



# SME QUALIFICATION REPORT

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## I. INTRODUCTION

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The SME mixers are high performance frequency conversion mixers that offer good dynamic range in a low cost, surface mount package. The SME is a quad diode mixer optimized for optimal OIP3.

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## II. SCOPE

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This report summarizes the reliability qualification of the SME family of mixers designed and developed by WJ Communications and assembled in a surface mount S-Pak package. The reliability data are obtained through the performance of specified accelerated stress tests described in this document.

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## III. APPLICABLE DOCUMENTS

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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.

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## IV. QUALIFICATION TEST PLAN

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All SME mixers are produced using the same process flow; therefore qualification testing done on one part qualifies the entire family of parts.

<b>Stress or Test</b>	<b>Device Hours/ Cycles</b>	<b>Sample Size</b>	<b>Failed Units</b>	<b>Date</b>	<b>Reference Document</b>	<b>Part Tested</b>
Temperature Cycle	90000	90	1	2000	JESD22 A104	SME900-17 & SME1400B-17
Solderability		16	0	1999	JESD22 B102	SME900-17 & SME1400B-17
Resistance to Soldering heat		10	0	2000	JESD22 B106	SME900-17 & SME1400B-17
Steam Age Solderability		25	0	1999	JESD22 B102	SME900-17 & SME1400B-17
Bond Pull		8	0	1999	MS883 M2011	SME900-17 & SME1400B-17
Gross Leak		89	0	2000	MS883 M1014	SME900-17 & SME1400B-17

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## **V. DISCUSSION OF RESULTS**

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### 1. TEMPERATURE CYCLE

90 units completed temperature cycle with one failure. The failure was due to a broken wedge bond. The break occurred at the thinned portion of the wire, just before attachment at the substrate. The actual attachment to the substrate was intact. This wire failure was one out of 1980 bonds in the 90-piece sample.

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## **VI. CONCLUSIONS**

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The Reliability Qualification Data demonstrates that the SME family of mixers designed and developed by WJ Communications demonstrates high reliability and quality levels.