

## Specification Sheet

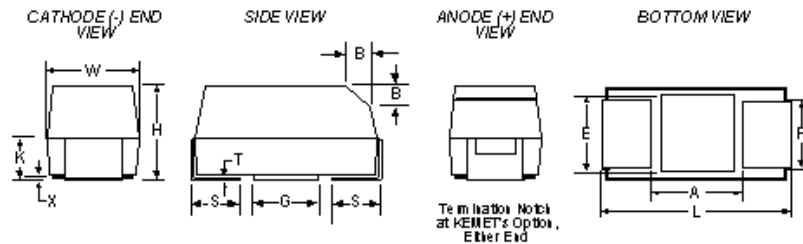
### T520 Series – KO-CAP – KEMET Organic Capacitor Low ESR Tantalum Chip Capacitor with Polymer Electrode

KEMET introduces new ratings to its popular T520 Series KEMET Organic - KO - Capacitor. The KO-CAP is a Tantalum capacitor, with Ta anode and Ta<sub>2</sub>O<sub>5</sub> dielectric. However, a conductive, organic, polymer replaces the MnO<sub>2</sub> as the cathode plate of the capacitor. This results in very low ESR and improved cap retention at high frequency. The KO-CAP also exhibits a benign failure mode, which eliminates the ignition failures that can occur in standard Tantalum types. Note also that KO-CAPs may be operated at voltages up to 80% of rated voltage with equivalent or better reliability than standard tantalums operated at 50% of rated voltage.

The new T520 series captures the best features of multilayer ceramic caps (low ESR and high frequency cap retention), aluminum electrolytics (benign failure mode), and proven solid tantalum technology (volumetric efficiency, surface mount capability, and no wearout mechanism). The KO-CAP can reduce component counts, eliminate through-hole assembly by replacing cumbersome leaded aluminum capacitors, and offer a more cost effective solution to high-cost high-cap ceramic capacitors. These benefits allow the designer to save both board space and money.

The T520 operating temperature range is -55°C to +105°C. Above 85°C, the capacitor voltage rating drops to 0.8 times rated voltage at 105°C.

### Outline Drawing



### Dimensions - Millimeters

| Case Size |         | L         | W         | H         | K ±0.20 | F ±0.1 | S ±0.3 | X(Ref)      | T(Ref) | A(Min) | G(ref) | E(ref) |
|-----------|---------|-----------|-----------|-----------|---------|--------|--------|-------------|--------|--------|--------|--------|
| KEMET     | EIA     |           |           |           |         |        |        |             |        |        |        |        |
| B         | 3528-21 | 3.5 ± 0.2 | 2.8 ± 0.2 | 1.9 ± 0.2 | 1.1     | 2.2    | 0.8    | 0.10 ± 0.10 | 0.13   | 1.1    | 1.8    | 2.2    |
| V         | 7343-20 | 7.3 ± 0.3 | 4.3 ± 0.3 | 1.9 ± 0.1 | 1.1     | 2.4    | 1.3    | 0.05        | 0.13   | 3.8    | 3.5    | 3.5    |
| D         | 7343-31 | 7.3 ± 0.3 | 4.3 ± 0.3 | 2.8 ± 0.3 | 1.5     | 2.4    | 1.3    | 0.10 ± 0.10 | 0.13   | 3.8    | 3.5    | 3.5    |
| X         | 7343-43 | 7.3 ± 0.3 | 4.3 ± 0.3 | 4.0 ± 0.3 | 2.3     | 2.4    | 1.3    | 0.10 ± 0.10 | 0.13   | 3.8    | 3.5    | 3.5    |

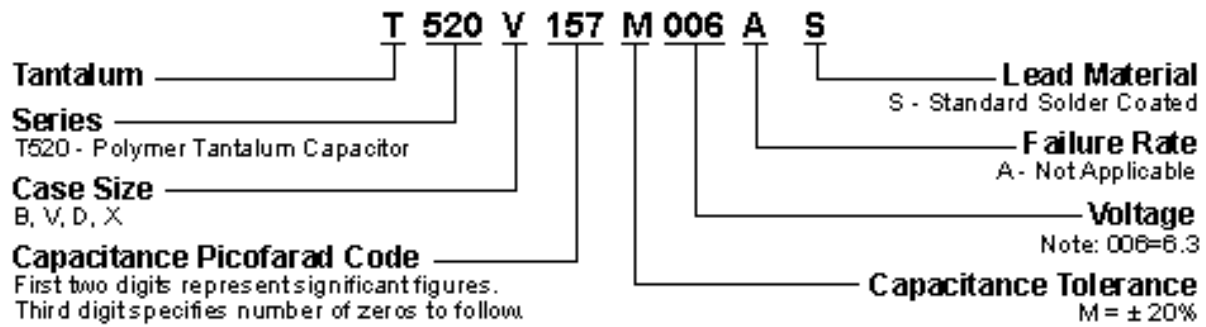
### T520 Ratings & Part Number Reference

