

ASAT DONGGUAN Tin Whisker Test Report Summary 锡丝测试报告概述

Date: see other tabs

Stress Type 测试类型	Test Condition 测试状况	Duration 持续时间	Precondition 预处理	Sample Description 样本描述				Inspection Result 检查结果	
				Lot No. 货批号码	Pkg Type 封装类型	Leadframe Material 引线框材料	Sample Size 样本大小	T=0	Finish
Temperature Cycle 温度循环	-55 +0/-10°C to 85 +10/-0°C, air to air; 10 minute soak; 3 cycles/hour (typ.)	500 Cycles	A	TFTZDA014F	W-LPCC-LF 6X6 48L	Cu194	6	No whisker	No whisker
				918898	MQFP-LF 14X20 128L	Cu7025	6	No whisker	No whisker
				919512	MQFP-LF 14X20 128L	Cu7025	6	No whisker	No whisker
			C	TFTZDA014F	W-LPCC-LF 6X6 48L	Cu194	6	No whisker	No whisker
				918898	MQFP-LF 14X20 128L	Cu7025	6	No whisker	No whisker
				919512	MQFP-LF 14X20 128L	Cu7025	6	No whisker	No whisker
			D	TFTZDA014F	W-LPCC-LF 6X6 48L	Cu194	6	No whisker	No whisker
				918898	MQFP-LF 14X20 128L	Cu7025	6	No whisker	No whisker
				919512	MQFP-LF 14X20 128L	Cu7025	6	No whisker	No whisker
Temperature/ Humidity Storage 温度/湿度储存	30 ± 2 °C and 60 ± 3% RH	1500 hours	A	TFTZDA014F	W-LPCC-LF 6X6 48L	Cu194	6	No whisker	No whisker
				918898	MQFP-LF 14X20 128L	Cu7025	6	No whisker	No whisker
				919512	MQFP-LF 14X20 128L	Cu7025	6	No whisker	No whisker
			C	TFTZDA014F	W-LPCC-LF 6X6 48L	Cu194	6	No whisker	No whisker
				918898	MQFP-LF 14X20 128L	Cu7025	6	No whisker	No whisker
				919512	MQFP-LF 14X20 128L	Cu7025	6	No whisker	No whisker
			D	TFTZDA014F	W-LPCC-LF 6X6 48L	Cu194	6	No whisker	No whisker
				918898	MQFP-LF 14X20 128L	Cu7025	6	No whisker	No whisker
				919512	MQFP-LF 14X20 128L	Cu7025	6	No whisker	No whisker
High Temperature/ Humidity Storage 高温/高温储存	55 ± 3 °C and 85 ± 3% RH	1500 hours	A	TFTZDA014F	W-LPCC-LF 6X6 48L	Cu194	6	No whisker	No whisker
				918898	MQFP-LF 14X20 128L	Cu7025	6	No whisker	No whisker
				919512	MQFP-LF 14X20 128L	Cu7025	6	No whisker	No whisker
			C	TFTZDA014F	W-LPCC-LF 6X6 48L	Cu194	6	No whisker	No whisker
				918898	MQFP-LF 14X20 128L	Cu7025	6	No whisker	No whisker
				919512	MQFP-LF 14X20 128L	Cu7025	6	No whisker	No whisker
			D	TFTZDA014F	W-LPCC-LF 6X6 48L	Cu194	6	No whisker	No whisker
				918898	MQFP-LF 14X20 128L	Cu7025	6	No whisker	No whisker
				919512	MQFP-LF 14X20 128L	Cu7025	6	No whisker	No whisker

COMPANY NAME: ASAT

MAJOR PARAMETERS	
Chemistry	ST380
Plating thickness	400-800 uin
Substrate material (Base Metal)	Cu7025, Cu EFTEC64T

Test Sample Size per Preconditioning Treatment per Base Metal.

Stress Type	TEST CONDITIONS / JESD201	Duration	Readouts	Lots per Stress	Samples Per Lot	Components Inspected per Readpoint	Screening Inspection Terminations per Readpoint	Detailed Inspection Terminations per Readpoint*
Ambient Tempertaure / Humidity Storage	30 ±2 °C and 60 ±3% RH	4000 hours	1000, 2000, 3000, 4000 hours	3	2	6	96	18
High Tempertaure / Humidity Storage	55 ±3 °C and 85 ±3% RH	4000 hours	1000, 2000, 3000, 4000 hours	3	2	6	96	18
Temperature Cycling	-55 +0/-10 °C to +85 +10/-0 °C air to air; 5 to 10 minute soak; ~3 cycles/hour	1500 cycles	500, 1000, 1500 cycles	3	2	6	96	18

* Process detailed inspection if whisker found in screening inspection

PRECONDITIONING TREATMENTS

Preconditioning	Temperature Exposure	Thermal Profile Exposure	Result & Schedule
A	None	Normal ambient exposure	Link to Result and Schedule
C	Sn-Pb Temperature Preconditioning	Sn-Pb profile	
D	Pb-free Temperature Preconditioning	Pb-free profile	

1 Whisker definition

- 1.1 Have an aspect ratio (length/width) > 2
- 1.2 Can be kinked, bent, twisted
- 1.3 Usually have a uniform cross-sectional shape
- 1.4 Typically consist of a single columnar filament that rarely branches
- 1.5 May have striations along the length of the column and/or rings around the circumference of the column
- 1.6 Length of 10 microns or more

2 Screening inspection

- 2.1 96 leads from 6 units will be inspected
- 2.2 16 leads per units will be inspected (by SEM : Min. 250X)
- 2.3 For leaded package (eg. QFP), the top, 2 sides, and bends of each identified lead shall be inspected as depicted in Figure 1
- 2.4 For Leadless package (eg. LPCC), the top of terminal surface shall be inspected
- 2.5 Leads at package corner will be selected for inspection
- 2.6 Only whisker as described in "whisker definition" will be counted

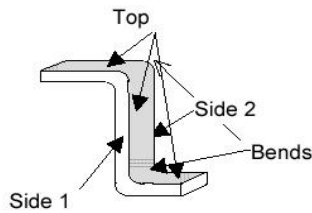


Figure 1 - A schematic diagram depicting a component lead and the top, 2 sides and bends of the lead that should be inspected.

