

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.

*Please note: these processes are provided by a third-party vendor and may incur additional charges

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.

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 $\pm$ 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 μ A 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 $\pm$ 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 μ A	20 μ A
3.0V	50 μ A	10 μ A

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-800-2.54 (CP) (Weight: 4.45 g typ)
- SOP32-P-525-1.27 (CF) (Weight: 1.04 g typ)
- TSOP 1 32-P-0820-0.50 (CFT) (Weight: 0.34 g typ)
- TSOP 1 32-P-0820-0.50A (CTR) (Weight: 0.34 g typ)
- TSOP 1 32-P-0.50 (CST) (Weight: 0.24 g typ)
- TSOP 1 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/O6
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)

16	1
17	32

(Reverse pinout)

1	16
32	17

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	A15	A9	A8	A13	R/W	CE2	A15	V _{DD}	NC	A16	A14	A12	A7	A6	A5	A4
Pin No.	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Pin Name	A3	A2	A1	A0	I/O1	I/O2	I/O3	GND	I/O4	I/O5	I/O6	I/O7	I/O8	CE1	A10	OE

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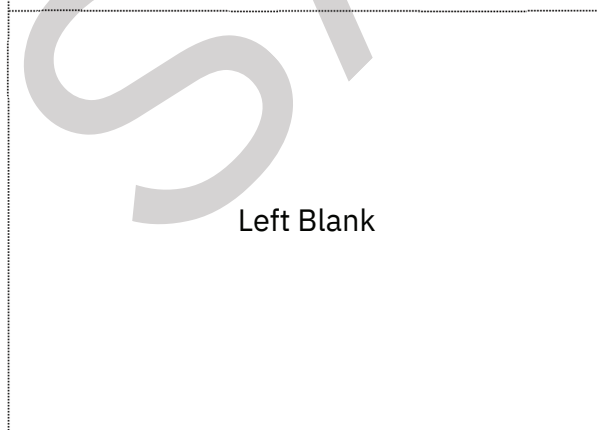
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1998-09-02 1/14

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



Inspection of Documentation & Packaging

N/A

Observations Summary

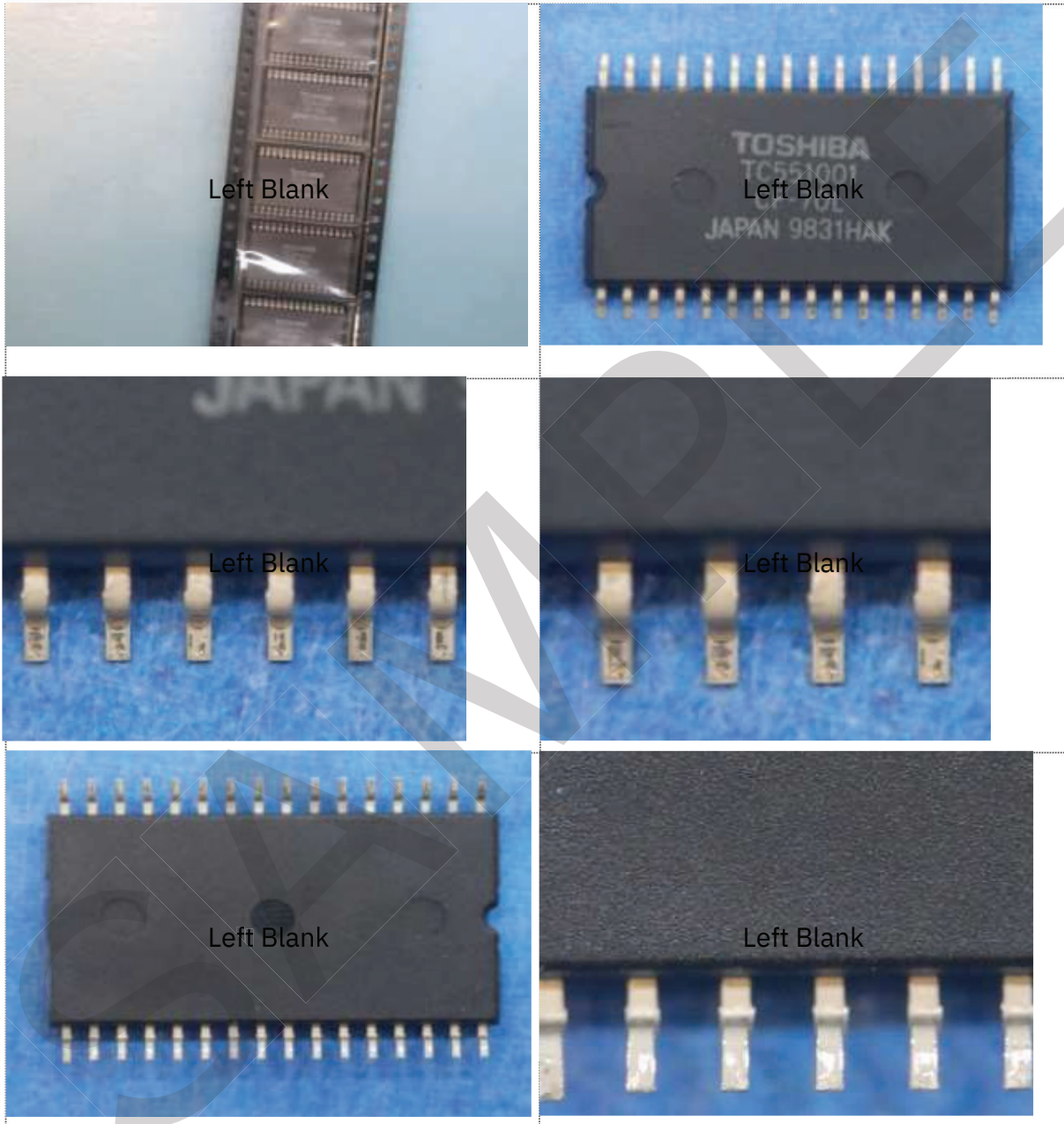
Packaging Inspection Criteria	Pass	Fail	Advisory	N/A
Manufacturer logo label is present and matches that shown on the website or on previous test samples	X			
There are no misspelt words, examples of poor syntax, alterations, or changes to the packaging or labels	X			
Parts are factory sealed and seem 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.

