

TCT Series

Chip Tantalum Capacitors (Large Capacitance)



FEATURES

- Ta-MnO₂ technology
- Low DCL
- High CV
- Parameters stability over voltage and time
- Undertab LF

APPLICATIONS

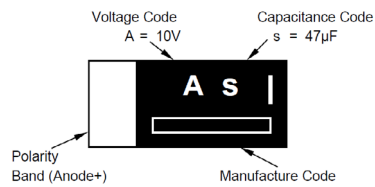
- For high component density PCB design
- DC/DC
- Industrial
- Telecom
- IoT
- Home applications
- Sensors



LEAD-FREE
LEAD-FREE COMPATIBLE
COMPONENT



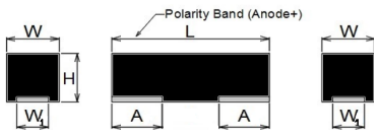
MARKING



CASE DIMENSIONS:

millimeters (inches)

Code	EIA Code	EIA Metric	L±0.20 (0.008)	W±0.20 (0.008)	H±0.10 (0.004)	W ₁ ±0.20 (0.008)	A±0.20 (0.008)
AL	1206	3216-12	3.20 (0.126)	1.60 (0.063)	1.10 (0.043)	1.20 (0.047)	0.80 (0.031)
AS	1206	3216-10	3.20 (0.126)	1.60 (0.063)	0.90 (0.035)	1.20 (0.047)	0.80 (0.031)
P	0805	2012-12	2.00 (0.079)	1.25 (0.049)	1.20 (0.047) max.	0.85 (0.033)	0.50 (0.020)
PL	0805	2012-10	2.00 (0.079)	1.25 (0.049)	0.90 (0.035)	0.85 (0.033)	0.50 (0.020)
U	0402	1005-055	1.00+0.20-0.00 (0.039+0.008-0.000)	0.50+0.20-0.00 (0.020+0.008-0.000)	0.55 (0.022) max.	0.35±0.10 (0.014±0.004)	0.35±0.10 (0.014±0.004)



HOW TO ORDER

TCT

Type

U □

Case Size
See table above

0G

Rated DC Voltage
0E = 2.5Vdc
0G = 4Vdc
0J = 6.3Vdc
1A = 10Vdc
1C = 16Vdc
1D = 20Vdc
1E = 25Vdc
1V = 35Vdc

475

Capacitance Code
pF code: 1st two digits represent significant figures, 3rd digit represents multiplier (number of zeros to follow)

M

Tolerance
M = ±20%

8R

Packaging
8 = Tape width
R = Positive electrode on the side opposite to sprocket hole

- □ □ □

Discrimination code

TECHNICAL SPECIFICATIONS

Technical Data:	All technical data relate to an ambient temperature of +25°C
Capacitance Range:	0.33µF to 220µF
Capacitance Tolerance:	±20%
Leakage Current DCL:	Please see the ratings and part number reference table below
Temperature Range:	-55°C to +125°C

TCT Series

Chip Tantalum Capacitors (Large Capacitance)



CAPACITANCE AND RATED VOLTAGE RANGE (LETTER DENOTES CASE SIZE)

Capacitance		Rated Voltage DC (V _R) @ 85°C								Cap Code
μF	Code	2.5V(e)	4V (g)	6.3V (j)	10V (A)	16V (C)	20V(D)	25V(E)	35(V)	
0.33	334						U			N
0.47	474			U						S
1.0	105			U					AS	A
2.2	225			U				P		J
3.3	335								AL	N
4.7	475		U	U				AL		S
10	106					PPL	AL			a
15	156	U				AL				e
22	226				P,PL	AL	AL			j
33	336			P	AL,P	AL				n
47	476		P	AS,PPL	AL,AS,P					s
68	686			AL						w
100	107		P,PL	AL,AS	AL					ā
150	157			AL						ē
220	227	AL	AL,AS	AL						j

Released ratings

Note: Voltage ratings are minimum values. KYOCERA AVX reserves the right to supply higher voltage ratings in the same case size, to the same reliability standards.