3 Detail inspection

- 3.1 Detail inspection will be performed if whisker found during screening inspection
- 3.2 Only whisker as described in "whisker definition" will be counted
- 3.3 18 leads from 6 units will be inspected (by SEM : Min. 250X)
- 3.4 For leaded package (eg. QFP), the top, 2 sides, and bends of each identified lead shall be inspected as depicted in Figure 1
- 3.5 For Leadless package (eg. LPCC), the top of terminal surface shall be inspected
- 3.6 Maximum length of whisker per will be measured
 - 3.6.1 Each of these measurements shall be compared to maximum allowable tin whisker length in Table

Table 1 - Maximum Allowable Whisker Length

Stress Type	Class 2	Class 1	Class 1A
AMBIENT TEMPERATURE / HUMIDITY STORAGE	40um	67um	20um
HIGH TEMPERATURE / HUMIDITY STORAGE	40um	67um	50um
TEMPERATURE CYCLING	45um	67um	50um

* Class levels defined by JESD201.

4 Method for whisker length measurement

- 4.1 Whisker length measurement defined by JESD201

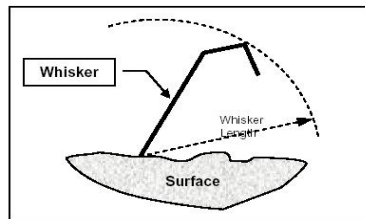


Figure 2 - A schematic diagram depicting the estimation of axial whisker length that is made by adding all of the straight subdivisions or segments of a whisker.

5 Report

- 5.1 If whisker found
 - 5.1.1 Maximum whisker length per lead will be recorded
 - 5.1.2 One SEM photo of the maximum length from 18 measurement will be attached
- 5.2 If whisker not found
 - 5.2.1 one typical SEM photo at 1000x magnification will be attached

COMPANY NAME: ASAT
Result & Schedule

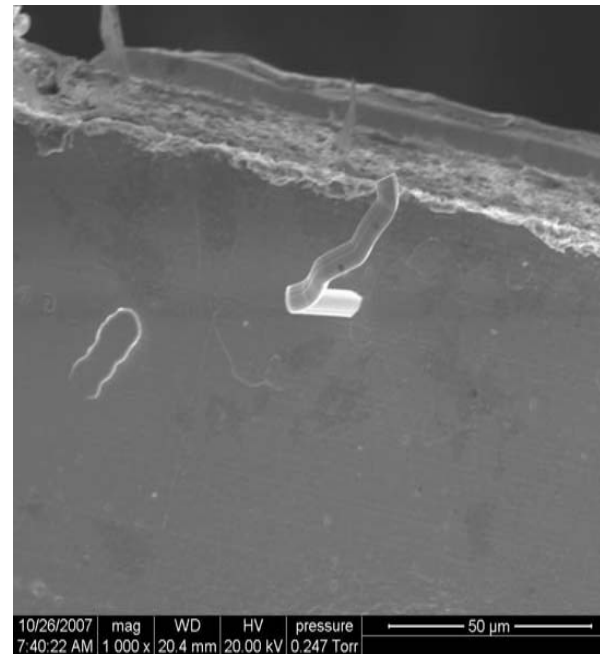
Preconditioning	STRESS TYPE	TEST CONDITION	DURATION	TEST VEHICLE		SAMPLE SIZE / EACH READ POINT	RESULT				
				PACKAGE	LEADFRAME SUBSTRATE MATERIAL		T=0	1000 hours	2000 hours	3000 hours	4000 hours
A	AMBIENT TEMPERATURE / HUMIDITY STORAGE	30 ±2 °C and 60 ±3% RH	4000 hours	TQFP, 7x7x1.0, 48L	Cu EFTEC64T	6	No whisker	No whisker	No whisker	No whisker	No whisker
				LQFP, 14x20x1.4, 100L	Cu7025	6	No whisker	No whisker	No whisker	No whisker	No whisker
	HIGH TEMPERATURE / HUMIDITY STORAGE	55 ±3 °C and 85 ±3% RH	4000 hours	TQFP, 7x7x1.0, 48L	Cu EFTEC64T	6	No whisker	No whisker	No whisker	No whisker	No whisker
				LQFP, 14x20x1.4, 100L	Cu7025	6	No whisker	No whisker	No whisker	No whisker	No whisker
C	AMBIENT TEMPERATURE / HUMIDITY STORAGE	30 ±2 °C and 60 ±3% RH	4000 hours	TQFP, 7x7x1.0, 48L	Cu EFTEC64T	6	No whisker	No whisker	No whisker	No whisker	No whisker
				LQFP, 14x20x1.4, 100L	Cu7025	6	No whisker	No whisker	No whisker	No whisker	No whisker
	HIGH TEMPERATURE / HUMIDITY STORAGE	55 ±3 °C and 85 ±3% RH	4000 hours	TQFP, 7x7x1.0, 48L	Cu EFTEC64T	6	No whisker	No whisker	Whisker	No whisker	Whisker
				LQFP, 14x20x1.4, 100L	Cu7025	6	No whisker	No whisker	No whisker	Whisker	Whisker
D	AMBIENT TEMPERATURE / HUMIDITY STORAGE	30 ±2 °C and 60 ±3% RH	4000 hours	TQFP, 7x7x1.0, 48L	Cu EFTEC64T	6	No whisker	No whisker	No whisker	No whisker	No whisker
				LQFP, 14x20x1.4, 100L	Cu7025	6	No whisker	No whisker	No whisker	No whisker	No whisker
	HIGH TEMPERATURE / HUMIDITY STORAGE	55 ±3 °C and 85 ±3% RH	4000 hours	TQFP, 7x7x1.0, 48L	Cu EFTEC64T	6	No whisker	No whisker	No whisker	No whisker	No whisker
				LQFP, 14x20x1.4, 100L	Cu7025	6	No whisker	No whisker	No whisker	No whisker	No whisker
Preconditioning	STRESS TYPE	TEST CONDITION	DURATION	PACKAGE	LEADFRAME SUBSTRATE MATERIAL	SAMPLE SIZE / EACH READ POINT	T=0	500 cycles	1000 cycles	1500 cycles	
A	TEMPERATURE CYCLING	-55 +0/-10 °C to +85 +10/-0 °C	1500 cycles	TQFP, 7x7x1.0, 48L	Cu EFTEC64T	6	No whisker	No whisker	No whisker	Whisker	
				LQFP, 14x20x1.4, 100L	Cu7025	6	No whisker	No whisker	Whisker	Whisker	
C	TEMPERATURE CYCLING	-55 +0/-10 °C to +85 +10/-0 °C	1500 cycles	TQFP, 7x7x1.0, 48L	Cu EFTEC64T	6	No whisker	No whisker	No whisker	Whisker	
				LQFP, 14x20x1.4, 100L	Cu7025	6	No whisker	No whisker	Whisker	Whisker	
D	TEMPERATURE CYCLING	-55 +0/-10 °C to +85 +10/-0 °C	1500 cycles	TQFP, 7x7x1.0, 48L	Cu EFTEC64T	6	No whisker	No whisker	No whisker	No whisker	
				LQFP, 14x20x1.4, 100L	Cu7025	6	No whisker	No whisker	No whisker	No whisker	

