

## Product Handling Procedures

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# MtronPTI Product Handling Procedures

## Quartz Crystals, Oscillators, TCXO, VCXO, OCXO, and Crystal Filter Products

**Purpose:** This document is intended as a guide for manufacturing engineering, production line, quality inspection, and material control personnel in the proper transporting, handling, and processing of quartz based devices. This document should be disseminated to the appropriate personnel in their respective areas of responsibility.

### Mechanical Shock & Vibration Exposure

- All products containing quartz-based devices should be considered as “probably damaged” if dropped from more than 18” on to a hard surface.
- When transporting quartz-based devices it is important to minimize shock by transporting the devices in a suitable carrier or other packaging in order to avoid device-to-device contact. Dropped carriers or reels, should be considered as “probably damaged”, and should not be used.
- Do not expose crystal devices to shock or vibration levels that are beyond the limits specified by the crystal device manufacturer. Please see our website at [www.mtronpti.com](http://www.mtronpti.com) for standard shock specifications for specific MtronPTI products.

### Processing Precautions

- Do not exceed the manufacturers recommended reflow temperature profile for a given quartz based device. Failure to do so can result in devices that are permanently damaged or out of specification. See specific MtronPTI product data sheet for recommended reflow conditions.
- Do not expose certain quartz-based devices to high temperature reflow if the crystal device manufacturer recommends “Hand Solder Only” on their product data sheet.
- Do not hand solder any leads to the case of the quartz based device. Excessive heat may damage the device.
- Do not use ultrasonic cleaning for quartz-based devices.
- Do not perform lead cutting or forming operations unless the proper tooling is available. Failure to do so can result in cracked, or broken glass-to-metal seals around the crystal or oscillator leads. This will cause a loss of hermeticity of the device.
- Do not force or stress leads of the device when pick and placing the device into a socket or PCB hole.
- Do not use excessive force when picking and placing quartz based devices on to a PCB assembly.
- Do not exceed the recommended storage temperature and humidity limits for a quartz-based device. See specific MtronPTI product data sheet or website [www.mtronpti.com](http://www.mtronpti.com) for storage condition information.
- Use a cleaning process that will assure that no residual material from the soldering or washing process will exhibit a low resistance path across the crystal leads. Tuning fork (32.768 kHz) crystals are especially susceptible to starting problems if the crystal leads have any type of low ( $^310$  K ohms) resistance path across them.
- Some quartz based device packages are non-hermetic. Failure to comply with the manufacturers “No Wash” recommendation can result in a damaged, or an out of specification device. See specific information on product data sheet.
- Heed all manufacturers “Warning Labels” on device packaging.

### ESD Sensitivity

- Many products containing crystals are sensitive to ESD damage. Please handle only when properly grounded and operating in an ESD safe workstation.
- Crystal oscillators, TCXO, VCXO, OCXO, VCO, and timing modules all contain active electronic circuits and are to be considered ESD sensitive. Persons handling these devices should use a grounded wrist strap, or heel strap. Parts should be placed on grounded conductive surfaces. ESD protective carriers and packaging should be used when transporting, or shipping ESD sensitivity devices.
- Heed all warning labels included with the packaging of these products.