

# ***Strategies for Fighting Counterfeiting***

## ***Knowledge 101 Your Weapon Against Counterfeiting***

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# *First Things First*

- Who I am
- Independent Distributors of Electronics Association (IDEA)
- Non-profit trade association and Member funded since 2003
  - Promotes advancement of trade ethics
  - Establishes consensus based standards
  - Provides industry education
  - Provides certification programs

# *Maximizing on Today's Info*

- Think about how today's information applies to:
  - Your company
  - Your customer
  - Your CM/EMS Partner
  - Your independent distributor (Components Broker)

# *Getting Started...*

- **Introduction to**

- The Open (Broker) Market
- Enable Your Open Market Program
  - ❖ Set up quality and technical questions
  - ❖ Ask insightful questions of industry in real time
  - ❖ Specialized inspection process

# Who Becomes Knowledgeable

## Engineering, Purchasing, & Quality Personnel

- **All** – Know & Use:
- *IDEA-STD-1010-A Acceptability of Electronic Components Distributed in the Open Market*
  - ❖ The Open Market Industry
  - ❖ The *Quality* Independent Distributor

# IDEA-STD-1010-A

## Standardized Inspection Processes and Criteria

- ❖ Use of *IDEA-STD-1010-A: Acceptability of Electronic Components Distributed in the Open Market*
- ❖ Independent Distributor specific inspection policies, processes, techniques, and databases
  - *Independent Distributors*
  - *OEMs*
  - *CMs*
  - *Inspection Services*



# Who Becomes Knowledgeable

## Engineering, Purchasing, & Quality Personnel

- **All** – Know & Use:
- SAE AS5553 *Counterfeit Electronic Parts; Avoidance, Detection, Mitigation, and Disposition*
  - ❖ *Characteristics of an effective Counterfeit Control Plan*
  - ❖ *Risk Mitigation*
  - ❖ *References IDEAS-STD-1010*



“... created in response to a significant and increasing volume of counterfeit electronic parts entering the aerospace supply chain, posing significant performance, reliability, and safety risks.”

<b>SAE Aerospace</b> <i>An SAE International Group</i>	<b>AEROSPACE STANDARD</b>	<b>SAE AS5553</b>
		Issued 2009-04
Counterfeit Electronic Parts; Avoidance, Detection, Mitigation, and Disposition		

#### RATIONALE

*This standard was created in response to a significant and increasing volume of counterfeit electronic parts entering the aerospace supply chain, posing significant performance, reliability, and safety risks.*

*This standard was created to provide uniform requirements, practices and methods to mitigate the risks of receiving and installing counterfeit electronic parts.*

#### FOREWORD

*To assure customer satisfaction, aerospace industry organizations must produce, and continually improve, safe, reliable products that meet or exceed customer and regulatory authority requirements. The globalization of the aerospace industry and the resulting diversity of regional/national requirements and expectations has complicated this objective. End-product organizations face the challenge of assuring the quality and integration of product purchased from suppliers throughout the world and at all levels within the supply chain. Aerospace suppliers and processors face the challenge of delivering product to multiple customers having varying quality expectations and requirements.*

*This document standardizes requirements, practices, and methods related to: parts management, supplier management, procurement, inspection, test/evaluation, and response strategies when suspect or confirmed counterfeit parts are discovered.*



# Who Becomes Knowledgeable

## Engineering, Purchasing, & Quality Personnel

- **All** - Know and use IDEA-STD-1010 & SAE AS5553
- **E&P** - Develop an Independent Distribution Management Program
- **E&Q** – Develop an Open Market Inspection Program Examining Parts, Packaging and Labels
- **All** - IDEA-ICE-3000 Inspector Certification

# *The Independent Distributor in the Supply Chain*

High Level Characterization of the Independent Distribution Market

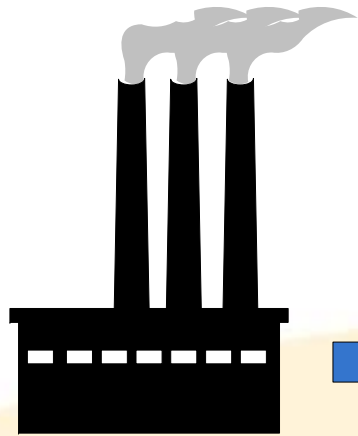
# Market

- Open market is 30+ years old
- Estimations range from 3000 – 5000+ distributors (aka “brokers”) worldwide
- Estimated annual revenue size ranges from \$15B-\$20B.
- Most are privately owned companies
- Many are small businesses

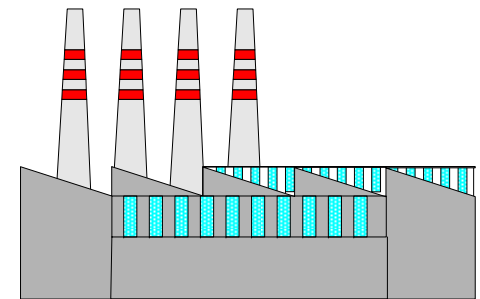
# *Electronic Parts Sources*

- Factory Direct (OCM)
  - Examples: Fairchild, Maxim, Texas Instruments
- Authorized Franchise (Supported by OCMs)
  - Examples: Arrow, Avnet, Future
- Independent Distributors (Open Market)
  - Examples: Advanced MP, Converge, Fusion, Husky, Smith & Associates, SMT Corporation, SND Electronics

# Basics - How Distribution Works



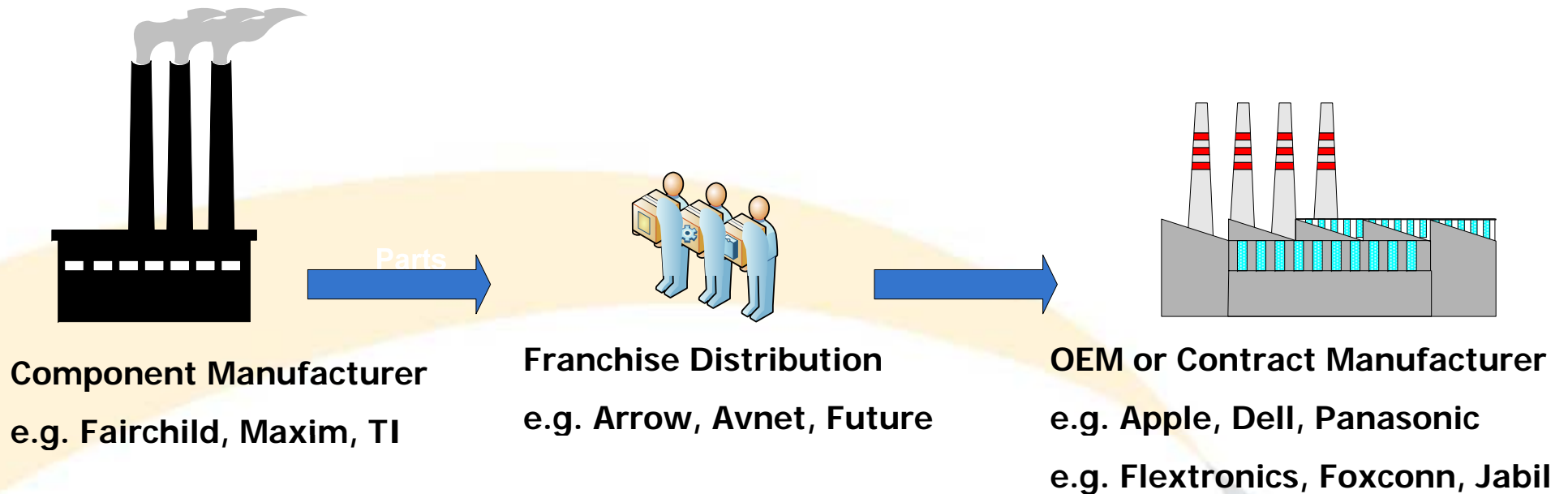
**Component Manufacturer**  
e.g. Fairchild, Maxim, TI



