

JEDEC STANDARD

Special Requirements for Maverick Product Elimination and Outlier Management

JESD50C

(Revision of JESD50B.01, November 2008)

January 2018

JEDEC SOLID STATE TECHNOLOGY ASSOCIATION



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Published by
©JEDEC Solid State Technology Association 2018
3103 North 10th Street
Suite 240 South
Arlington, VA 22201-2107

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AND OUTLIER MANAGEMENT****Contents**

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SPECIAL REQUIREMENTS FOR MAVERICK PRODUCT ELIMINATION AND OUTLIER MANAGEMENT

Foreword

This standard replaces both JESD50A and JESD62A.

Introduction

The component quality and reliability performance currently being achieved by the electronic component industry has improved to a level where product anomalies have become a major impact to the end user. These situations have been called “Maverick Product” problems. These problems can occur in any commodity and the different performance of Maverick Product can significantly impact the expected performance of the commodity. Causes of Maverick Product can vary across the entire spectrum of processes including, but not limited to, fabrication, assembly, test, packing, and shipping operations.

Maverick Product can result in one or more populations of material having an actual or potential problem that may go undetected until its use in the final application. The impact of this product on user quality, functionality and field reliability is costly, in terms of replacement costs, loss of business, and user satisfaction.

The primary consideration is to protect the user from the potential impact of processing variation anomalies. Problem prevention is accomplished by eliminating atypical product and by using failure mechanism-based product monitors, process controls, and user data. Yield improvement programs do not necessarily provide this protection. Maverick products are often eliminated using statistical quality control techniques including lot acceptance inspections. Due to inadequate, incomplete, or impossible to characterize device performance possibilities, some device characteristics or parameters may be incompletely tested or inspected or not tested or inspected at all; thus, cannot be eliminated by standard statistical quality control based on manufacturer determined data only.

Mavericks may occur within either specification or statistical control limits but are not part of the normal distribution that describes the population or process.

Outliers are a subset of mavericks that are within specification but unusual compared to the prevailing distribution.

SPECIAL REQUIREMENTS FOR MAVERICK PRODUCT ELIMINATION AND OUTLIER MANAGEMENT

(From JEDEC Board Ballot JCB-17-49, formulated under the cognizance of JC-14.3 Committee on Silicon Devices Reliability Qualification and Monitoring)

1 Scope

The Maverick Product Elimination (MPE) and Outlier Management Standard was created to identify supplier requirements to improve the delivered quality and reliability of electronic components, and to develop the programs and discipline required to minimize the probability of the user of electronic components receiving Maverick Product.

This standard applies to the identification, control, and disposition of Maverick Product that can occur during fabrication, assembly, test, packing, or shipping of any electronic component. It can be implemented for an entire product line or to segregate product that has a higher probability of adversely impacting quality or reliability. These activities may require special effort and, therefore can only be activated by mutual agreement between the user and the supplier. This system is known as an Outlier (or otherwise Maverick) Identification and Management System (OIMS)

Outlier Identification and Management System (OIMS) is to identify process and defect anomalies, improve process controls, and improve end-user quality and reliability and to identify the root cause of the Outlier product. This procedure is also known as Part Average Testing per AEC Q001 Guidelines for Part Average Testing (PAT).

2 References

JEP121, *Requirements for Microelectronic Screening and Test Optimization.*

JEP131, *Potential Failure Mode and Effects Analysis (FMEA).*

JEP132, *Process Characterization Guideline.*

JESD659, *Failure-Mechanism-Driven Reliability Monitoring.*

JESD46, *Customer Notification of Product/Process Changes by Solid-State Suppliers.*

JESD671, *Component Quality Problem Analysis and Corrective Action Requirements (Including Administrative Quality Problems).*

JESD557, *Statistical Process Control Systems.*

JESD16, *Assessment of Average Outgoing Quality Levels in Parts Per Million (PPM).*
ISO9000 *Quality Management Systems – Requirements.*

AEC Q001, *Guidelines for Part Average Testing.*