synaptics

Synaptics General ESD/EOS Control Methods Application Note

PN: 506-001454-01 Rev B

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1. ESD/EOS Control for Safe Environment

A safe electrostatic overstress (EOS) / electrostatic discharge (ESD) environment is one where there is no EOS/ESD exposure to sensitive environments. This requires a comprehensive approach.

- The most ionizers
- The best ground
- Everyone wears wrist straps
- Compliance with ESD standards

1.1. Risk at IC Handlers

Typically, discharges occur when IC is managed under the following situations:

- is picked up from the input tray
- is placed in the input shuttle
- is placed in the test socket
- is lifted from the test socket
- is placed in the exit shuttle
- is placed in the output tray

It is important to configure the air ionizers to eliminate static electricity while handling the IC. The number of ionizers should be sufficient.

Personnel should wear grounding straps while moving the tray.

1.2. Risks Occur During Pick and Place

Personnel grounding straps are necessary while moving the tray (during tray in/out). Air ionizer configuration on the machine is required. There should be cart and shelving grounding checks, and a power outage record check.

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2. Basic ESD/EOS Control Methods

2.1. Manufacturing Area ESD Control

The following protections should be in place to control ESD in the manufacturing area:

- Use of conductive flooring and workspaces
- Use of personnel grounding straps
- Cart and shelving grounding
- Ionizer configuration for IC handlers and FT machine
- Checking of solder rework equipment for EM leakage
- Control of humidity levels in work areas

2.2. Product/Application Level

- Clean VDD/VSS supplies
- Controlled VDD ramp at power up and power down
- Proper power/ground de-coupling capacitors
- PCB low-resistance conduction paths for power and ground

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3. Revision History

Revision	Description
A	Initial release.
B	Released as a public document.

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