

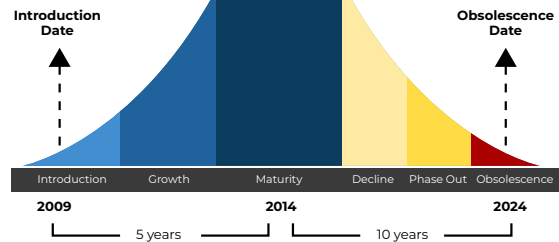


Proactive Obsolescence Management

YTEOL Reliability Report

2024 WHITEPAPER

Forecast Years to End of Life



The Need for Proactive Obsolescence Management

Electronic component obsolescence presents challenges to product design that are often costly. Managing the risk associated with component lifecycles and analyzing whether part numbers will last the whole lifecycle of a product is no easy task. Engineers must balance product quality and functionality with specifications, regulation requirements AND an obsolescence plan that factor both immediate and long-term component end of life.

In the event of part obsolescence, companies typically fall victim to a high demand and limited market availability situations. Our 2022 PCN report found that 20.89% of product change notices (PCNs) were for part numbers with last time buy dates of “immediately,” meaning that waiting for a PCN may result in a stop in production and/or a costly re-design.

End of life forecasting data provides companies with the insight necessary to manage risk during the initial component selection process. This gives engineers the ability to match their component lifecycles with that of their projected product lifecycle and plan ahead with alternate part numbers that have similar form fit and function.

Forecast Years to End of Life

SiliconExpert, in joint partnership with CALCE (The Center for Advanced Lifecycle Engineering), developed a proprietary algorithm in 2013. The SiliconExpert Forecasted Years-to-end-of-life (YTEOL) Algorithm utilizes multiple historical data patterns to forecast (YTEOL) and provide a single data value within the SiliconExpert database.

The SiliconExpert algorithm tracks and flags component part numbers that have exceeded their expected life span. In 2023, SiliconExpert enhanced the algorithm to utilize Machine Learning. The inclusion of Machine Learning into the algorithm significantly enhances the frequency with which we apply historical patterns further improving accurate predictions from the algorithm and enhancing the ability to evaluate forecasting. Customers benefit from flagged components that are nearing obsolescence or could be subject to sudden EOL, thus reducing risk of obsolescence.

Methodology

All component part numbers registered in the prior year 2022 as EOL (LTB or Obsolete) are used in SiliconExpert's Forecasted YTEOL Algorithm. This allows SiliconExpert to utilize the most current market trends to enhance the accuracy of the algorithm. SiliconExpert tracks all part numbers in two groups - those part numbers with a warning flag prior to obsolescence notification and those part numbers with no warning flag.

The algorithm flags component part numbers as either low, medium or high risk. A component flagged as medium risk indicates that an active component in its maturity phase may soon enter decline or end-of-life. Consequently, customers are encouraged to check with the manufacturer on future availability to minimize the risk of an obsolescence event adversely impacting them. While this provides a solution for proactive obsolescence management, volatile market conditions can drastically impact component availability outside of reasonable prediction.

We classify our predictions as "accurate prediction" or "inaccurate prediction" defined below:

- Accurate prediction: the current lifecycle of the component is obsolete and the SiliconExpert algorithm provided an advanced warning of "medium risk" prior to the obsolete notification being issued.
- Inaccurate prediction: the current lifecycle of the component is obsolete and the SiliconExpert algorithm did not provide an advance warning.

Reliability Results

Already providing highly accurate predictions, 2023 marked another year of improvements in the SiliconExpert Forecasted YTEOL algorithm. Accurate predictions increased to 92.98%. Inaccurate predictions decreased to 7.02%.

Since the algorithm was introduced in 2013, accurate predictions have increased by nearly 13 points and inaccurate predictions have been cut by more than half. During this time, the changes have included an expanded base of part numbers, more part meta data and various improvements to the algorithm itself. 2023 marked the inclusion of machine learning to increase the frequency with which the algorithm utilizes historical patterns. It also allows the algorithm to process more obsoleted part numbers, further improving the algorithm itself.

Our team of 500 engineers regularly monitor and calibrate the algorithm to ensure consistency in forecasting, helping customers proactively identify and avoid obsolescence risks.

