

Inspection Report

Report No:	KHT-20250327-033	Sales:	Daniel Yuan	Department Of Application	Sales
Receipt Date:	2025-03-05	Test Date:	2025-03-05	Report Date:	2025-03-27
Inspector:	<i>Wade</i>	Approved by:	<i>David</i>	Approved by:	<i>Jan Guo</i>

Sample Information					
Part Number:	EP4CE40F23I7N	Package Type:	FBGA-484	D/C:	2307+
Package Carrier:	TRAY	Manufacturer:	ALTERA	MSL:	3
Quantity Received:	180pcs	Quantity Inspected:	5pcs	PO Number:	1215075524
Incoming information: The incoming goods for 1 box,240pcs / box, Vacuum-packed ; with original labels , but some of the information on the label is hidden.; There is no abnormality in the outer packaging.					

Test Content			
Report Summary:	Details:	Risk Level:	
Inspection Items	Reference Standards	Results	Notes
1.External Visual Inspection			
1.1 Product Information	AS6081 IDEA-STD-1010-B	PASS	
1.2 Surface Analysis		PASS	
1.3 Solder ball quality analysis		PASS	
1.4 Aceton Inspection		PASS	
1.5 Device Dimension Measurement	Device Datasheet	PASS	
2.X-RAY Test			
2.1 X-Ray Internal Structure Inspection	GJB548B-2005	PASS	
3.Solderability Test			
3.1 Solderability Test	IPC J-STD-002D/2C	/	
4.De-cap Die Analysis			

4.1 De-cap Die Analysis	GJB 4027A-2006	/	
5.SEM & EDS Analysis			
5.1 Microstructure Analysis	JY/T 0584-2020	/	
5.2 Pin Material Analysis	GB/T 17359-2012	/	
6.RoHS Test			
6.1 RoHS Test	RoHS Order	/	
7.IV Test/Electrical Performance Test			
7.1 IV Test/Electrical Performance Test	Datesheet	/	
8.XRF Analysis			
8.1 Coating Thickness Analysis	Datesheet	/	
9.C-SAM Analysis			
9.1 Ultrasonic Inspection	IPC/JEDEC J-STD-035:1999	/	

Conclusion and Suggestions	
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Conclusion:	Incoming 180pcs for the same batch, the marking is consistent; 5pcs were detected by sampling detection method, EVI passed, X-RAY test passed..
Suggestions:	

Notes and Disclaimers:

1. The report is invalid without the signature of the quality inspector and QC supervisor.
2. No part of this publication may be reproduced, altered or distributed publicly in any form or by any means without the prior written permission of Kehuite Technology Development Limited.
3. Any questions about the goods, please contact the corresponding salesman.

Datasheet:

<https://www.intel.cn/content/www/cn/zh/support/programmable/support-resources/devices/package.html?wapkw=package%20drawing>

