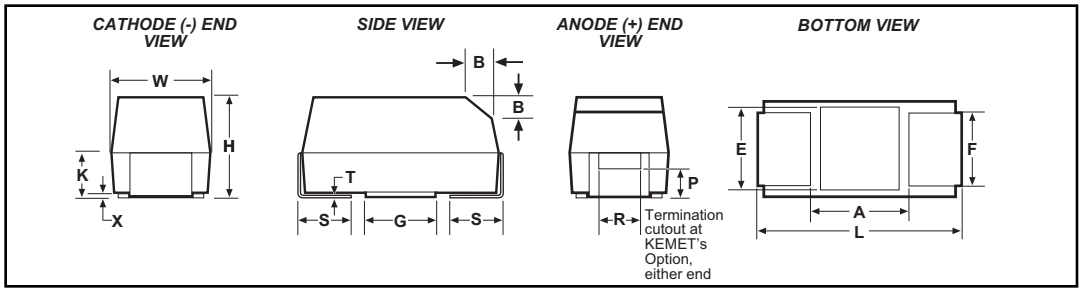
# T499 Series - KEMET High Temperature (175°C) Tantalum Chip Capacitor

## Features

- 175°C Maximum Temperature Capability
- Derating: 0.5 Vr at 175°C
- Self-healing mechanism
- Capacitance: 0.15 to 220µF
- Various termination options
- 100% Accelerated steady state aging
- 100% Surge current testing
- EIA standard case size
- Voltage 6 to 50V
- Pb-free/RoHS Compliant: Available

## Outline Drawings




## Dimensions - Millimeters (Inches)

| Case Size | | Component | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| KEMET | EIA | L* | W* | H* | K* ± 0.20 ± (.008) | F* ±0.1 ± (.004) | S* ± 0.3 ± (.012) | B (Ref) ± 0.15 ± (.004) | X (Ref) | P (Ref) | R (Ref) | T (Ref) | A (Min) | G (Ref) | E (Ref) |
| A | 3216-18 | 3.2 ± 0.2 (.126 ± .008) | 1.6 ± 0.2 (.063 ± .008) | 1.6 ± 0.2 (.063 ± .008) | 0.9 (.035) | 1.2 (.047) | 0.8 (.031) | 0.4 (.016) | 0.10 ± 0.10 (.004 ± .004) | 0.4 (.016) | 0.4 (.016) | 0.13 (.005) | 1.4 (.055) | 1.1 (.043) | 1.3 (.051) |
| B | 3528-21 | 3.5 ± 0.2 (.138 ± .008) | 2.8 ± 0.2 (.110 ± .008) | 1.9 ± 0.2 (.075 ± .008) | 1.1 (.043) | 2.2 (.087) | 0.8 (.031) | 0.4 (.016) | 0.10 ± 0.10 (.004 ± .004) | 0.5 (.020) | 1.0 (.039) | 0.13 (.005) | 2.1 (.083) | 1.8 (.071) | 2.2 (.087) |
| C | 6032-28 | 6.0 ± 0.3 (.236 ± .012) | 3.2 ± 0.3 (.126 ± .012) | 2.5 ± 0.3 .098 ± .012 | 1.4 (.055) | 2.2 (.087) | 1.3 (.051) | 0.5 (.020) | 0.10 ± 0.10 (.004 ± .004) | 0.9 (.035) | 1.0 (.039) | 0.13 (.005) | 3.1 (.122) | 2.8 (.110) | 2.4 (.094) |
| D | 7343-31 | 7.3 ± 0.3 (.287 ± .012) | 4.3 ± 0.3 (.169 ± .012) | 2.8 ± 0.3 (.110 ± .012) | 1.5 (.059) | 2.4 (.094) | 1.3 (.051) | 0.5 (.020) | 0.10 ± 0.10 (.004 ± .004) | 0.9 (.035) | 1.0 (.039) | 0.13 (.005) | 3.8 (.150) | 3.5 (.138) | 3.5 (.138) |
| X | 7343-43 | 7.3 ± 0.3 (.287 ± .012) | 4.3 ± 0.3 (.169 ± .012) | 4.0 ± 0.3 (.157 ± .012) | 2.3 (.091) | 2.4 (.094) | 1.3 (.051) | 0.5 (.020) | 0.10 ± 0.10 (.004 ± .004) | 1.7 (.067) | 1.0 (.039) | 0.13 (.005) | 3.8 (.150) | 3.5 (.138) | 3.5 (.138) |

