

What steps are necessary to keep counterfeit components out of the supply chain?

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Jason Appleby, ECN reader

Stop having unrealistic pricing expectations. Understand and qualify quality vendors of all kinds. Allocations and obsolescence are part of our industry, we have to identify a realistic market price to ensure the vendors we trust and work with can meet our needs without sacrificing quality. The dollar rules all, but understanding that philosophy compromises the very definition of quality is something board members, stock holders, and consumers must begin to recognize. If we can change the thinking of society from “how little can I possibly spend on something?” to “what’s the highest quality item I can buy at a reasonable price?” then the trickle down effect will reduce the viability of counterfeiters. It’s an effort that everyone must make together. All or none.

George Karalias, Director of Marketing & Communications, Rochester Electronics



Counterfeiters are adaptable and constantly incorporating solutions that can void the latest countermeasures. In some cases, counterfeits are very hard to differentiate from the original. The old practice of blacktopping to remark components has now been augmented by sandblasting and laser ablation of surface markings, making visual inspection challenging. Industry standards and best practices have come a long way toward preventing some of the more egregious practices counterfeiters have adopted — even independent distributors recommend visual inspection and test. As standards and practices develop, however, the language of these guidelines often changes. Getting back to the basics — what component makers consider to be authorized products — will go a long way toward clarifying these issues and preventing the perpetuation of

counterfeits in the channel. In a contract between an original component manufacturer (OCM) and an authorized distributor, the term “authorized” has a very specific definition. OCMs protect their brand, their reputation, and avoid potential liability by painstakingly contracting, training, and auditing their authorized distributors. As the supply chain becomes more complex, factory-to-end-user transactions become the exception rather than the rule. If semiconductor manufacturers are going to stand by their products, they must be able to establish the part in the buyers’ hands was actually developed and produced by the OCM and has not been altered. Establishing the provenance of components still being manufactured remains a complicated process. When a device is declared obsolete or reaches its end-of-life (EOL), the complications intensify. Often, manufactured components, their masks and die are sold to a distributor or put up for auction, and the process of traceability becomes difficult or even moot. Many component manufacturers, in an effort to protect their customers and their brand, will license their inventory to an authorized partner that can resell finished inventory, re-manufacture, or re-create parts with the OCM’s full warrantee. Because many companies sell and procure components in the open market, distributors that are not authorized by OCMs may very well be able to sell parts that come from OCM factories. However, any mishandling or even repackaging of these devices can make them non-compliant — even considered counterfeit — for a specific application. In most cases, all warranties are rendered void when purchases are made through unauthorized channels.



Owen Peters, ECN Reader

Buying American or paying top dollar is not the solution. There are a couple of steps, one already mentioned here, that are more realistic and which could be implemented immediately. First, control, and confine all scrap parts from which the vast majority of counterfeits are made. Most scrap from the US and our allies finds its way to China only to be recapped, blacktopped, remarked and resold to us, often through those same allies, or on occasion directly through shady or otherwise untrustworthy distributors. We must initiate and enforce stronger disposal regulations for all electronic components. Second, DNA marking. I can’t argue that it will forever be the best marking practice, but today, and for the foreseeable future, it is. While it is a controversial mandate issued by the DLA, it has undergone development, implementation and confirmed veracity second to none. Others may argue it isn’t perfect, and I would agree, but for now show me something better.



Jim Marinos, ECN Reader

Today the government makes the buyer responsible for making sure that we have paper work in place to prevent counterfeiting. At the end of the day, there is no way to know for sure if you are receiving counterfeit parts unless you test them. Most companies do not test, and products they do test are only on a sample basis. During the last few years, there have been many cases in which counterfeit parts end up in critical places, regardless of the documentation and safe guards in place to prevent it. In my opinion, to 99-percent prevent it is to buy "Made in America" with American materials.



David Isaacs, Vice President, Government Affairs,
Semiconductor Industry Association

SIA has been active in a multi-faceted approach to fighting counterfeit semiconductors since 2006 including: implementing safeguards to ensure counterfeits cannot be introduced into our design and manufacturing processes; developing authorized supply chains; implementing optimal component handling and storage requirements; partnering with law enforcement and customs authorities worldwide; conducting R&D to develop security features to meet customer needs; and providing support to governments developing laws, regulations and policies related to anti-counterfeiting. Today, the flow of counterfeits into the United States is on the rise. To reverse this trend and keep counterfeit semiconductors out of the supply chain, the following steps are necessary: First, government agencies need to change purchasing practices to focus on authenticity, performance and reliability rather than just pricing and delivery. Purchasers need to buy semiconductors from authorized distributors. Second, better coordination between groups developing international standards to combat counterfeiting to harmonize and optimize the requirements so that they are effective at addressing counterfeits. Third, the government must increase its enforcement efforts. The government needs to collaborate more effectively with semiconductor manufacturers to investigate problems and seize suspect shipments.

Leonard R. Escudero, ECN Reader



If I had the contract, I would embed a unique code onto the component and disguise it. Example: serial number 192436537 hides within it an every other number sequence 1, 2, 3, 5, 7, which is the first five prime numbers. That is simplistic, of course, but there are plenty of other algorithms available that would produce internally consistent number sequencing within otherwise random seeming serial or product numbers. 122341937 is produced by $1 \times 2 = 2$, which starts the sequence 122; $3 \times 4 = 12$, capture the first digit of the product, so now you have 122341; continue with $9 \times 3 = 27$, capture the 2nd digit, 7. Plug the 9, 3,

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and 7 back in, and you have the final 122341937. As long as you knew the rules of how to form the numbers, you could use a near random number generator for the multipliers. All this assumes absolutely secrecy on what the given rule is. A scanner could be programmed to read the s/n and see if it passed muster. An enhancement to increase the number of possibilities would be to include some alpha characters at the end of the sequence, either to identify WHICH rule is being used in the numeric sequence, or to use the numeric value of the letters (like in the Hebrew alphabet). You are exponentially increasing the available universe of correct solutions, yet increasing the difficulty of figuring out the rule.

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