**OEM or Contract Manufacturer**  
e.g. Apple, Dell, Panasonic  
e.g. Flextronics, Foxconn, Jabil

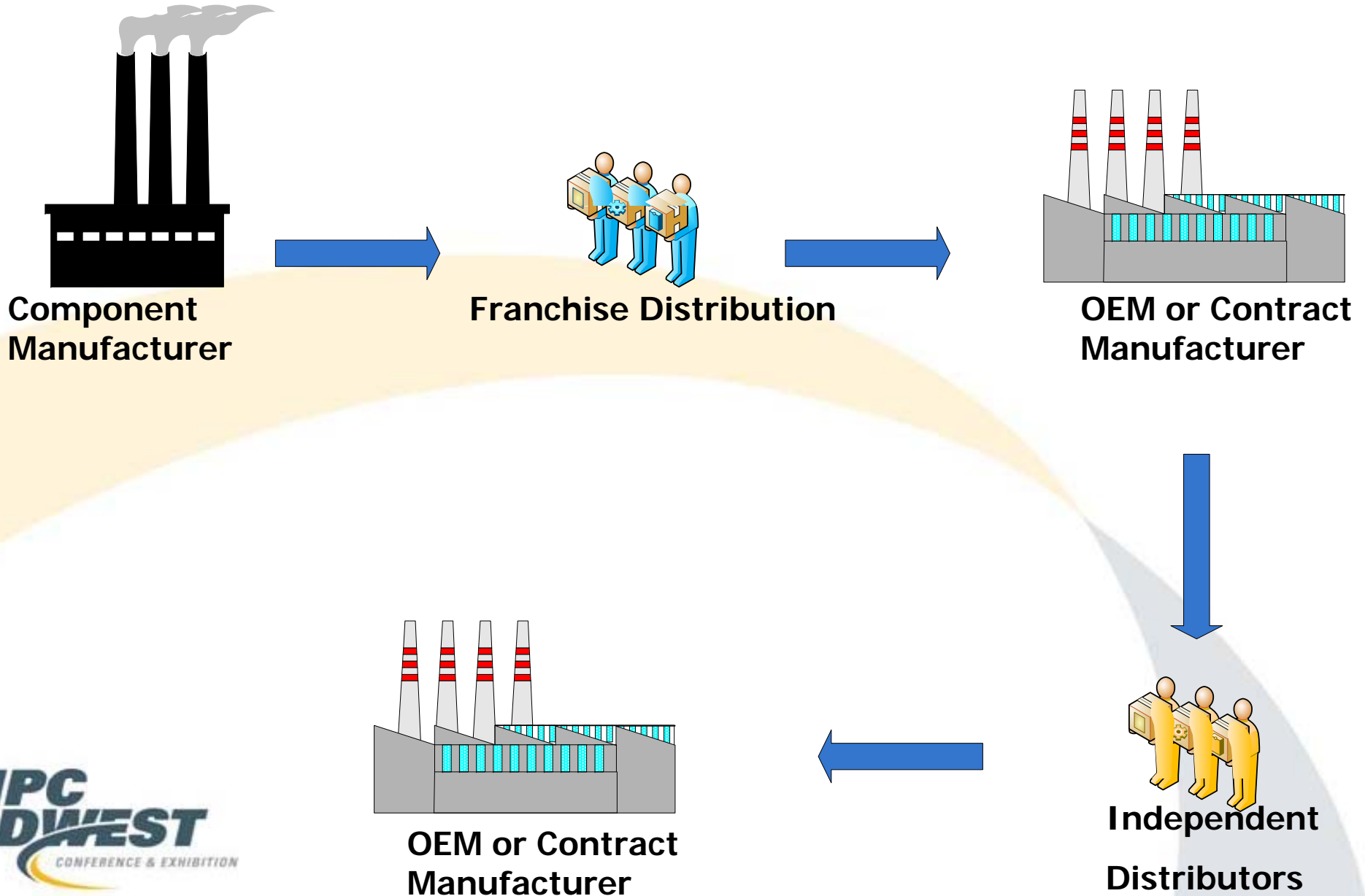
**Shortest Supply Chain**

# Basics - How Distribution Works



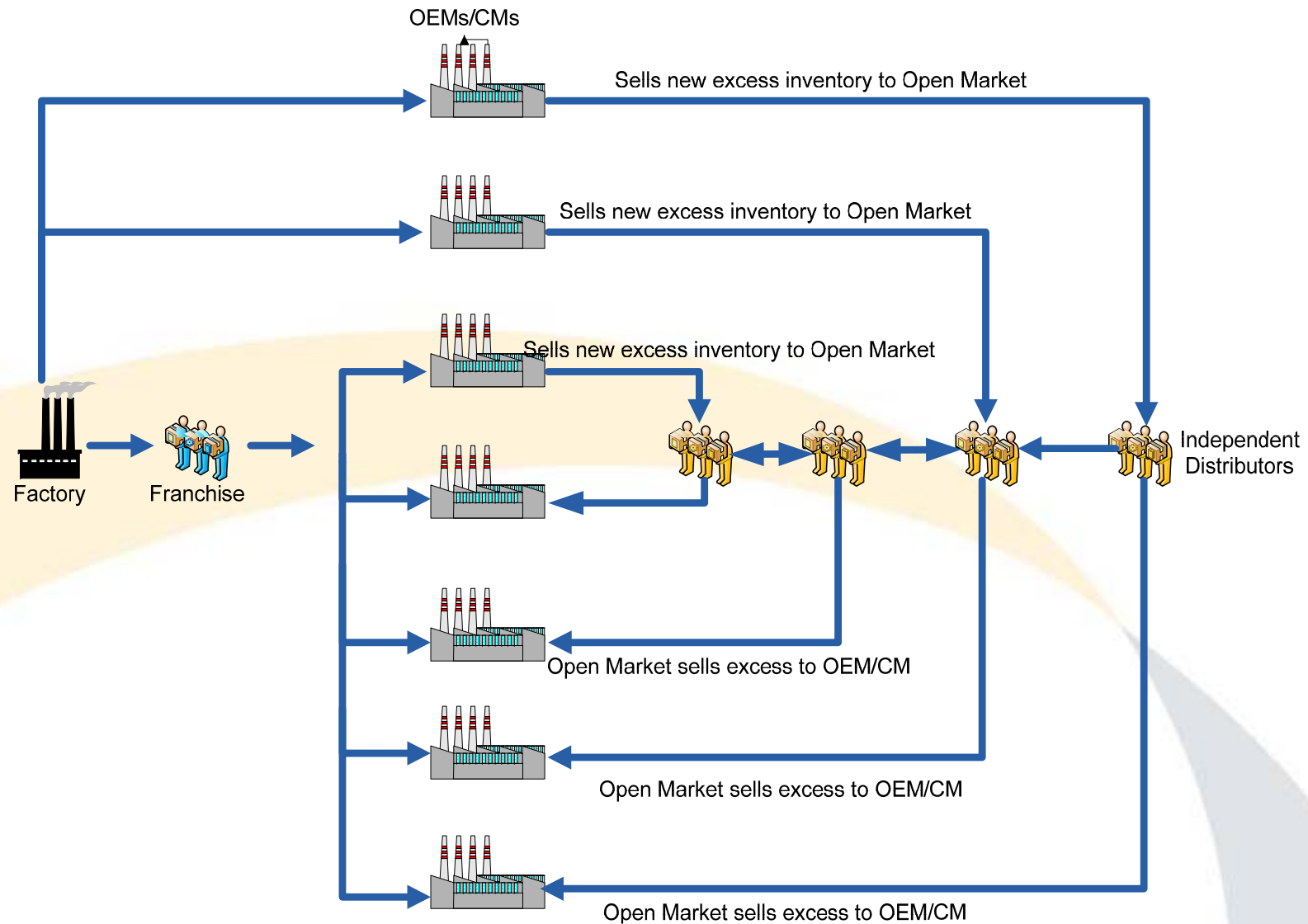
Typical Supply Chain

# Basics - How Distribution Works

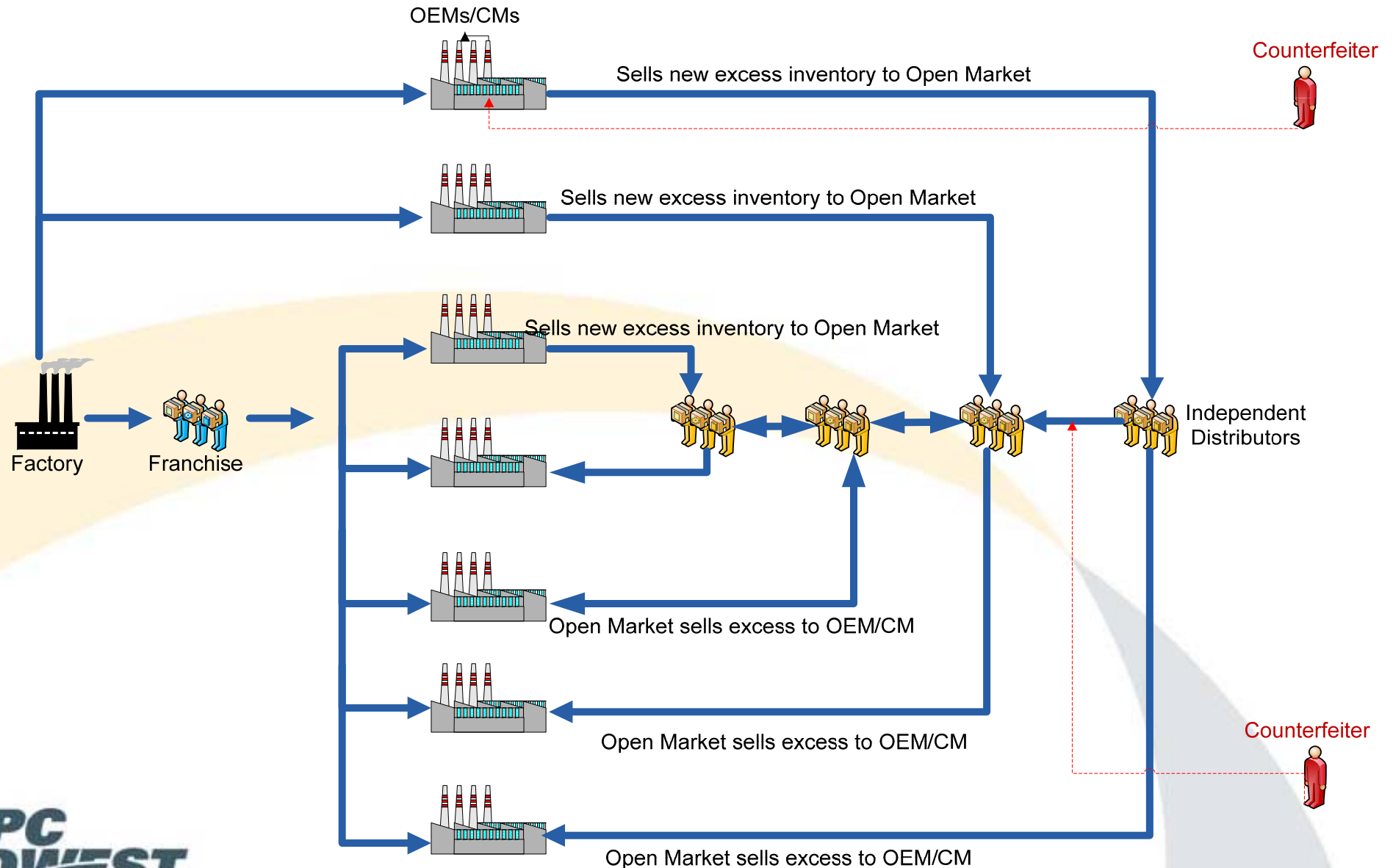




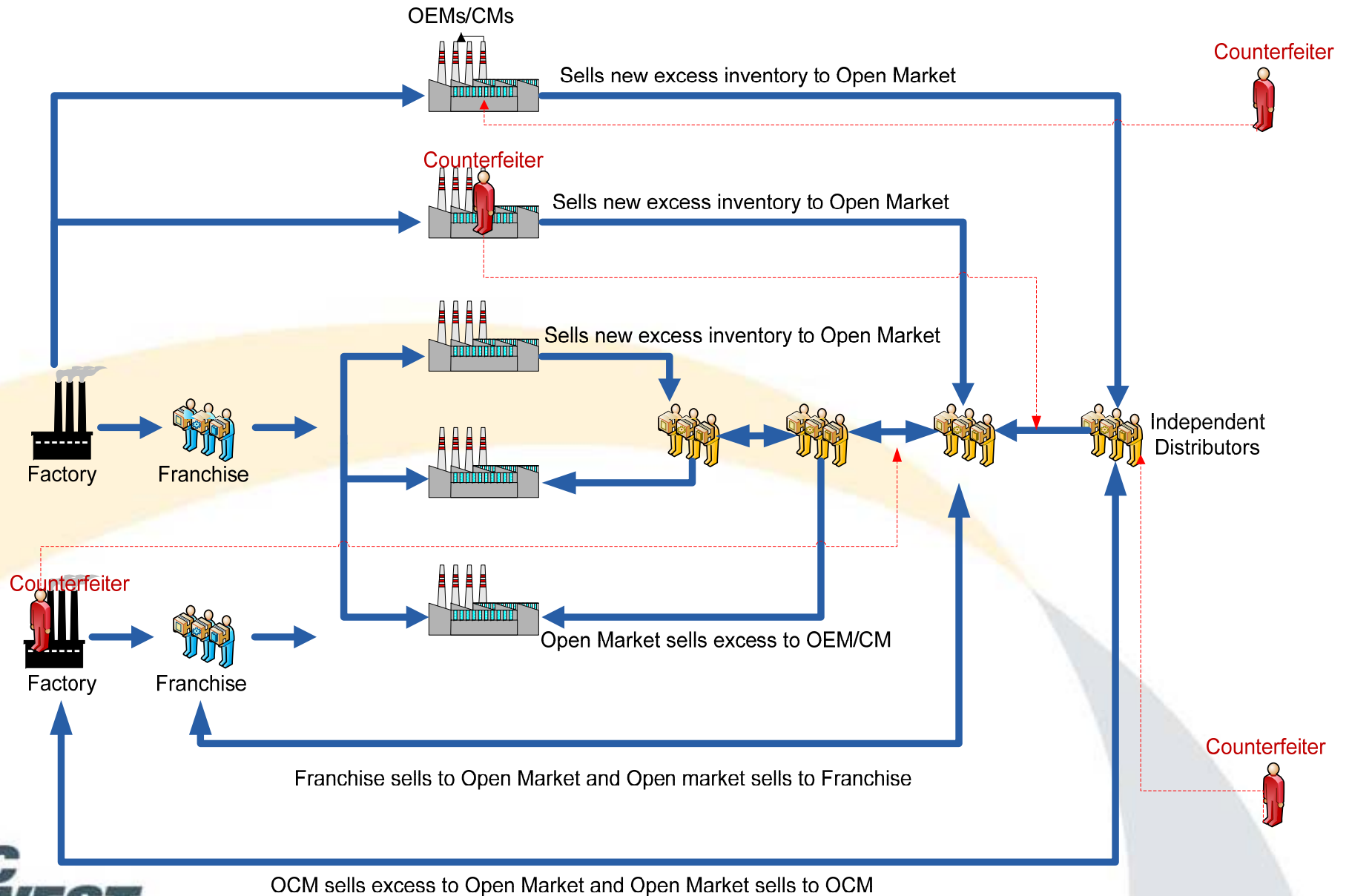
# Redistribution of New Parts



# Counterfeit Entry Points I



# Counterfeit Entry Points II



# *Understand the Open Market*

- Fundamental to understanding how to avoid substandard and counterfeit parts in the open market is to understand the marketplace.
- Manage purchases and inspection.

# *Open Market Inspection*

- Requires inspection beyond the typical inspection as from factory and franchise suppliers.
- Extensive inspection is required of parts and the parts' packaging materials.
  - The specific controls in the handling and storage of the parts since leaving the factory or franchise are typically unknown.

# *Managing Indy Suppliers*

## Rule #1

A supplier management program for the open market is high maintenance by comparison.