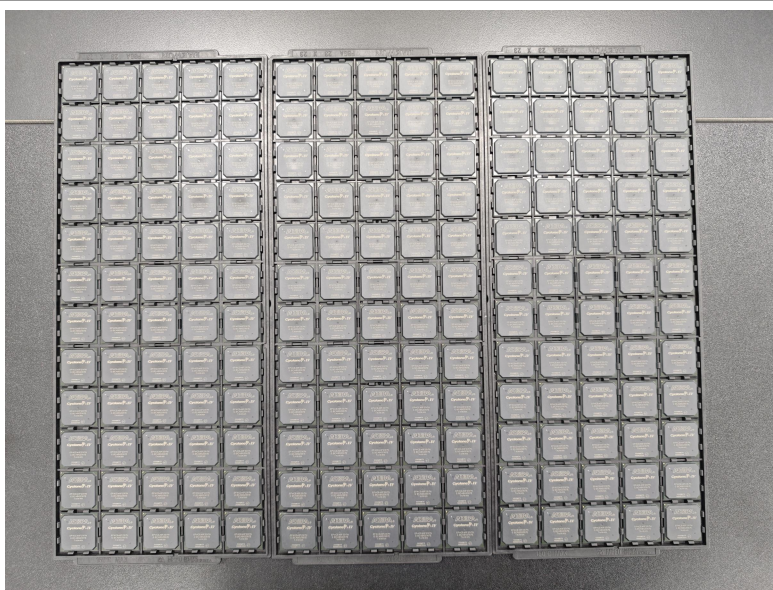


1.External Visual Inspection

1.1 Product Information

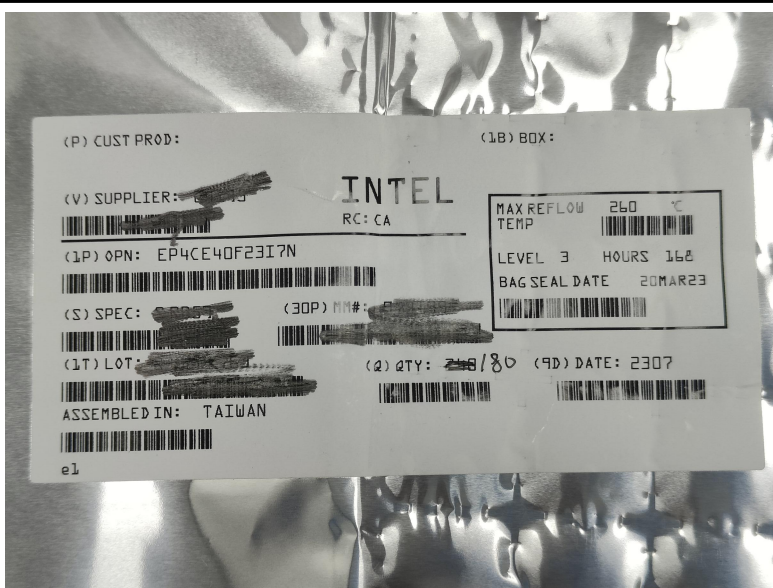
- Packaging or label inspection of the samples are as follows:

Labels are clear, no alterations, label information checks out; typed versions, typography, etc. conform to original factory characteristics.



Arrival picture

Fig1



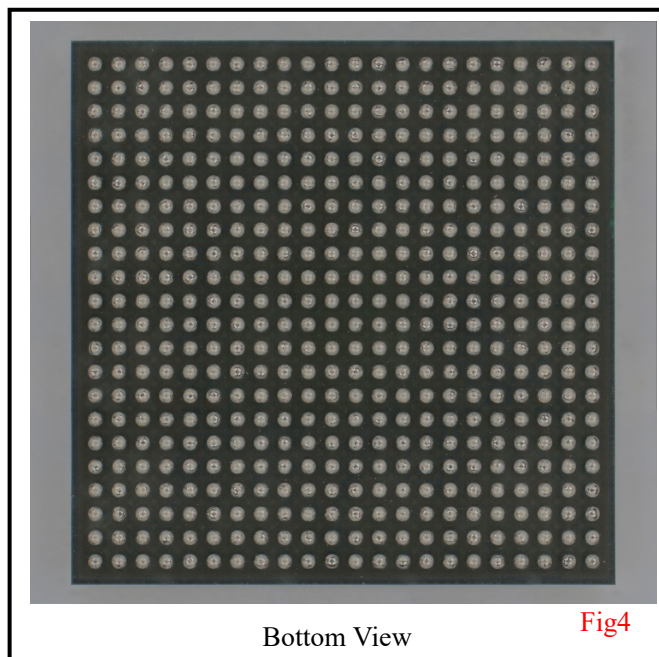
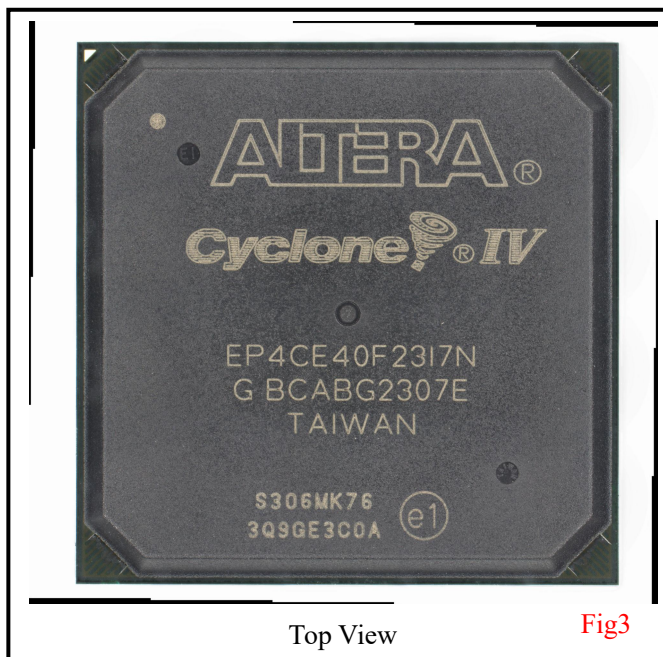
Arrival label