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 consistent with the manufacturing process.

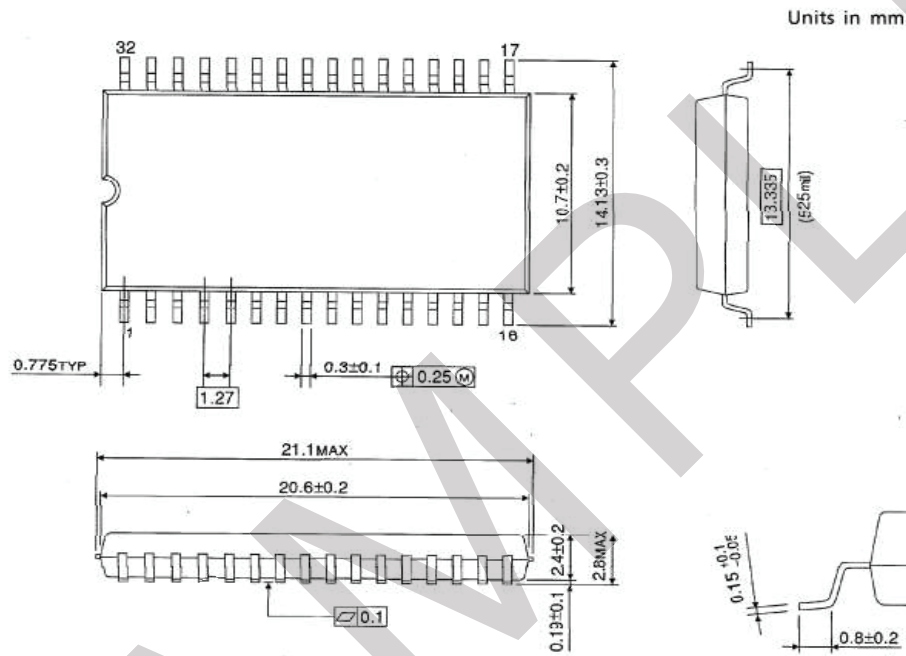
Manufacturer Component Dimensions

Extracted from data sheet

N/A

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

PACKAGE DIMENSIONS (SOP32-P-525-1.27)



