

ESD TR23.0-01-20

ESD Association Technical Report



*For the Protection of EOS/ESD
Susceptible Items -*

*Electrical Overstress in Manufacturing
and Test*

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EOS Best Practices

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Published by:

**Electrostatic Discharge Association
7900 Turin Road, Bldg. 3
Rome, NY 13440**

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Printed in the United States of America

FOREWORD

The term, electrical overstress (EOS), is assigned to most of the electrical failures of devices that occur in factories and the field. EOS has many root causes. One EOS root cause, electrostatic discharge (ESD), has received much attention in technical literature, standards bodies and educational workshops and tutorials. The approach has been in a systematic manner which has resulted in relatively successful practice for design of robust devices and control procedures for the factory. However, the same is not true for the effects of the broader categories of electrical stresses that can be the root cause of EOS. These other root causes (over-voltage, over-current, over-power), when grouped, are more prevalent causes of failure (damage) than ESD by a wide margin because of the lack of a coherent design and mitigation (control) strategy.

The focus of this technical report¹ is the group of EOS root causes that can cause device damage in manufacturing and test. The working group anticipates frequently updating the document as additional information on the many root causes of EOS becomes available. This initial version describes the scope of possible damage root causes. Since there is more detailed information currently available on EMI sources, and IC and board-level test, these are described in greater detail. The document will be revised as best practices in use in the industry are shared and evaluated by the working group.

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¹ **ESD Association Technical Report (TR):** A collection of technical data or test results published as an informational reference on a specific material, product, system or process.

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