Fig2

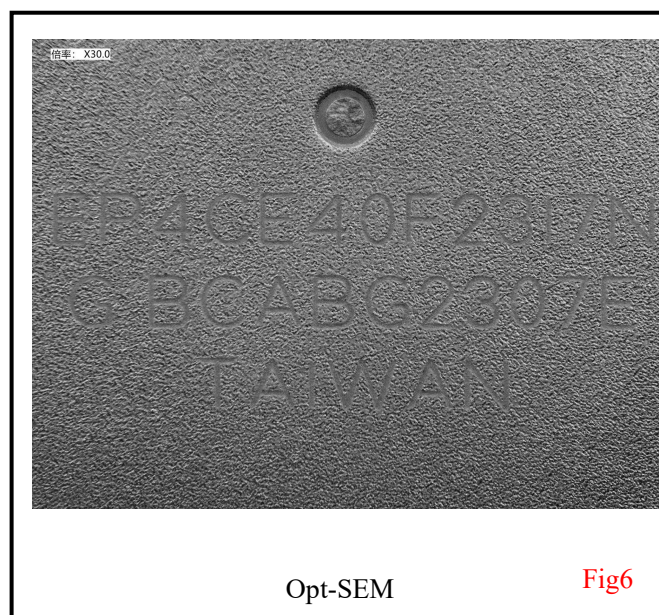
1.2 Surface Analysis

- The comparison specifications for the sampled samples show the following results:

Marking , typing version, typesetting and other comparison is consistent, chip packaging is not abnormal.



The marking on the surface of the sample is clear, the granularity is obvious, the shape of the marking is regular, and there is no trace of secondary polishing;