External Dimensional Check

PASS

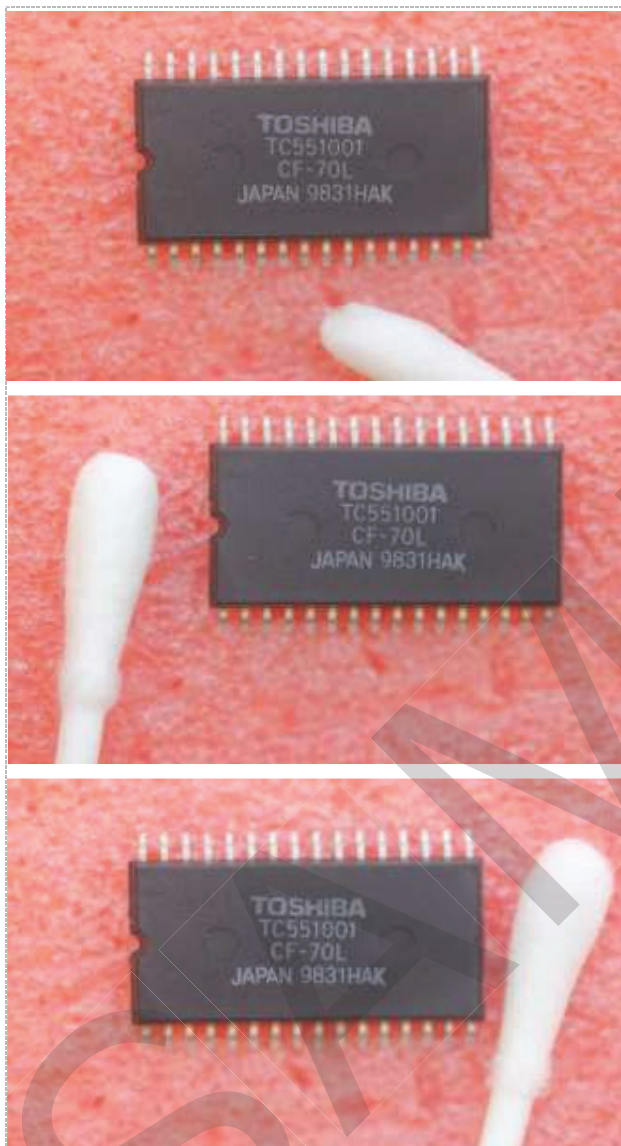


Summary

All Package dimensions are within tolerance

Acetone / Mixed Solvent Test

PASS

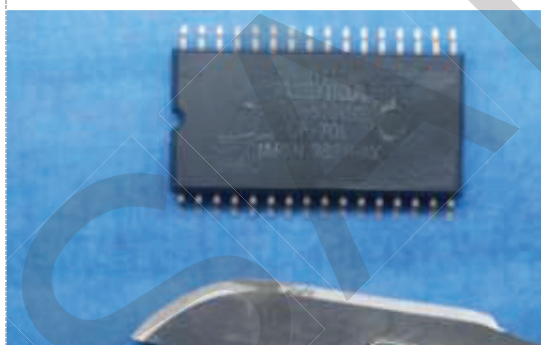


Summary

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- propanol 99+%.
No Residue removed from top of part during test. Part markings and colour remain consistent with no signs of bleeding.

