

Whisker Test Results of Axial Lead Packages

The whisker observation of axial lead packages finished with Sn-Cu solder is carried out. The Pb free external terminals show no whisker on the soldered surface after high temperature high humidity exposure test and room temperature atmospheric air exposure test.

I. Whisker Observation of a typical axial lead package

1) Test sample

The axial lead package of $\phi 2.5 \times 3.0L$ outer-dimension with $\phi 0.56$ in lead diameter is prepared as representative of axial lead type packages.

The Ni plated external terminals are finished with Sn-Cu dipping.

2) Test items and conditions

A) After 85°C 85%RH exposure test for 1000 hours, the soldered surface is observed by SEM (Secondary Electron Microscope).

B) After exposure to atmospheric air at room temperature for more than 6 months, the soldered surface is observed by SEM.

3) Conclusion

No whisker is observed on the soldered surfaces in Tests A and B.

4) Results

The whisker observation results are shown in Table 1, Fig.1 and Table 2, Fig.2.

Table 1 Whisker observation results in Test A

Sample No.	Whisker
1	No
2	<i>ibid.</i>
3	<i>ibid.</i>
4	<i>ibid.</i>
5	<i>ibid.</i>
6	<i>ibid.</i>
7	<i>ibid.</i>
8	<i>ibid.</i>
9	<i>ibid.</i>
10	<i>ibid.</i>

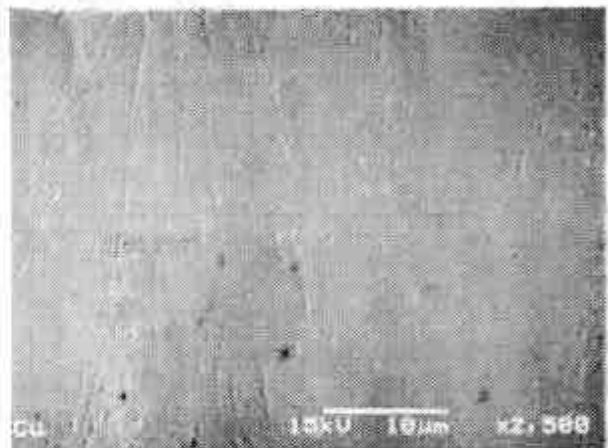


Fig.1 A typical SEM image of the Sn-Cu solder surface after 85°C 85%RH exposure test for 1000 hours

This material and the information herein is the property of Fuji Electric Device Technology Co.,Ltd. They shall be neither reproduced, copied, lent, or disclosed in any way whatever for the use of any third party not used for the manufacturing purposes without the express written consent of Fuji Electric Device Technology Co.,Ltd.

REVISION	
----------	--

	DATE	NAME	APPROVED	Fuji Electric Device Technology Co.,Ltd.	
DRAWN	Dec-16-'03	T. Iguchi	H. Kirihata	DWG. NO.	MT5D8080
CHECKED					1/2

This material and the information herein is the property of Fuji Electric Device Technology Co.,Ltd. They shall be neither reproduced, copied, lent, or disclosed in any way whatever for the use of any third party nor used for the manufacturing purposes without the express written consent of Fuji Electric Device Technology Co.,Ltd.

Table 2 Whisker observation results in Test B

Sample No.	Whisker
1	No
2	<i>ibid.</i>
3	<i>ibid.</i>
4	<i>ibid.</i>
5	<i>ibid.</i>

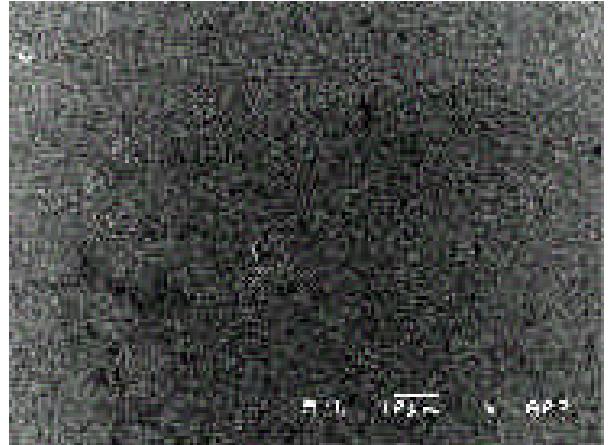


Fig.1 A typical SEM image of the Sn-Cu solder surface after room temperature atmospheric air exposure test for 3 years and 3 months

REVISION			

	DATE	NAME	APPROVED	Fuji Electric Device Technology Co.,Ltd.	DWG.NO.	MT5D8080	2/2	
DRAWN								
CHECKED								