Apacer Technology Inc. **Qual Report**

ET140-eMMC
Reliability & Environment Test Report

Test Start : 2025,8,4
Test End : 2025,9,3

Tested by:

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Approved by:

Danny TC Chen

Ver 1.0

Sep. 3, 2025

Apacer Technology Inc.

Qual Report

1.Temperature Cycling Test (TCT) (Pass)

Purpose:

This standard provides a method for determining solid state devices capability to withstand extreme temperature cycling. Changes in this revision include requirements that the worst case load temperature must reach the specific extremes rather than just requiring that the chamber ambient temperature reach the exremes. This ensures that the test specimens will reach the specified temperature extremes regardless of chamber loading. Definitions are provided for Load, Monitoring Sensor, Worst-Case Load Temperature, and Working Zone. Five new test conditions have been added as well as a caution on test conditions which exceed the glass transition temperature of plastic package solid devices.

Test Condition(s) :

Pre-condition

-65°C~150°C, Transition time(Max): 10minutes, Dwell time(Min): 5minutes

Test Duration: 200, 500 cycles

Each device test and all pass by VI and FT

Sample size: 3 Lots(77ea/ Lot), total: 231ea

Test Reference: JEDS22-A104

Test Result :

Product	Result	Remark
eMMC PS8232	0 Fail / 231	N/A

Criteria : Acc/Rej = 0/1

2.High Temperature Storage Life Test (HTSL) (Pass)

Purpose:

The high temperature storage test is typically used to determine the effects of time and temperature, under storage conditions, for thermally activated failure mechanisms and time to failure distributions of solid state electronic devices, including non-volatile memory devices (data retention failure mechanisms). Thermally activated failure mechanisms are modeled using the Arrhenius Equation for acceleration. During the test, accelerated stress temperatures are used without electrical conditions applied. This test may be destructive, depending on time, temperature and packaging (if any).

Test Condition(s) :

High ambient temperature = 150°C

Test Duration: 1000 hours

Sample size: 1 Lot(45ea/ Lot), total: 45ea

Test Reference: JESD22-A103

Test Result :

Product	Result	Remark
eMMC PS8232	0 Fail / 45	N/A

Criteria : Acc/Rej = 0/1

3. High Temperature Operating Life Test (HTOL) (Pass)

Purpose:

The HTOL test is to evaluate the endurance of devices when they are submitted to electrical stress and thermal stress over an extended time period.

Test Condition(s) :

Ambient temperature = 125℃
Stress Bias: 3.63V, 1.98V, 1.32V, 3.63V, 3.63V
Test duration =1000 hrs
Test Reference: JESD22-A108
Sample size: 3 Lot (77ea/Lot), total: 231ea

Test Result :

Test duration	Result	Failure Rate	**MTTF**	Remark
1000 hrs	0 Fail / 231	0 Fail / 231	0 Fail / 231	0 Fail / 231

Criteria : Acc/Rej = 0/1 activation energy = 0.676eV

4. High Temperature Operating Life Test (HTOL) (Pass)

Purpose:

The HTOL test is to evaluate the endurance of devices when they are submitted to electrical stress and thermal stress over an extended time period.

Test Condition(s) :

Case temperature = 125℃
Test duration =1000hrs
Sample size: 544ea
Test Reference: Vendor qualification spec

Test Result :

Test duration	Result	Remark
1000 hrs	0 Fail / 544	-