

i3A Series

RELIABILITY DATA

信頼性データ

* 試験結果は、代表データではありますが、全ての製品はほぼ同等な特性を示します。

従いまして、以下の結果は参考値とお考え願います。

Test results are typical data. Nevertheless the following results are considered to be reference data because all units have nearly the same characteristics.

TDK-Lambda

Qualification Report Summary for: i3A008A033V-001-R

Sample universe: Units manufactured at TDK-Lambda Malaysia in week 14 - 2017, Lot number:753ML0

	Samples	Failures	Notes
Visual Inspection			
Inspect for quality and workmanship	140		
Dimension check			
Inspect physical dimensions against mechanical requirements	140		
Initial characterization			
Measurements of all applicable tests of manufacturing test requirements.	140		
HALT Low Temperature Limits Test - IPC9592A D.1.1.1			
Decrease temperature until UUT is out of regulation	3		
HALT High Temperature Limits Test - IPC9592A D.1.1.2			
Increase temperature until UUT is out of regulation	3		
HALT Input Voltage Test - IPC9592A D.1.1.5			
Increase input voltage until UUT is out of regulation. This test is performed at both low temperature -50°C (found in D.1.1.1) and high temperature 90°C (found in D.1.1.2)	3		
HALT Output Load Test - IPC9592A D.1.1.6			
Increase output load until UUT is out of regulation at high temperature 90 °C (found in D.1.1.2)	3		
HALT Combined Stress Test (CST) - IPC9592A D.1.1.7			
Three samples were subjected to 6 cycles of thermal cycling combined with vibration (5, 10, 15, 25, 35, & 45 Grms), while power cycling at loaded output conditions. The thermal cycles were from +95°C to -40°C (air temperature) with an 18-minute dwell at each extreme (ramp rate: 30°C – 45°C per minute).	3		Note1
Temperature Humidity Bias (THB) - IPC9592A 5.2.4.1			
Samples are exposed to 85% relative humidity at a temperature of 85°C. Input voltage is at high line (53V) and minimum output load. Output voltage is measured every minute.			
1000 hours	30		
Life Test - High Temperature Operating Bias (HTOB) - IPC9592A 5.2.5			
Samples are preconditioned for 168 hours at 85°C/85%RH and two reflows. UUTs are loaded at 95% of full load. Ambient temperature is set to stabilize the "hot spot" Tref point at approximately 95°C±5°C			
1000 hours	30		
Temperature Cycling Test (TCT) - IPC9592A 5.2.6³			
Samples exposed in an air-to-air thermal shock chamber between temperatures of -40 to 125°C at a ramp rate of approximately 60°C per minute. Dwell time at each extreme is 15 minutes.			
After approximately every 100 cycles, all parts are visually check and tested with the full complement of tests including, but not limited to efficiency, Ripple, Line regulation, and Load regulation.			
700 thermal cycles	30		
Power and Temperature Cycle (PTC) - IPC9592A 5.2.7			
Samples exposed to a combined power thermal cycling at 8 amps output load. The reference temperature range is approximately 99°C to 99°C. The dwell time at each temperature is approximately 18 minutes. The thermal			
ramp rate is approximately 15°C to 25°C per minute. Each line cycle is low line (9V), nominal line (24V), high line (53V) 60 seconds each and line off 60 seconds.			
100 thermal cycles	3		
Notes			CAR
(1) Two of the three test units completed CST with no failures. During the 6th Cycle (+95°C to -40°C at 45Grms), Sample 1 failed. Sample 1 did not recover at lab ambient conditions. Sample 2 and 3 passed with no anomalies or issues. Post test visual inspection revealed no visible damage to modules.			
Passed: Curt Lankford - Representative of Qualification and Test - 7/21/2017			