Scrape Test

PASS

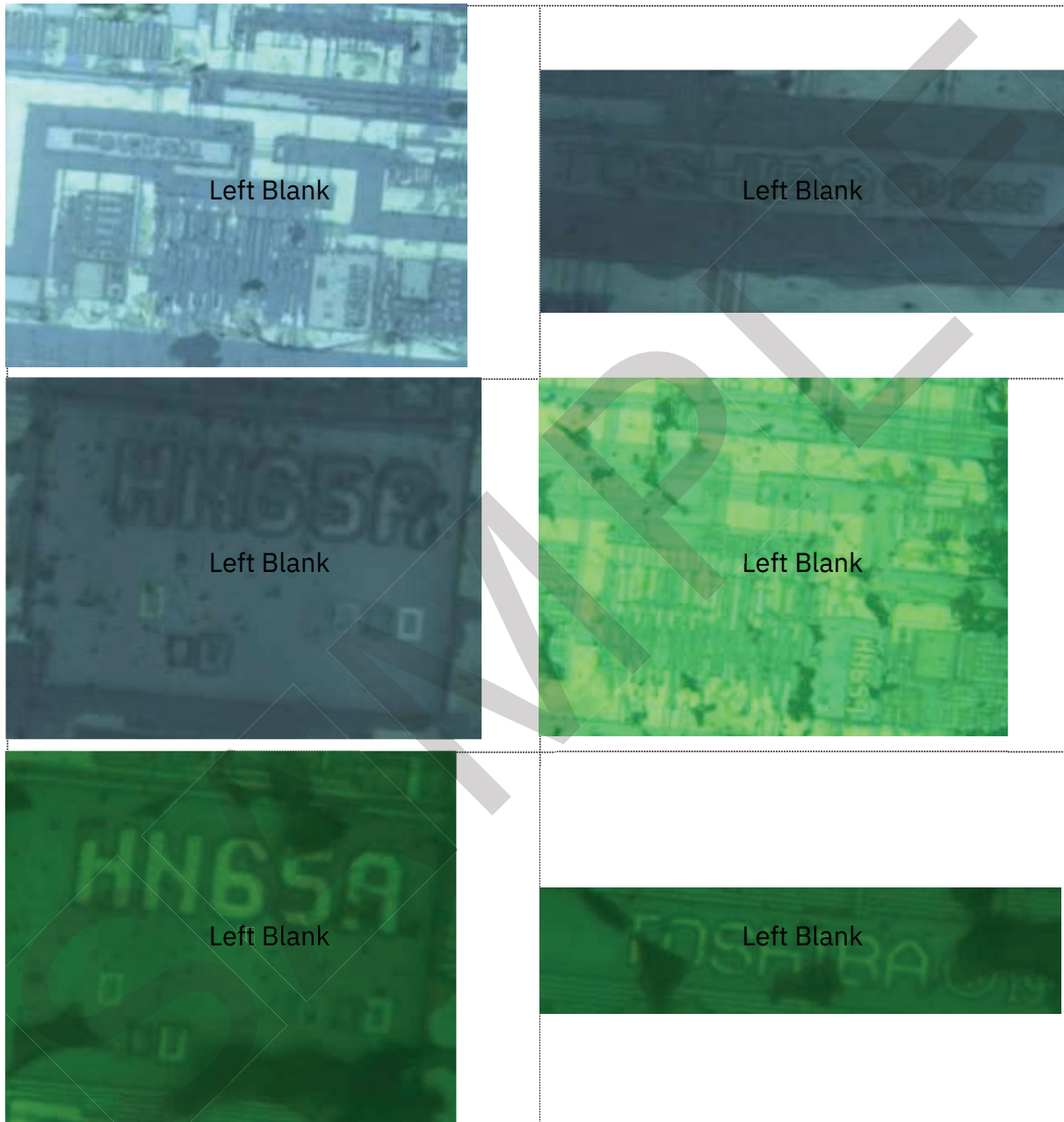


Summary

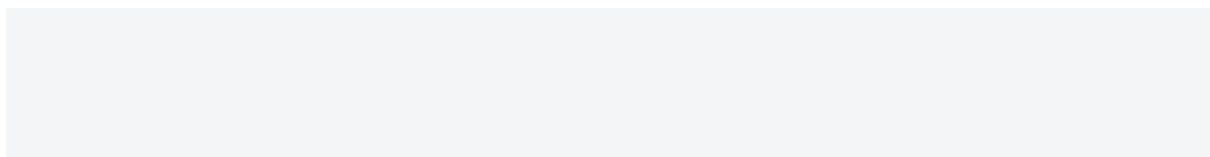
Top Layer of part is consistent and even. no signs of sanding or ghost markings below top layer.

