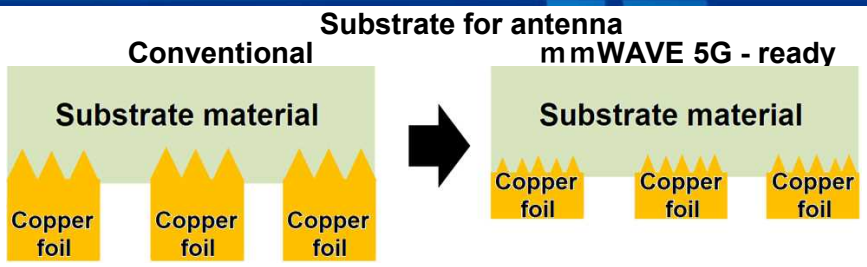
Quality is more than a word

ESPEC

Products designed for improving efficiency of conduction reliability evaluation of substrate wiring materials

With the future rise of mmWave 5G, low-loss materials will foresee a rapid growth and play an increasingly important role. ESPEC is here to support our customers to find an ideal material by providing products that improves efficiency in reliability evaluations.

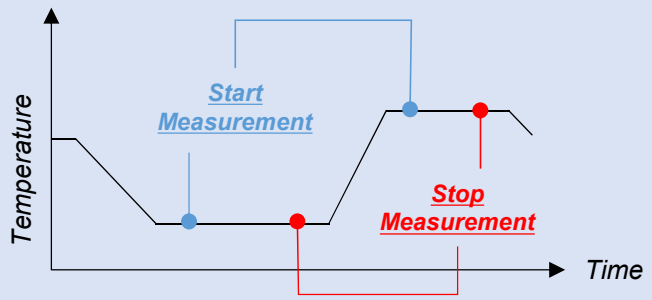


Evaluation Example	Method
Conductivity failure caused by thermal distortion due to conductor heat dissipation	Constant current application under high temperature
Disconnection caused by the difference in the coefficient of thermal expansion	Thermal cycle

Features

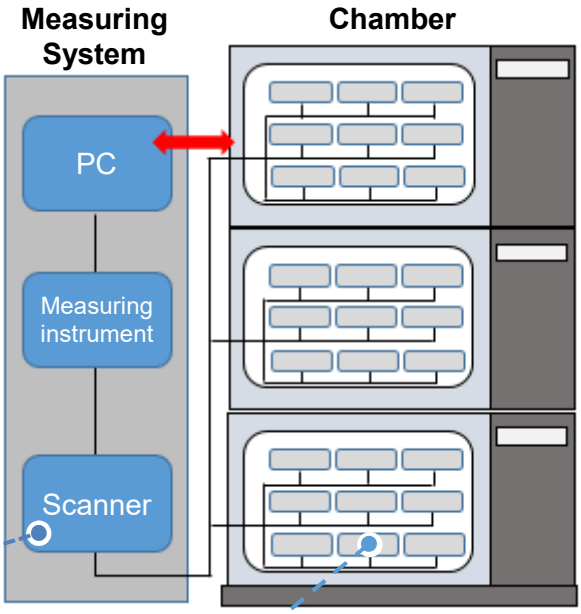
Automation *Measurements at set conditions*

Measurement in synch with a test chamber



Automation *Measuring multiple samples*

Unique scanner method allows you to measure multiple samples automatically.



Efficiency *Original jig design per samples*

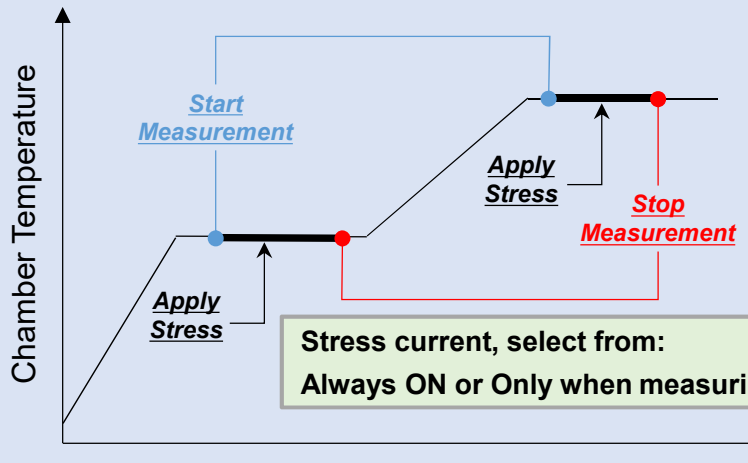
Example: PCB magazine rack to allow you to set samples in open space

AEM – Electromigration Evaluation System

AEM accelerates thermal distortion due to its own heat build-up by applying constant current under high temperature.

