Cyclops Electronics Limited
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Reg. No. SC128862
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Quality Inspection Report

Cyclops Electronics Ref. DY114320011

Customer Name	Sample Company	Customer PO Number	45248057
Part Number	TC551001CF70L	Package Type	SOP32
Manufacturer	Toshiba	Country of Origin	Japan
Date Code	9831	Lot Code	9831HAK
Quantity Delivered	230	Quantity Destroyed	3
ERAI Checked	Yes	Date Received	07/11/2023

Summary

Page	Inspection	Quantity	Risk Profile
3	Documentation & Packaging	All devices	PASS
5	Part External Visual Inspection	All Devices	PASS
6	External Dimensional Check	1	PASS
8	Solvent Test	3	PASS
9	Scrape Test	3	PASS
10	Decapsulation Analysis	3	PASS
12	X-Ray Inspection	4	PASS
13	XRF Test - Lead Finish (RoHS)	4	PASS
14	Solderability	5	PASS

Comments

None of the test results indicate that the components received are either suspect, fraudulent or counterfeit. The parts are marked as lead free but they only contain 2ppm which complies with Rosh legislation.

Signed _____ Printed: Alex Roberts

Position: Assistant Stores & Logistics Manager Dated: 09/11/2023

Cyclops Electronics hereby attests to the best of our knowledge that the parts provided under this purchase order are unused, unaltered and have not been salvaged, reclaimed, otherwise used or previously rejected for any reason. This statement is based on rigorous supplier selection practices, supplier assurance practices, tests and inspections of the specific parts supplied that are designed to prevent the supply of fraudulent / counterfeit parts.

Disclaimer

This document should be used in an advisory nature only and that neither Cyclops Electronics nor any person acting on behalf of Cyclops Electronics will assume any liability resulting from the use of the information contained herein. The results are attributed to the sample only. No warranty is expressed or implied regarding results obtained.

SAMPLE

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Data Sheet

TOSHIBA TC551001CP/CF/CFT/CTR/CST/CSR-55,-70,-85,-55L,-70L,-85L

TENTATIVE TOSHIBA MOS DIGITAL INTEGRATED CIRCUIT SILICON GATE CMOS

131,072-WORD BY 8-BIT STATIC RAM

DESCRIPTION

The TC551001CP/CF/CFT/CTR/CST/CSR is a 1,048,576-bit static random access memory (SRAM) organized as 131,072 words by 8 bits. Fabricated using Toshiba's CMOS Silicon gate process technology, this device operates from a single 5 V ± 10% power supply. Advanced circuit technology provides both high speed and low power at an operating current of 5 mA/MHz (typ) and a minimum cycle time of 55 ns. It is automatically placed in low-power mode at 1 μA standby current (typ) when chip enable (CE1) is asserted high or (CE2) is asserted low. There are three control inputs. CE1 and CE2 are used to select the device and for data retention control, and output enable (OE) provides fast memory access. This device is well suited to various microprocessor system applications where high speed, low power and battery backup are required. The TC551001CP/CF/CFT/CTR/CST/CSR is available in a standard plastic 32-pin dual-in-line package (DIP), plastic 32-pin small-outline package (SOP) and normal and reverse pinout plastic 32-pin thin-small-outline package (TSOP).

FEATURES

- Low-power dissipation
  Operating: 27.5 mW/MHz (typical)
- Single power supply voltage of 5 V ± 10%
- Power down features using CE1 and CE2.
- Data retention supply voltage of 2 to 5.5 V
- Direct TTL compatibility for all inputs and outputs
- Standby Current (maximum) :

	TC551001CP/CF/CFT/CTR/CST/CSR	
	-55, -70, -85	-55L, -70L, -85L
5.5V	100 μA	20 μA
3.0V	50 μA	10 μA

- Access Times (maximum):

	TC551001CP/CF/CFT/CTR/CST/CSR		
	-55, -55L	-70, -70L	-85, -85L
Access Time	55 ns	70 ns	85 ns
CE1 Access Time	55 ns	70 ns	85 ns
CE2 Access Time	55 ns	70 ns	85 ns
OE Access Time	30 ns	35 ns	45 ns

- Packages:

