Resources for Radiation Test Data

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Abstract: We present resources for aerospace engineers or spacecraft design engineers to use when searching for radiation test data.

Introduction

The phenomenon of electronic failures due to single-event effects (SEE), single-event latchup (SEL), and displacement damage (DD) of electronic components on space vehicles is quite complex. These are the primary mechanisms which cause the rapid change in behavior of both technology and related radiation issues. As such, radiation test data is necessary for the continued advancement of the field. These failures have been known by various names including single-event burnout (SEB), single-event functional interrupts (SEFIs), single-event latchup (SEL), and DD, and can occur within micro-chips, silicon, or glass. With the rapid increase in the use of electronic components in aerospace and commercial space programs, it is necessary to have a resource available to the aerospace engineers or spacecraft design engineers.

Test Data Research Samples

NASA GSFC Radiation Effects and Analysis Group (REAG)

The NASA radiation database stores over 20,000 test results of over 600 electronic parts. The website allows narrowing the search by specific fields including part number, function, manufacturer, lot, test type, and category. The database shows all the test results contained in the database. Figure 1 shows a screenshot of the website interface. Figure 2 shows how to conduct individual lot test reports.

IEEE Radiation Effects Data Workshop (REDW)

The IEEE Radiation Effects Data Workshop (REDW) paper test dates, test report file name, test type, and category. Figure 3 shows a screenshot of the REDW database. The database shows REDW year, paper number and page(s), and other search tools.

European Space Components Information Exchange System

The European Space Components Information Exchange System (ESCIES) website allows users to conduct a complete search for any page within the site for any subject. Figure 4 shows a screenshot of the ESCIES website. The specific mission of the DLA Land and Maritime Sourcing and Qualifications Division (VQ) is to establish and maintain a known-good supplier base that provides radiation data that is delivered to NASA Electronic Parts and Packaging (NEPP) Program to be published on nepp.nasa.gov. The database shows REDW year, paper number and page(s), and other search tools.

Esperanza (ESCC)

The Esperanza (ESCC) website allows users to conduct a complete search for any page within the site for any subject. Figure 5 shows a screenshot of the ESCIES website. The specific mission of the DLA Land and Maritime Sourcing and Qualifications Division (VQ) is to establish and maintain a known-good supplier base that provides radiation data that is delivered to NASA Electronic Parts and Packaging (NEPP) Program to be published on nepp.nasa.gov. The database shows REDW year, paper number and page(s), and other search tools.

NASA ESPC Components Information Exchange System

The European Space Components Information Exchange System (ESCC) website allows users to conduct a complete search for any page within the site for any subject. Figure 6 shows a screenshot of the ESCIES website. The specific mission of the DLA Land and Maritime Sourcing and Qualifications Division (VQ) is to establish and maintain a known-good supplier base that provides radiation data that is delivered to NASA Electronic Parts and Packaging (NEPP) Program to be published on nepp.nasa.gov. The database shows REDW year, paper number and page(s), and other search tools.

Test Data Research Samples

The European Space Components Information Exchange System (ESCC) exposes many search options including description, manufacturer, part type, yield, experience, availability, and supplier name and contact. The database shows REDW year, paper number and page(s), and other search tools.

Other Search Tools

Search engines such as Google can be used to find some data. However, even with specific search keywords, they may not be the exact information that is necessary to verify the data is legitimate.

Cautions

This poster is intended to be a resource for aerospace engineers or spacecraft design engineers. Some resources may require a sign-in account to access the test data.

Acknowledgment

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Summary

This poster is intended to be a resource for aerospace engineers or spacecraft design engineers. Some resources may require a sign-in account to access the test data. The database shows REDW year, paper number and page(s), and other search tools. The database shows REDW year, paper number and page(s), and other search tools.