

KEMET Policy for Storage Conditions and Date Code Restrictions Tantalum Polymer (KO-CAP®) and Aluminum Polymer (AO-CAP®)

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All KEMET Tantalum Polymer (KO-CAP®) and Aluminum Polymer (AO-CAP®) surface mount capacitors are encapsulated with epoxy. This epoxy does not provide a hermetic seal and moisture can move into and out of the plastic case based on the ambient relative humidity in the environment. If moisture levels in the plastic case are high when the parts are soldered to the board, the high soldering temperature causes the moisture to vaporize as steam which may exit the case with considerable force. This “outgassing” may interfere with other small components placed on the board near the larger polymer parts. These small parts may tombstone, skew or even be blown off the pads.

All polymer series capacitors are shipped in moisture barrier bags (MBBs) with desiccant and a humidity indicator card (HIC). The purpose of the MBB system is to prevent the parts from absorbing moisture if they are stored or transported in high humidity conditions.

The parts are classified as MSL 3 (moisture sensitivity level 3) per IPC/JEDEC J-STD-020 and packaged per IPC/JEDEC J-STD-033. Upon opening the moisture barrier bag, parts should be mounted within seven days when exposed to conditions $\leq 30^{\circ}\text{C}$ and 60% RH to prevent moisture absorption and outgassing. If the seven-day window is exceeded, the parts can be baked per reference in IPC/JEDEC-STD-033.

The MBBs are labeled with a minimum calculated shelf life from the bag seal date. A minimum 12-month window is specified under maximum storage conditions of $< 40^{\circ}\text{C}$ and humidity $< 90\%$. A 24-month minimum window is specified under conditions of $< 30^{\circ}\text{C}$ and humidity $< 70\%$.

Beyond the shelf life of the MBB, the shelf life of the component must be taken into account. While the capacitors themselves are quite robust under the above given storage conditions, solderability can be degraded with exposure to high temperature, high humidity, corrosive atmospheres and long-term storage. For optimal solderability, components should be mounted within 4.5 years of the three-digit print week code (PWC) found on the face of the component. KEMET polymer products with date codes that are < 4.5 years old will meet applicable standard solderability requirements when stored in chemically clean environments.

General date code restrictions on these components may cause unnecessary delays and costs in supply. Customers who request specific date code restrictions should have a technical basis for the restriction to help KEMET make informed decisions on inventory and order management. If there are any questions about this policy, please contact your local KEMET sales representative or authorized distributor.

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