DIP32 P 600 2.54 (CP)	(Weight: 4.45 g typ)
SOP32-P-525-1.27 (CF)	(Weight: 1.04 g typ)
TSOP I 32-P-0820-0.50 (CFT)	(Weight: 0.34 g typ)
TSOP I 32-P-0820-0.50A (CTR)	(Weight: 0.34 g typ)
TSOP I 32-P-0.50 (CST)	(Weight: 0.24 g typ)
TSOP I 32-P-0.50A (CSR)	(Weight: 0.24 g typ)

PIN ASSIGNMENT (TOP VIEW)

○ 32 PIN DIP & SOP

NC	1	32	V_{DD}
A16	2	31	A15
A14	3	30	CE2
A12	4	29	R/W
A7	5	28	A13
A6	6	27	A8
A5	7	26	A9
A4	8	25	A11
A3	9	24	OE
A2	10	23	A10
A1	11	22	CE1
A0	12	21	I/O8
I/O1	13	20	I/O7
I/O2	14	19	I/O6
I/O3	15	18	I/O5
GND	16	17	I/O4

○ 32 PIN TSOP

(Normal pinout)



(Reverse pinout)



PIN NAMES

A0 to A16	Address Inputs
R/W	Read/Write Control
OE	Output Enable
CE1, CE2	Chip Enable
I/O1 to I/O8	Data Input/Output
V_{DD}	Power (+ 5 V)
GND	Ground
NC	No Connection

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Pin Name	A_{11}	A_9	A_8	A_{13}	R/W	CE2	A_{15}	V_{DD}	NC	A_{16}	A_{14}	A_{12}	A_7	A_6	A_5	A_4
Pin No.	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Pin Name	A_3	A_2	A_1	A_0	I/O1	I/O2	I/O3	GND	I/O4	I/O5	I/O6	I/O7	I/O8	$\overline{CE1}$	A_{10}	$\overline{OE}$

980910EBA1

- TOSHIBA is continually working to improve the quality and the reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing TOSHIBA products, to observe standards of safety, and to avoid situations in which a malfunction or failure of a TOSHIBA product could cause loss of human life, bodily injury or damage to property. In developing your designs, please ensure that TOSHIBA products are used within specified operating ranges as set forth in the most recent products specifications. Also, please keep in mind the precautions and conditions set forth in the TOSHIBA Semiconductor Reliability Handbook.
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- The information contained herein is presented only as a guide for the applications of our products. No responsibility is assumed by TOSHIBA CORPORATION for any infringements of intellectual property or other rights of the third parties which may result from its use. No license is granted by implication or otherwise under any intellectual property or other rights of TOSHIBA CORPORATION or others.
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1998-09-02 1/14

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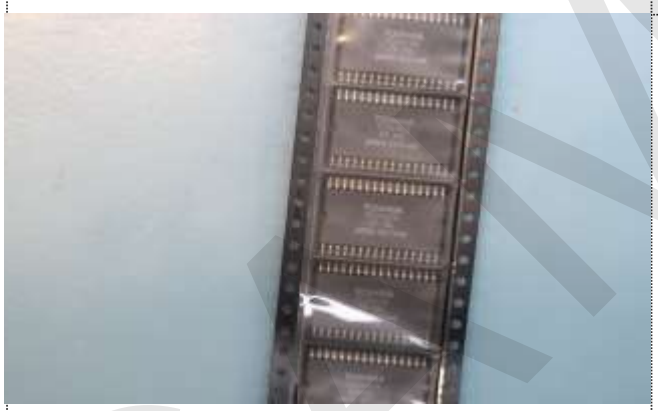
Inspection of Documentation & Packaging

PASS

Part Number	TC551001CF70L	RoHS Status	No
Manufacturer	Toshiba	Description	SOP 32
Date Code	9831	MSL Level	1
Country of Origin	Japan	Inspector	Alex Roberts







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Inspection of Documentation & Packaging

