Industry Focus: Planning for End-of-Life in Mil-Aero Markets

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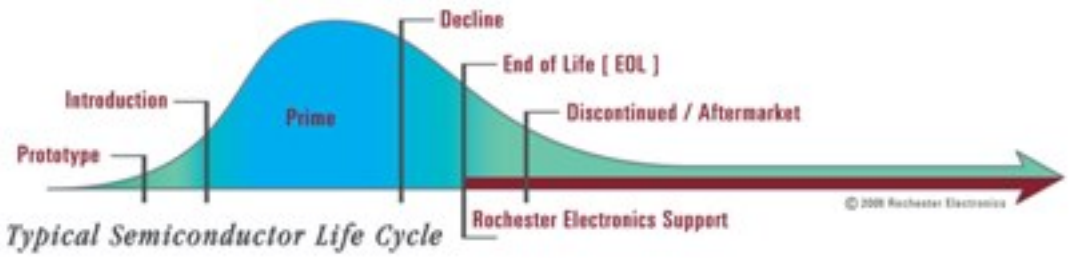
by George Karalias, Rochester Electronics, LLC

Although the ramifications of end of life (EOL) announcements have long been an issue for OEMs in the mil/aero marketplace, many still fail to put a workable plan in place to face this reality. As a result of the increase in end-product programs for these industries, long-term support requirements can sometimes extend for decades, leaving customers in a difficult position as they source components for ongoing production, maintenance and repair.

Today, many manufacturers find themselves in a situation where they need a 20-year support plan for their products, when the average life span of the electronic parts they need has been reduced to four years or less. This ever-increasing need for obsolete semiconductors has led to proliferation of grey market practices. Counterfeiting, especially the fraudulent manufacturing, distributing and selling of fake semiconductors, is a growing problem throughout the electronics industry. Counterfeiting of parts has a negative effect on reputable component manufacturers and distributors, causes purchasing dilemmas for component buyers, problems for equipment manufacturers and trouble for equipment operators.



In a worst case, it may cause manufacturers to be driven out of business or catastrophic disasters

through equipment failure. For the military and aerospace industries' mission-critical applications, there can be even more serious consequences where faulty equipment can result in loss of life. There are only two fail-safe ways to counter this problem: buying directly from the original manufacturer; or enlisting the help of authorized distributors and manufacturers.

Today, it is not enough to act on EOL notification at the time that a semiconductor needs to be replaced in critical equipment. Smart OEMs, particularly those selling to the military and aerospace companies, should plan ahead for part obsolescence, perhaps even at the time that a semiconductor is designed into the equipment. Aside from concerns about counterfeit parts or the costs of re-design, OEMs selling into these markets can find themselves facing a costly and lengthy process to have equipment re-certified by the military if a new and different part replaces one that had previously been approved for use in this market. Often, the process is so expensive and time-consuming that an OEM may never get the equipment back into a given application.

As devices are discontinued by the original supplier, customers are faced with many difficult decisions: What are the projected quantities needed and for how long? Is there an alternate device that can be substituted? Can you be assured that an alternate will be available long-term? What are the costs and time involved in board re-design? Is there enough funding to support purchasing for projected demand? If you purchase EOL inventory, are you prepared for the necessary handling, storage, precautions, systems and logistics required? If an EOL purchase is not done, how can you be assured that you can procure reliable product when needed? If these questions are not addressed early on, OEMs may find themselves buying parts from sketchy sources, taking on all the risks that come with that decision. By planning ahead, however, OEMs open themselves up to a number of options that are not just cost-effective but that can reinforce business goals and the bottom line.

The most important factor in ensuring product quality is finding a supplier with a proven record of product authenticity and traceability to the original manufacturer. OEM buyers want to rest assured that the product they are buying is authentic; that it has undergone proper storage and handling methods audited by the manufacturer; that the supplier is knowledgeable about the technology and product

information; that the product is guaranteed and support is offered long-term; and that there is a consistency and reliability in pricing.

When military suppliers consider end-of-life options before EOL is announced, there are a number of solutions that can be put in place to ensure long-term availability of parts. The many options available through an authorized supplier may include:

• Finished Inventories. Authorized, franchised distributors for finished devices received from the original manufacturer can provide discontinued parts immediately. A directory of authorized suppliers can be found at www.electronicsasd.com [1].
• Wafer and Die Inventories. There are suppliers out there that procure all available wafer- and die-level inventory, test programs, and test fixtures from the original manufacturer and will complete the manufacture of die-level inventory to finished devices. The devices will be tested to, or in excess of, the original manufacturer's specifications. Products can be tested to military- or space-level test flows.
• Long Term Supply Programs. Some manufacturers/distributors provide long-term supply and support for discontinued semiconductors, providing extended product life for decades.
• Customer-Supplied Die Storage Programs. Some distributors can manage all storage, control, logistics and distribution of a customer’s die products. Customer-supplied product (whether a single part number or many different parts) is stored in secure dry boxes in climate-controlled facilities on site at the distributor.
• Bill-of-Material Services. Some semiconductor manufacturers/distributors provide services that help OEMs plan their strategies for end-of-life. Customers provide their BOMs to the authorized supplier and then receive regular follow-up alerts on devices that are approaching end-of-life.
• Special Product Agreement. Through contract, some authorized distributors can place devices into bonded inventory. Products are then released only to the specific customer through a customized, comprehensive, scheduled and managed program. This alleviates the problems that arise from unplanned end-of-life (EOL) events during the course of a critical system’s existence.
• Device Re-Creation. In the event that the original manufacturer’s device is obsolete, it may be possible to re-create the required device with the authorized permission of the original manufacturer. Some suppliers have contractual

authorizations with full access to manufacturer mask sets and/or process information when no die inventory is available. Through authorizations and licensing from the original manufacturer, a supplier may be able to re-create the device from the manufacturer's IP or through device reverse-engineering, providing an ongoing and continuous long-term supply of these critically required devices. It is critical, however, that this service be obtained through an authorized manufacturer, not a broker.

While planning ahead is the best way to ensure continued supply without downtime, what can an OEM do right now if faced with finding a replacement for an obsolete part to ensure procurement of authentic, quality parts? Buyers can limit their risk of obtaining a substandard part by following some simple practices. First and foremost, buy parts only from component makers and their authorized distributors, and consider cost instead of pricing; even if you are getting a bargain on a component purchase, the cost of manufacturing downtime or failure of the end-product if the product is faulty or counterfeit far outweighs front-end savings. Check with suppliers about hard-to-find parts—authorized distributors buy up EOL lots, and companies such as Rochester Electronics are authorized by suppliers to build legacy parts using the suppliers' original die. If an OEM believes a part is faulty, however, immediately report problems to the supplier or distributor.

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