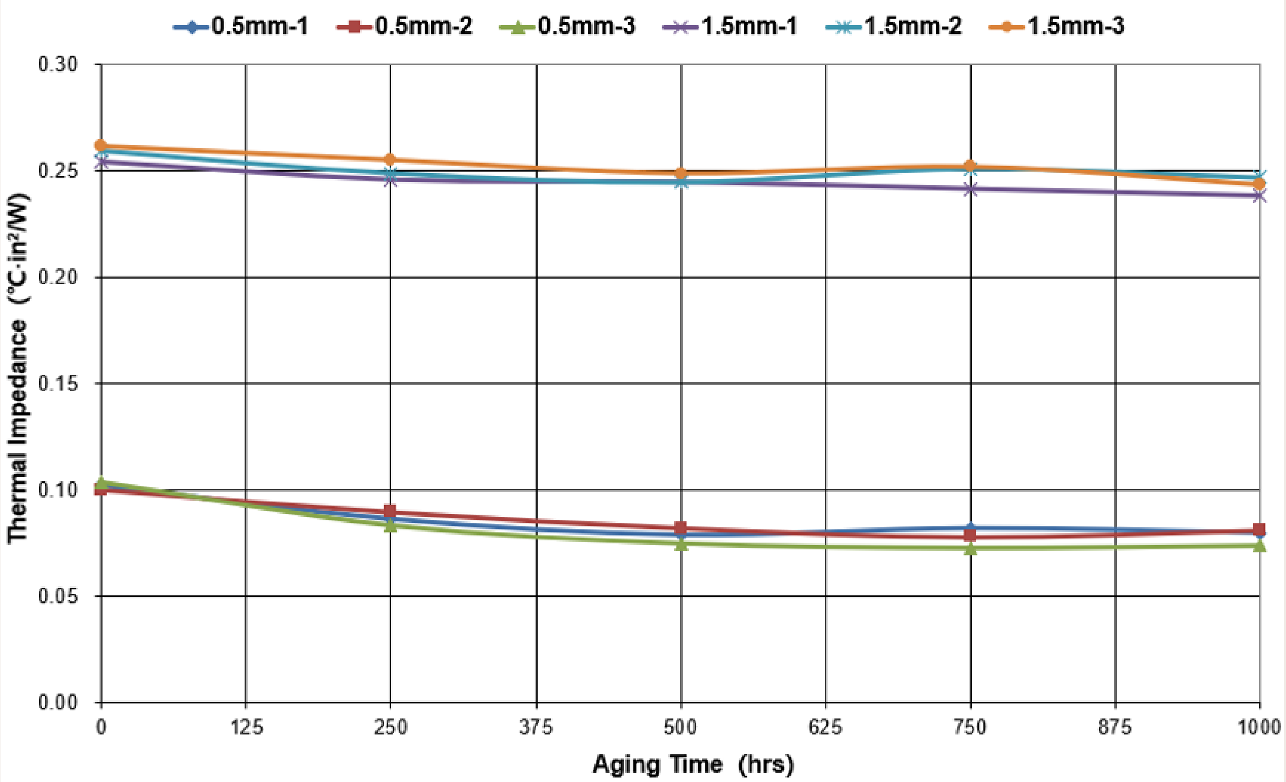
	Thickness					
	0.5mm -1	0.5mm -2	0.5mm -3	1.5mm -1	1.5mm -2	1.5mm -3
0hr/TI	0.10	0.10	0.10	0.25	0.25	0.26
250hrs/TI	0.08	0.09	0.09	0.24	0.24	0.25
500hrs/TI	0.08	0.08	0.08	0.24	0.24	0.24
750hrs/TI	0.08	0.08	0.07	0.24	0.24	0.24
1000hrs/TI	0.08	0.08	0.07	0.23	0.24	0.23

Test result_ TI tracking @85ºC, 85%RH



	Thickness					
	0.5mm -1	0.5mm -2	0.5mm -3	1.5mm -1	1.5mm -2	1.5mm -3
0hr/TI	0.10	0.10	0.10	0.25	0.25	0.24
250hrs/TI	0.09	0.09	0.09	0.24	0.24	0.24
500hrs/TI	0.09	0.08	0.08	0.23	0.23	0.23
750hrs/TI	0.08	0.08	0.08	0.24	0.24	0.23
1000hrs/TI	0.08	0.07	0.08	0.23	0.23	0.23

Test result_ TI tracking at thermal shock (-40~150°C)



	Thickness					
	0.5mm -1	0.5mm -2	0.5mm -3	1.5mm -1	1.5mm -2	1.5mm -3
0hr/TI	0.10	0.10	0.10	0.25	0.26	0.26
250hrs/TI	0.09	0.09	0.08	0.25	0.25	0.26
500hrs/TI	0.08	0.08	0.07	0.24	0.24	0.25
750hrs/TI	0.08	0.08	0.07	0.24	0.25	0.25
1000hrs/TI	0.08	0.08	0.07	0.24	0.25	0.24