N/A

Observations Summary

Packaging Inspection Criteria	Pass	Fail	Advisory	N/A
Manufacturer logo label is present and matches that shown on the website or on previous test samples	X			
There are no misspelt words, examples of poor syntax, alterations, or changes to the packaging or labels	X			
Parts are factory sealed and seem to be unopened		X		
Barcode symbols match the printed data				X
Package materials are consistent with the description on the datasheet	X			
General Inspection Criteria	**Pass**	**Fail**	**Advisory**	**N/A**
Parts are marked or otherwise identified with identical lot, batch and date code ID information	X			
All parts are identical in appearance to the unaided eye - parts and packaging	X			
Parts appear to have been subject to the same handling, packaging and storage conditions.	X			
Parts have maintained their physical placement and have not been separated	X			
Detailed Inspection Criteria	**Pass**	**Fail**	**Advisory**	**N/A**
Package type is the same as per the manufacturer's datasheet	X			
Part marking to manufacturer specification	X			
Pin one placement or orientation marks are consistent and located correctly	X			
Lead/balls are in good condition and with no tarnish or damage				X
MSL Label Included				X
Desiccant Bag / Humidity Indicator included if required				X

Other Observations

Parts received on one continuous cut tape. Reel counted.

SAMPLE

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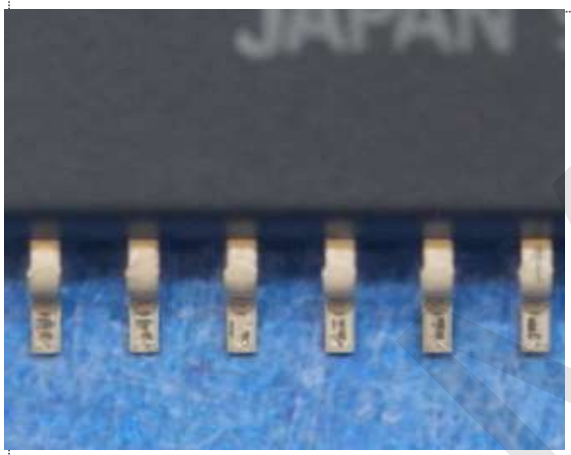
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Part External Visual Inspection

PASS













Summary

Part markings Show full part number, Printing is crisp with no signs of bleeding and is at a slight angle, This is what we would expect for a 21998 date code. Leads look new and unused. They have wear marks on the the base of the leads consistant with the manufacturering process.

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Manufacturer Component Dimensions

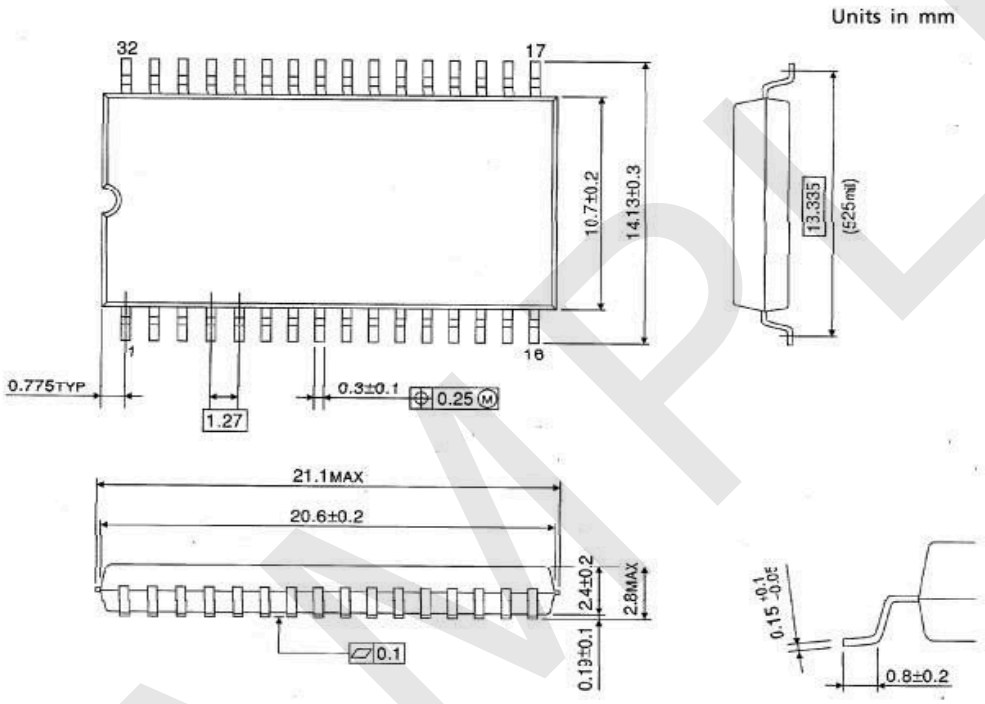
N/A

Extracted from data sheet

TOSHIBA TC551001CP/CF/CFT/CTR/CST/CSR-55,-70,-85,-55L,-70L,-85L

PACKAGE DIMENSIONS (SOP32-P-525-1.27)