Tin Whisker Test Report - Detailed whisker information

Basic Information			
Date of Inspection:	10/25/2007		
Plating Machine Location:	DG	Package:	100L LQFP 14x20x1.4
Chemistry:	ST380	Preconditioning:	C
Plating Thickness:	400~800 uin	Stress Type:	TH
Substrate Material:	Cu7025	Read Point:	TH4000

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Screening Inspection				
Total leads inspected	96	Leads per unit inspected	16	
Total units inspected	6	Whisker found	Yes	
Detail Inspection				
Unit	Lead	No. of Whisker	Whiskers density range (L/M/H)	Max Length (µm)
1	1	1	L	32.19
	2			
	3			
2	1			
	2			
	3			
3	1			
	2			
	3			
4	1			
	2			
	3			
5	1			
	2			
	3			
6	1			
	2			
	3			



Tin Whisker Test Report - Detailed whisker information

Basic Information			
Date of Inspection:	7/20/2007		
Plating Machine Location:	DG	Package:	48L TQFP 7x7x1.0
Chemistry:	ST380	Preconditioning:	C
Plating Thickness:	400-800 uin	Stress Type:	TH
Substrate Material:	Cu64T	Read Point:	TH2000

Screening Inspection				
Total leads inspected	96	Leads per unit inspected	16	
Total units inspected	6	Whisker found	Yes	
Detail Inspection				
Unit	Lead	No. of Whisker	Whiskers density range (L/M/H)	Max Length (µm)
1	1	1	L	17.57
	2	1	L	16.67
	3	N/A		N/A
2	1	1	L	19.21
	2	N/A		N/A
	3	N/A		N/A
3	1			
	2			
	3			
4	1			
	2			
	3			
5	1			
	2			
	3			
6	1			
	2			
	3			



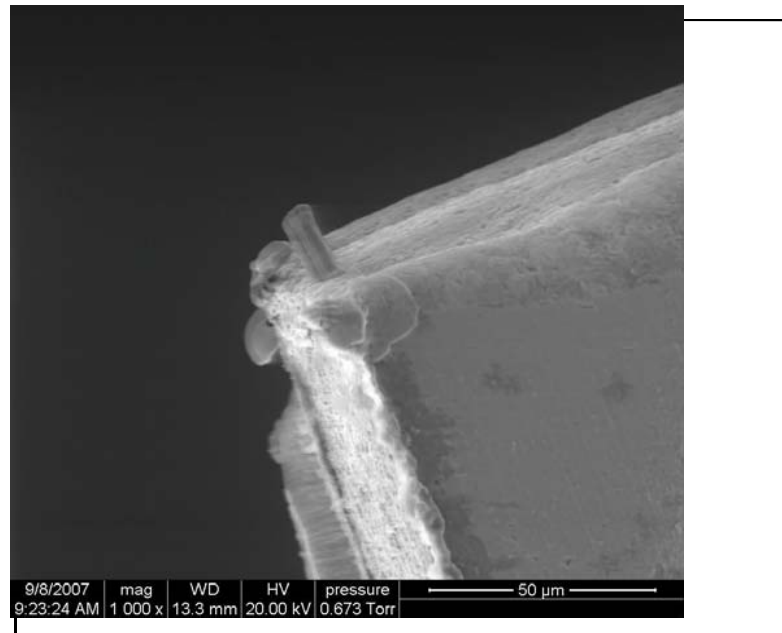
Tin Whisker Test Report - Detailed whisker information