## *OEMs, CMs and Independent Distributors*

- The buying and selling of quality worldwide excess inventories is a vital, legitimate, and successful trade that continues to be a necessary part of satisfying supply and demand in the electronics industry supply chain.



## *OEMs, CMs and Independent Distributors*

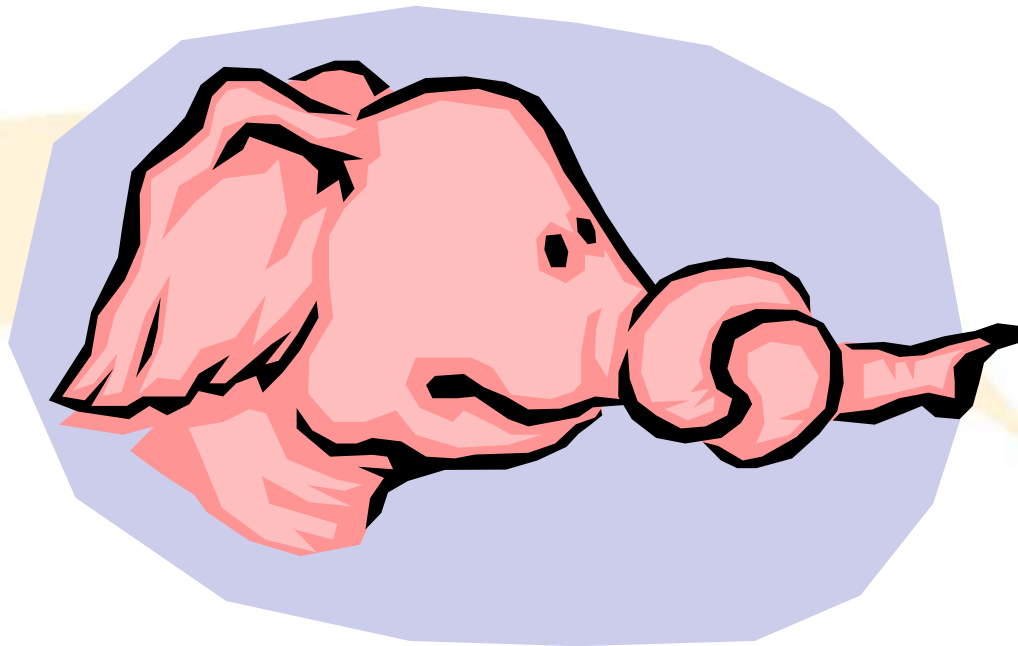
- OEMs & CMs utilize the independent distribution market to purchase hard-to-find parts (primarily obsolete and allocated parts).
- And for purchasing electronic components at more favorable pricing - provided evidence of quality of the parts has been adequately demonstrated to meet customer quality requirements.

# *Component Manufacturers (OCM)*

- Subject matter experts (SMEs)
  - Owners of Intellectual Property Rights (IPR)
  - Knowledgeable about virtually all specs and cosmetics (their brand)
    - ❖ Interpret the markings of a part
    - ❖ Packaging materials
    - ❖ Authentication of label markings, and the information that labels contain

# *Today's Circumstances*

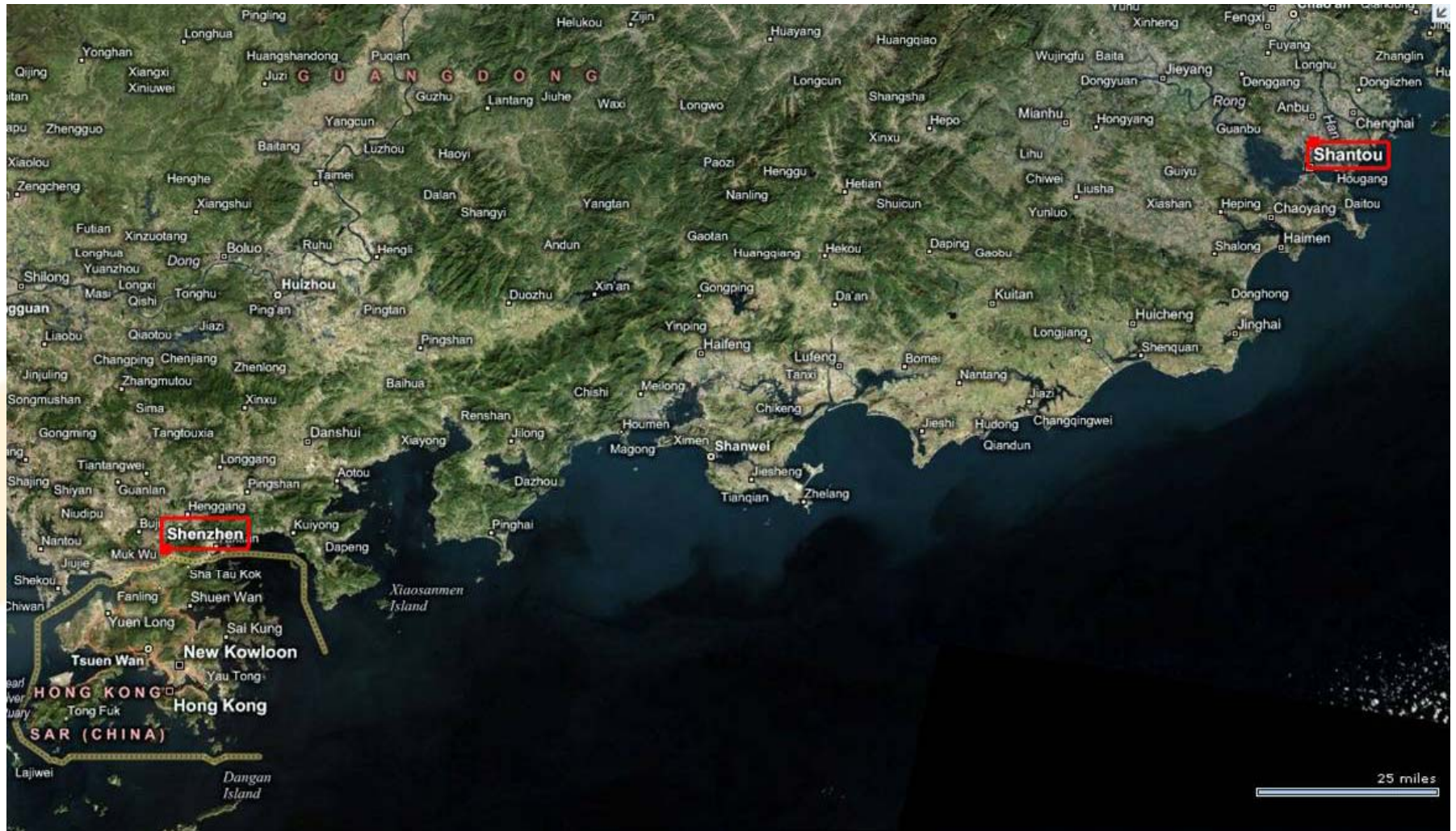
- “The Elephants in the Room”