YTEOL PREDICTION OVERALL ACCURACY

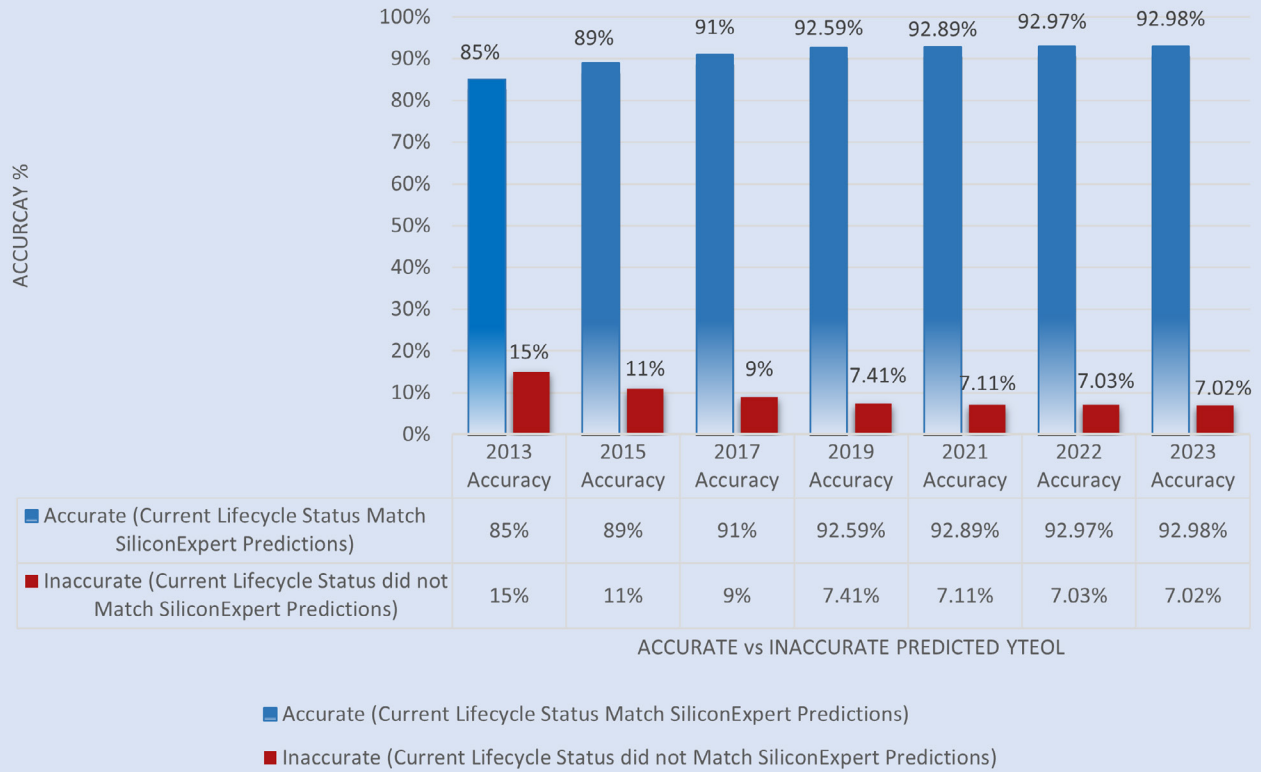


Figure 1 above shows the accuracy percentages for part numbers classified as Obsolete in 2022. A higher percentage is good for accurate predictions (warning flag added to part number prior Obsolescence notice), a lower percentage is better for inaccurate predictions (warning flag was not added to part number prior Obsolescence notice).

PREDICTIONS PER CATEGORY

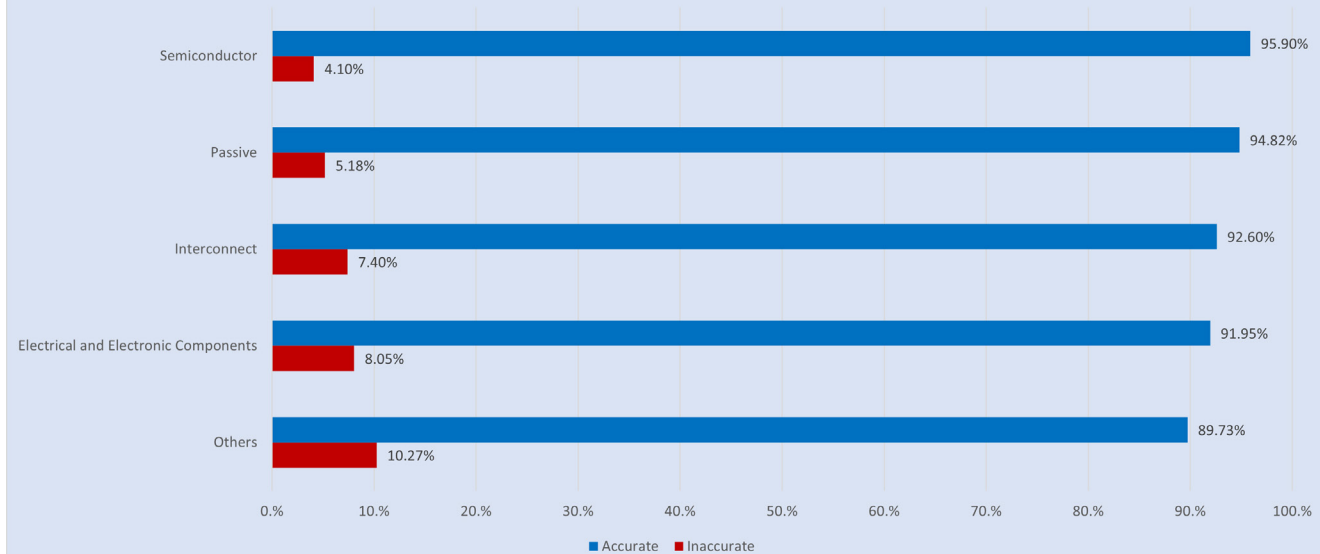


Figure 2 shows the distribution of accuracy percentages per category of components.

Accurately Forecast End of Life

Designing a new product only to find out that a critical component becomes obsolete a week after launch is extremely costly to the company in raw costs as well as damage to the product and company brand. Long product lifecycles mean high sensitivity to lifecycle changes and a real need for a proactive approach to obsolescence management. End of life forecasting data provides companies with the insight necessary to manage risk during the initial component selection process. Best practice for the selection of an electronic component is to take values like forecasted YTEOL into consideration along with other lifecycle and supply-chain factors, not solely.

SiliconExpert: Solve Today. Anticipate Tomorrow.

Electronic component selection doesn't have to be complex, time-consuming and laden with risk. As the global industry leader for discovery, selection, and management of electronic components, SiliconExpert provides a 360° view on more than 1 billion parts to help technology manufacturers reduce risk, increase certainty and streamline design. Our solutions go beyond robust information and insights on components to include a century of supply-chain expertise, workflow-centric tools, and a customers-first experience without limits.

Our leadership in obsolescence management includes CALCE-supported predictive lifecycle algorithms, BOM Management tools, and risk analysis at part and BOM levels. Learn more and request access to our Obsolescence Management solutions.

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