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Basic Information			
Date of Inspection:	2007-9-7		
Plating Machine Location:	DG	Package	100L LQFP 14x20x1.4
Chemistry:	ST380	Preconditioning	C
Plating Thickness	400-800 uin	Stress Type	TH
Substrate Material	Cu7025	Read Point	TH3000

Screening Inspection			
Total leads inspected	96	Leads per unit inspected	16
Total units inspected	6	Whisker found	Yes

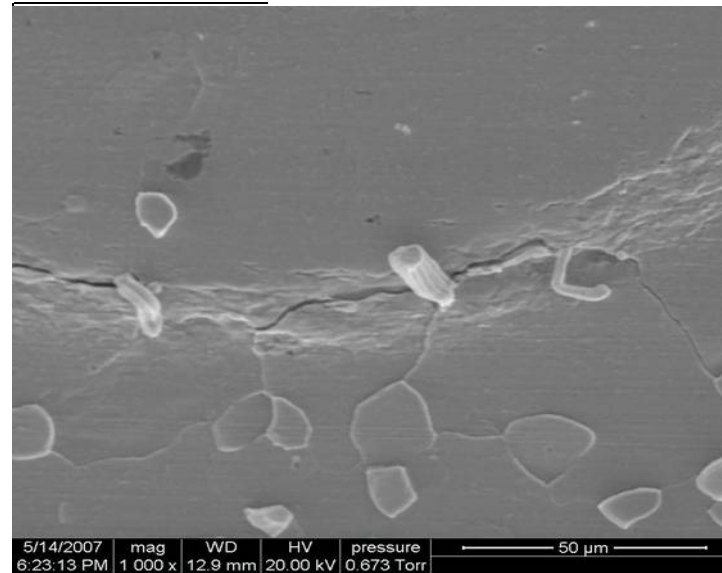
Detail Inspection				
Unit	Lead	No. of Whisker	Whiskers density range (L/M/H)	Max Length (µm)
1	1	1	L	15.5
	2			
	3			
2	1			
	2			
	3			
3	1			
	2			
	3			
4	1			
	2			
	3			
5	1			
	2			
	3			
6	1			
	2			
	3			



Tin Whisker Test Report - Detailed whisker information

Basic Information			
Date of Inspection:	5/15/2007		
Plating Machine Location:	DG	Package:	100L LQFP 14x20x1.4
Chemistry:	ST380	Preconditioning:	A
Plating Thickness:	400-800 uin	Stress Type:	TMCL
Substrate Material:	Cu7025	Read Point:	TC1000

Screening Inspection				
Total leads inspected	96	Leads per unit inspected	16	
Total units inspected	6	Whisker found	Yes	
Detail Inspection				
Unit	Lead	No. of Whisker	Whiskers density range (L/M/H)	Max Length (µm)
1	1	3	L	14.49
	2	2	L	14.28
	3	N/A		
2	1	N/A		
	2	N/A		
	3	N/A		
3	1	N/A		
	2	N/A		
	3	N/A		
4	1	N/A		
	2	N/A		
	3	N/A		
5	1	N/A		
	2	N/A		
	3	N/A		
6	1	N/A		
	2	N/A		
	3	N/A		