Units in mm



SAMPLE

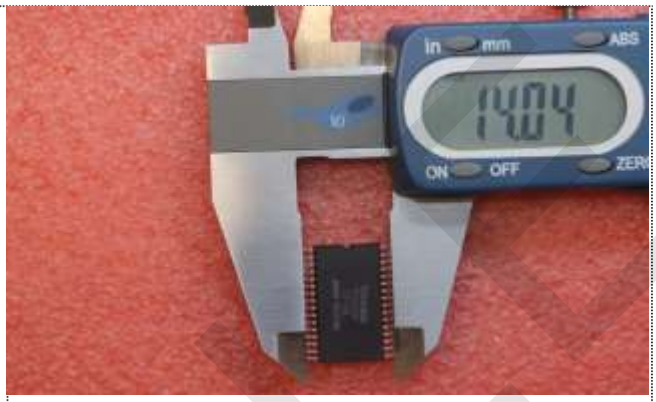
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External Dimensional Check

PASS









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Summary

All Package dimensions are within tollerance

SAMPLE

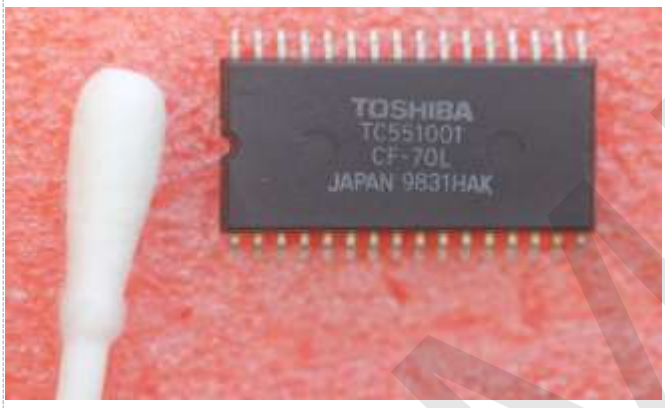
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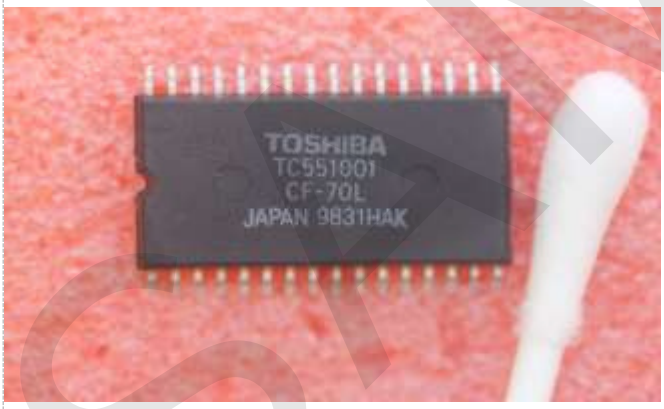
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Acetone / Mixed Solvent Test

PASS







SAMPLE

Summary

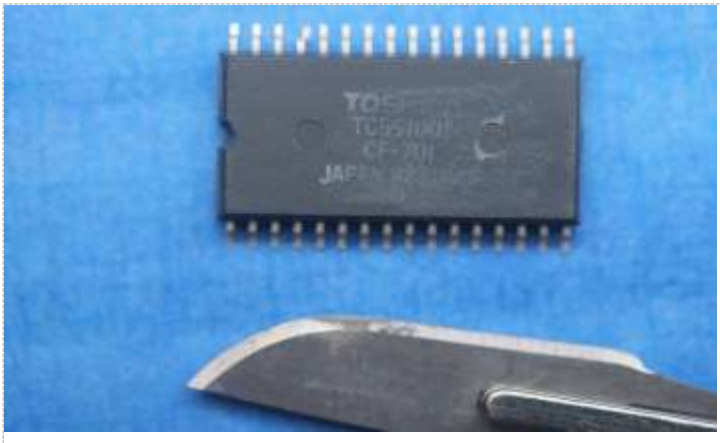
Parts tested using Alfa Aesar Acetone 99+% CH_3COCH_3 or 3/1 mixed solvent of Alfa Aesar petroleum ether 60/80 and Alfa Aesar 2- propenol 99+%.
No Residue removed from top of part during test. Part markings and colour remain consistent with no signs of bleeding.

