

1. Mechanical Shock: Because of the fragile nature of the crystal blank, extreme care should be observed when handling oscillators and crystals. Units should not be dropped onto hard surfaces such as floors and counter tops. The use of rubber floor mats can greatly reduce the risk of damage. There are several failure modes which result from dropping units, including broken crystals, broken interconnects, damaged packages and broken glass seals.

2. Oscillator Insertion Techniques: Special attention should be paid when placing an oscillator into a circuit board. It is important to observe proper pin orientation. Testing has shown that failures can occur by plugging a unit in backwards (reverse polarity), or by applying high voltage in excess of +7.0 volts DC. HCMOS devices are more susceptible to this type of damage. If incoming inspection is required, we recommend the use of zero insertion force (ZIF) sockets to eliminate the chance of lead damage, or glass to metal seal interface degradation or plating deformation. The units should be handled by the casing and not the leads.

3. Electrostatic Discharge (ESD): Oscillator units should be protected from ESD damage at all times. Proper precautions should be taken to avoid exposure to ESD during handling and mounting. The components should be handled at static-safeguarded workstations. Precautions should be taken to remove and prevent static build-up or charge through grounding metal trays, conductive containers, and personnel via conductive floors, conductive table mats and conductive wrist straps.

4. Other Guidelines:

- a) Units should be stored in a dry environment.
- b) Units should remain in their packaging until ready to be mounted on boards.
- c) Finger cots should be worn whenever oscillators or crystals are to be handled.
- d) When not in manufacturer packaging, units should have their leads placed in foam or in a tray in a single layer, leads up.
- e) Should pre-mount lead forming or cutting become necessary, a gross leak test should be subsequently performed to insure package integrity.

If you require additional information, visit our Website at <http://www.suntsuinc.com> or contact us by phone at (949) 305-0220 or e-mail [qc@suntsuinc.com](mailto:qc@suntsuinc.com).