## T499 Ordering Information

**T 499 X 227 M 010 A T E500**

**Tantalum**

**Series**
499 – High Temp (175°C)

**Case Size**
A,B,C,D,X

**Capacitance Picofarad Code**
First two digits represent significant figures.
Third digit specifies number of zeros.

**Capacitance Tolerance**
M = ±20%
K = ±10%

**Voltage**
Note: 006 = 6.3

**Failure Rate**
A = Not Applicable

**Lead Material**
T = 100% Tin (Sn) Plated
H = Tin/Lead (SnPb 5% Pb minimum)
G = Gold

**ESR**
Note: in mOhm
K designates "thousand"
E1K5 = 1.5 Ohm
E500 = 0.5 Ohm
E15K = 15.0 Ohm

# T499 Ratings & Part Number Reference

| Capacitance µF | Case Size | KEMET Part Number | DC Leakage µA @ 25ºC Max | DF % @ +25ºC 120 Hz Max | ESR Ω @ +25°C 100 kHz Max |
|---|---|---|---|---|---|
| **6 Volt Rating at +85ºC (3 Volt Rating at +175ºC) | | | | | |
| 2.2 | A | T499A225(1)006A(2)E6K5 | 0.5 | 6 | 6.5 |
| 3.3 | A | T499A335(1)006A(2)E8K0 | 0.5 | 6 | 8.0 |
| 4.7 | A | T499A475(1)006A(2)E6K0 | 0.5 | 6 | 6.0 |
| 6.8 | A | T499A685(1)006A(2)E6K0 | 0.5 | 6 | 6.0 |
| 6.8 | B | T499B685(1)006A(2)E3K5 | 0.5 | 6 | 3.5 |
| 10.0 | B | T499B106(1)006A(2)E3K5 | 0.6 | 6 | 3.5 |
| 15.0 | B | T499B156(1)006A(2)E3K5 | 0.9 | 6 | 3.5 |
| 15.0 | C | T499C156(1)006A(2)E1K8 | 0.9 | 6 | 1.8 |
| 22.0 | B | T499B226(1)006A(2)E3K5 | 1.4 | 6 | 3.5 |
| 22.0 | C | T499C226(1)006A(2)E1K8 | 1.4 | 6 | 1.8 |
| 33.0 | B | T499B336(1)006A(2)E3K0 | 2.1 | 6 | 3.0 |
| 33.0 | C | T499C336(1)006A(2)E1K8 | 2.0 | 6 | 1.8 |
| 47.0 | C | T499C476(1)006A(2)E1K8 | 3.0 | 6 | 1.8 |
| 47.0 | D | T499D476(1)006A(2)E800 | 2.9 | 6 | 0.8 |
| 68.0 | C | T499C686(1)006A(2)E1K2 | 4.1 | 6 | 1.2 |
| 68.0 | D | T499D686(1)006A(2)E800 | 4.1 | 6 | 0.8 |
| 100.0 | D | T499D107(1)006A(2)E800 | 6.3 | 8 | 0.8 |
| 150.0 | D | T499D157(1)006A(2)E700 | 9.0 | 8 | 0.7 |
| 10 Volt Rating at +85ºC (5 Volt Rating at +175ºC) | | | | | |
| 1.5 | A | T499A155(1)010A(2)E8K0 | 0.5 | 6 | 8.0 |
| 2.2 | A | T499A225(1)010A(2)E8K0 | 0.5 | 6 | 8.0 |
| 3.3 | A | T499A335(1)010A(2)E6K0 | 0.5 | 6 | 6.0 |
