

Recommended Storage & Shelf Life Policies

CAL-CHIP ELECTRONICS INC.

CCE RECOMMENDED CONDITIONS

1. Always keep components in their original packaging and store them indoors in a controlled environment with a maximum of 60% relative humidity.
2. Storage temperature should be from +5°C to +35°C (41°F to 95°F).

****Parts can be successfully stored in environments that deter from these CCE recommendations without any effects on solderability or reliability. However, solderability and tape and reel degradation may occur for environments which do not follow these basic guidelines. *Read below for additional details.***

Ceramic capacitors' shelf life depends on storage conditions and packaging type. Cal-Chip Electronics policy and official stated time frame for storage and shelf life for all SMT passive components is **24 months**.

The primary factors of concern regarding the proper storage of ceramic capacitors include **temperature, humidity content and tape and reel degradation**. These environmental elements can affect solderability among other important characteristics of our capacitors that may result in a decrease in quality. (i.e. the aging affect may cause capacitance to drop logarithmically over time but will not result in changes to the materials that comprise the internal layers and insulation)

If the environment and storage facility does not meet certain requirements, the terminations of ceramic capacitors will generally oxidize over time, resulting in poor solderability and affecting their wetting characteristics. Any contact with Sulfur Dioxide or Chlorine gas is strongly discouraged as this will accelerate the oxidation process.

Take measures to protect Tape & Reel product from direct sunlight and use products on a **"First-In, First-Out" (FIFO policy)** (especially class II dielectric materials where ageing rates are particularly sensitive). Ageing rates can be found on the specification sheets for CCE products. Do not open components and packaging until time of use and then re-seal and properly store.

Typical ageing rates can be found in the product data sheet or specifications. All components and their corresponding packaging should not be opened until the components are ready for use and should be re-sealed and properly stored as soon as possible.