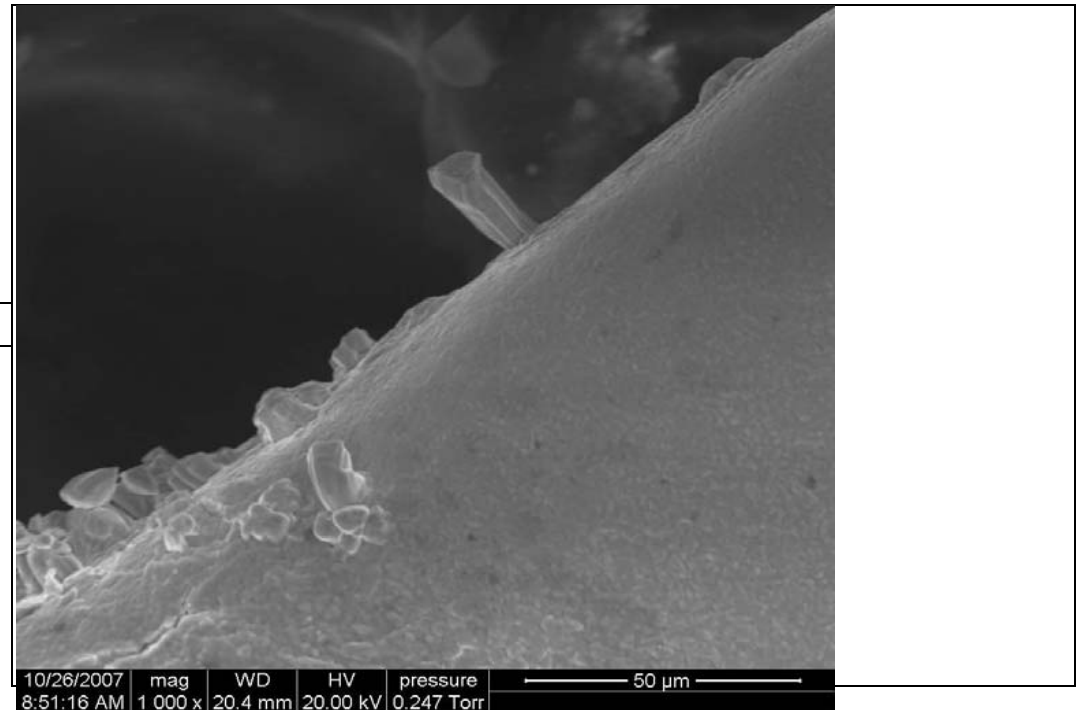


Tin Whisker Test Report - Detailed whisker information

Basic Information			
Date of Inspection:	10/25/2007		
Plating Machine Location:	DG	Package:	48L TQFP 7x7x1.0
Chemistry:	ST380	Preconditioning:	C
Plating Thickness:	400~800 uin	Stress Type:	TH
Substrate Material:	Cu64T	Read Point:	TH4000

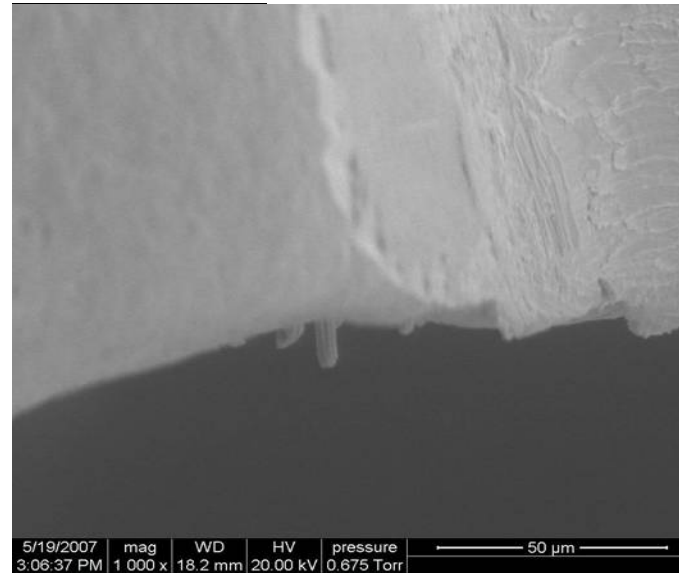
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Screening Inspection				
Total leads inspected	96	Leads per unit inspected	16	
Total units inspected	6	Whisker found	Yes	
Detail Inspection				
Unit	Lead	No. of Whisker	Whiskers density range (L/M/H)	Max Length (μm)
1	1	1	L	21.21
	2			
	3			
2	1			
	2			
	3			
3	1			
	2			
	3			
4	1			
	2			
	3			
5	1			
	2			
	3			



Basic Information			
Date of Inspection:	6/1/2007		
Plating Machine Location:	DG	Package:	100L LQFP 14x20x1.4
Chemistry:	ST380	Preconditioning:	C
Plating Thickness:	400-800 uin	Stress Type:	TMCL
Substrate Material:	Cu7025	Read Point:	TC1000

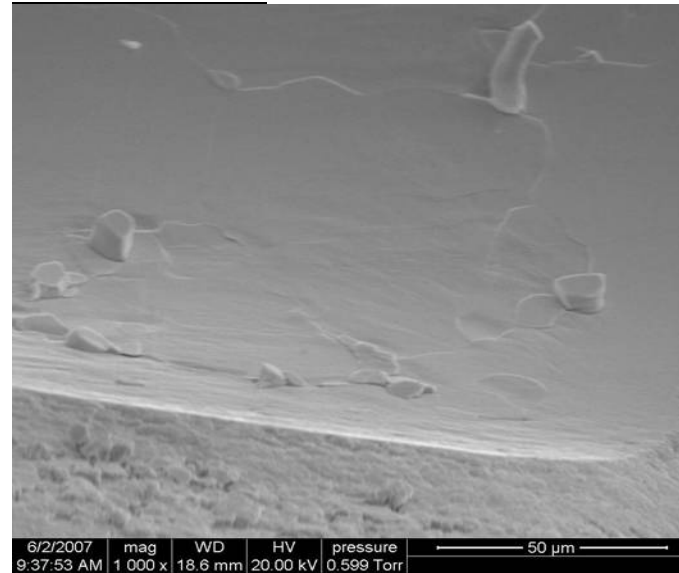
Screening Inspection				
Total leads inspected	96	Leads per unit inspected	16	
Total units inspected	6	Whisker found	Yes	
Detail Inspection				
Unit	Lead	No. of Whisker	Whiskers density range (L/M/H)	Max Length (μm)
1	1	1	L	11.95
	2	N/A		
	3	N/A		
2	1	2	L	11.81
	2	N/A		
	3	N/A		
3	1	N/A		
	2	N/A		
	3	N/A		
4	1	N/A		
	2	N/A		
	3	N/A		
5	1	N/A		
	2	N/A		
	3	N/A		
6	1	N/A		
	2	N/A		
	3	N/A		



Tin Whisker Test Report - Detailed whisker information

Basic Information			
Date of Inspection:	6/7/2007		
Plating Machine Location:	DG	Package:	48L TQFP 7x7x1.0
Chemistry:	ST380	Preconditioning:	A
Plating Thickness:	400-800 uin	Stress Type:	TMCL
Substrate Material:	CuEFTEC64T	Read Point:	TC1500