| 4.7 | A | T499A475(1)010A(2)E6K0 | 0.5 | 6 | 6.0 |
| 4.7 | B | T499B475(1)010A(2)E3K5 | 0.5 | 6 | 3.5 |
| 6.8 | A | T499A685(1)010A(2)E6K0 | 0.7 | 6 | 6.0 |
| 6.8 | B | T499B685(1)010A(2)E3K5 | 0.7 | 6 | 3.5 |
| 10.0 | B | T499B106(1)010A(2)E3K5 | 1.0 | 6 | 3.5 |
| 10.0 | C | T499C106(1)010A(2)E1K8 | 1.0 | 6 | 1.8 |
| 15.0 | B | T499B156(1)010A(2)E3K5 | 1.5 | 6 | 3.5 |
| 15.0 | C | T499C156(1)010A(2)E1K8 | 1.5 | 6 | 1.8 |
| 22.0 | B | T499B226(1)010A(2)E3K0 | 2.2 | 6 | 3.0 |
| 22.0 | C | T499C226(1)010A(2)E1K8 | 2.2 | 6 | 1.8 |
| 33.0 | C | T499C336(1)010A(2)E1K8 | 3.3 | 6 | 1.8 |
| 33.0 | D | T499D336(1)010A(2)E1K6 | 3.3 | 6 | 1.6 |
| 47.0 | D | T499D476(1)010A(2)E800 | 4.7 | 6 | 0.8 |
| 68.0 | D | T499D686(1)010A(2)E800 | 6.8 | 6 | 0.8 |
| 100.0 | D | T499D107(1)010A(2)E700 | 10.0 | 8 | 0.7 |
| 220.0 | X | T499X227(1)010A(2)E500 | 22.0 | 8 | 0.5 |
| 16 Volt Rating at +85ºC (8 Volt Rating at +175ºC) | | | | | |
| 1.0 | A | T499A105(1)016A(2)E10K | 0.5 | 4 | 10.0 |
| 1.5 | A | T499A155(1)016A(2)E8K0 | 0.5 | 6 | 8.0 |
| 2.2 | A | T499A225(1)016A(2)E6K0 | 0.5 | 6 | 6.0 |
| 3.3 | A | T499A335(1)016A(2)E6K0 | 0.5 | 6 | 6.0 |
| 3.3 | B | T499B335(1)016A(2)E3K5 | 0.8 | 6 | 3.5 |
| 4.7 | B | T499B475(1)016A(2)E6K0 | 0.8 | 6 | 6.0 |
| 6.8 | A | T499A685(1)016A(2)E7K0 | 1.1 | 6 | 7.0 |
| 6.8 | B | T499B685(1)016A(2)E3K5 | 1.1 | 6 | 3.5 |
| 6.8 | C | T499C685(1)016A(2)E1K8 | 1.6 | 6 | 1.8 |
| 10.0 | B | T499B106(1)016A(2)E3K5 | 1.6 | 6 | 3.5 |
| 10.0 | C | T499C106(1)016A(2)E1K8 | 1.6 | 6 | 1.8 |
| 15.0 | C | T499C156(1)016A(2)E1K8 | 2.4 | 6 | 1.8 |
| 22.0 | C | T499C226(1)016A(2)E1K6 | 3.6 | 6 | 1.6 |
| 22.0 | D | T499D226(1)016A(2)E800 | 3.5 | 6 | 0.8 |
| 33.0 | D | T499D336(1)016A(2)E800 | 5.3 | 6 | 0.8 |
| 47.0 | D | T499D476(1)016A(2)E800 | 7.5 | 6 | 0.8 |

(1) To complete KEMET part number, insert K - ± 10% or M - ±20% capacitance tolerance.
(2) To complete KEMET part number, insert Lead Material T = 100% Tin; G = Gold; H = SnPb.
** 6 volt product equivalent to 6.3 volt product.