Decapsulation Analysis

PASS

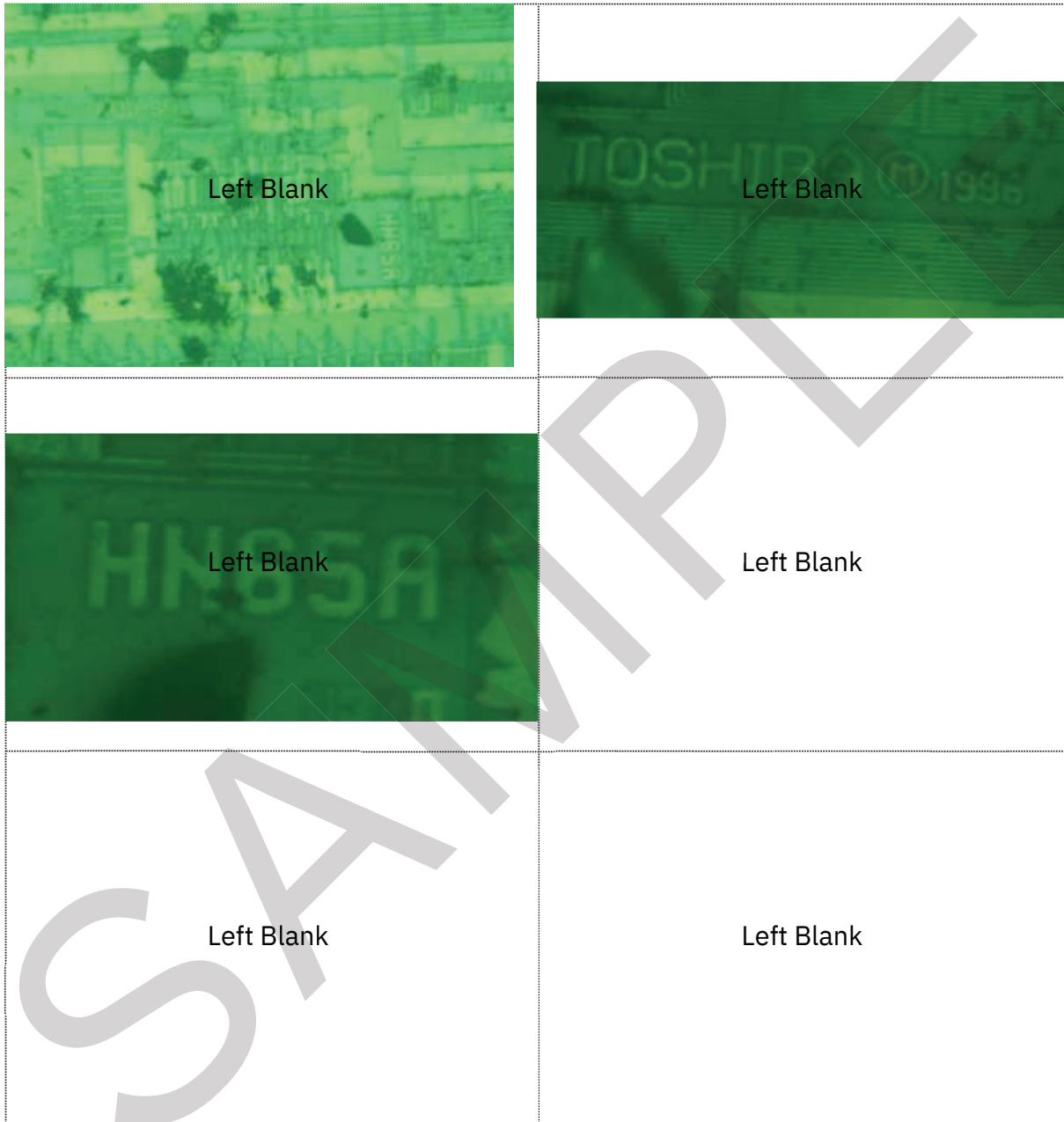


Summary



Decapsulation Analysis