Locating holes

Fig7



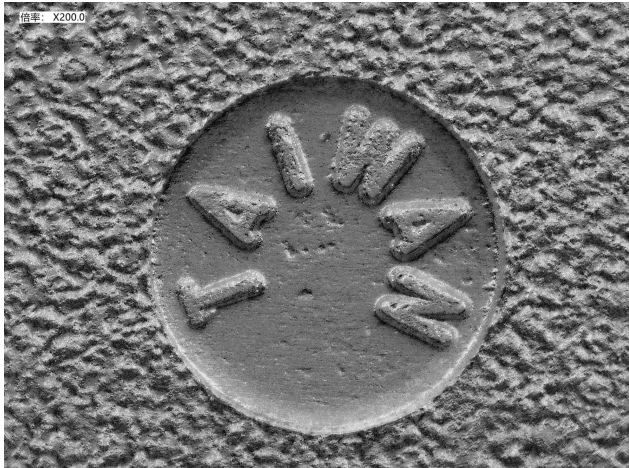
Opt-SEM

Fig8



Locating holes

Fig9



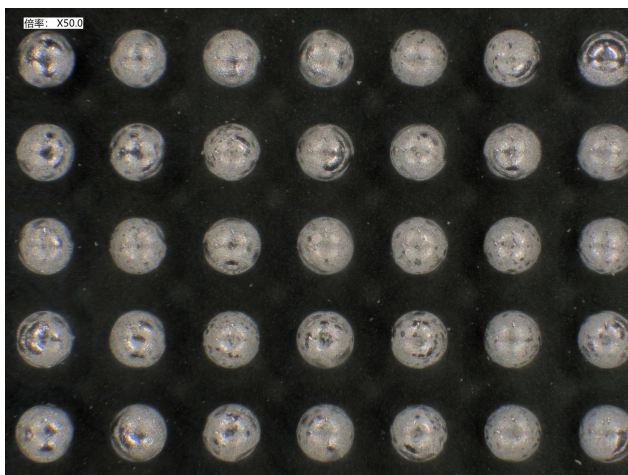
Opt-SEM

Fig10

1.3 Solder ball quality analysis

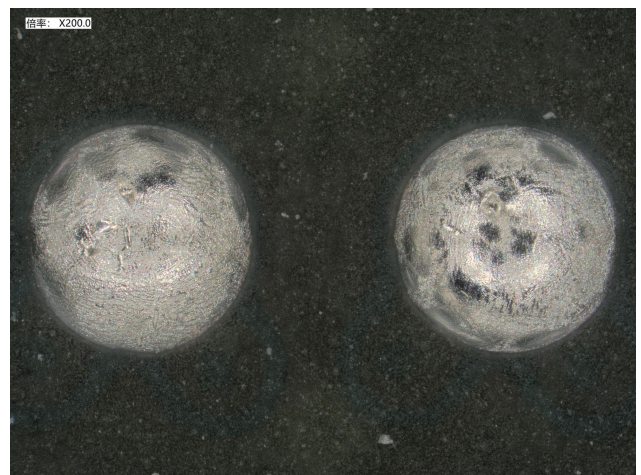
- The quality inspection of the solder balls of the sampling samples shows the following results

The diameter and height of the solder balls are in accordance with the specifications of the specification; Check the appearance of the solder balls one by one, there is no abnormality such as deformation and discoloration, the welding is good.