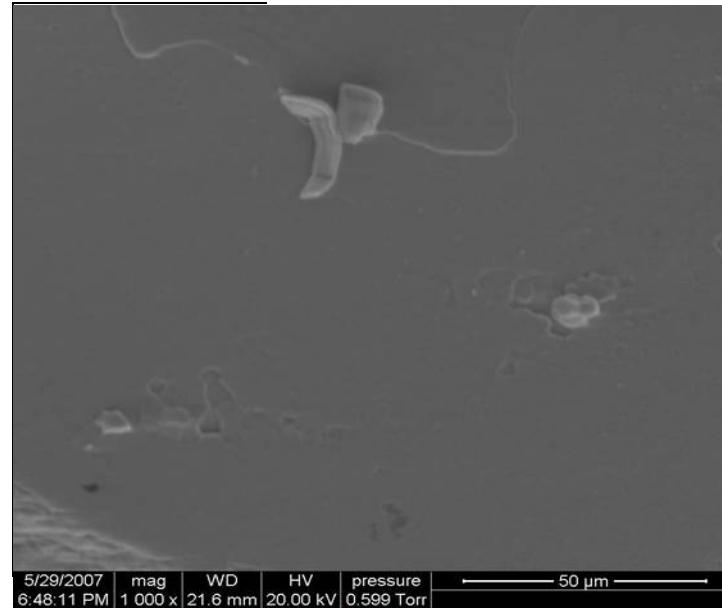
Screening Inspection				
Total leads inspected	96	Leads per unit inspected	16	
Total units inspected	6	Whisker found	Yes	
Detail Inspection				
Unit	Lead	No. of Whisker	Whiskers density range (L/M/H)	Max Length (µm)
1	1	N/A		
	2	N/A		
	3	N/A		
2	1	1	L	15.38
	2	N/A		
	3	N/A		
3	1	N/A		
	2	N/A		
	3	N/A		
4	1	N/A		
	2	N/A		
	3	N/A		
5	1	N/A		
	2	N/A		
	3	N/A		
6	1	1	L	20.92
	2	N/A		
	3	N/A		



Tin Whisker Test Report - Detailed whisker information

Basic Information			
Date of Inspection:	6/7/2007		
Plating Machine Location:	DG	Package:	100L LQFP 14x20x1.4
Chemistry:	ST380	Preconditioning:	A
Plating Thickness:	400-800 uin	Stress Type:	TMCL
Substrate Material:	Cu7025	Read Point:	TC1500

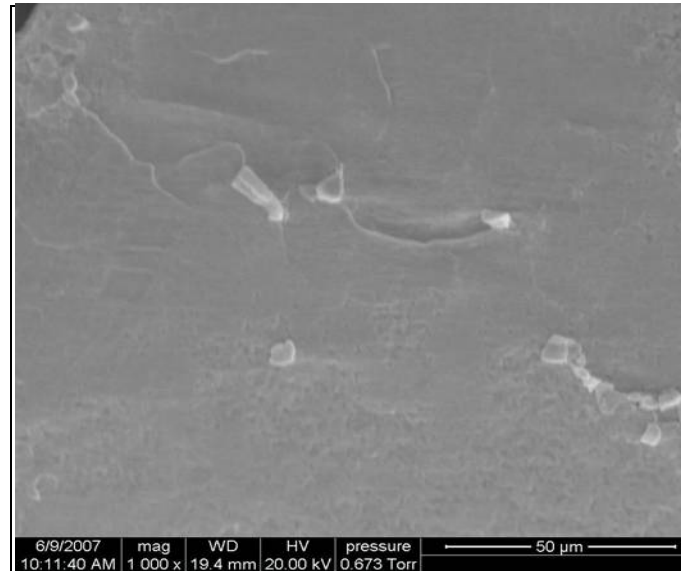
Screening Inspection				
Total leads inspected	96	Leads per unit inspected	16	
Total units inspected	6	Whisker found	Yes	
Detail Inspection				
Unit	Lead	No. of Whisker	Whiskers density range (L/M/H)	Max Length (µm)
1	1	2	L	13.07
	2	1	L	11.07
	3	N/A		
2	1	2	L	13.46
	2	1	L	13.18
	3	2	L	11.03
3	1	1	L	13.19
	2	2	L	13.77
	3	1	L	24.95
4	1	3	L	15.86
	2	2	L	20.28
	3	2	L	25.18
5	1	1	L	14.22
	2	1	L	10.18
	3	1	L	22.11
6	1	N/A		
	2	N/A		
	3	N/A		



Tin Whisker Test Report - Detailed whisker information

Basic Information			
Date of Inspection:	6/12/2007		
Plating Machine Location:	DG	Package:	48L TQFP 7x7x1.0
Chemistry:	ST380	Preconditioning:	C
Plating Thickness:	400-800 uin	Stress Type:	TMCL
Substrate Material:	CuEFTEC64T	Read Point:	TC1500