# *Counterfeiting Origination*

- The Spectrum
  - The poor of third world countries
  - Criminals in any region including USA
  - Fab and packaging nonconforming materials sold on the black market by employees
  - Illegal over-runs by fab and packaging employees
  - Unethical distributors who knowingly buy refurbishments and sell as new
  - Highly organized crime

# *E-waste to “Refurb” to Counterfeit*





# *PWAs Ready to be Stripped*





# *Bags of Removed Components*





# *Ready for Shifting*





# Sorting by Shifting



# *Parts Washed in the River*





# *Sorted and Sidewalk Washed*



# Counterfeiting District





# Shenzhen's Chip Marketplace





# *Multi-building & Multi-floors*





# Shenzhen Component Marketplace



# Refurbished & Ready for Packaging





# *Quality Independent Distributors*

Are Principled Companies Who:

- Provide appreciated value to their customers
- Continually increase customer confidence and advance a positive reputation
- Result in a recurring cycle of new and repeat business

# Quality Assurance Processes

- Quality Independent Distributors are utilizing inspection processes such as:
  - **IDEA-STD-1010** Inspection Standard by IDEA **Certified** Inspectors
  - Multi-Inspector Physical Magnification
  - RoHS Testing
  - Functionality Testing
  - X-Ray Inspection
  - Decapsulation Inspection

# *Tape and Reel Operations*



Courtesy & © 2008 SMT Corp - [www.smtcorp.com](http://www.smtcorp.com)

# *Counterfeit Examples*

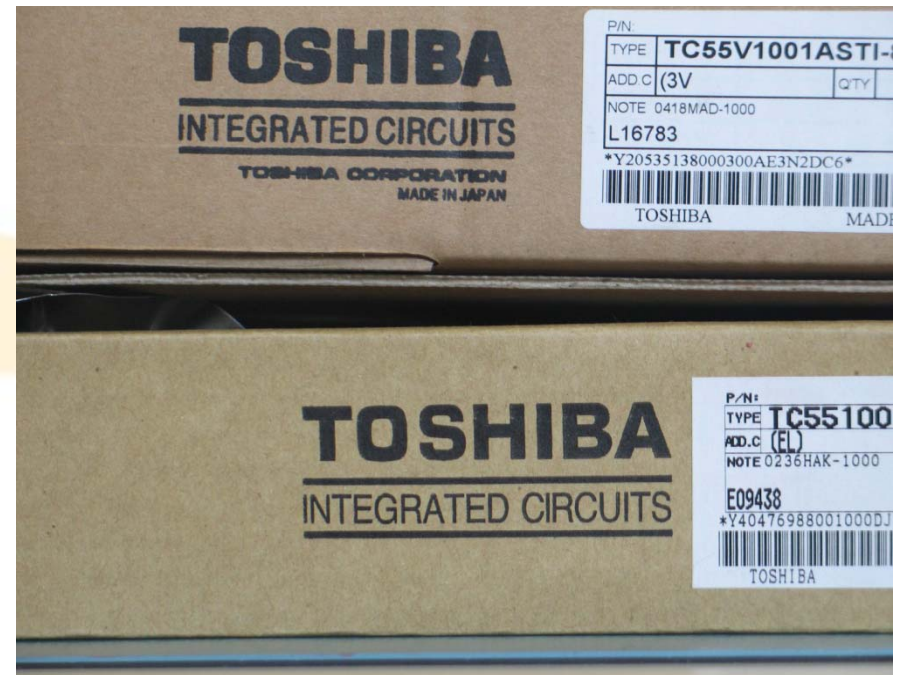
Photo Examples



# What's the Problem?

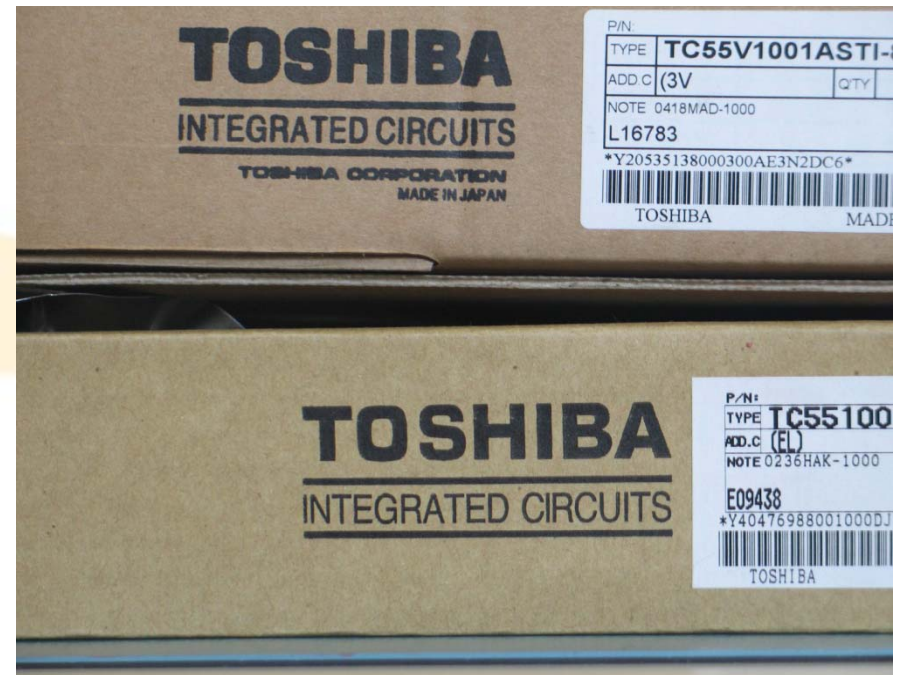


# Which is Suspect Counterfeit?

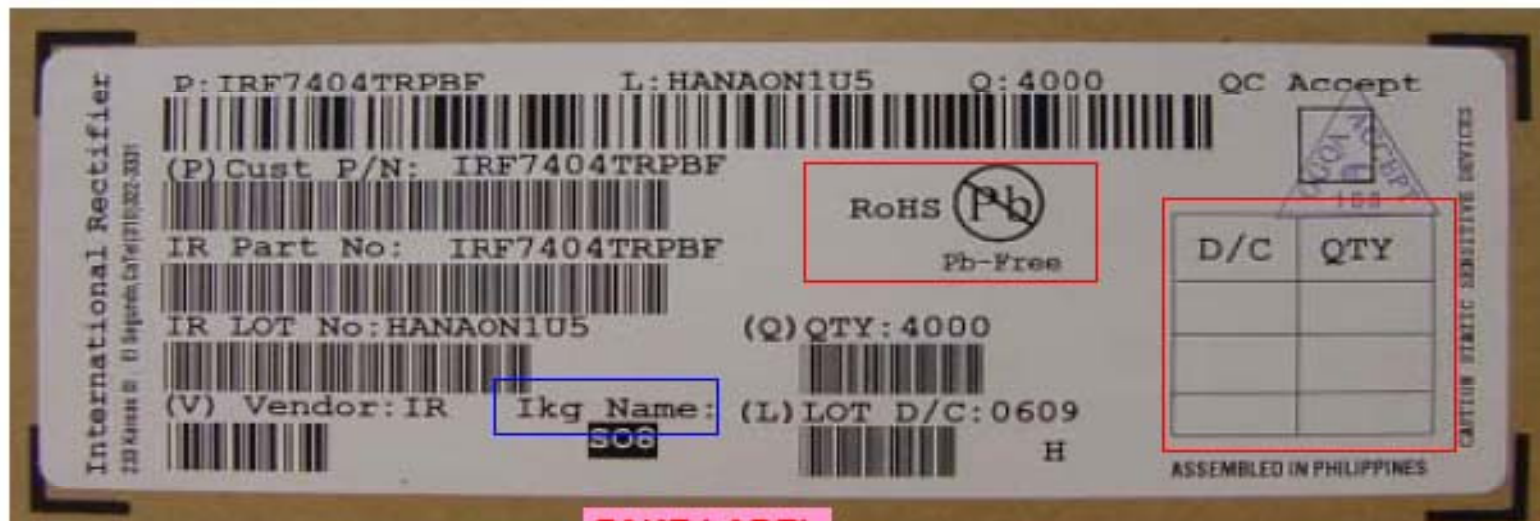




# Upper Box Suspect Counterfeit



# Wrong Spelling, Layout, Format



# Suspect Label

Chatsworth, CA

**Microsemi**

Technology is misspelled "Tcchnology."

