

## Handling Moisture Sensitive Devices (AN-40-011)

Keywords: Moisture Sensitivity, MSL, J-STD-033

### **1. Introduction:**

The following application note is a guide for handling moisture sensitive surface mount devices and is based on the IPC/JEDEC industry standard J-STD-033 available from JEDEC.

Non-hermitically sealed electronic components absorb moisture from the environment. During solder reflow assembly the moisture in devices expands rapidly and cause materials stress that may degrade material interfaces.

Selected Mini-Circuits surface mount models are moisture sensitive according to the Moisture Sensitivity classification Level (MSL) as defined by the IPC/JEDEC J-STD-020 Standard. Each moisture sensitive model has its MSL classification number rating on the model specification sheet and the units are Dry Packed for storage, shipping, and handling per the IPC/JEDEC J-STD-033 standard.

### **2. Storage & Handling Guideline:**

To prevent damage in moisture sensitive devices due to absorbed humidity, the devices must be stored in a low humidity environment and mounted within a specified exposure time to normal atmospheric conditions.

The most common method for storage and shipping moisture sensitive devices in a low humidity environment is according to the J-STD-033 Standard, in sealed moisture barrier bags with desiccant and containing a Humidity Indication Card (HIC).

The sealed moisture barrier bag will also have a special moisture sensitivity label indicating the MSL classification level number, showing the Floor-life (exposure time to ambient factory conditions) information and Bake-out information.

If a device was exposed to excess humidity, whether a HIC indicated over exposure or if devices exceeded their allowable Floor-life, the devices must be dried out by processing the devices through a Bake-out procedure.

Please refer to the complete J-STD-033 for additional details.

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