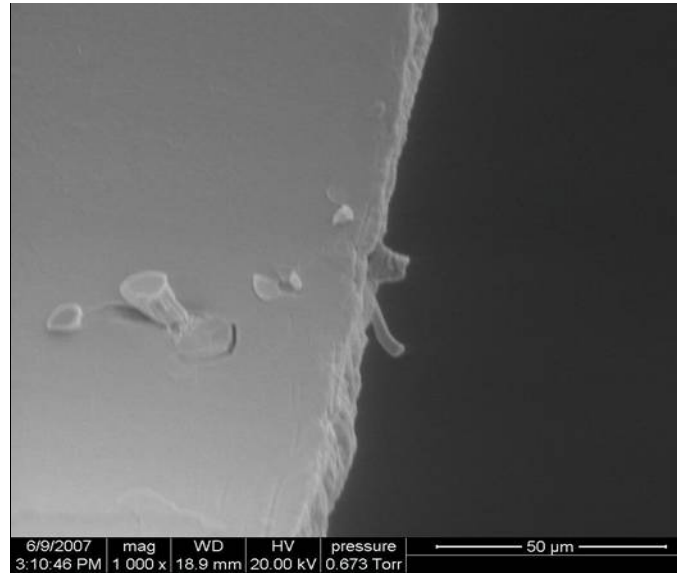
Screening Inspection				
Total leads inspected	96	Leads per unit inspected	16	
Total units inspected	6	Whisker found	Yes	
Detail Inspection				
Unit	Lead	No. of Whisker	Whiskers density range (L/M/H)	Max Length (µm)
1	1	1	L	22.03
	2	N/A		
	3	N/A		
2	1	N/A		
	2	N/A		
	3	N/A		
3	1	N/A		
	2	N/A		
	3	N/A		
4	1	N/A		
	2	N/A		
	3	N/A		
5	1	N/A		
	2	N/A		
	3	N/A		
6	1	N/A		
	2	N/A		
	3	N/A		



Tin Whisker Test Report - Detailed whisker information

Basic Information			
Date of Inspection:	6/12/2007		
Plating Machine Location:	DG	Package:	100L LQFP 14x20x1.4
Chemistry:	ST380	Preconditioning:	C
Plating Thickness:	400-800 uin	Stress Type:	TMCL
Substrate Material:	Cu7025	Read Point:	TC1500

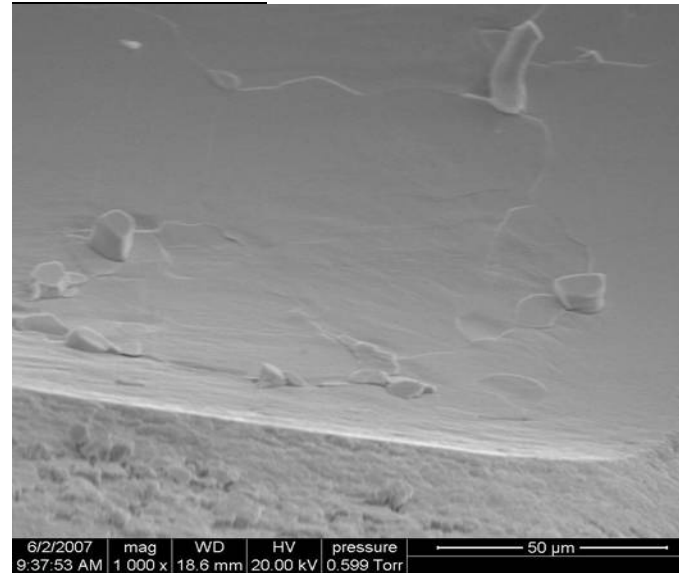
Screening Inspection				
Total leads inspected	96	Leads per unit inspected	16	
Total units inspected	6	Whisker found	Yes	
Detail Inspection				
Unit	Lead	No. of Whisker	Whiskers density range (L/M/H)	Max Length (µm)
1	1	2	L	13.19
	2	N/A		
	3	N/A		
2	1	1	L	14.63
	2	1	L	14.06
	3	N/A		
3	1	1	L	17.16
	2	1	L	10.84
	3	1	L	14.19
4	1	N/A		
	2	N/A		
	3	N/A		
5	1	2	L	21.07
	2	N/A		
	3	N/A		
6	1	1	L	10.93
	2	N/A		
	3	N/A		



Tin Whisker Test Report - Detailed whisker information

Basic Information			
Date of Inspection:	6/7/2007		
Plating Machine Location:	DG	Package:	48L TQFP 7x7x1.0
Chemistry:	ST380	Preconditioning:	A
Plating Thickness:	400-800 uin	Stress Type:	TMCL
Substrate Material:	CuEFTEC64T	Read Point:	TC1500

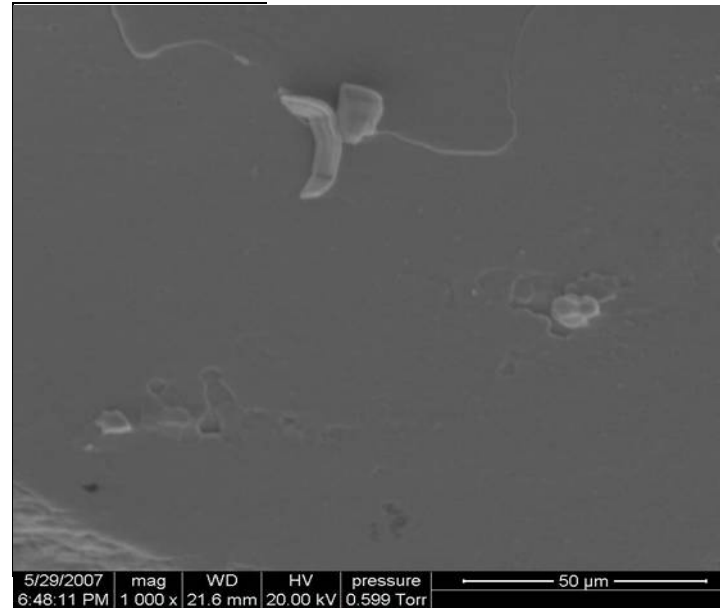
Screening Inspection				
Total leads inspected	96	Leads per unit inspected	16	
Total units inspected	6	Whisker found	Yes	
Detail Inspection				
Unit	Lead	No. of Whisker	Whiskers density range (L/M/H)	Max Length (μm)
1	1	N/A		
	2	N/A		
	3	N/A		
2	1	1	L	15.38
	2	N/A		
	3	N/A		
3	1	N/A		
	2	N/A		
	3	N/A		
4	1	N/A		
	2	N/A		
	3	N/A		
5	1	N/A		
	2	N/A		
	3	N/A		
6	1	1	L	20.92
	2	N/A		
	3	N/A		