PASS

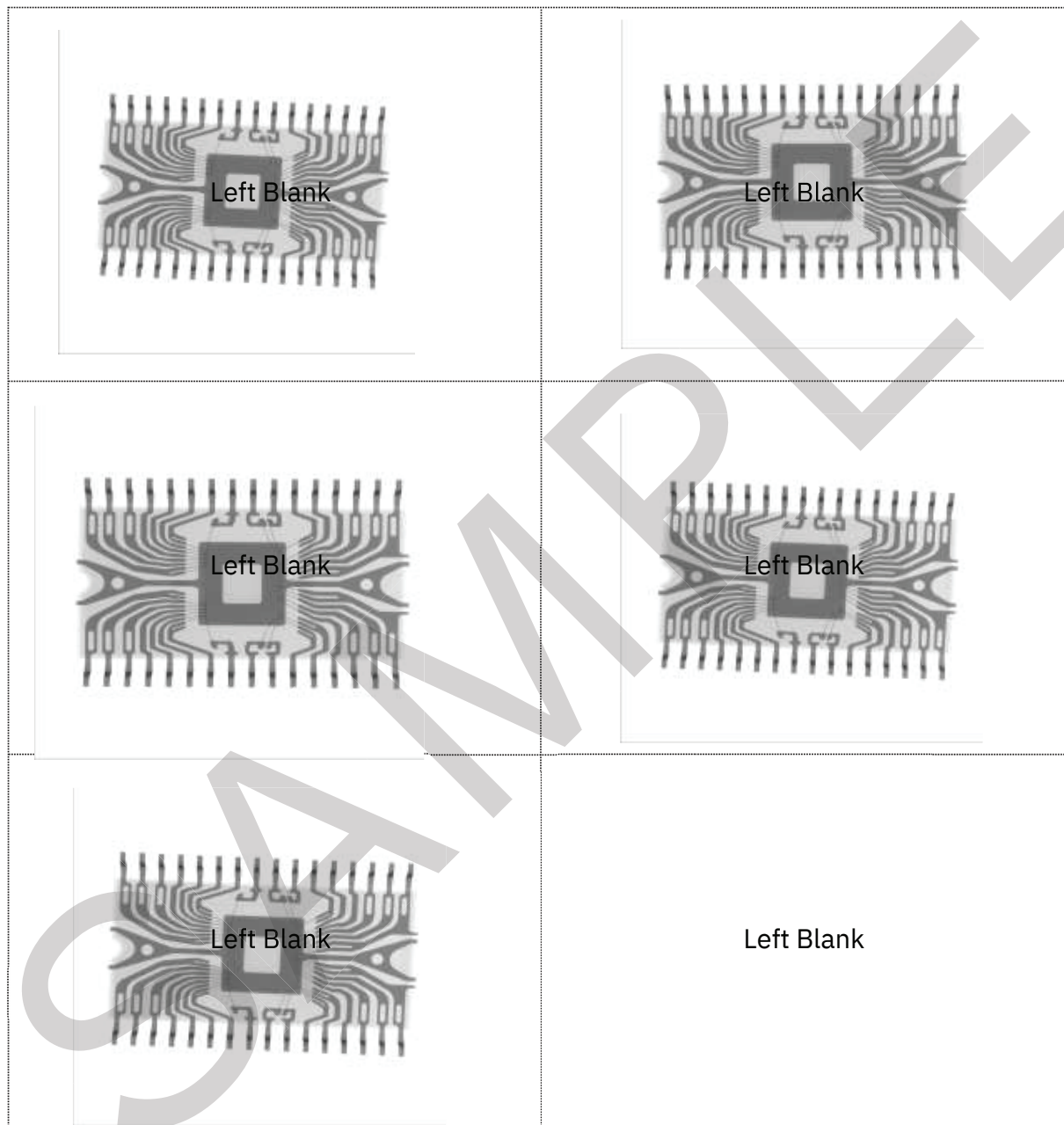


Summary

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.