Progress Powered by Technology

QTY has an apostrophe between the Q and T

P/N : **SMLJ15CATR-T**

**Q'TY** : **2500EA**

Reference: IDEA-STD-1010-A  
12.3 (Possible Indications of  
Counterfeit and Substandard  
Parts)

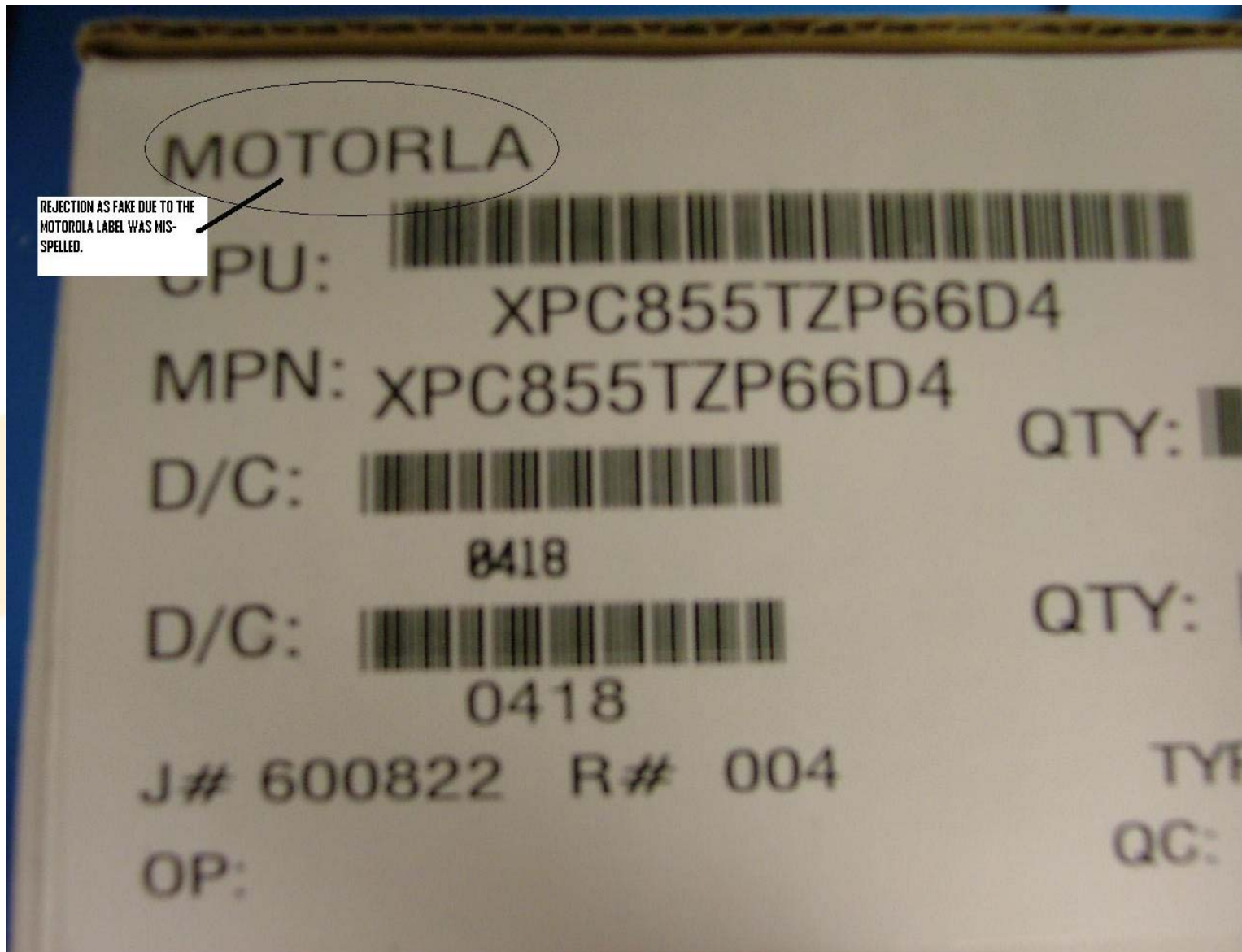
LOT NO : **53809198**

DATE CODE : **0538**

PASS  
23.15  
QA



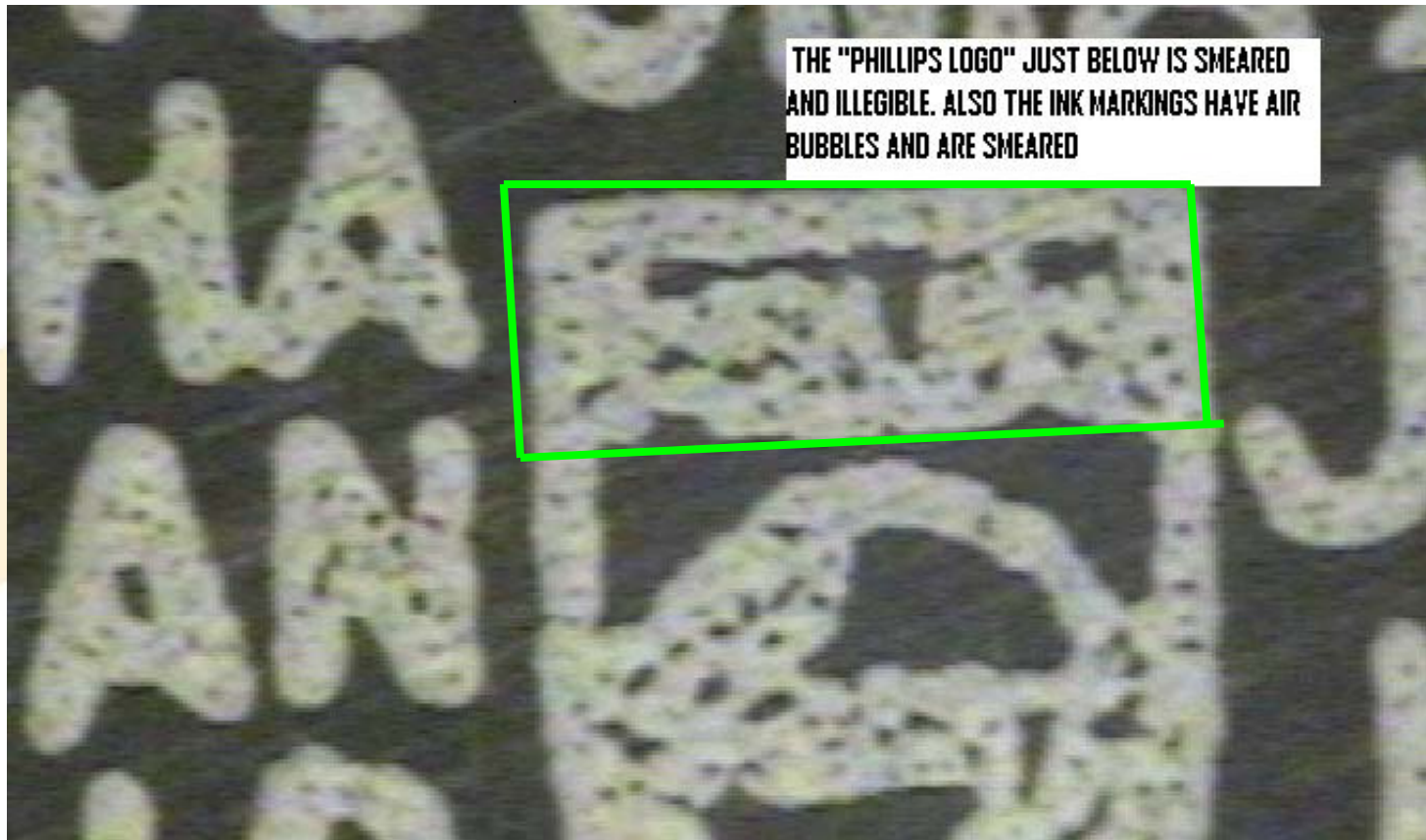
# Claimed “Direct from OEM”



Watch for multiple labels. This box had four layers.



# Verify Logo

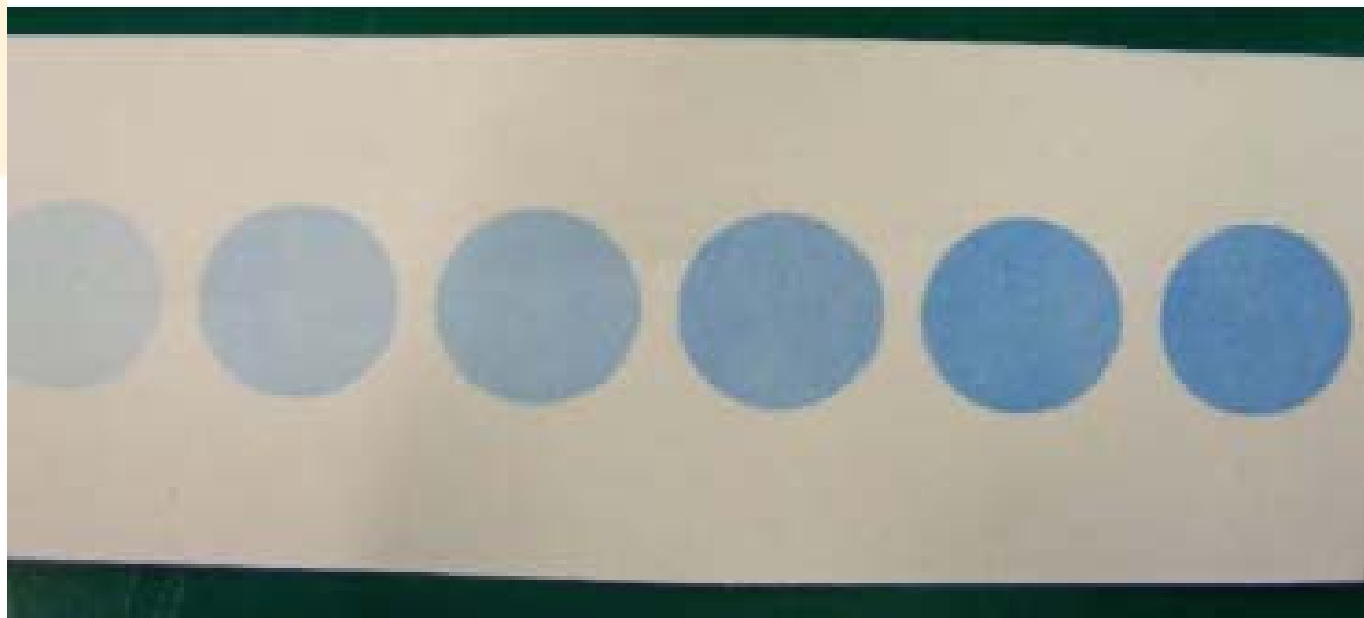
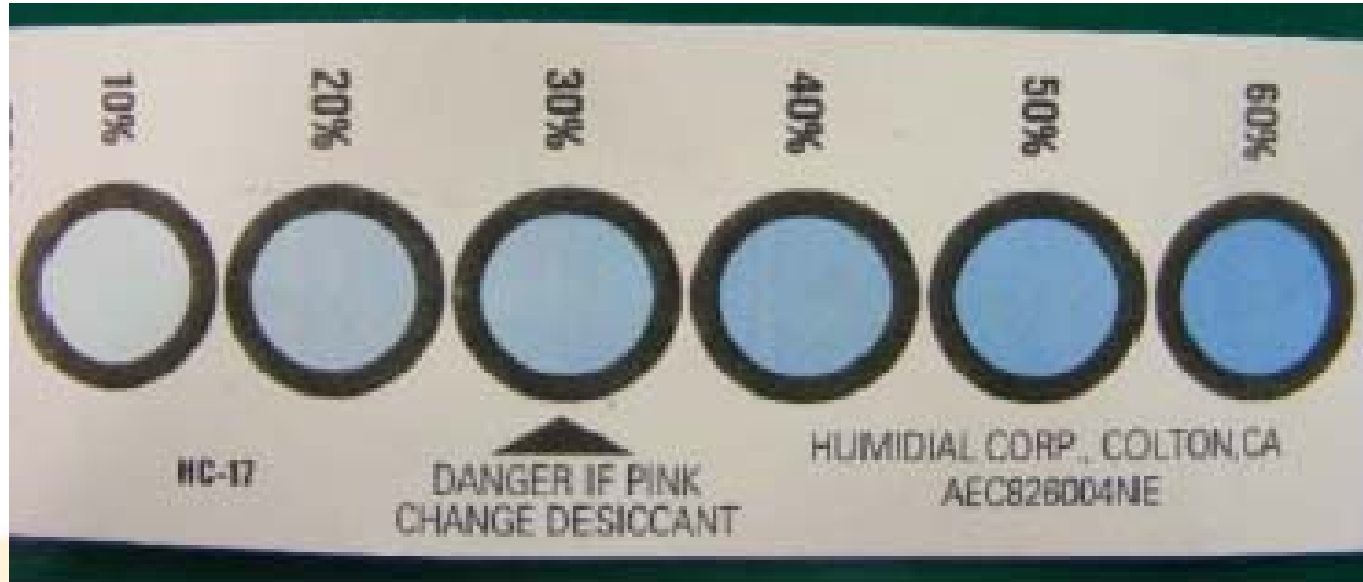


