



GS2978

Reliability Qualification Report

Revision History

Version	ECR	Date	Modifications / Changes
3	157058	Oct 2011	Added Crolles as a qualified fab supplier
2	150074	Jun 2008	Typo correction
1	150042	Jun 2008	Added CDM ESD results
0	141183	Jun 2006	Initial release

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1 Device Specifics

1.1 Manufacturing Summary

Table 1.: Manufacturing Summary

Genum Device Codes	GS2978
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 GS2978 devices are Genum designed products manufactured using ST Microelectronics BiCMOS6G process and packaged at Unisem in a 16 QFN, 4x4 mm package.

1.3 Process Qualification

The ST Microelectronics BiCMOS6G silicon technology qualification reports are stored in GenDoc IDs #30346 and 31816. The Unisem "Pb-free Green" package qualification report is stored in Gendoc #35573.

1.4 Product Qualification Approach

The GS2978 contains the same die as the GS1528B. Due to the improved thermal performance of the QFN package, the GS2978 has lower operating die temperature than the GS1528B, which uses an SOIC package. This allows bridging of HTOL to the GS1528B results, which represents a more stressful test vehicle than the GS2978. Package qualification of the GS2978 is based on the GS1574A. Both products use the same QFN package and have dice from the same process technology.

The STMicroelectronics Crolles fab was qualified for the GS2978 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)	500 cycles	GS1574A	15	0
Pressure Cook Test	JESD22-A102 MSL Preconditioning, 121°C, 100% RH, 29.7 Psi	96 hours	GS1574A	25	0
Moisture Sensitivity Level	J-STD-020 MSL3, Tmax=260°C		GS1574A	40	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	GS2978	4 kV	3	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	6	0
Latch Up	V _{cc} =5.25 V; +/- 200 mA Level II, Class A				



3 Conclusion

Reliability qualification of the GS2978 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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