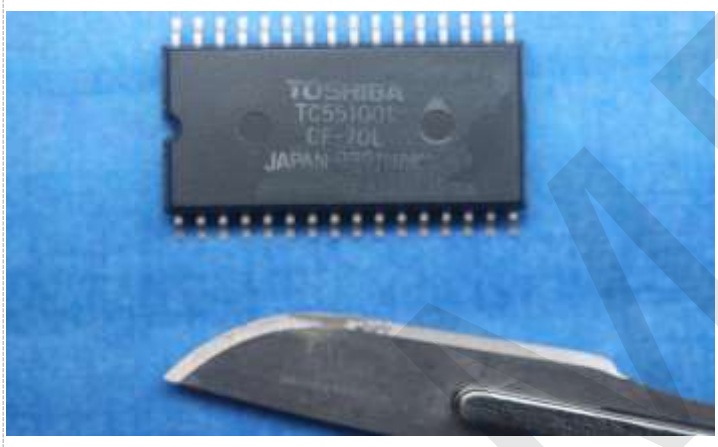
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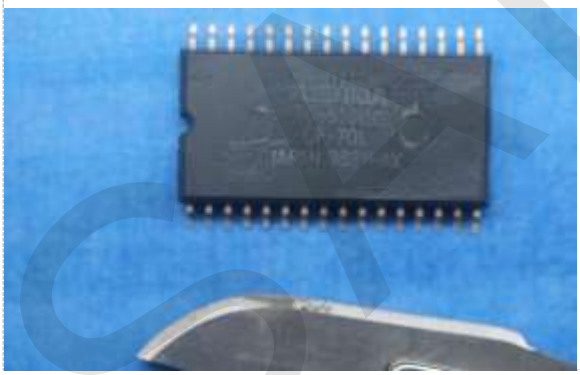
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Scrape Test

PASS







SAMPLE

Summary

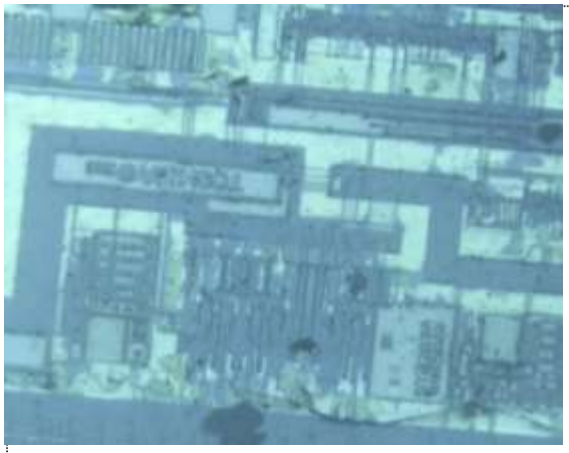
Top Layer of part is consistent and even. no signs of sanding or ghost markings below top layer.

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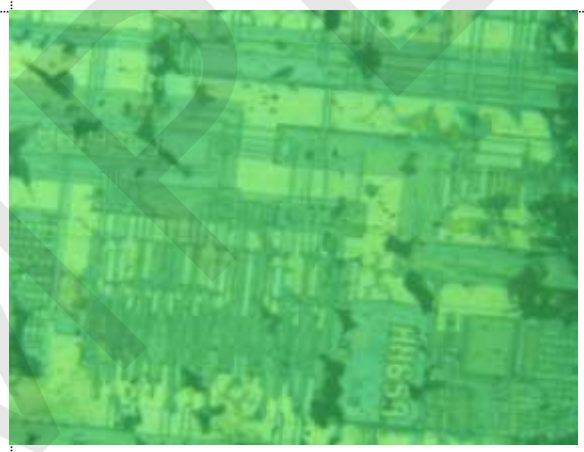
Decapsulation Analysis

