

# High Reliability Tantalum MSL



## Storage, Bake out, and Handling Recommendations

AVX Biddeford ships all COTS+, military, space level, and \*medical grade surface mount tantalum capacitors in moisture resistant bags as a part of best practice. This includes CWR, TAZ, T4Z, TBJ, TBC, T4C, T4J, TBM, and TCP product. This has improved our service to customers by alleviating the potential for long term exposure to high humidity conditions during shipping and storage.

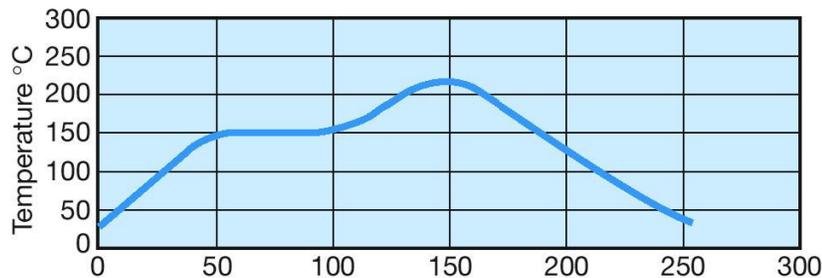
Biddeford product that is considered to be MSL 3 includes TBMs, TCPs, TCBs, TCSs, T4Cs, T4Js, TBJ V, U and E case, TAZ (CWR09/19/29) H, V, and X case and T4Z H case. The remainder of our tantalum capacitors are rated MSL 1 for moisture (per J-STD-020D). AVX MSL 1 Tantalum capacitors are unaffected by storage for 2 years at the following conditions: a temperature between -10°C and +35°C, maximum of 85% RH, and atmospheric pressure between 860 mbar and 1060mbar. Exposure to humidity in excess of the above conditions can

occur during shipping or storage; this may affect the leakage current of resin protected capacitors and possibly result in damaging the capacitors during reflow.

If high exposure occurs, MSL 1 product can be dried by baking at temperatures between 85°C for 16 hours to 125°C for 4 hours. Product packaged in tape and reel requires special handling as the tape and reels cannot withstand these temperatures. Extended bake out at 55°C with less than 10% humidity for 48-hours can be performed for product in tape and reel packaging. MSL 3 product should be baked out for 168 hours at 40°C.

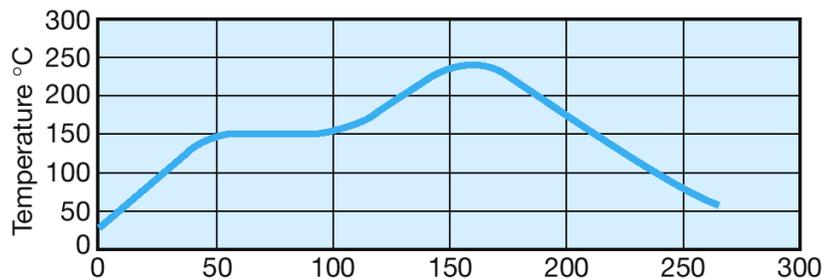
The convection reflow profiles below are recommended to ensure parametric integrity of the capacitors is maintained. An improper combination of temperature and time can lead to damage in the dielectric of the component and this profile minimizes that risk.

### RECOMMENDED SN/PB CONVECTION REFLOW PROFILE



- Pre-heating: 150°C ±15°C / 60-90s
- Max. Peak Gradient 2°C/s
- Peak Temperature: 220°C ±5°C
- Time at >183°C: 45-60s Max.

### RECOMMENDED LEAD-FREE CONVECTION REFLOW PROFILE



- Pre-heating: 150°C ±15°C / 60-90s
- Max. Peak Gradient 2.5°C/s
- Peak Temperature: 245°C ±5°C
- Time at >230°C: 40s Max.

\*For implantable medical applications please contact the factory for further recommendations.