AM1 & AG101

QUALIFICATION REPORT

I. INTRODUCTION

The AM1 and the AG101 are general-purpose gain block devices that offer good dynamic range in a low cost surface mount package. The combination of flat IP3 and noise figure performance over frequency make them attractive for both narrow and broadband applications.

II. SCOPE

This report summarizes the reliability qualification of the AM1 and the AG101 high dynamic range amplifiers manufactured at the WJ Communications facility in Milpitas, CA and assembled in a SOT-89 plastic package. The process used is our standard H10, 4-inch process.
The reliability data are obtained through the performance of specified accelerated stress tests described in this document.

III. APPLICABLE DOCUMENTS

All the test procedures and test methods are consistent with industry standards. The standards referenced in this document are JEDEC standard 22 and MIL STD 883.

IV. QUALIFICATION TEST PLAN

Level 3 preconditioning was performed in accordance with JEDEC method A113-A for the parts in this qualification.
The AM1 and the AG101 are processed using the same process flow and packaged in the same SOT-89 package, therefore qualification testing done on one part qualifies the entire family of parts. The AH1, AH2, AH3, AM1, and AG101 are all packaged in the SOT-89, therefore testing to qualify the package applies to the entire family of parts.

Stress or Test	Device Hours/ Cycles	Sample Size	Failed Units	Date	Reference Document	Part Tested
High Temp Op Life	77,000	77	0	2000	JESD22 A108	AM1
Accelerated Biased Humidity (HAST)	7,392	77	0	2000	JESD22 A110	AM1
Temperature Cycle	77,000	77	1	2000	JESD22 A104	AM1
Unbiased Autoclave	7,392	77	1	2000	JESD22 A102	AM1
Lead Integrity		36	0	1997, 1999	JESD22 B105	AH1, AH3
Solderability		53	0	1997, 1999	MS883 M2003	AH1, AH3
Res. To Solvents		15	0	1997		AH1
Vibration		15	0	1997		AH1
Flammability		3	0	1997	IEC 695-2-2	AH1
Resistance to soldering heat		32	0	1997	JESD22 B106	AH1

V. DISCUSSION OF RESULTS

1. TEMPERATURE CYCLE

77 AM1 parts have completed 77,000 temperature cycles with one failure. After failure analysis, including electrical test and de-encapsulation, one part was determined to have failed due to ESD.

2. UNBIASED AUTOCLAVE

77 AM1 parts have completed 7392 hours of Autoclave with one failure. After failure analysis, including electrical test and de-encapsulation, one part was determined to have failed due to ESD.

VI. CONCLUSIONS

The Reliability Qualification Data demonstrates that the AM1 and AG101 amplifiers fabricated at the WJ Communications Milpitas facility and assembled in a SOT-89 package demonstrate high reliability and quality levels.