PASS













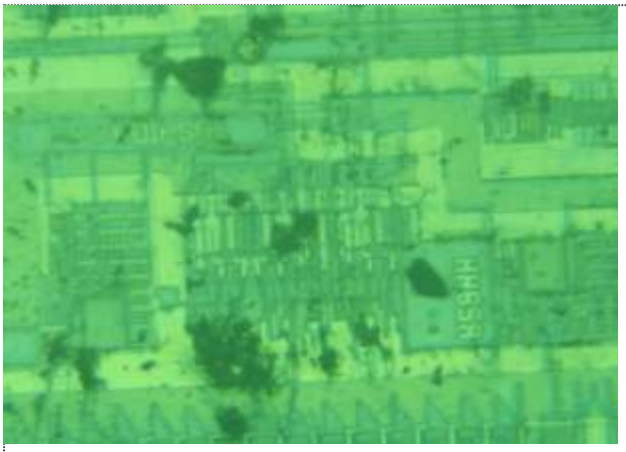
Summary

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Decapsulation Analysis

PASS







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SAMPLE

Summary

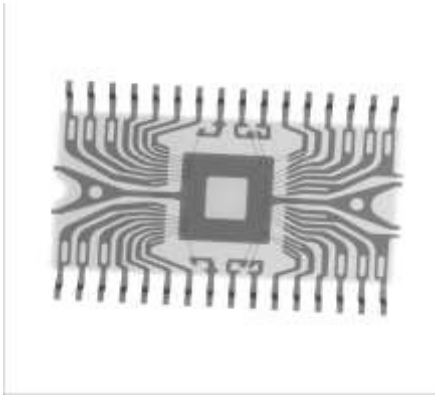
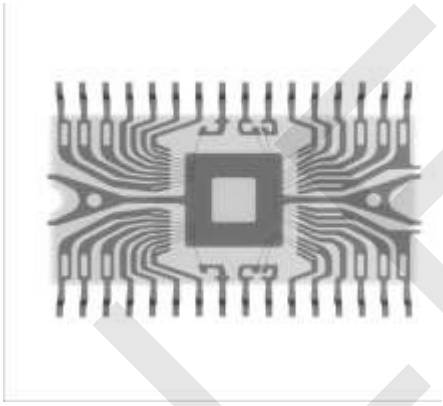
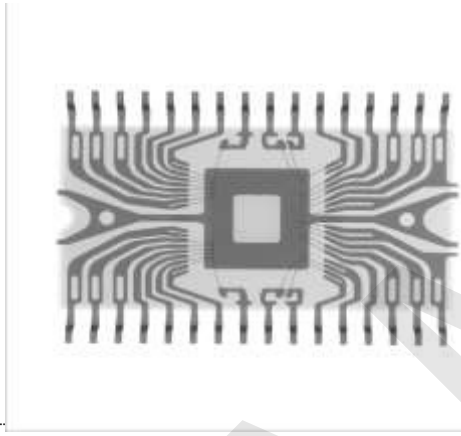
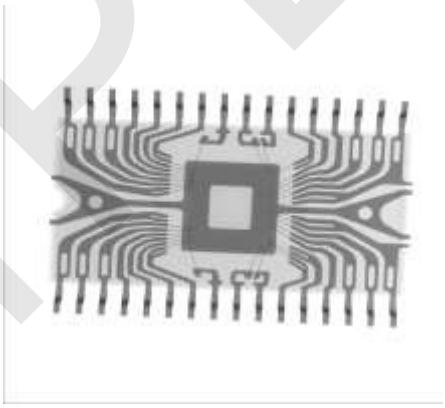
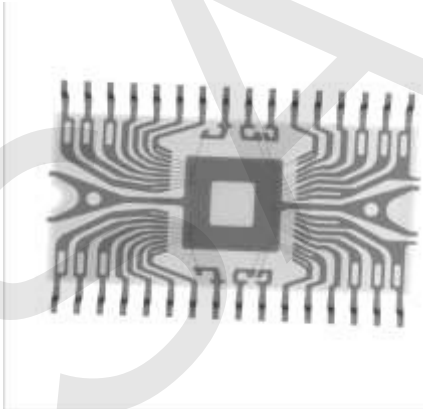
All 3 Dies Show Manufacturers logo and 1996 copyright. All 3 pieces are marked HN65A with no visible discrepancy's between the sample pieces.
It is common for commercial component manufacturers to use a previous edition of a die from an old date code in a newer package if no changes have been made to the layout and operation of the die.