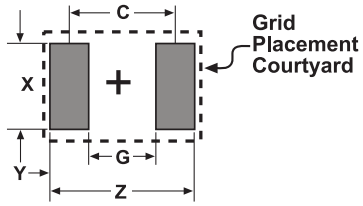
## T499 Ratings & Part Number Reference

| Capacitance µF | Case Size | KEMET Part Number | DC Leakage µA @ 25ºC Max | DF % @ +25ºC 120 Hz Max | ESR Ω @ +25°C 100 kHz Max |
|---|---|---|---|---|---|
| **20 Volt Rating at +85ºC (10 Volt Rating at +175ºC)** | | | | | |
| 0.68 | A | T499A684(1)020A(2)E12K | 0.5 | 4 | 12.0 |
| 1.0 | A | T499A105(1)020A(2)E10K | 0.5 | 4 | 10.0 |
| 1.5 | A | T499A155(1)020A(2)E8K0 | 0.5 | 6 | 8.0 |
| 2.2 | B | T499B225(1)020A(2)E3K5 | 0.5 | 6 | 3.5 |
| 3.3 | B | T499B335(1)020A(2)E3K5 | 0.5 | 6 | 3.5 |
| 4.7 | B | T499B475(1)020A(2)E3K5 | 0.5 | 6 | 3.5 |
| 4.7 | C | T499C475(1)020A(2)E2K4 | 0.9 | 6 | 2.4 |
| 6.8 | C | T499C685(1)020A(2)E1K9 | 1.4 | 6 | 1.9 |
| 10.0 | C | T499C106(1)020A(2)E1K8 | 2.0 | 6 | 1.8 |
| 15.0 | C | T499C156(1)020A(2)E1K7 | 3.0 | 6 | 1.7 |
| 15.0 | D | T499D156(1)020A(2)E1K0 | 3.0 | 6 | 1.0 |
| 22.0 | D | T499D226(1)020A(2)E800 | 4.4 | 6 | 0.8 |
| **25 Volt Rating at +85ºC (12.5 Volt Rating at +175ºC)** | | | | | |
| 0.47 | A | T499A474(1)025A(2)E14K | 0.5 | 4 | 14.0 |
| 0.68 | A | T499A684(1)025A(2)E10K | 0.5 | 4 | 10.0 |
| 1.0 | A | T499A105(1)025A(2)E8K0 | 0.5 | 4 | 8.0 |
| 1.5 | B | T499B155(1)025A(2)E5K0 | 0.5 | 6 | 5.0 |
| 2.2 | B | T499B225(1)025A(2)E4K5 | 0.6 | 6 | 4.5 |
| 3.3 | C | T499C335(1)025A(2)E2K5 | 0.8 | 6 | 2.5 |
| 4.7 | C | T499C475(1)025A(2)E2K4 | 1.2 | 6 | 2.4 |
| 6.8 | C | T499C685(1)025A(2)E1K9 | 1.7 | 6 | 1.9 |
| 6.8 | D | T499D685(1)025A(2)E1K1 | 1.7 | 6 | 1.1 |
| 10.0 | C | T499C106(1)025A(2)E1K5 | 2.0 | 6 | 1.5 |
| 10.0 | D | T499D106(1)025A(2)E1K0 | 2.5 | 6 | 1.0 |
| 15.0 | D | T499D156(1)025A(2)E1K0 | 3.8 | 6 | 1.0 |
| 22.0 | D | T499D226(1)025A(2)E800 | 5.5 | 6 | 0.8 |
| 33.0 | D | T499D336(1)025A(2)E700 | 8.3 | 6 | 0.7 |
| **35 Volt Rating at +85ºC (17.5 Volt Rating at +175ºC)** | | | | | |
| 0.15 | A | T499A154(1)035A(2)E19K | 0.5 | 4 | 19.0 |
| 0.22 | A | T499A224(1)035A(2)E18K | 0.5 | 4 | 18.0 |
| 0.33 | A | T499A334(1)035A(2)E15K | 0.5 | 4 | 15.0 |
| 0.47 | B | T499B474(1)035A(2)E8K0 | 0.5 | 4 | 8.0 |
| 0.68 | B | T499B684(1)035A(2)E6K5 | 0.5 | 4 | 6.5 |
| 1.0 | A | T499A105(1)035A(2)E10K | 0.5 | 4 | 10.0 |
| 1.0 | B | T499B105(1)035A(2)E5K0 | 0.5 | 4 | 5.0 |
| 1.5 | C | T499C155(1)035A(2)E4K5 | 0.5 | 6 | 4.5 |
| 2.2 | C | T499C225(1)035A(2)E3K5 | 0.5 | 6 | 3.5 |
| 3.3 | C | T499C335(1)035A(2)E2K5 | 1.2 | 6 | 2.5 |
| 4.7 | C | T499C475(1)035A(2)E2K5 | 1.3 | 6 | 2.5 |
| 4.7 | D | T499D475(1)035A(2)E1K5 | 1.0 | 6 | 1.5 |
| 6.8 | D | T499D685(1)035A(2)E1K3 | 2.4 | 6 | 1.3 |
| 10.0 | D | T499D106(1)035A(2)E1K0 | 3.5 | 6 | 1.0 |
| 22.0 | X | T499X226(1)035A(2)E700 | 7.7 | 6 | 0.7 |
| 33.0 | X | T499X336(1)035A(2)E600 | 11.6 | 6 | 0.6 |
| **50 Volt Rating at +85ºC (25 Volt Rating at +175ºC)** | | | | | |
| 3.3 | D | T499D335(1)050A(2)E2K0 | 1.7 | 6 | 2.0 |
| 10.0 | D | T499D106(1)050A(2)E1K0 | 5.0 | 6 | 1.0 |

