JEDEC STANDARD

Test Method for Real-Time Soft Error Rate

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JESD89-1B

Addendum No. 1 to JESD89
(Revision of JESD89-1A, October 2007)

JULY 2021

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TEST METHOD FOR REAL-TIME SOFT ERROR RATE

(From JEDEC Board Ballot JCB-20-64, formulated under the cognizance of the JC-14.1 Subcommitee on Reliability Test Metods for Packaged Devices.)

1 Scope

This test is used to determine the Soft Error Rate (SER) of solid state volatile memory arrays and bistable logic elements (e.g. flip-flops) for errors which require no more than re-reading or re-writing to correct and as used in terrestrial environments. It simulates the operating condition of the device and is used for qualification, characterization, or reliability monitoring. This test is intended for execution in ambient conditions without the artificial introduction of radiation sources.

JESD89-1 is offered to define concisely the requirements for executing this test in a standardized fashion. It is intended for use in conjunction with JESD89 which includes background on reasons for these requirements.

NOTE 1 Typically, soft error rate characterization by this test method will be executed by the device manufacturer. Other parties may also apply this method appropriately in conjunction with the manufacturer's product data sheet.

NOTE 2 The term real-time soft-error rate (RTSER) is preferred over the term system soft-error rate (SSER).

NOTE 3 Special considerations apply to devices that are more than memory arrays and/or bistable logic elements. These can preclude the application of this test procedure. Refer to JESD89 for further discussion on some examples.

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1.1 Applicable documents

JESD89	Measurement and Reporting of Alpha Particles and Terrestrial Cosmic Ray-Induced Soft Errors in Semiconductor Devices
JESD89-2	Test Method for Alpha Source Accelerated Soft Error Rate
JESD89-3	Test Method for Beam Accelerated Soft Error Rate
JESD22-A108	Temperature, Bias, and Operating Life

2 Apparatus

The performance of this test requires equipment that is capable of providing the particular test conditions to which the test samples will be subjected. (As a practical matter, this equipment will typically provide the means to collect data on many samples under evaluation over the same time period.)

The integrity of the test apparatus shall be verified prior to data collection. The particulars of the verification process are left to the individual investigator for their specific equipment.

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