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X-Ray Inspection

PASS

SAMPLE

Summary

X-ray analysis reveals consistent internal structure. Samples do not exhibit voids or other apparent anomalies inside the component.

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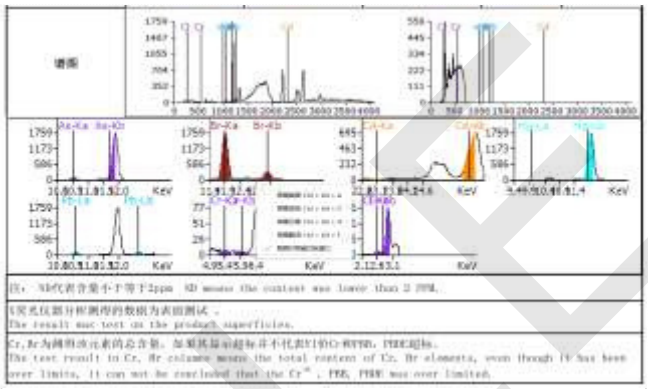
XRF Test

PASS



全分析报告
Total Analysis Report

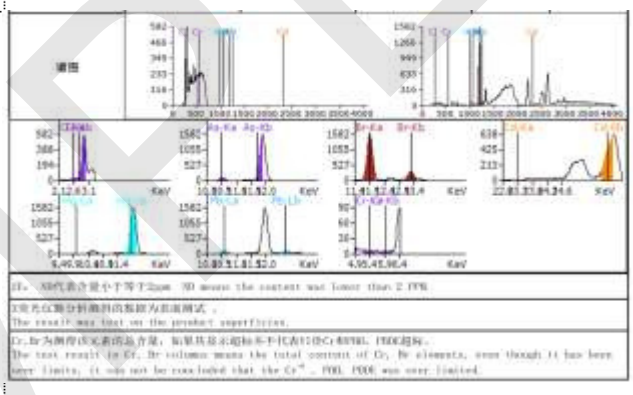
样品名称 Sample Name		测量时间 Test Time			
供应商 Supplier		管压 Voltage			
操作员 Operator		管流 Current			
测量日期 Test Date		工作曲线 WorkCurve			
批号 LotNo.		仪器型号 Mode			
特检单号 PendNo.		送测单位 SubmittedUnit		编号 Number	
元素 Element	强度 Intensity	含量(ppm) Content(ppm)	误差(ppm) Error(ppm)	限定标准 Limits	判定 Results
Cl(ppm)					
Cl(ppm)					
As(ppm)					
Br(ppm)					
Cd(ppm)					
Hg(ppm)					
Pb(ppm)					





全分析报告
Total Analysis Report

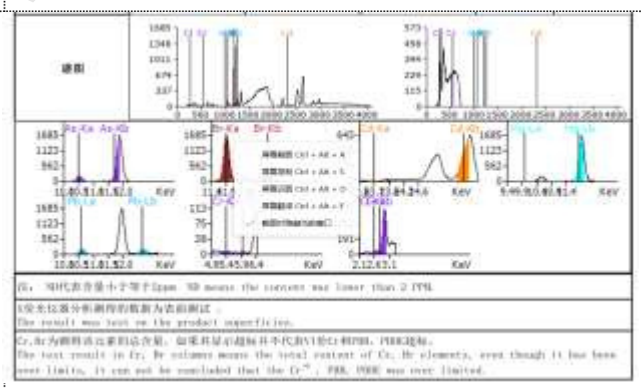
样品名称 Sample Name		测量时间 Test Time			
供应商 Supplier		管压 Voltage			
操作员 Operator		管流 Current			
测量日期 Test Date		工作曲线 WorkCurve			
批号 LotNo.		仪器型号 Mode			
特检单号 PendNo.		送测单位 SubmittedUnit		编号 Number	
元素 Element	强度 Intensity	含量(ppm) Content(ppm)	误差(ppm) Error(ppm)	限定标准 Limits	判定 Results
Cl(ppm)					
Cl(ppm)					
As(ppm)					
Br(ppm)					
Cd(ppm)					
Hg(ppm)					
Pb(ppm)					





