



Counterfeit Electronic Parts: How to Keep Them Out of Your Supply Chain

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Honeywell

Honeywell Technology Solutions Inc. (HTSI)

SPACE, NETWORKS & COMMUNICATIONS / LOGISTICS SERVICES / TECHNICAL SERVICES

HERITAGE

- Bendix Radio (1950)
- Bendix Field Engineering Corporation (1961)
- AlliedSignal Technical Services Corporation (1993)
- Honeywell Technology Solutions Inc. (2000)
- Dimensions International Acquired (2007)

PROFILE

- Wholly owned subsidiary headquartered in the Washington-Baltimore corridor
- Approximately 6,000 employees
- Over 100 locations: 21 countries, 33 states, the District of Columbia
- More than 100 active contracts
- Honeywell contracts with HTSI to provide
 - Operations of Honeywell site metrology/calibration labs
 - Inspection and audit of Honeywell Suppliers
 - Management of Honeywell Government Assets, Counterfeit Parts activities (audits of test houses, CFP awareness training)
- HTSI contracts with NASA and Commercial customers for similar services

Premier Provider of Solutions and Services

Agenda

- Overview of Counterfeiting
- Electronic Part Counterfeit Methods
- How do They Get into the Supply Chain?
- Has Recycling Become Part of the Problem?
- Methods of Finding Counterfeit Parts
- Counterfeit Parts Prevention
- Specifications for Counterfeiting Prevention

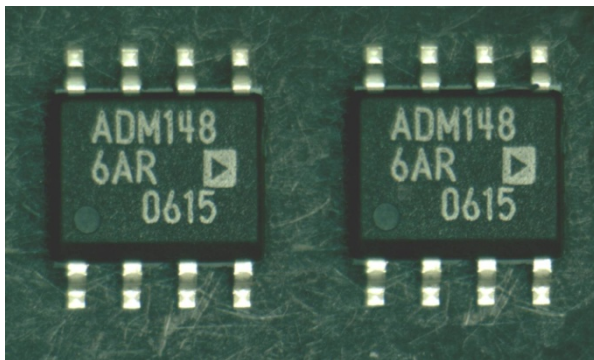
Overview of Counterfeiting

- Electronic Parts
- Watches
- Freon
- Handbags
- Batteries
- Air Bags
- Automobile Parts
- Cisco Routers
- Cable
- Sheetrock
- Airbags
- Automobile Suspension and Brake Parts
- Perfume and Cologne
- Clothing
- Sunglasses
- Drugs (Viagra)
- Vitamins
- Detergent
- Ginseng
- You name it!!

Electronic Part Counterfeit Methods

- Scrap Recovery
 - Can be remarked as the same part number
 - Can be remarked as a totally different number
- Repackaging – Commercial to Military/Space Grade
- Extraction and Repackaging
- Cloning

Real



Clone



Capacitor Repackaging



Most Seized Counterfeit Parts Involve Obsolete Semiconductors and Other EOL Components.

Is Recycling of the Problem?

- What happens to our recycled electronic parts?
- Or where does your old computer go??
 - Counterfeiters buy electronics from us
 - Villages and factories are setup to recover the parts (China & India)
 - Charcoal-fired solder pots for part removal
 - Drop them in Styrofoam cups by part type
 - Wash the parts in the local river
 - Spread them out in the sun to dry
 - Carefully sand or blast of part markings
 - Apply a top coating
 - Print new part numbers on the parts
 - Package and ship as new parts



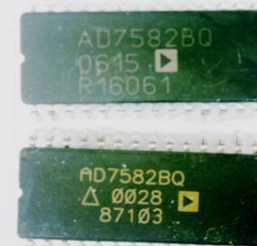
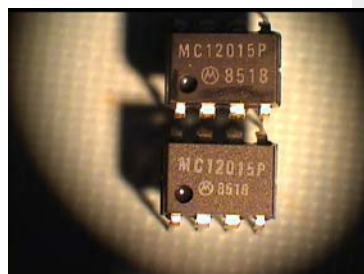
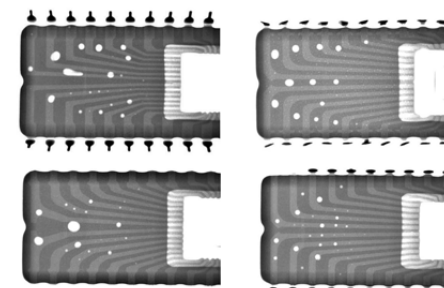
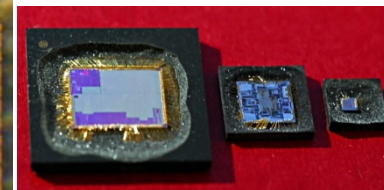
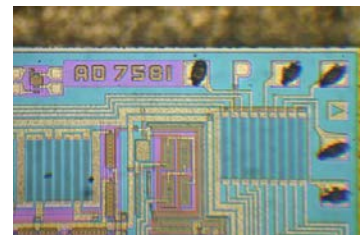
How do They Get in to the Supply Chain?

- Design to Finish Time – 7 – 9 years
 - Design electronics today with today's hottest parts
 - Manufacturers are always moving ahead with new products
 - Last Buy Opportunity
 - Best guess on how many the program needs
 - Production starts 2 – 3 years after design
 - 2 years later - Production problems come up due part failures, design changes. Spare parts used up!
 - Substitute parts are determined if possible.
 - Older parts are searched OEM distributors, Independent Distributors
 - Brokers, resellers searched (PRIMARY ENTRY POINT OF COUNTERFEIT PARTS!!!!)



Methods of Finding Counterfeit Parts

- External visual exam
- Inspection for remarking or resurfacing
- X-ray and lead finish evaluation
- Internal verification
- Electrical testing—basic & expanded; electrical over temperature
- Burn-in
- Fine and gross leak testing
- Residual gas analysis (RGA) testing
- Particle Impact Noise Detection (PIND) testing
- Acoustic microscopy testing



Counterfeit Prevention

- Buy ONLY from OEM Manufacturers
- Buy ONLY from OEM Licensed Distributors
- Parts from Brokers and Independent Distributors Must Be Verified before Use
 - Use a certified or approved testing lab
 - Honeywell used 12 different laboratories to test parts, they are assessed bi-annually to check compliance
 - Do not use a laboratory that is associated or embedded in distributors
 - Purchase enough to meet the need and destructive test samples
- Certificates of Compliance are USELESS!!! Get test data!!

Specifications for Counterfeiting Detection

- **SAE Publications**

- AS6081 Fraudulent/Counterfeit Electronic Parts: Avoidance, Detection, Mitigation, and Disposition – Distributors, Counterfeit Electronic Parts; Avoidance Protocol, Distributors
- AS5553 Counterfeit Electronic Parts; Avoidance, Detection, Mitigation, and Disposition
Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or 724-776-4970 (outside USA), www.sae.org

- **Independent Distributors of Electronics Association (IDEA)**

- IDEA-STD-1010 Acceptability of Electronic Components Distributed in the Open Market
Available from Independent Distributors of Electronics Association (IDEA), 6312 Darlington Avenue, Buena Park, CA 90621, Tel: 714-670-0200, www.idofea.org

Questions?