X-Ray Inspection

PASS



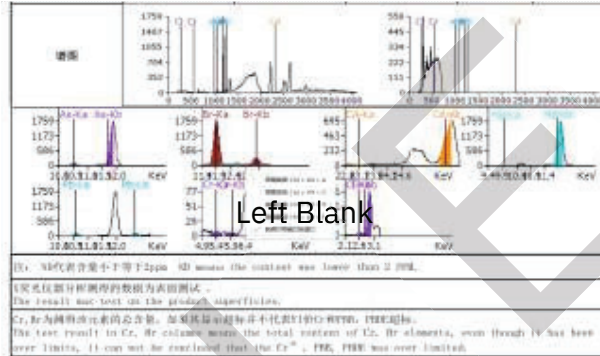
Summary

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

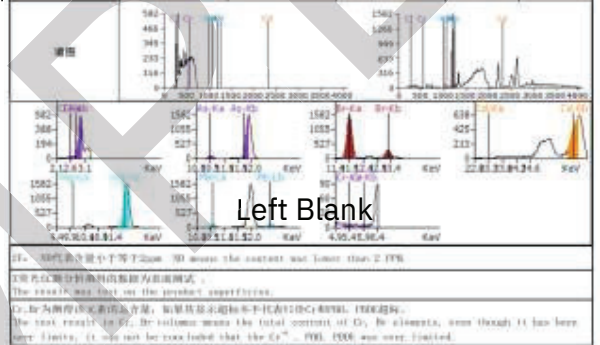
XRF Test

PASS

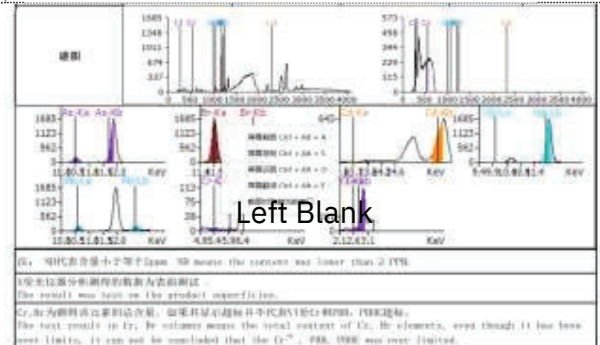
全分析报告 Total Analysis Report					
样品名称 Sample Name	SC2100103-70L	测量时间 Test Time	1001s		
制造商 Manufacturer	TDH10A	管压 Voltage	40.0kV		
操作员 Operator	唐杰	管流 Current	500 (uA)		
测量日期 Test Date	2023/11/2 14:04:28	工作站 WorkStation	PP WorkCurve1		
样品号 LotNo	0-C-00011-sample 1	仪器型号 Model	瓦格纳1000B	编号 Number	202311-0
样品单号 PartNo	送测单号	送测单位 SubmitterUnit		编号 Number	送测标准 Test Standard
元素 Element	强度 Intensity	浓度(ppm) Conc(ppm)	判定标准 Limit(ppm)	判定 Result	
Cl(ppm)	0.0000	0.30	0.37	1000	Pass
Cl(ppm)	0.00011	34.79	1.21	900	Pass
As(ppm)	0.00072	28.18	0.44	1000	Pass
Bi(ppm)	0.22278	603.81	1.19	900	Pass
Cd(ppm)	0	50	0.88	100	Pass
Hg(ppm)	0	50	0.88	1000	Pass
Pb(ppm)	0.01000	118.26	2.29	1000	Pass



全分析报告 Total Analysis Report					
样品名称 Sample Name	SC2100103-70L	测量时间 Test Time	1001s		
制造商 Manufacturer	TDH10A	管压 Voltage	7.0kV		
操作员 Operator	唐杰	管流 Current	500 (uA)		
测量日期 Test Date	2023/11/2 14:25:29	工作站 WorkStation	PP WorkCurve1 PC		
样品号 LotNo	0-C-00011-sample 1	仪器型号 Model	瓦格纳1000B	编号 Number	202311-10
样品单号 PartNo	送测单号	送测单位 SubmitterUnit		编号 Number	送测标准 Test Standard
元素 Element	强度 Intensity	浓度(ppm) Conc(ppm)	判定标准 Limit(ppm)	判定 Result	
Cl(ppm)	0.0047	4.37	0.35	900	Pass
Cl(ppm)	0.0004	12.80	0.84	1000	Pass
As(ppm)	0.0110	55.58	0.35	1000	Pass
Bi(ppm)	0.21854	238.10	1.37	900	Pass
Cd(ppm)	0	50	0.88	100	Pass
Hg(ppm)	0.00000	50	0.88	1000	Pass
Pb(ppm)	0.0131	114.03	2.48	1000	Pass



全分析报告 Total Analysis Report					
样品名称 Sample Name	SC2100103-70L	测量时间 Test Time	1001s		
制造商 Manufacturer	TDH10A	管压 Voltage	45.0kV		
操作员 Operator	唐杰	管流 Current	500 (uA)		
测量日期 Test Date	2023/11/2 14:30:45	工作站 WorkStation	PP WorkCurve1		
样品号 LotNo	0-C-00011-sample 1	仪器型号 Model	瓦格纳1000B	编号 Number	202311-12
样品单号 PartNo	送测单号	送测单位 SubmitterUnit		编号 Number	送测标准 Test Standard
元素 Element	强度 Intensity	浓度(ppm) Conc(ppm)	判定标准 Limit(ppm)	判定 Result	
Cl(ppm)	0	50	0.99	1000	Pass
Cl(ppm)	0.00415	50	0.92	900	Pass
As(ppm)	0.00076	54.79	0.93	1000	Pass
Bi(ppm)	0.22532	611.32	1.18	900	Pass
Cd(ppm)	0.0009	5.13	0.97	100	Pass
Hg(ppm)	0	50	0.99	1000	Pass
Pb(ppm)	0.02218	210.48	2.59	1000	Pass