全分析报告
Total Analysis Report

样品名称 Sample Name		测量时间 Test Time			
供应商 Supplier		管压 Voltage			
操作员 Operator		管流 Current			
测量日期 Test Date		工作曲线 WorkCurve			
批号 LotNo.		仪器型号 Mode			
特检单号 PendNo.		送测单位 SubmittedUnit		编号 Number	
元素 Element	强度 Intensity	含量(ppm) Content(ppm)	误差(ppm) Error(ppm)	限定标准 Limits	判定 Results
Cl(ppm)					
Cl(ppm)					
As(ppm)					
Br(ppm)					
Cd(ppm)					
Hg(ppm)					
Pb(ppm)					



Summary

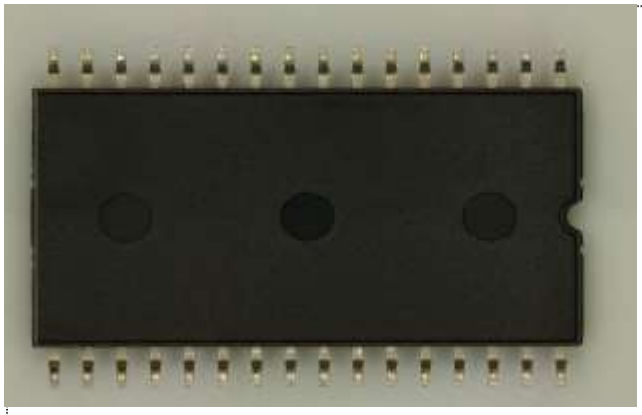
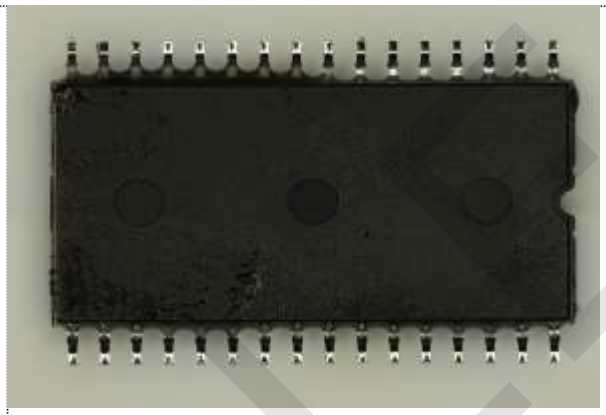
RoHS test shows that hazardous substances were within limitations.

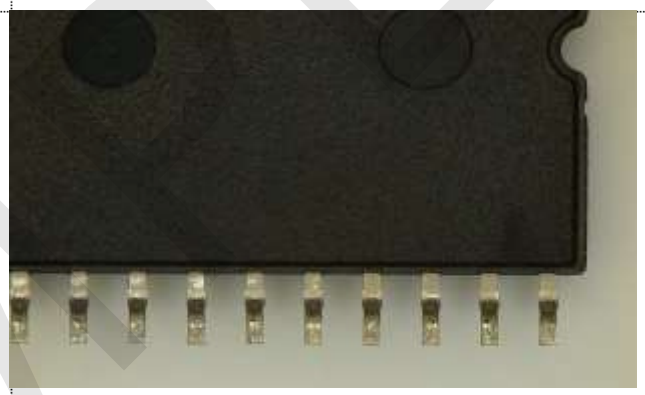
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Solderability

PASS





Summary

Equipment Tested with Miniature Soldering Furnace
Minimal solder remnants on test glass plate,Sample 1(overall)(Passed)
Good solder wetting,Sample1(overall)(Passed)
Good solder wetting,Sample2(Passed)

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Solderability

PASS





SAMPLE

Summary

Solderability test is conducted to JEDEC standard J-STD-002E for "dip-and-look" for non-BGA devices. The sample was submitted for precondition before solderability test. All 5pcs passed solderability test since the terminal pad area showed more than 95% solder coverage.

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