



GS9077

Reliability Qualification Report

Revision History

Version	ECR	Date	Modifications / Changes
2	157058	Oct 2011	Added Crolles as a qualified fab supplier
1	150359	Aug 2008	Added package qualification and CDM ESD data
0	147633	May 2007	Initial release

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1 Device Specifics

1.1 Manufacturing Summary

Table 1.: Manufacturing Summary

Gennum Device Codes	GS9077
Silicon Fab Technology	STMicroelectronics 0.35 μ m SiGe BiCMOS6G (Phoenix, Crolles)
Package Assembly	Unisem
Package Type	16 QFN, 4x4 mm

1.2 Product Information

The GS9077 is a high-speed BiCMOS integrated circuit designed to drive one or two 75 Ω co-axial cables. The GS9077 is manufactured using ST Microelectronics BiCMOS6G process and packaged by ASEM in a 16 QFN lead free package.

1.3 Process Qualification

The ST Microelectronics BiCMOS6G silicon technology qualification reports are stored in GenDoc IDs #30346 and 31816. The ASEM package qualification report is stored in Gendoc #49722.

1.4 Product Qualification Approach

The GS9077 contains the same die as the GS2978 and GS1528B. Die level stresses, including HTOL, ESD and latch up have been bridged to the GS2978 and GS1528B. The QFN package of the GS9077 has a lower operating die temperature than the GS1528B in an SOIC package due to the superior thermal dissipation of the QFN package. This allows bridging HTOL for the GS9077 to the results of the GS1528B stress. The GS1574A uses a die from the same BiCMOS6G process as the GS9077 in the same QFN package. Package reliability stresses are bridged to the GS1574A.

The STMicroelectronics Crolles fab was qualified for the GS9077 in 2011. The product reliability qualification report is available in Gendoc ID #57207.

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 $T_j \geq 125^\circ\text{C}$, $V_{cc} \geq V_{ccmax}$	1000 hours	GS1528B	75	0
Temperature Cycling	JESD22-A104 MSL Preconditioning, -55°C to +125°C (Condition B)	1000 cycles	GS1574A	32	0
Temperature and Humidity Unbiased	JESD22-A101 MSL Preconditioning, 85°C/85% RH	1000 hours	GS1574A	35	0
High Temperature Storage	JEDSE22-A103 150 °C	1000 hours	GS1574A	32	0
Pressure Cook Test	JESD22-A102 MSL Preconditioning, 121°C, 100% RH, 29.7 Psi	96 hours	GS1574A	32	0
Moisture Sensitivity Level	J-STD-020 MSL3, $T_{max}=260^\circ\text{C}$		GS1574A	131	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	JESD22-A114	GS2978	4 kV	6	0
Machine Model ESD	JESD22-A115	GS2978	100 V	3	0
Charged Device Model ESD	JESD22-C101	GS2978	1 kV	3	0
	JESD78	GS2978	70°C	3	0
Latch Up	V _{cc} =5.25 V; +/- 200 mA Level II, Class A				

3 Conclusion

Reliability qualification of the GS9077 is complete. The products are 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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