| Cap<br>µF<br>(±20%) | Case<br>Size | KEMET<br>Part Number | DC Leakage<br>µA +25°C<br>Max | DF % 120 Hz<br>+ 25°C Max | ESR mW<br>100kHz 25°<br>Max | Ripple Current A rms<br>100 kHz Max |      |       |
|---------------------|--------------|----------------------|-------------------------------|---------------------------|-----------------------------|-------------------------------------|------|-------|
|                     |              |                      |                               |                           |                             | 25°C                                | 85°C | 105°C |
| 100                 | B/3528-21    | T520B107M003AS       | 30                            | 8%                        | 70                          | 1.10                                | 0.99 | 0.44  |
| 330                 | V/7343-20    | T520V337M003AS       | 99                            | 10%                       | 25                          | 2.20                                | 2.00 | 0.90  |
| 68                  | B/3528-21    | T520B686M004AS       | 27                            | 8%                        | 70                          | 1.10                                | 0.99 | 0.44  |
| 220                 | V/7343-20    | T520V227M004AS       | 88                            | 10%                       | 45                          | 1.70                                | 1.50 | 0.70  |
| 220                 | V/7343-20    | T520V227M004AS4350   | 88                            | 10%                       | 25                          | 2.20                                | 2.00 | 0.90  |
| 470                 | D/7343-31    | T520D477M004AS       | 188                           | 10%                       | 40                          | 1.90                                | 1.70 | 0.80  |
| 680                 | X/7343-43    | T520X687M004AS       | 272                           | 10%                       | 35                          | 2.20                                | 2.00 | 0.90  |
| 47                  | B/3528-21    | T520B476M006AS       | 30                            | 8%                        | 70                          | 1.10                                | 0.99 | 0.44  |
| 150                 | V/7343-20    | T520V157M006AS       | 95                            | 10%                       | 45                          | 1.70                                | 1.50 | 0.70  |
| 150                 | V/7343-20    | T520V157M006AS4350   | 95                            | 10%                       | 25                          | 2.20                                | 2.00 | 0.90  |
| 150                 | D/7343-31    | T520D157M006AS       | 95                            | 10%                       | 55                          | 1.70                                | 1.50 | 0.70  |
| 220                 | D/7343-31    | T520D227M006AS       | 139                           | 10%                       | 50                          | 1.70                                | 1.60 | 0.70  |
| 220                 | D/7343-31    | T520D227M006AS4350   | 139                           | 10%                       | 40                          | 1.90                                | 1.70 | 0.80  |
| 330                 | D/7343-31    | T520D337M006AS       | 208                           | 10%                       | 45                          | 1.80                                | 1.60 | 0.70  |
| 330                 | D/7343-31    | T520D337M006AS4350   | 208                           | 10%                       | 40                          | 1.90                                | 1.70 | 0.80  |
| 330                 | D/7343-31    | T520D337M006AS4351   | 208                           | 10%                       | 25                          | 2.40                                | 2.20 | 1.00  |
| 470                 | X/7343-43    | T520X477M006AS       | 296                           | 10%                       | 40                          | 2.00                                | 1.80 | 0.80  |
| 68                  | V/7343-20    | T520V686M010AS       | 68                            | 10%                       | 60                          | 1.40                                | 1.20 | 0.50  |
| 100                 | V/7343-20    | T520V107M010AS       | 100                           | 10%                       | 50                          | 1.60                                | 1.40 | 0.60  |
| 100                 | D/7343-31    | T520D107M010AS       | 100                           | 10%                       | 80                          | 1.40                                | 1.20 | 0.50  |
| 100                 | D/7343-31    | T520D107M010AS4350   | 100                           | 10%                       | 55                          | 1.70                                | 1.50 | 0.70  |
| 150                 | D/7343-31    | T520D157M010AS       | 150                           | 10%                       | 55                          | 1.70                                | 1.50 | 0.70  |
| 150                 | D/7343-31    | T520D157M010AS4350   | 150                           | 10%                       | 40                          | 1.90                                | 1.70 | 0.80  |
| 220                 | D/7343-31    | T520D227M010AS       | 220                           | 10%                       | 40                          | 1.90                                | 1.70 | 0.80  |
| 330                 | X/7343-43    | T520X337M010AS       | 330                           | 10%                       | 40                          | 2.00                                | 1.80 | 0.80  |
| 47                  | D/7343-31    | T520D476M016AS       | 75                            | 10%                       | 70                          | 1.50                                | 1.35 | 0.60  |

