

# TDK-Lambda

Qualification Report Summary for: FQB020ADC-007-M

Sample universe: Units manufactured at TDK-Lambda - Malaysia in Week 19 - 2018, Lot number: 1819M

	Samples	Failures	Notes
<b>Visual Inspection</b>			
Inspect for quality and workmanship	45	0	
<b>Dimension check</b>			
Inspect physical dimensions against mechanical requirements	115	0	
<b>Initial characterization</b>			
Measurements of all applicable tests of manufacturing test requirements.	45	0	
<b>HALT Low Temperature Limits Test - IPC9592B D.1.1.1</b>			
Decrease temperature until UUT is out of regulation	3	0	
<b>HALT High Temperature Limits Test - IPC9592B D.1.1.2</b>			
Increase temperature until UUT is out of regulation	3	0	
<b>HALT Input Voltage Test - IPC9592B D.1.1.5</b>			
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	0	
<b>HALT Output Load Test - IPC9592B D.1.1.6</b>			
Increase output load until UUT is out of regulation at high temperature 90 °C (found in D.1.1.2)	3	0	
<b>HALT Combined Stress Test - IPC9592B D.1.1.7</b>			
Operate the device while combining the environmental effects of random vibration and rapid thermal cycling along with input voltage and output load transients.	3	0	
<b>Temperature Humidity Bias (THB)</b>			
Samples are exposed to 85% relative humidity at a temperature of 85°C. Input voltage is at high line 40V and minimum output load. Output voltage is measured every minute."			
1000 hours	30	0	
<b>Life Test - High Temperature Operating Bias (HTOB) - IPC9592B5.2.5</b>			
Pending			
<b>Temperature Cycling Test (TCT)</b>			
Samples exposed in an air-to-air thermal shock chamber between temperatures of -55 to 125°C at a ramp rate of approximately 60°C per minute. Dwell time at each extreme is 30 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			
Also meets Mil- STD-883K Method 1010.9 Temperature cycling test Condition B. 500 thermal cycles	30	0	
<b>Power and Temperature Cycle (PTC) - IPC9592B 5.2.7</b>			
Samples exposed to a combined power thermal cycling at 40V input and 10 amps output load. The reference temperature range is approximately -55 to 105 °C. The dwell time at each temperature is approximately 30 minutes.			
Ramp from min to max temp with unit on, power cycle once at max temp. with unit off ramp from max to min temp, power up at min temp. Repeat loop, minimum number of unit-cycles is 300			
100 thermal cycles	3	0	
<b>Random Vibration <sup>1</sup></b>			
MIL-STD-810G, Method 514.6. 10 - 2000 Hz, Power Spectral Density (PSD) level of 1.5 G2/Hz (54.6 Grms), screw bolted, duration = 1 hr/axis, three axes	3	0	
<b>Shock Operating <sup>1</sup></b>			
MIL-STD-810G, Method 516.6. 40 G peak and 11 ms for ground equipment (saw tooth), three axes	3	0	
<b>Drop Test - IPC9592A 5.2.13 <sup>2</sup></b>			
Test was previously completed on similar unit: HQA	1 ctg	0	
<b>Notes</b>			
Passed: Greg Childers - Representative of Qualification and Test - Completion Date Here			
<i>Greg Childers 2/25/2019</i>			

1. Full functional pre and post test in lieu of operating test

2. Tested per ISTA2A standard