**THE "PHILLIPS LOGO" CHANGED TO SQUIGGLY LINES**

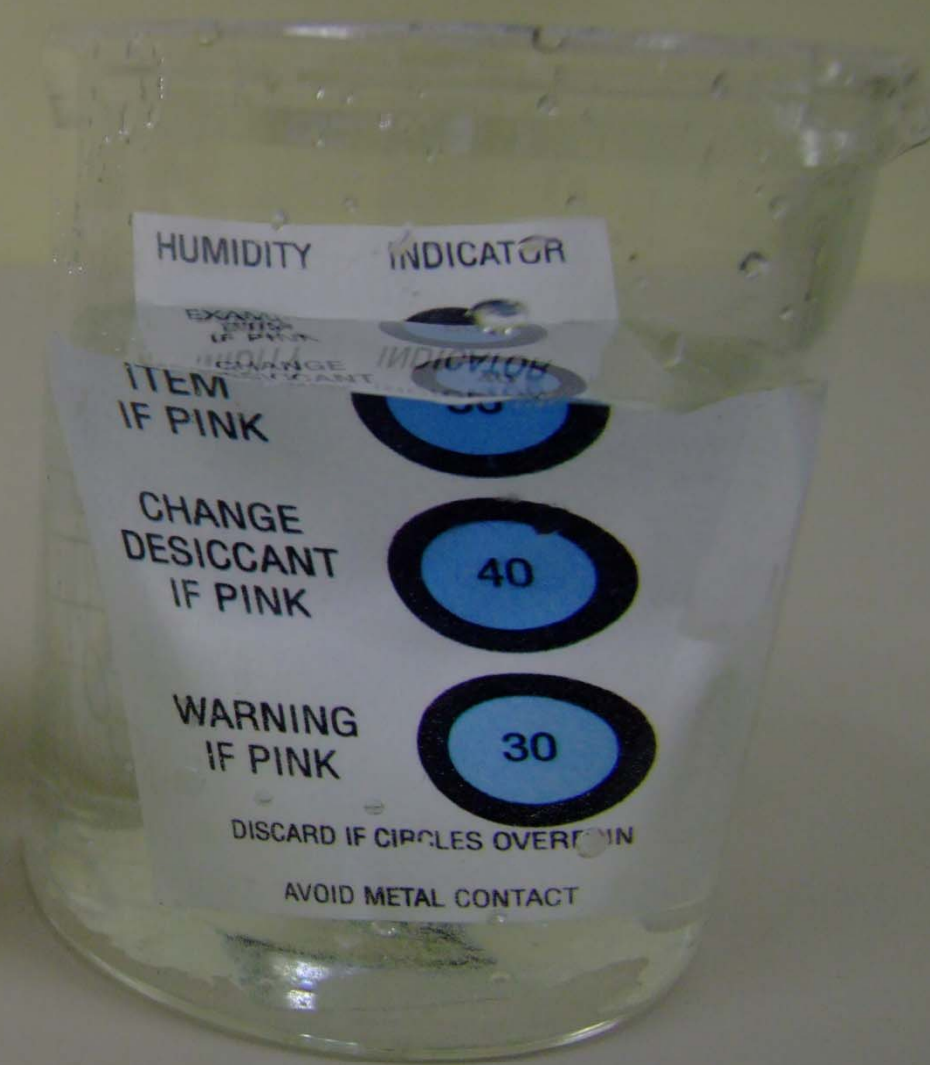
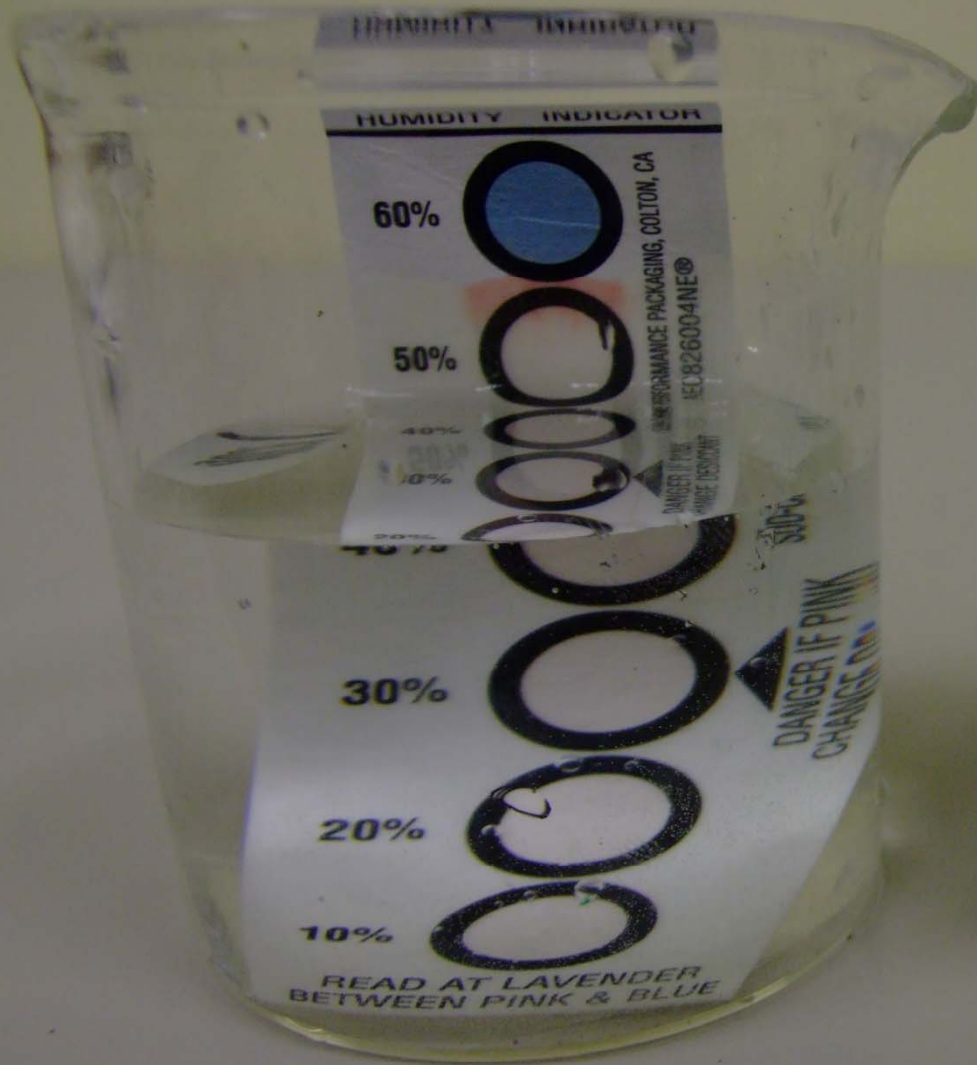
# *Suspect Part*