Top view

Fig11



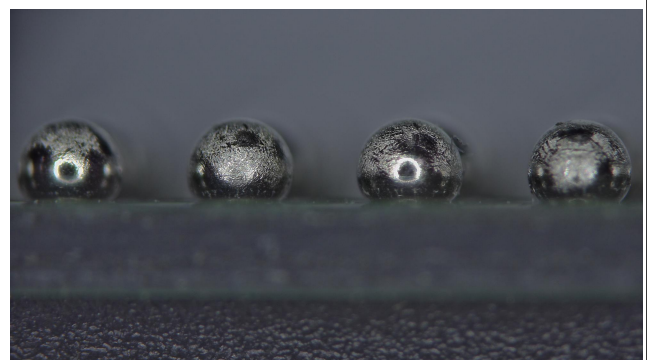
Top view

Fig12



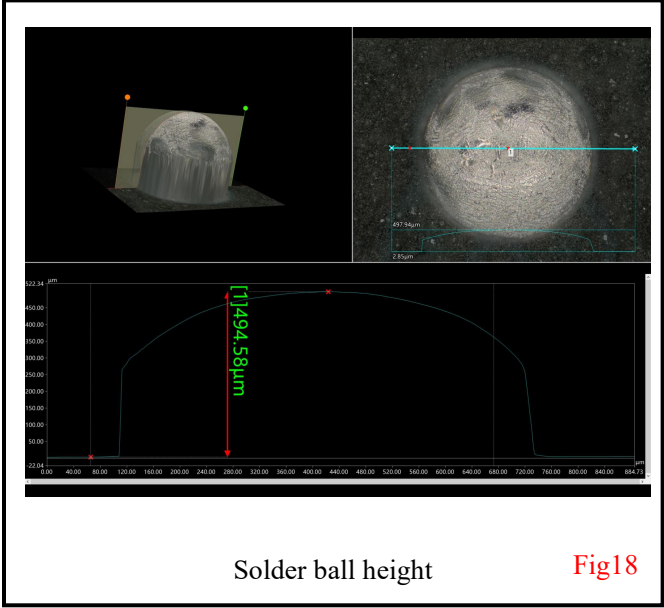
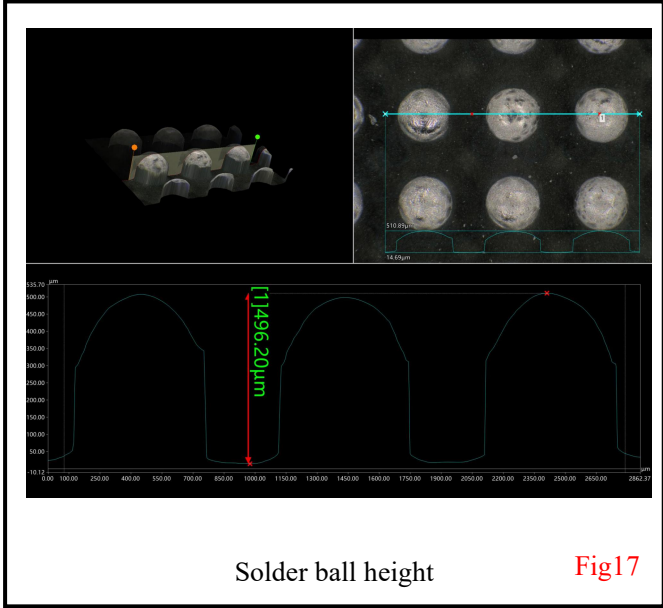
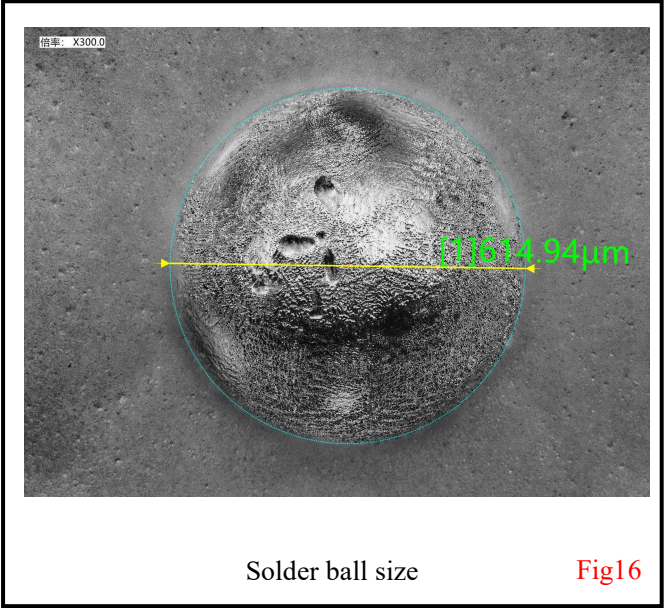
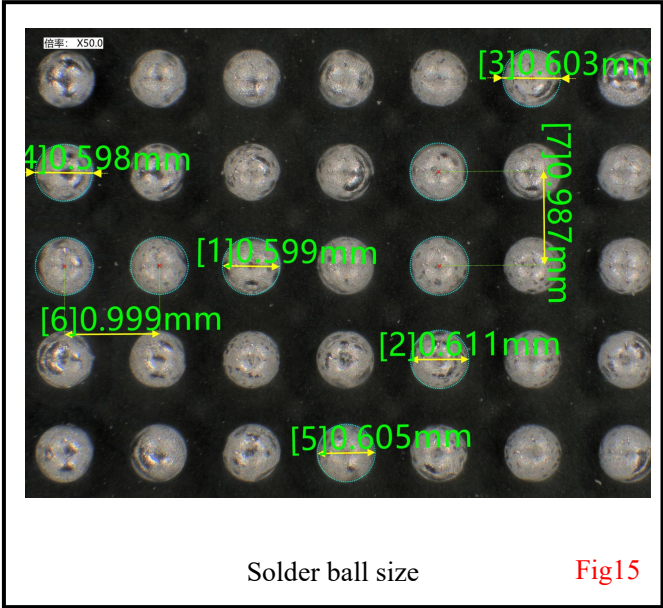
Side View