(1) To complete KEMET part number, insert K - ± 10% or M - ±20% capacitance tolerance.
(2) To complete KEMET part number, insert Lead Material T = 100% Tin; G = Gold; H = SnPb.
** 6 volt product equivalent to 6.3 volt product.

## Land Pattern Dimensions for Reflow Solder

| KEMET/ EIA Size Code | Pad Dimensions | | | | |
|---|---|---|---|---|---|
| | Z | G | X | Y (Ref) | C (Ref) |
| A/3216-18 | 4.70 | 0.80 | 1.50 | 1.95 | 2.75 |
| B/3528-21 | 5.00 | 1.10 | 2.50 | 1.95 | 3.05 |
| C/6032-28 | 7.60 | 2.50 | 2.50 | 2.55 | 5.05 |
| D/7343-31 | 8.90 | 3.80 | 2.70 | 2.55 | 6.35 |
| X/7343-43 | 8.90 | 3.80 | 4.40 | 2.55 | 6.35 |




## Packaging Specifications

| Case Codes | | Tape & Reel Dimensions | | | | |
|---|---|---|---|---|---|---|
| KEMET | EIA | Tape Width (mm) | Pitch mm ± 0.1 | | Reel Quantity | |
| | | | Part | Sprocket | 180mm (7") | 330mm (13") |
| A | 3216-18 | 8 ± 0.3 | 8 | 4 | 2000 | 9000 |
| B | 3528-21 | 8 ± 0.3 | 8 | 4 | 2000 | 8000 |
| C | 6032-28 | 12 ± 0.3 | 8 | 4 | 500 | 3000 |
| D | 7343-31 | 12 ± 0.3 | 8 | 4 | 500 | 2500 |
| X | 7343-43 | 12 ± 0.3 | 8 | 4 | 500 | 2000 |

## Component Marking