# *Fake Humidity Indication Card (HIC)*



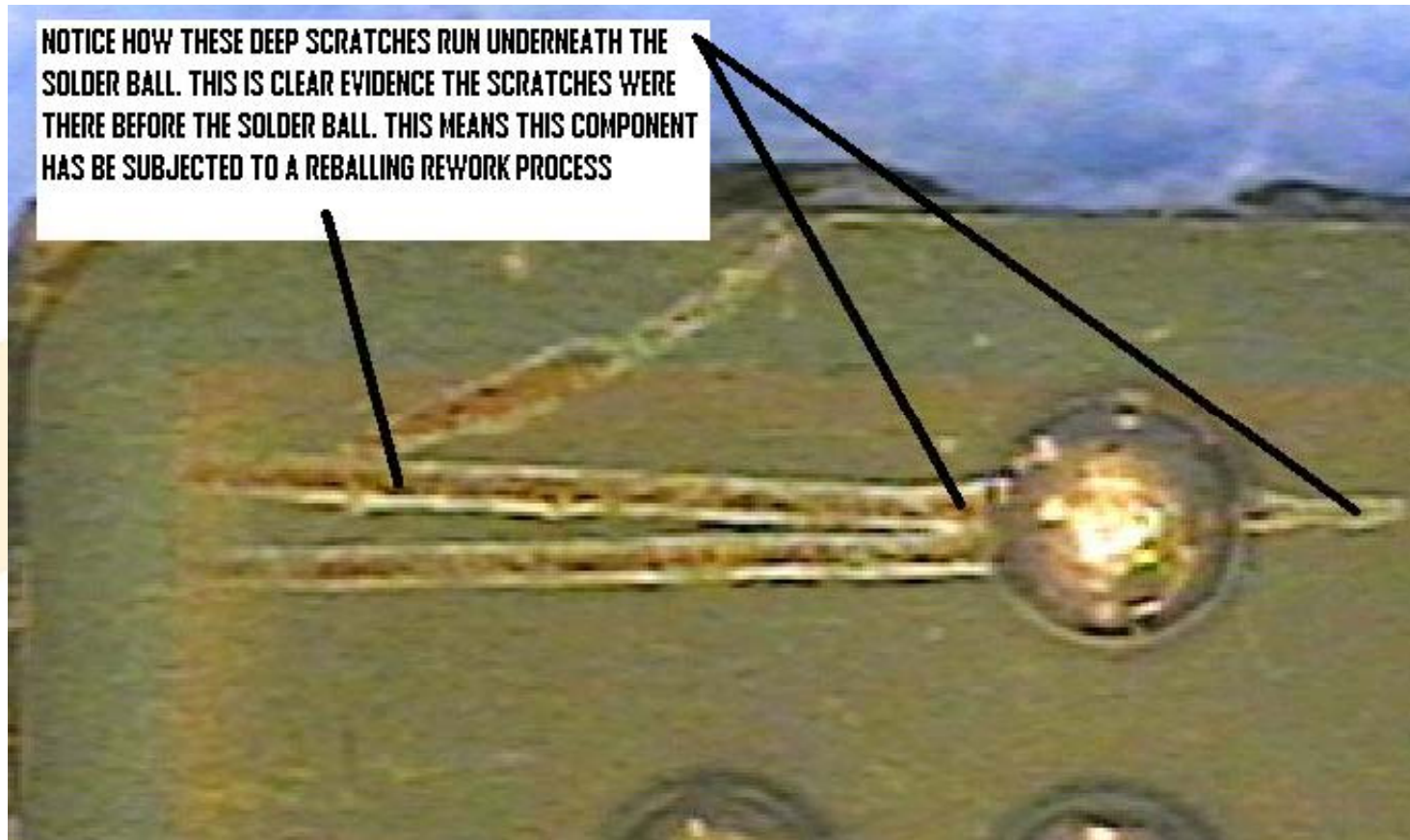




# *Reject Multiple Test Probe Marks*



# Re-balled

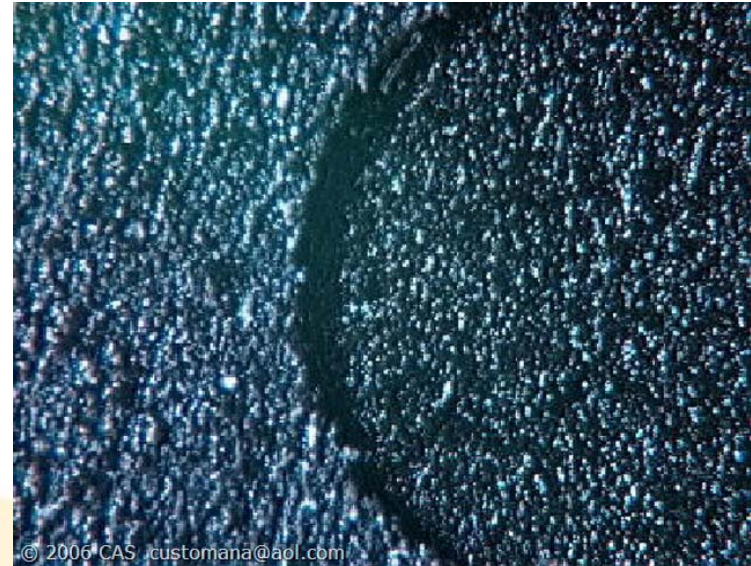


**YOU SHOULD NEVER SEE SCRATCHES RUNNING UNDERNEATH  
BGA SPHERES OR TOP SURFACE MARKINGS**

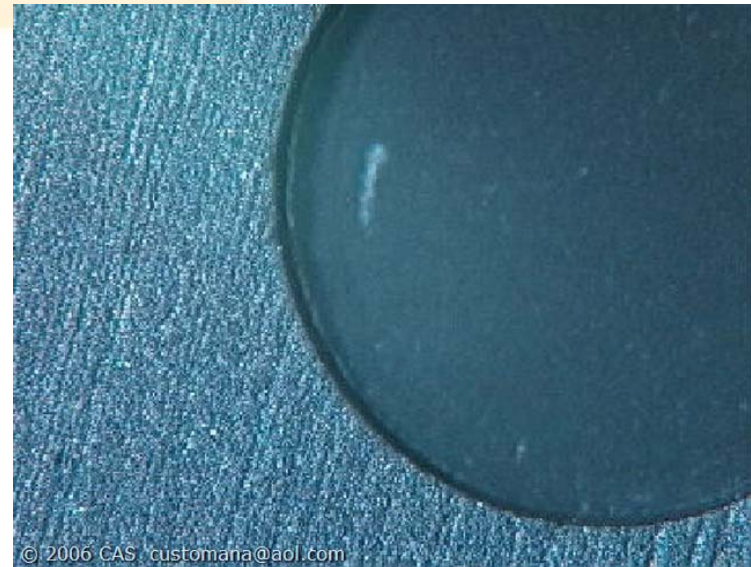


# Visual Inspection for Resurfacing

- Notice the texture and on the left side exhibiting the possible sanding marks, and of course the mold pin cavity is filled in (it is not, when it comes out of the factory mold).

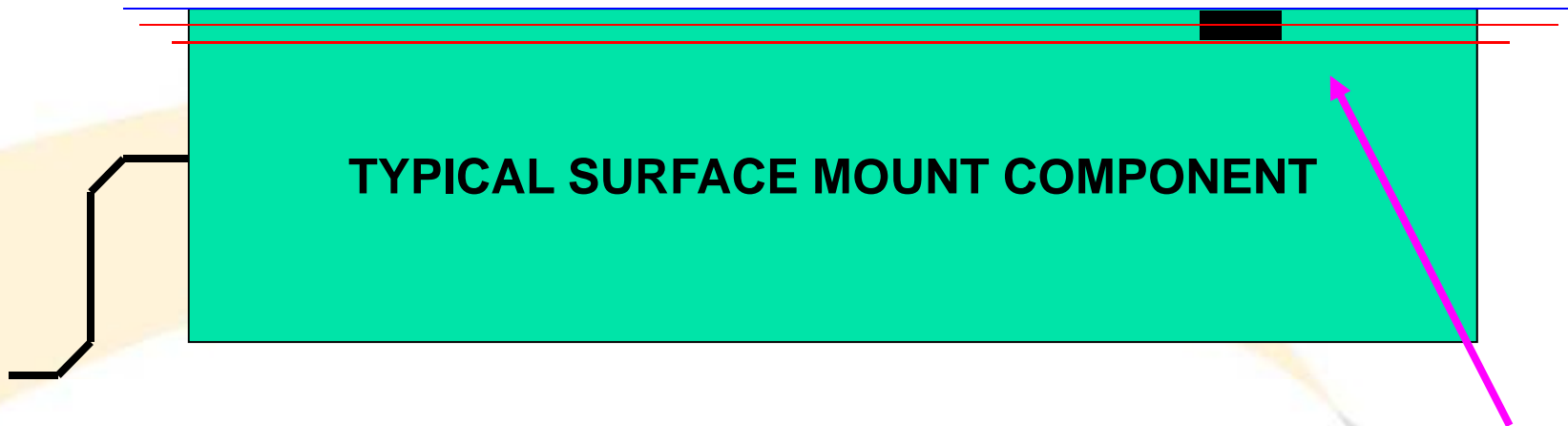


- After surface and mold cavity was chemically cleaned. It is clearly evident after cleaning that there are sanding witness marks and the clean cavity looking much more like it did when new. This part is not acceptable.