Fig13



Side View

Fig14



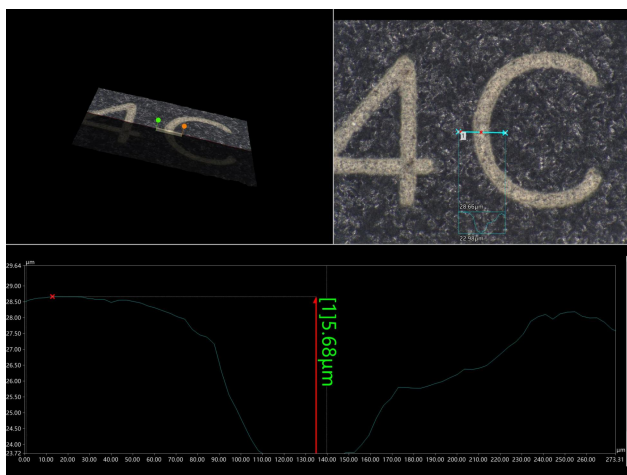
1.4 Aceton Inspection

After the surface and side of the sample were wiped back and forth with acetone for 3 times, the mark was still clearly visible, there was no obvious secondary coating, the depth of the mark did not change significantly under the EMS(Electron Microscope Scan),and the cotton swab was not blackened and other abnormal phenomena.



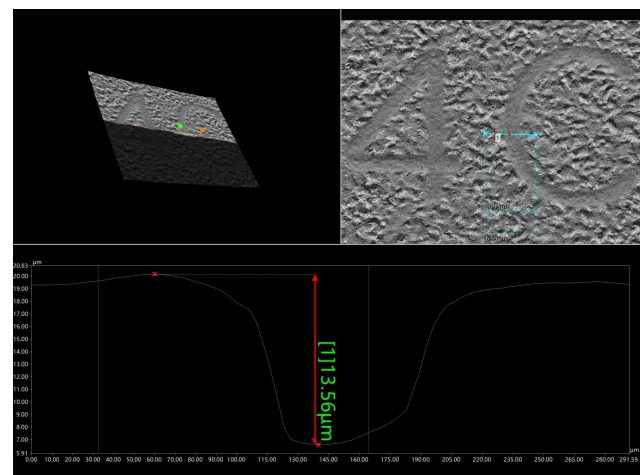
Acetone Test

Fig19



#1 Electron Microscope Scan

Fig20



#2 Electron Microscope Scan

Fig21

1.5 Dimension Measurement

- All size of the samples meet the requirement of the specifications.



