GS2984

Reliability Qualification Report

Revision History

Version	ECR	Date	Modifications / Changes
3	153943	Mar 2010	Updated ESD levels per PCN 54547
2	153116	Nov 2009	Updated stress data
1	153114	Jun 2009	Completion of reliability qualification
0	151675	Mar 2009	New document, preliminary report

Contents

1 Device Specifics

1.1 Manufacturing Summary

Table 1.: Manufacturing Summary

Gennum Device Codes	GS2984
Silicon Fab Technology	SiGe120 SBC18HAZ
Package Assembly	Unisem
Package Type	16 QFN, 4x4 mm, 0.65 mm pitch

1.2 Product Information

The GS2984 is a high-speed BiCMOS integrated circuit designed to equalize and restore signals received over 75Ω co-axial cable. The device is designed to support SMPTE 424M, SMPTE 292M and SMPTE 259M-C, and is optimized for performance at 1.485Gb/s and 2.97Gb/s.

The device is available in a 16-pin, 4mm x 4mm QFN package. Power consumption of the GS2984 is typically 195 mW. The GS2984 is Pb-free, and the encapsulation compound does not contain halogenated flame retardant. This component and all homogeneous subcomponents are RoHS compliant.

The devices shall be fully functional and shall meet all operational specifications over the ambient temperature range -20ºC to +85ºC.

1.3 Process Qualification

The die is manufactured by Jazz using the SiGe120 SBC18HAZ process. The Jazz process qualification report has been accepted and is stored in GenDoc ID#34874. The product is packaged at Unisem in a 16 pin QFN package. The Unisem package process qualification report is stored in GenDoc ID#49722.

1.4 Product Qualification Approach

The GS2964 and GS2984 use the same one-time programmable fuse technology. Changes to device performance due to fuse stability are expected to be more evident on the GS2964, thus fuse reliability evaluations through temperature cycling and high temperature storage were conducted on both the GS2984 and GS2964.

The GS2985 contains a die from the same fab process as the GS2984 in a larger QFN package from the same package family. Temperature and humidity bias for the GS2984 was bridged to the GS2985 qualification.

Details of the tests to be performed and bridged qualification tests are presented on the next page.

2 Reliability Qualification Stresses

2.1 Environmental Tests

Table 2.: Environmental Tests

Stress	Conditions	Duration	Qualification Vehicle	Sample Size	Failures
High Temperature Operating Life	JESD22-A108 $T_j \geq 125^oC$, $V_{cc} \geq V_{ccmax}$	2000 hours	GS2984	90	0
Temperature Cycling	JESD22-A104 MSL Preconditioning, -55°C to +125°C (Condition B)	1000 cycles	GS2984	80	0
			GS2964	80	0
Temperature and Humidity Bias	JESD22-A101 MSL Preconditioning, 85°C/85% RH, Unbiased	1000 hours	GS2985	25	0
Unbiased Temperature and Humidity	JESD22-A101 MSL Preconditioning, 85°C/85% RH	1000 hours	GS2984	25	0
High Temperature Storage	JESD22-A103 150 °C	1000 hours	GS2984	80	0
			GS2964	80	0
Moisture Sensitivity Level	J-STD-020 MSL3, Tmax=260°C		GS2984	185	0

2.2 Electrostatic Discharge and Latch Up Tests

Table 3.: Electrostatic Discharge and Latch Up Tests

Stress	Conditions	Qualification Vehicle	Stress Level	Sample Size	Failures
Human Body Model ESD	JEDEC22-A114	GS2984	5 kV	3	0
Machine Model ESD	JESD22-A115	GS2984	250 V	3	0
Charged Device Model ESD	JESD22-C101	GS2984	2 kV	3	0
Latch Up	JESD78 V_{cc}=3.5 V, 5.25 V; +/- 100 mA Level II, Class A	GS2984	25°C	6	0
			85°C	6	0

3 Conclusion

Reliability qualification of the GS2984 is complete. The product is considered fit for sale and customer use.

DOCUMENT IDENTIFICATION

RELIABILITY REPORT

The product is in production. Gennum reserves the right to make changes to the product at any time without notice to improve reliability, function or design, in order to provide the best product possible.

CAUTION

ELECTROSTATIC SENSITIVE DEVICES
DO NOT OPEN PACKAGES OR HANDLE EXCEPT AT A STATIC-FREE WORKSTATION

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