

## **Resistors Handling and Storage Precautions**

Most resistor styles are very rugged in construction and do not require any special processing or handling during the manufacturing operation beyond normal handling precautions. The only exception to this rule is the metal film styles that are ESD sensitive. These are of particular concern because ESD does not always cause a catastrophic failure. Instead, it may cause a slight change in resistance value that may initially go unnoticed. However, after further degradation and in combination with tolerance buildup of other circuit elements, failure eventually occurs. Process controls for a metal film resistor should therefore be the same as for an ESD sensitive semiconductor or microcircuit.

Normal handling precautions include protection against harmful contaminants that could affect the normal operation of the part or degrade solderability of component leads. The most common source of contamination is from cleaners and soldering fluxes used during the manufacturing operation, and humidity during storage conditions. Detailed handling precautions and recommendations for each resistor style are discussed under the application considerations of each resistor style.