Length: 22.98mm

Fig22



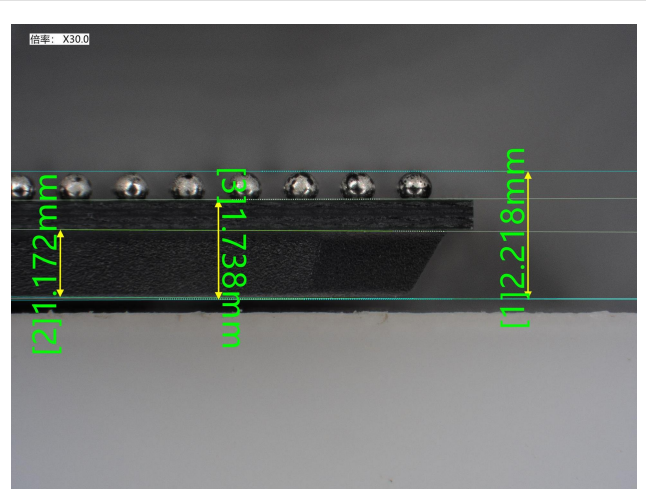
Width: 22.98mm

Fig23



Electronic Measurement

Fig24



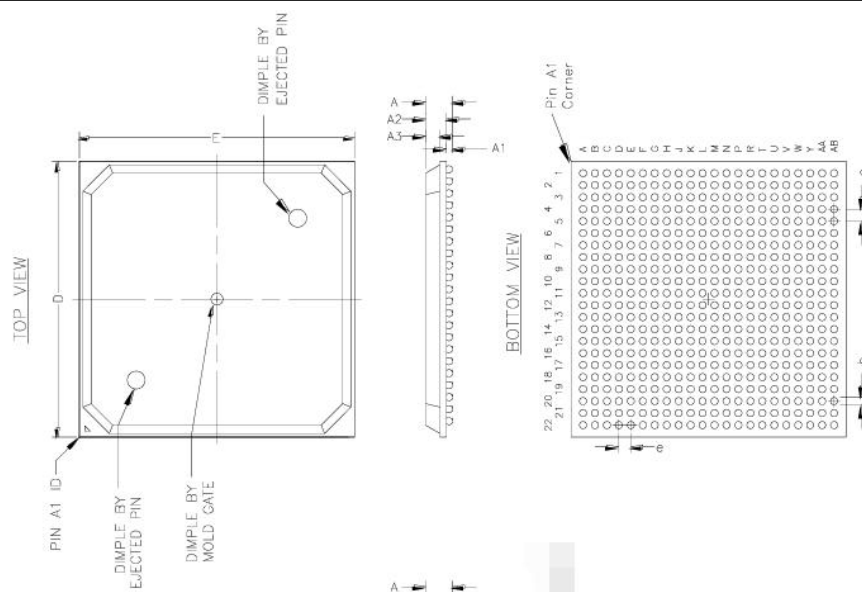
Electronic Measurement

Fig25

Measurement data:

Sample number	Length/mm	Width/mm	Thicknesses/mm	Result
#1	22.98	22.98	1.74	PASS
#2	23.00	22.98	1.75	PASS
#3	22.99	22.99	1.74	PASS
#4	23.00	22.98	1.75	PASS
#5	22.98	23.00	1.76	PASS

Data Sheet Reference Dimensions

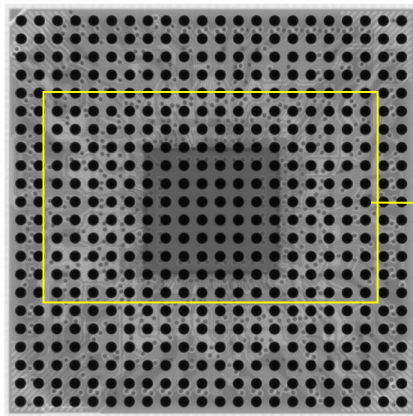


Package Outline Dimension Table			
Symbol	Millimeters		
	Min.	Nom.	Max.
A	2.10	2.25	2.40
A1	0.40	0.50	0.60
A2	1.50	1.75	2.00
A3	1.12	1.17	1.22
D	23.00 BSC		
E	23.00 BSC		
b	0.50	0.60	0.70
e	1.00 BSC		

Fig26

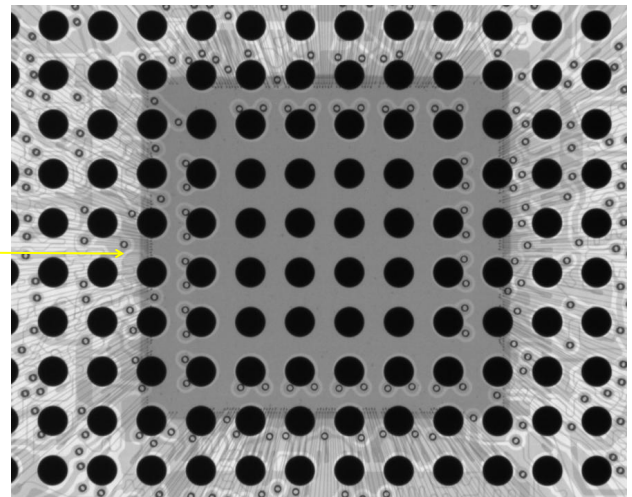
2.X-Ray Inspection

• X-RAY: The internal structure of the sample is intact, the interface at the output terminal well welded, there were no abnormalities such as broken wires or crossings in the inner coils.