Model	AEM
No. of Channels	Max 240Ch
Stress Current	+DC0.1mA to 200mA
Extrusion Voltage	-10.0 V to -1.0 V and 1.0 V to 20.0 V
System Compatibility	AEM dedicated oven Temperature range: +65 to +350C

Automation *Resistance measurements in sync with a chamber*



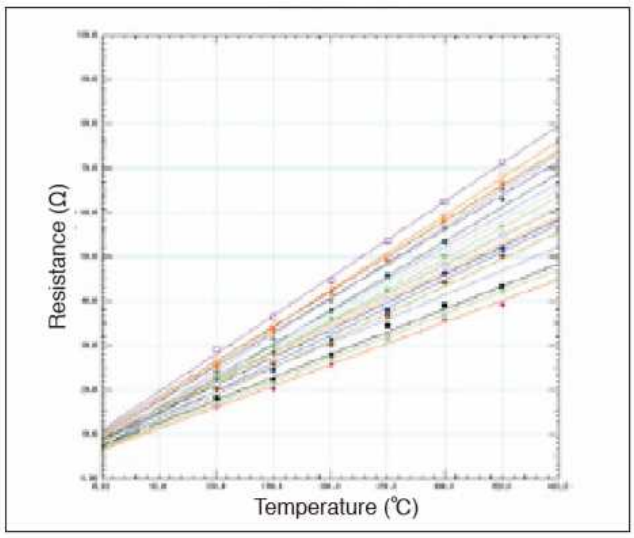
Stress current, select from:
Always ON or Only when measuring

Select the timing to apply stress

- Measure the resistance when current applied.
- Apply micro-current and measure the resistance
- Apply bias-voltage to measure leak current..

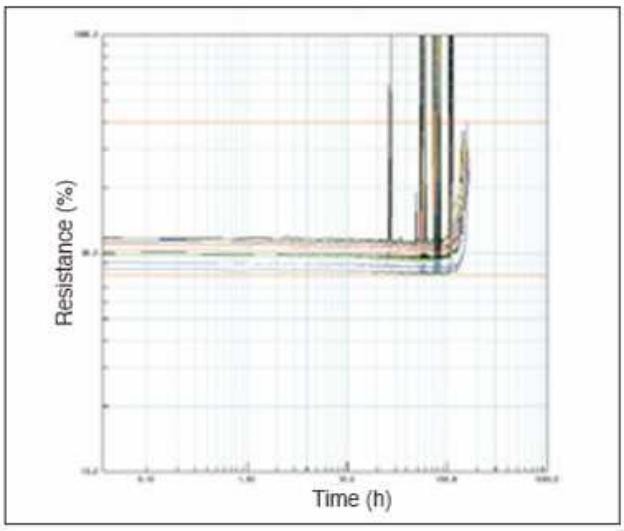
Automation *Resistance measurements in sync with a chamber*

Temperature Characteristic Test



Display measured resistance per channel (sample)

Constant Stress Current Test



Display measured resistance per sample in relative change rate and absolute values

AMR – Conduction Reliability Evaluation System

AMR detects the joints‘ microcracks of substrates derived from substrates' thermal expansion and contraction.

Model	AMR-U
No. of Channels	Max. 280Ch per rack
Stress Current	DC-current measurement
Resistance Measurement Range	1 x 10^{-3} to 1 x $10^{6}\Omega$
System Compatibility	Thermal Shock TSA Thermal Shock TSD Fast-rate Temperature Chamber TCC

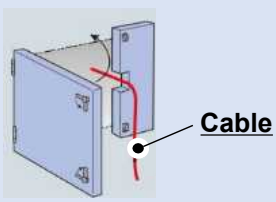
Automation *Continuous resistance measurements and pass/fail decision*

Microcracks at the joints occur at high temperatures in temperature cycle tests, but there are cases where cracks are not noticed as they reconnect at room temperature. By continuously monitoring the resistance during the test, the system can automatically judge the pass/fail of the samples by either an absolute value or change rate.

Type		Thermal Shock		Rapid-Rate Temp. Chamber
Model		TSA	TSD-101-W	TCC-151-W
Appearance				
Capacity		40 to 300L	100L	160L
Temp. Range	**Hot**	EL: (amb.+50C) to +200C ES/EH: +70 to 200C	+60 to +205C	-70C to +180C
	Cold	EL: -65 to 0C ES/EH: -70 to 0C	-77 to 0C	

Efficiency *Door notch (TSA Series) option for easy wiring*

This design allows you to work on test specimens to connect cables and wires in open space, making the test preparation a single man job. Also, it prevents unwanted disconnection and mishaps.



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