TG-A1780 Reliability Testing

1. RA test

Procedure

Tested for thermal resistance using a ASTM D5470 at different condition (room temperature, aging 125 ℃, HAST and thermal shock).

1.1 Room temperature @ 25°C

1.2 Thermal Aging @ 125°C (200 hrs, 400 hrs, 700 hrs, 1000 hrs)

1.3 Thermal HAST @ 85°C/85%RH (200 hrs, 400 hrs, 700 hrs, 1000 hrs)

1.4 Thermal Cycling @ -40°C to 120°C for 500 cycles (100 cycles, 200 cycles, 300 cycles, 400 cycles, 500 cycles)

During testing and aging, the samples were maintained between two round aluminum disks of one square inch in surface area.

During Aging, clamps were used to hold a constant pressure on the sample.

Results

Code/(Unit : ℃-in²/W)	0 hr	200 hrs	400 hrs	700 hrs	1000 hrs
Room temperature	0.089	-	-	-	-
Thermal Aging	0.089	0.090	0.093	0.095	0.095
Thermal HAST	0.089	0.087	0.086	0.086	0.084

Code/(Unit :℃-in²/W)	100 cycles	200 cycles	300 cycles	400 cycles	500 cycles
Thermal Cycling	0.092	0.094	0.091	0.092	0.095

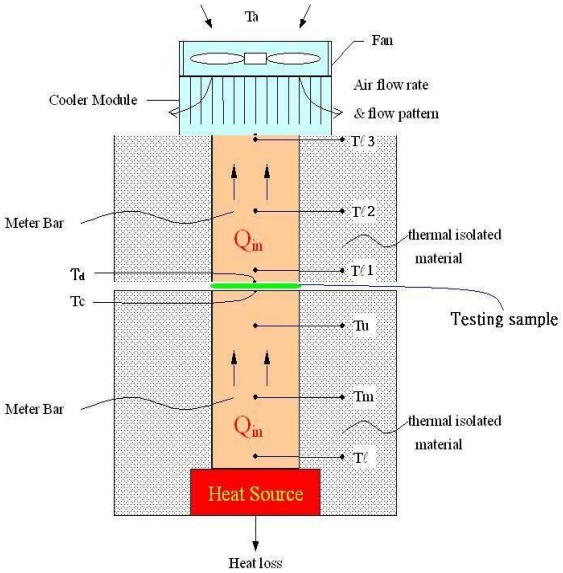
Test method: ASTM D5470

Heat power: 30W

Pressure: 30 psi

Specimen thickness: 1.0mm

Specimen Area: 1 inch²



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TG-A1780 Reliability Testing

2. Breakdown Voltage Test

Procedure

Tested for Breakdown Voltage Test using a ASTM D149 at different condition (room temperature, aging 125℃, HAST and thermal shock).

3.1 Room temperature @ 25°C

3.2 Thermal Aging @ 125°C (200 hrs, 400 hrs, 700 hrs, 1000 hrs)

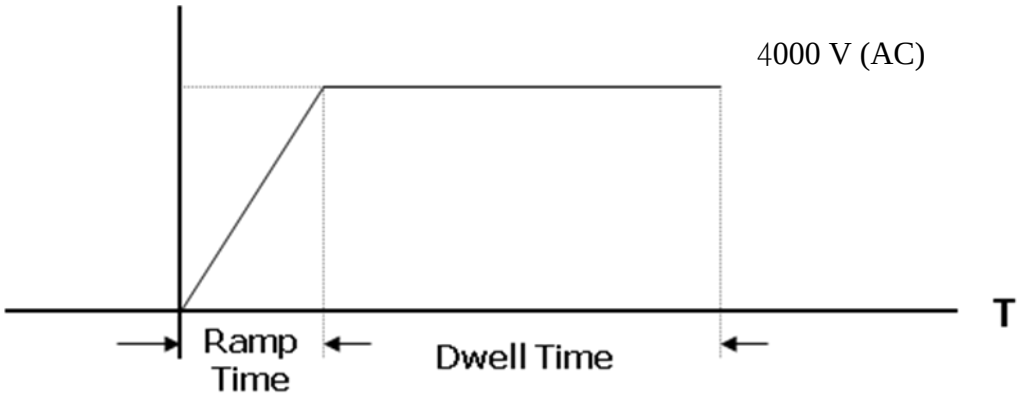
3.3 Thermal HAST @ 85°C/85%RH (200 hrs, 400 hrs, 700 hrs, 1000 hrs)

3.4 Thermal Cycling @ -40°C to 120°C for 500 cycles (100 cycles, 200 cycles, 300 cycles, 400 cycles, 500 cycles)

Results

High pot (AC @ kV)	0 hr	200 hrs	400 hrs	700 hrs	1000 hrs	2000 hrs
Room temperature	>4	-	-	-	-	-
Thermal Aging	>4	>4	>4	>4	>4	>4
Thermal HAST	>4	>4	>4	>4	>4	>4

High pot (AC @ kV)	100 cycles	200 cycles	300 cycles	400 cycles	500 cycles
Thermal Cycling	>4	>4	>4	>4	>4



Ramp time: 20 sec

Dwell time: 60 sec

Max Voltage: 4000 V (AC)

Note:

The data is for design engineer guidance only. Observed performance varies in application. Engineers are reminded to test the material in applications.

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