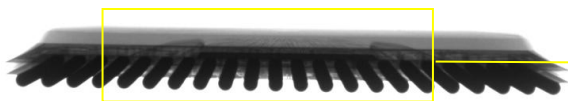
Top View

Fig27



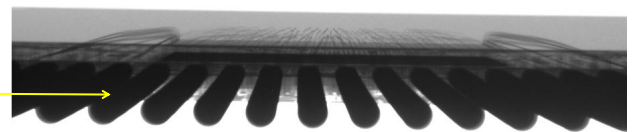
Top View

Fig28



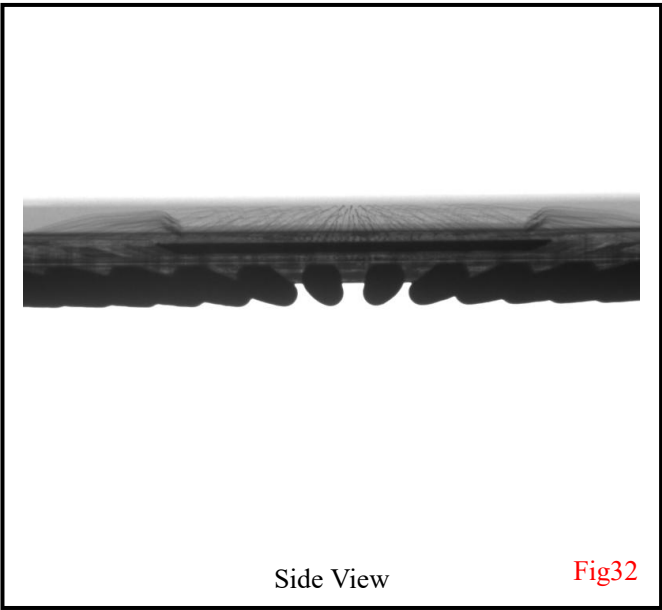
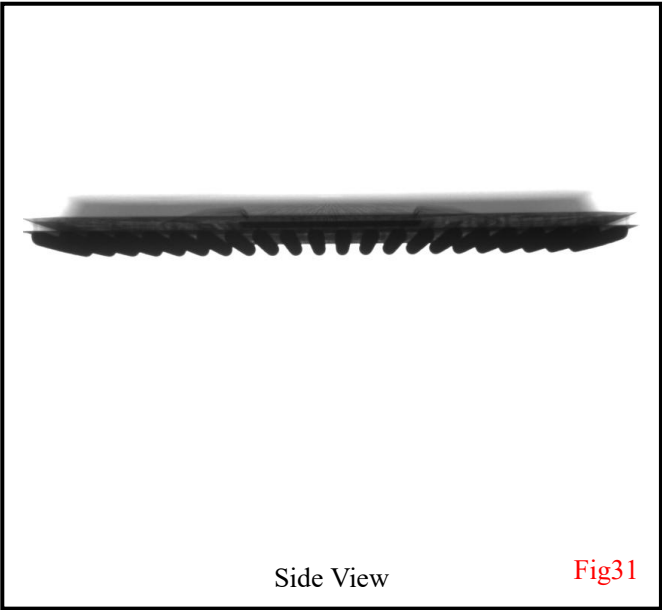
Side View

Fig29



Side View

Fig30



3.List of Test Equipments

NO.	Inspection Item	Type of Equipment	Proofreading Period
1	Video microscope	SWG-N714	2024.07.28~2025.07.27
2	X-Ray	ZM-X5600	2024.12.04~2025.12.03
3	Digital Caliper	Mitutoyo 0-150mm	2025.01.08~2026.01.07
4	3D microscope	VHX-7000	2024.11.03~2025.11.02
5	Tin furnace	QUICK100-15S	2024.08.20~2025.08.19
6	Chemical unpacker	RKD motor-Lithium etching7000	2025.03.18~2026.03.17
Operation Environment		Temperature:15°C~35°C,humidity:30%~60%RH	