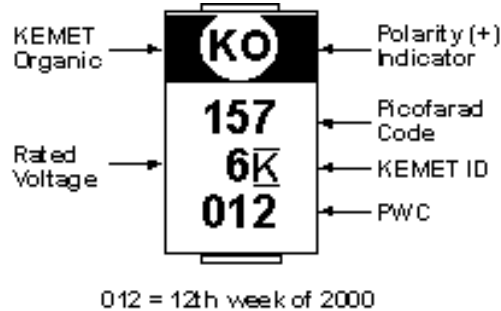
Note: New values are listed in italics and blue.

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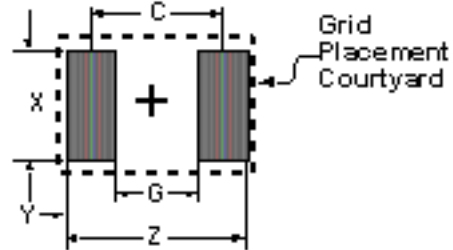
## T520 Ordering Information



## Component Marking



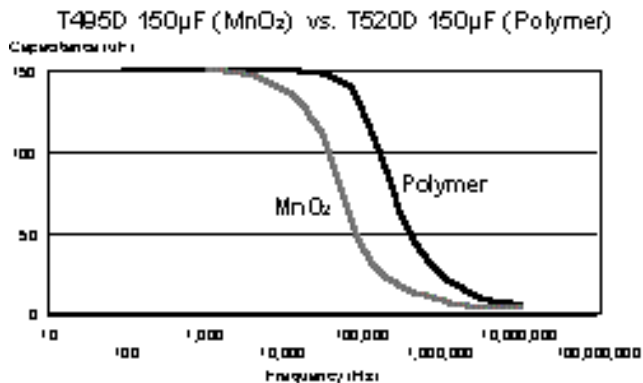
## Recommended Mounting Pad Geometries - Millimeters



## Land Pattern Dimensions for Reflow Solder

| KEMET/EIA Size Code             | Pad Dimensions |      |      |         |         |
|---------------------------------|----------------|------|------|---------|---------|
|                                 | Z              | G    | X    | Y (ref) | C (ref) |
| B/3528-21                       | 5.00           | 1.10 | 2.50 | 1.95    | 2.75    |
| V/7343-20, D/7343-31, X/7343-43 | 8.90           | 3.80 | 2.70 | 2.55    | 6.35    |

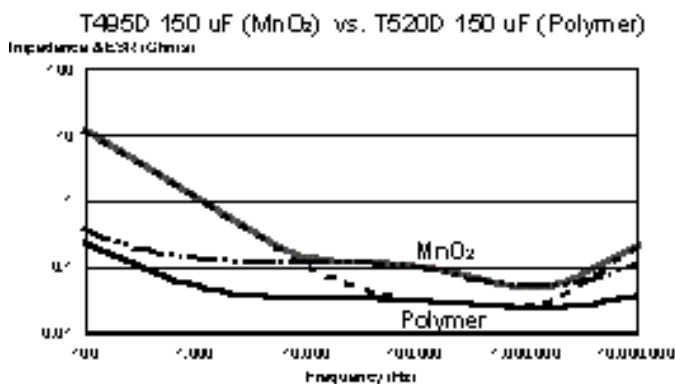
## Capacitance



## Tape & Reel Packaging

| Case Codes |         | Tape & Reel Dimensions |                |          |                |                 |
|------------|---------|------------------------|----------------|----------|----------------|-----------------|
| KEMET      | EIA     | Tape Width mm          | Pitch mm ± 0.1 |          | Reel Quantity  |                 |
|            |         |                        | Part           | Sprocket | 180mm (7" dia) | 330mm (13" dia) |
| B          | 3528-21 | 8 ± 0.3                | 4              | 4        | 2000           | 8000            |
| V          | 7343-20 | 12 ± 0.3               | 8              | 4        | 1000           | 3000            |
| D          | 7343-31 | 12 ± 0.3               | 8              | 4        | 500            | 2500            |
| X          | 7343-43 | 12 ± 0.3               | 8              | 4        | 500            | 2000            |

## ESR and Impedance



## T520 Series Construction

