



SL1620 Silicon Product Qualification Report

PN: 527-002830-01 Rev E

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1. Introduction

The purpose of this document is to outline the qualification plans and results for the SL1620 consumer and industrial product, manufactured by TSMC using 12nm FFC process. This report confirms that the product qualification results for Synaptics part number SL1620 meets all necessary requirements and that the product is approved for production as both consumer and industrial grade.

The 12nm FFC process has been qualified by TSMC.

[Table 1](#) provides the qualification results based on the JEDEC standards.

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1.1. Full Device Qualification Report

Table 1. Qualification Report Summary

Stress	Reference	Abbreviation	Conditions	Requirements	
				# of Lots/ SS per Lot	Duration/Accept
Human Body Model ESD	JESD22-A114	ESD HBM	+/- 2KV; Ta= 25°C	3 units	Classification 2/Passed
Charged Device Model ESD	JESD22-C101	ESD CDM	+/- 250V; Ta= 25°C	3 units	Classification 1/Passed
Latch -Up	JESD78	LU	I-Test @ +/- 100mA; OVT @ 1.5xV; Ta = 125°C	3 units	0 Failed
High Temperature Operating Life	JESD22-A108, JESD85	HTOL	Tj = 125°C Operating VCORE: VDD= 1.04V VDD_IO = 2.16	3 lots / 77 units	2000 hours / 0 Failed
Low Temperature Operating Life	JESD22-A108, JESD85	LTOL	Tj = -40°C Operating VCORE: VDD= 1.04V VDD_IO = 2.16	1 lot / 77 units	1000 hours / 0 Failed
Biased HAST	JESD22-A110	BHAST	110°C /85%RH	3 lots/ 25 units per lot	264hrs / 0 Fail Electrical Test
High Temperature Storage	JESD22-A103	HTSL	150°C + Preconditioning if required	3 lots/ 77 units ea.	1000hrs / 0 Fail Electrical Test
MSL3 Preconditioning <i>must</i> be performed prior to THB, HAST, TC, AC & UHAST	JESD22-A113	PC	Per Appropriate MSL level of the test vehicle per J-STD-020	3 lots/ 154 units ea.	0 Fail Electrical Test
Temperature Cycling	JESD22-A104	TC	Cond C.: -65°C to 150°C	3 lots/ 77 units ea.	500 cycles / 0 Fail Electrical Test
Unbiased Temperature/Humidity (Unbiased HAST)	JESD22-A118	UHAST	130°C /85%RH	3 lots/ 77 units ea.	96hrs / 0 Fail Electrical Test

2. Revision History

Revision	Description
A	Initial release.
B	Updated to include industrial grade.
C	Updated Introduction , Human Body Model ESD, Charged Device Model ESD, and Low Temperature Operating Life (Duration/Accept column) in Table 1. Qualification Report Summary .
D	Updated Table 1. Qualification Report Summary as follows: <ul style="list-style-type: none"> High Temperature Operating Life – changed Duration/Accept Requirements to “2000 hours”. Biased HAST – changed Conditions to “110°C” and Duration/Accept Requirements to “264 hours”.
E	Updated JESD22-A113 (Stress details) in Table 1. Qualification Report Summary .

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