

Electrostatic Discharge Protection

Electrostatic Discharge (ESD) is the process of accumulation of large amounts of charge on a body and rapid, uncontrollable discharge through another body with the possibility of causing damage. It is a subset of EOS, Electrical Overstress, which is a major concern in the electronics industry. ESD is potentially hazardous to semiconductor devices. Caution must be used when handling and testing semiconductor devices in order to avoid possible ESD damage to the semiconductor.

ESD events are typically characterized by low power dissipation (limited energy) and last for short periods, in the range of nanoseconds to milliseconds. ESD may result in catastrophic failures, but frequently result in performance degradation or latent failures. Also, the cumulative effect of repeated exposure can lead to complete failure. Typical indications of ESD damage are gate oxide breakdown, junction spiking, or input leakage failures. ESD events typically occur with device handling by automated handlers or assembly. The fundamental mechanism of ESD is called "tribocharging," which occurs when different materials come in contact with one another and then separate, such as the sole of a person's shoe as they walk across a carpet, or when an IC rubs against a rail on an automatic handler. The magnitude of the charge generated is dependent upon many factors, such as type of materials, speed at which they rub together, and the relative humidity of the environment.

Rogers recognizes the potential hazard of ESD to its IC inverter products, and practices standard procedures for ESD protection. All areas where semiconductor devices are handled must implement ESD prevention methods. Elements of standard ESD prevention procedures are included herein and highly recommended.

ESD PREVENTION METHODS

- Workstations should have conductive tabletops and be properly grounded
- Gloves, finger cots, and clothing that are recommended to be worn by personnel handling parts must be of material that does not generate electrostatic charges
- Grounded wrist straps for static control should be worn when handling the device
- All parts should be handled by their packages and not by the leads
- Use conductive/antistatic floors and floor mats where appropriate
- Shoe straps should be used by personnel working in areas where wrist straps may be restrictive
- Relative humidity should be kept between 45 to 60% since static generation increases exponentially as humidity decreases
- Use conductive/antistatic envelope for storage of paper documentation accompanying product
- Use bags or tubes made of conductive and/or static dissipative material for storing and transporting product
- Soldering irons must have grounded tips
- Ionization devices should be used where appropriate for neutralizing static charge
- Avoid high dielectric materials or take appropriate precautions when near semiconductor devices
- Avoid hot socket insertions. Adopt proper power supply sequencing techniques where appropriate

The information contained in this data sheet is intended to assist you in designing with Rogers EL systems. It is not intended to and does not create any warranties, express or implied, including any warranty of merchantability or fitness for a particular purpose or that the results shown on the data sheet will be achieved by a user for a particular purpose. The user should determine the suitability of Rogers EL drivers for each application.

ISO 9001:2000, ISO/TS 16949:2002, and ISO 14001:2004 Certified

The information contained in this data sheet is intended to assist you in designing with Rogers EL systems. It is not intended to and does not create any warranties, express or implied, including any warranty of merchantability or fitness for a particular purpose or that the results shown on the data sheet will be achieved by a user for a particular purpose. The user should determine the suitability of Rogers EL drivers for each application.

Rogers EL drivers are covered by one or more of the following U.S. patents: #5,313,141, #5,347,198; #5,677,599; #5,789,870; #6,043,610. Corresponding foreign patents are issued or pending.

The world runs better with Rogers.®

DUREL is a licensed trademark of Rogers Corporation
©2000, 2006 Rogers Corporation. Printed in USA
All Rights Reserved
Revised 12/06 **Publication # LIT-T9010 A03**