



Reliability Report

Reliability Data for Litelink III CPC5620.CPC5621.CPC5622 32L SOIC

Report Title: **Reliability Data for Litelink III
CPC5620.CPC5621.CPC5622 32L SOIC**

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Introduction:

This report summarizes the Reliability data of IXYS Integrated Circuits Division Litelink III CPC5620.CPC5621.CPC5622. The Reliability data presented here were collected during IXYS IC Division’s product qualification and Reliability Monitor program. The purpose of this qualification was to verify IXYS IC Division Quality and Reliability requirements as outlined in the internal specifications. The Litelink III CPC5620.CPC5621.CPC5622 is manufactured at IXYS IC Division and assembled at ATEC in the Philippines. The process is IXYS IC Division P10 and Litelink III CPC5620.CPC5621.CPC5622 is available in a 32L SOIC package type.

Reliability Tests:

Table 1 below provides the qualification tests that were performed. The stress tests and sample size are chosen based on the IXYS IC Division internal specifications and with the approval of the product development team and quality assurance.

Table 1: Litelink III CPC5620.CPC5621.CPC5622 Reliability Tests

Product Package	Stress Test	Applicable Specs and Readpoints	Stress Conditions	# Lots	Sample Size	Total
CPC5621A/ CPC5622A 32L SOIC	THB	JESD22, A101	85°C, 85% 1000 hrs	4	77	308
CPC5621A/ CPC5622A 32L SOIC	Thermal Shock	Mil-Std-883, M1011	0 to 100°C, 10/10 dwells, 15 cycles	4	55	220
CPC5621A/ CPC5622A 32L SOIC	Temp Cycle	Mil-Std-883, N101 “B”	-55 to 125°C, 10/10 dwells, 300 cycles	4	55	220
CPC5621A/ CPC5622A 32L SOIC	High Temp Storage	JESD22-A103C	125°C, 1000hrs	2	50	100
CPC5621A/ CPC5622A 32L SOIC	ESD HBM	JESD22, A114-E	1.5kΩ, 100pF	2	15	30
				2	9	18

Reliability Test Results:

The stress tests and associated results for Litelink III CPC5620.CPC5621.CPC5622 qualification are summarized in Table 2. The devices chosen for the qualification were from standard material manufactured through normal production test flow and electrically tested to datasheet limits prior to stressing. Then reliability stresses were conducted and electrically tested to datasheet limit at each interval and final readpoints.

Table 2: Litelink III CPC5620.CPC5621.CPC5622 Reliability Test Results

Product/ Package	Stress/ Kits	Readpoint 1 / Reject/ SS	Readpoint 2 / Reject/ SS	Readpoint 3 / Reject/ SS	Comments
CPC5621A 32L SOIC	THB T38184	168 hrs. 0/77	500 hrs. 0/77	1000 hrs. 0/77	
CPC5621A 32L SOIC	THB T48921	168 hrs. 0/77	500 hrs. 0/77	1000 hrs. 0/77	
CPC5622A 32L SOIC	THB T40840	168 hrs. 0/77	500 hrs. 0/77	1000 hrs. 0/77	
CPC5622A 32L SOIC	THB T51364	168 hrs. 0/77	500 hrs. 0/77	1000 hrs. 0/77	
CPC5621A 32L SOIC	Thermal Shock T38184	15 Cycles 0/55			
CPC5621A 32L SOIC	Thermal Shock T48921	15 Cycles 0/55			
CPC5622A 32L SOIC	Thermal Shock T40840	15 Cycles 0/55			
CPC5622A 32L SOIC	Thermal Shock T51364	15 Cycles 0/55			
CPC5621A 32L SOIC	Temp Cycle T38184	300 Cycles 0/55			
CPC5621A 32L SOIC	Temp Cycle T48921	300 Cycles 0/55			
CPC5622A 32L SOIC	Temp Cycle T40840	300 Cycles 0/55			

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Product/ Package	Stress/ Kits	Readpoint 1 / Reject/ SS	Readpoint 2 / Reject/ SS	Readpoint 3 / Reject/ SS	Comments
CPC5622A 32L SOIC	Temp Cycle T51364	300 Cycles 0/55			
CPC5621A 32L SOIC	High Temp Storage T48921	168 hrs. 0/50	500 hrs. 0/50	1000 hrs. 0/50	
CPC5622A 32L SOIC	High Temp Storage T51364	168 hrs. 0/50	500 hrs. 0/50	1000 hrs. 0/50	

ESD Testing Results:

As part of this qualification, the product Litelink III CPC5620.CPC5621.CPC5622 was subjected to Human Body Model (HBM) ESD Sensitivity Classification testing using a KeyTek Zapmaster system. The results are summarized in Table 3. All samples were electrically tested to data sheet limits before and after ESD stressing and they passed after +/- 1000V zapping.

Table3: Litelink III CPC5620.CPC5621.CPC5622 ESD Characterization Results

ESD Model	Kit Number	Package	ESD Test Spec	RC Network	Highest Passed	Class
HBM	CPC5621A/ CPC5622A T38184 T48921 T40840 T51364	32L SOIC	JESD22, A114-E	1.5kΩ, 100pF	1000V	1C

FIT (Failure in Time) Rate of Litelink III CPC5620.CPC5621.CPC5622

Table 4 below summarizes the FIT rate from the THB data. For THB stress, FITs were calculated based on the 85°C /85% RH test condition with 40°C/60% RH ambient use conditions at the activation energy of 0.7 eV and equivalent device hours. The FIT rate came out to be 26.29 FITs.

Table 4: Litelink III CPC5620.CPC5621.CPC5622 FIT Rate Summary

Product/ Stress	Lot Number	# of Devices	# of Failed	Hours Tested	Test Temp (°C)	Eq. Device Hours	FITs @ 60% CL
CPC5621A/ CPC5622A THB	T38184 T48921 T40840 T51364	308	0	1000	85	34,996,805	26.29