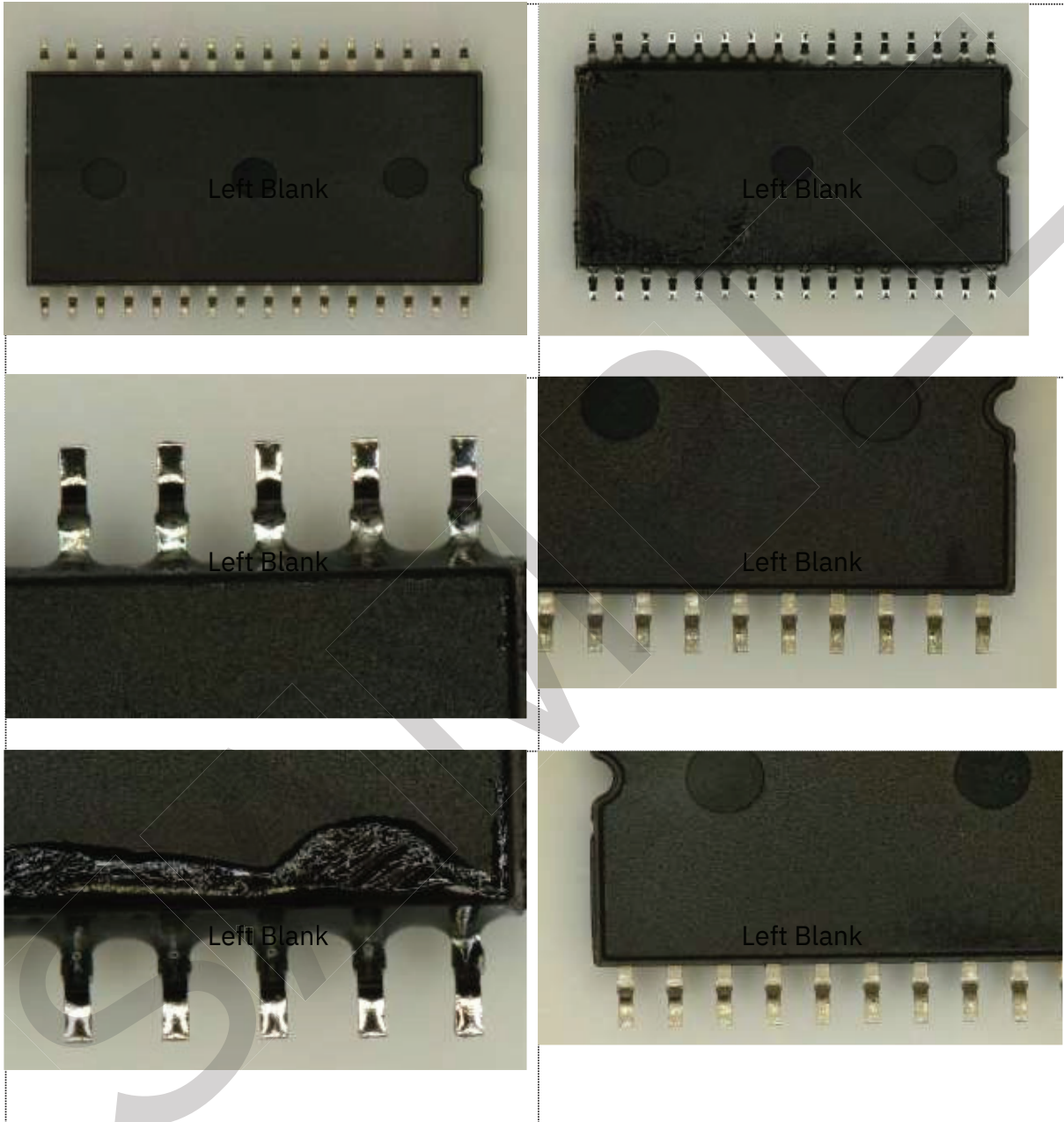


Summary

RoHS test shows that hazardous substances were within limitations.

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)

Solderability

PASS



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.