# *Pin 1 Depth*

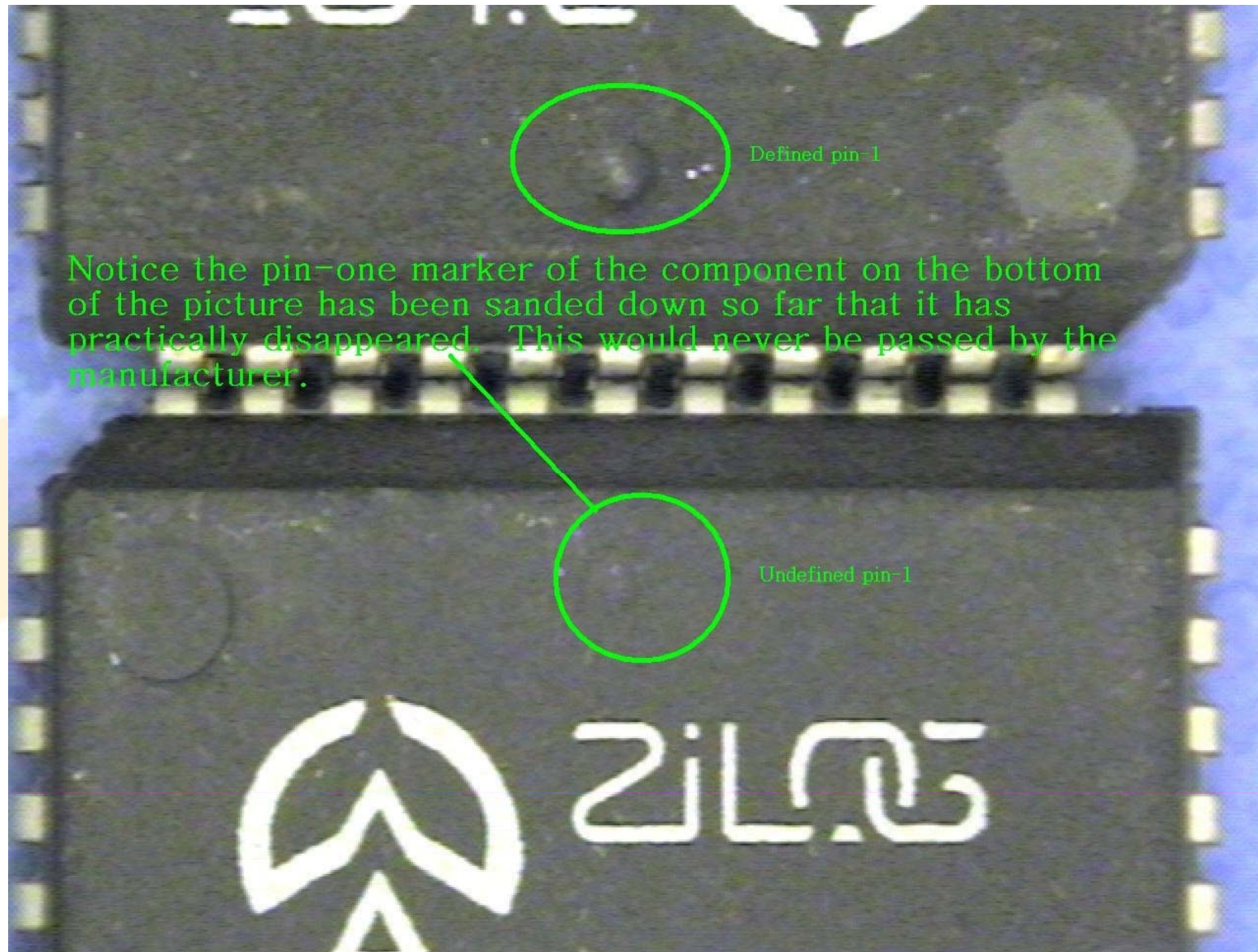
**FREQUENTLY, A REWORKED COMPONENT WILL HAVE THE TOP SURFACE REMOVED AND RECOATED TO HIDE THE SCRATCHES (KNOWN AS “BLACK TOPPING”)**



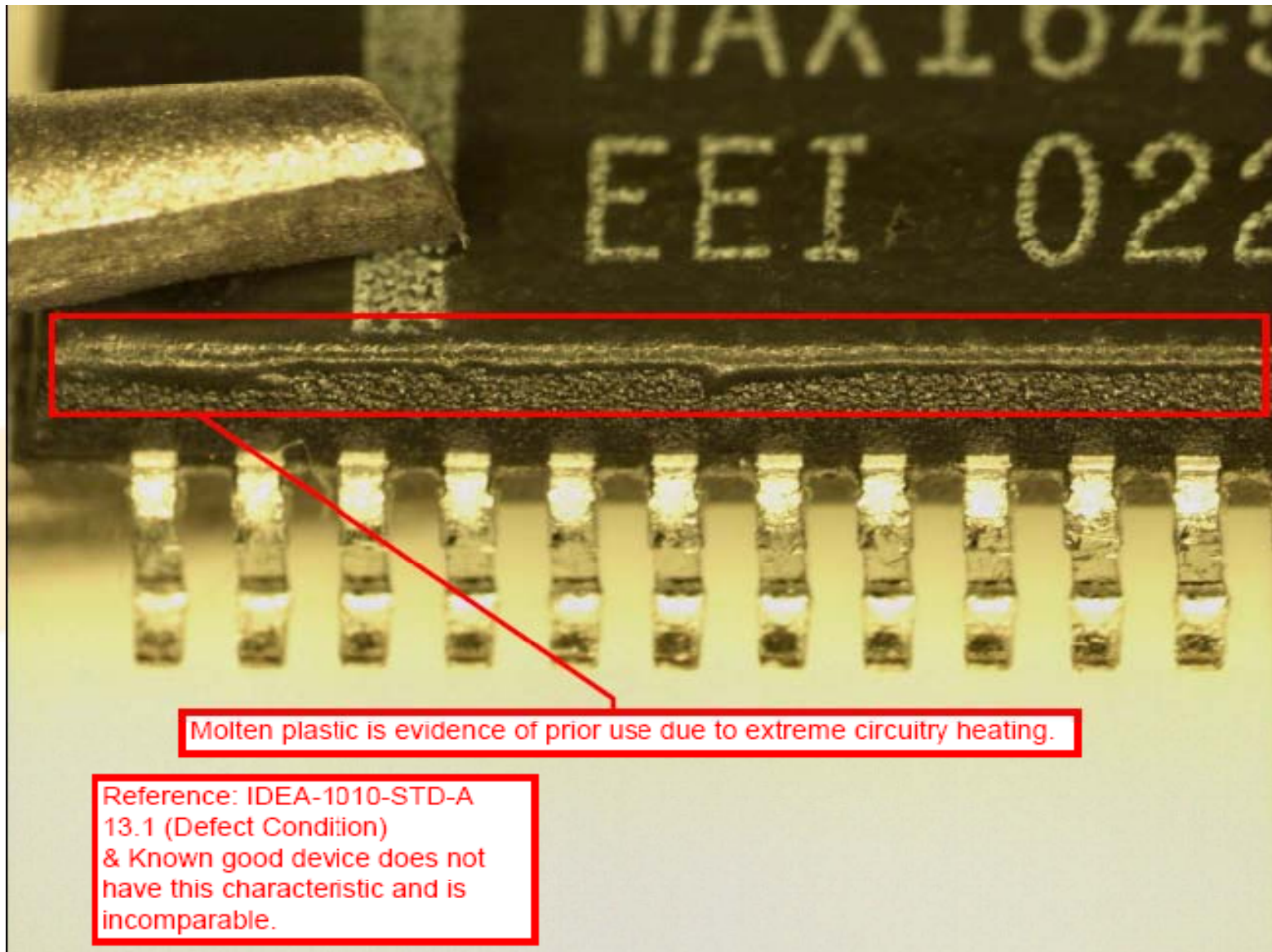
**OFTEN IF TOP SURFACE HAS BEEN REMOVED, THE PIN-1 DIMPLE WILL BE ILL-DEFINED & GRAINY.**



# Remarked – See Pin 1 Dimple



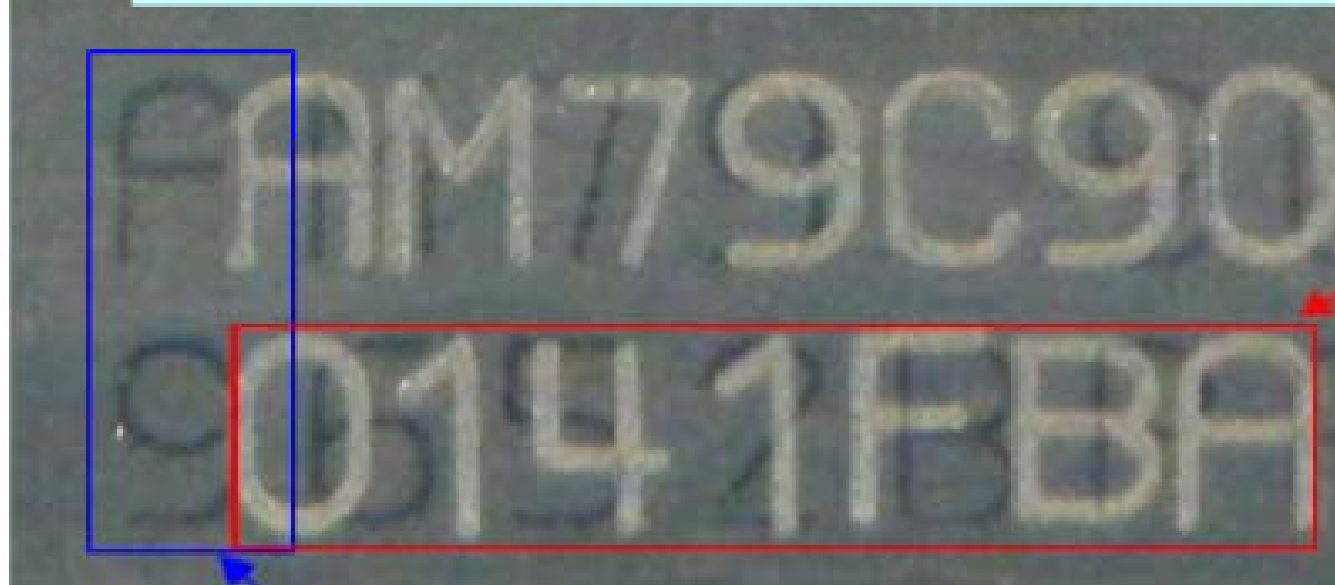
# *Indication of Resurfacing*





# Remarked Part

After the swabbing the original Marking can be seen



Remarked

parts Original Marking

# Independents

- \* 4 Star Electronics, Inc.
- \* ADI-American Distributors, Inc.
- \* Advanced MP Technology
- \* AED-Alliance Electronics Distributors
- \* America II Electronics, Inc.
- \* American Electronic Resource, Inc.
- \* Certified Components Group, Inc.
- \* Chip Partners
- \* Converge
- \* Crestwood Technology Group
- \* Eagle Technology Solutions
- \* Electrospec, Inc.
- \* Florida Circuit, LLC
- \* FM Electroniques
- \* Fusion Trade, Inc.
- \* Global IC Trading Group
- \* Impact Components
- \* Lintech Components Company, Inc.

- \* Manistar Electronics, Inc.
- \* MIT Distributors, Inc.
- \* NexGen Digital Inc.
- \* North Shore Components, Inc.
- \* Oxygen Electronics, LLC
- \* PC Components Company, LLC
- \* PCX, Inc.
- \* Quest Components
- \* Rand Technology
- \* Rotakorn Electronics AB
- \* Serenity Electronics, Inc.
- \* SG Industries, Inc.
- \* Smith & Associates
- \* SMT Corp.
- \* SND Electronics, Inc.
- \* Velocity Electronics, LP
- \* Vital Source, Inc.
- \* World Micro

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Thank you!

# *Presentation End*

End of IDEA Presentation

**Thank you!**

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