Tin Whisker Test Report - Detailed whisker information

Basic Information			
Date of Inspection:	6/7/2007		
Plating Machine Location:	DG	Package:	100L LQFP 14x20x1.4
Chemistry:	ST380	Preconditioning:	A
Plating Thickness:	400-800 uin	Stress Type:	TMCL
Substrate Material:	Cu7025	Read Point:	TC1500

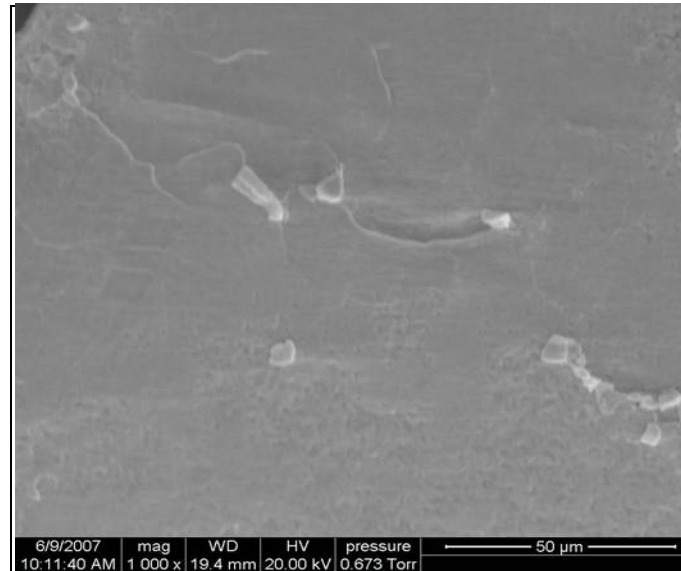
Screening Inspection				
Total leads inspected	96	Leads per unit inspected	16	
Total units inspected	6	Whisker found	Yes	
Detail Inspection				
Unit	Lead	No. of Whisker	Whiskers density range (L/M/H)	Max Length (µm)
1	1	2	L	13.07
	2	1	L	11.07
	3	N/A		
2	1	2	L	13.46
	2	1	L	13.18
	3	2	L	11.03
3	1	1	L	13.19
	2	2	L	13.77
	3	1	L	24.95
4	1	3	L	15.86
	2	2	L	20.28
	3	2	L	25.18
5	1	1	L	14.22
	2	1	L	10.18
	3	1	L	22.11
6	1	N/A		
	2	N/A		
	3	N/A		



Tin Whisker Test Report - Detailed whisker information

Basic Information			
Date of Inspection:	6/12/2007		
Plating Machine Location:	DG	Package:	48L TQFP 7x7x1.0
Chemistry:	ST380	Preconditioning:	C
Plating Thickness:	400-800 uin	Stress Type:	TMCL
Substrate Material:	CuEFTEC64T	Read Point:	TC1500

Screening Inspection				
Total leads inspected	96	Leads per unit inspected	16	
Total units inspected	6	Whisker found	Yes	
Detail Inspection				
Unit	Lead	No. of Whisker	Whiskers density range (L/M/H)	Max Length (µm)
1	1	1	L	22.03
	2	N/A		
	3	N/A		
2	1	N/A		
	2	N/A		
	3	N/A		
3	1	N/A		
	2	N/A		
	3	N/A		
4	1	N/A		
	2	N/A		
	3	N/A		
5	1	N/A		
	2	N/A		
	3	N/A		
6	1	N/A		
	2	N/A		
	3	N/A		



Tin Whisker Test Report - Detailed whisker information

Basic Information			
Date of Inspection:	6/12/2007		
Plating Machine Location:	DG	Package:	100L LQFP 14x20x1.4
Chemistry:	ST380	Preconditioning:	C
Plating Thickness:	400-800 uin	Stress Type:	TMCL
Substrate Material:	Cu7025	Read Point:	TC1500

Screening Inspection				
Total leads inspected	96	Leads per unit inspected	16	
Total units inspected	6	Whisker found	Yes	
Detail Inspection				
Unit	Lead	No. of Whisker	Whiskers density range (L/M/H)	Max Length (µm)
1	1	2	L	13.19
	2	N/A		
	3	N/A		
2	1	1	L	14.63
	2	1	L	14.06
	3	N/A		
3	1	1	L	17.16
	2	1	L	10.84
	3	1	L	14.19
4	1	N/A		
	2	N/A		
	3	N/A		
5	1	2	L	21.07
	2	N/A		
	3	N/A		
6	1	1	L	10.93
	2	N/A		
	3	N/A		

