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MANUFACTURER OF PASSIVE ELECTRONIC COMPONENTS
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General Soldering Guidelines for Small-Value, Close Tolerance, Polypropylene Capacitors—Style Wrap and Fill

Soldering Temperatures Automated Systems:

The small value, small size, polypropylene capacitor is extremely susceptible to heat as the glass transition point for this dielectric is approximately 115ºC. It should be noted that pre-heat exposures in some systems, with infrared heaters, can raise the board temperature in excess of +140º C. The operator should be aware and take measurements of the surface temperature prior to board processing. The surface temperature for the polypropylene capacitor should not exceed 110ºC, and preheat time at that surface temperature limited to one (1) minute maximum. The wave soldering temperature should be a maximum of 260ºC and time in wave limited to 4 (four) seconds maximum. The process must insure that the case temperature of the capacitor remains below the 110ºC limit. Note: if a secondary soldering process is required, there should be sufficient time to reduce the capacitor surface temperature to ambient or 25ºC. There are a variety of systems on the market, and the wave soldering profiles differ from system to system. The operator should analyze and test the compatibility of the system prior to board processing.

Other soldering considerations:

Board adhesive curing should not exceed the maximum soldering or safe operating temperature limits of the capacitor.

The capacitor body should not be in direct contact with the PCB; a formed lead bend is recommended.

Other components should not come in direct contact with the capacitor during the wave soldering process.

Molten solder should not touch any part of the capacitor body during the processing operation.

If aqueous cleaning is used, the capacitor should be of "**Mod A" (moisture resistant package)** construction and allow adequate cool-down from the wave soldering process.

Soldering Temperatures during hand soldering operations:

Polypropylene capacitors can be easily damaged by hand soldering processes as well. Care must be taken in the soldering iron/tip selection. The iron/tip should be large enough to accommodate the soldering process, yet small enough to prevent damage to the capacitor. Heat sinks should be used whenever possible (at the lead egress point from the capacitor body).

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