EPE CORPORATION Case Study | Counterfeit Components Program

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About EPE Corp.

www.epecorp.com

EPE is a leading supplier of high-reliability Electronic Manufacturing Services. Our deep manufacturing and engineering expertise, strong financial position, and passionate dedication to quality and integrity are at the foundation of an established structure that supports the electronic manufacturing needs of customers in diverse industries – and a demanding marketplace

GOAL

Implement processes for risk mitigation, disposition, and reporting of counterfeit/suspect components

APPROACH

Creation of an internal Task Team with a solitary focus on building new protocols, procedures and closed-loop systems aimed at preventing unqualified suppliers and/or counterfeit parts from entering the EPE Corp. supply chain.

RESULTS

- Formed Counterfeit Material Risk Management Plan
- Vendor reductions: 40+ suppliers down to 10
- Reduced costs; liabilities
- Complete traceability
- Closed-loop approval system

HIGH RELIABILITY EMS provider EPE Corp. creates robust Counterfeit Avoidance program in its supply chain

High reliability systems such as those used by the military or by medical professionals, or even in certain industrial control applications, depend upon the performance and integrity of sophisticated electronic components. The failure of a single electronic part can leave a soldier vulnerable; a patient at risk, or a factory prone to safety issues. Unfortunately, a flood of counterfeit electronic parts has entered the electronics manufacturing supply chain in recent years and mitigating their proliferation has been a significant challenge.

Originating with unscrupulous independent brokers and small distribution companies, tremendous profits can be earned by selling counterfeit or reused products as originals. Salvaged parts from older model applications can appear to be legitimate, but once assembled and placed into use, the risks dramatically escalate and failure is just a matter of time.

Recognizing these nefarious practices, EPE Corp. sought to construct a program with robust checks and balances and closed-loop protocols that prevent the incidence of counterfeit components in their own operations. In doing so, the company protects its reputation for high reliability, trusted supply, and mission assurance that its customers have come to expect.

Counterfeit Challenges

With a general policy not to buy from brokers unless no alternative was available, EPE nevertheless had to – at times – resort to some of these vendors to fulfill its customer orders. But, these vendors were unqualified sources and trust was largely anecdotal.

On two separate occasions, for use in two different assemblies, EPE had procured diodes and capacitors from the same broker. In each case, the components were placed into the assembly and the resulting product was shipped to customers. A commercial customer experienced multiple failures in their end product that was traced to defective capacitors. And a defense customer experienced failures to a critical imaging system bound for installation on Navy ships. Those failures traced back to defective diodes. The cost of these components was not much more than $0.10 apiece, but as they attach to the incremental value of the assembled work and eventually to the fully integrated systems at end use, the scaled cost of failure is enormous. And in the case of a malfunctioning defense system, the cost is immeasurable.

Both of these incidents took place prior to EPE implementing their Counterfeit Avoidance program. But, both cases became the catalysts for ingenuity and a focused mandate to arrest suspicious components before they can affect a customer's end product.

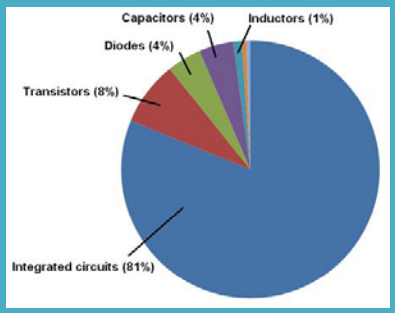
"Every broker buy requires customer approval. Every receipt from a broker goes through incoming inspection".
Jean Neely, Director of Purchasing and Supply Chain Strategies

SAE International
AS-5553

"This standard is recommended for use by all contracting organizations that procure electronic parts, whether such parts are procured directly or integrated into electronic assemblies or equipment. The requirements of this standard are generic and intended to be applied/flowed down to all organizations that procure electronic parts, regardless of type, size, and product provided"

SAE International Standards Body

Breakdown of Counterfeit Electronic Parts in U.S. Manufacturing



Government Accountability Office, GAO-12-375, February 2012

Source: Silicon Semiconductor

Forming the Counterfeit Material Risk Management Plan

EPE formed a Task Team to investigate methods of controlling the incidence of counterfeit parts and they created a set of guidelines derived from SAE International's Aerospace standard AS-5553: Counterfeit Electronic Parts; Avoidance, Detection, Mitigation, and Disposition. "The standard is designed for adoption by aerospace and military manufacturers and contractors, providing uniform requirements, practices and methods to mitigate the risk of receiving and installing counterfeit electronic parts. The AS5553 standard documents requirements, practices and methods related to:

- parts management
- supplier management
- procurement
- inspection, test/evaluation, and
- response strategies when suspect parts are discovered" *(Source: SAE)*

The EPE approach emulates the AS-5553 but adds strict requirements to become an EPE supplier, including memberships to ERAI: Electronic Resellers Association (a global information services organization that monitors, investigates, reports and mediates issues that are affecting the global supply chain of electronics) and IDEA: Independent Distributors of Electronics Association which enforces robust quality systems and ethical practice; among other certification, test and inspection criteria.

The final EPE document, entitled *Counterfeit Material Risk Management Plan*, provides specific instructions/training for component buyers; supplier qualification steps; a risk mitigation process with internal and end-customer approval loops; a containment process with Purge/Hold Notification steps to quarantine suspect parts; formal reporting loops to the component supplier, the component manufacturer, and to the ERAI database; required training by all department managers for departmental employees; and the Plan itself embeds into the EPE Quality Management System as a formal document (WM-422 M1).

Implementation and Benefits

Once the Plan was formed, training was instituted throughout the facility and internal processes were examined closely and a flowchart was developed to help guide employees through various 'Go/No Go' decision gates for qualifying, buying, vetting, and assembling components from broker/distributor sources.

Implementation saw a reduction in the supply base from some 40 vendors to 10 as qualification strictures eliminated those poorly suited to match EPE's criteria. Fewer suppliers that now fit a more strategic profile aimed at trusted supply meant less supplier management costs, higher reliability, better quality, and mitigated liabilities for end users.

In addition, the buying process was designed to mandate pictures, test reports, certificates of origin, and written customer approvals for using brokers as a source. Further, an EPE-specific suffix is attached to all purchased components as a deeper means of traceability, and incoming inspection is used as a subsequent check before release to the assembly floor.

The real win for EPE is that they have established a solid process for counterfeit component avoidance and with complete traceability to each and every component. Those factors are hard evidence that EPE Corp. takes is mission as a trusted high reliability supplier seriously.