RATINGS & PART NUMBER REFERENCE

Part No.	Case Size	Capacitance (μF)	Rated Voltage (V)	Maximum Operating Temp. (°C)	DCL Max. (μA)	DF Max. (%)	Impedance @100kHz (Ω)	MSL
2.5 Volt								
TCTU0E156M8R-V1	U	15	2.5	125	7.5	50	25	2
TCTAL0E227M8R	AL	220	2.5	125	5.5	20	2.5	1
4 Volt								
TCTU0G475M8R	U	4.7	4	125	1.9	20	20	2
TCTP0G476M8R	P	47	4	125	1.9	20	4	1
TCTP0G107M8R-EV1	P	100	4	125	20.0	30	4	1
TCTPLOG107M8R-V1	PL	100	4	125	20.0	30	4	1
TCTALOG227M8R-D2	AL	220	4	125	20.0	20	2.5	1
TCTASOG227M8R-V1	AS	220	4	125	88.0	30	2.5	2
6.3 Volt								
TCTU0J474K8R	U	0.47	6.3	125	0.5	20	35	2
TCTU0J105K8R	U	1	6.3	125	0.7	20	20	2
TCTU0J105K8R-02	U	1	6.3	125	0.7	20	20	2
TCTU0J225M8R	U	2.2	6.3	125	1.4	20	20	2
TCTU0J225M8R-02	U	2.2	6.3	125	1.4	20	20	2
TCTU0J475M8R	U	4.7	6.3	125	3.0	50	25	2
TCTU0J475M8R-02	U	4.7	6.3	125	3.0	50	25	2
TCTP0J336M8R	P	33	6.3	125	2.1	20	4	1
TCTAS0J476M8R	AS	47	6.3	125	6.0	20	4	1
TCTAS0J476M8R-02	AS	47	6.3	125	6.0	20	4	1
TCTP0J476M8R	P	47	6.3	125	14.8	30	4	1
TCTP0J476M8R-02	P	47	6.3	125	14.8	30	4	1
TCTP0J476M8R-E1	P	47	6.3	125	14.8	30	4	1
TCTP0J476M8R-E1	P	47	6.3	125	14.8	30	4	1
TCTPLOG476M8R	PL	47	6.3	125	14.8	30	4	1
TCTAL0J686M8R	AL	68	6.3	125	4.3	20	4	1
TCTAL0J107M8R	AL	100	6.3	125	6.3	18	3	1
TCTAL0J107M8R-02	AL	100	6.3	125	6.3	18	3	1
TCTAL0J107M8R-E1	AL	100	6.3	125	6.3	18	3	1
TCTAL0J107M8R-H10	AL	100	6.3	125	6.3	18	3	2
TCTAL0J107M8R-Y2	AL	100	6.3	125	6.3	18	3	1
TCTAS0J107M8R	AS	100	6.3	125	15.8	18	3	2
TCTAS0J107M8R-CA2	AS	100	6.3	125	12.6	18	2	1
TCTAL0J157M8R	AL	150	6.3	125	94.5	30	2.7	1
TCTAL0J227M8R-V1	AL	220	6.3	125	280.0	30	2.5	1
TCTAL0J227M8R-V2	AL	220	6.3	125	280.0	30	2.5	1
10 Volt								
TCTP1A226M8R	P	22	10	125	2.2	20	5	1
TCTP1A226M8R-02	P	22	10	125	2.2	20	5	1
TCTPL1A226M8R	PL	22	10	125	11.0	20	5	1
TCTPL1A226M8R-02	PL	22	10	125	11.0	20	5	1
TCTAL1A336M8R	AL	33	10	125	3.3	15	4	1

TCT Series

Chip Tantalum Capacitors (Large Capacitance)

RATINGS & PART NUMBER REFERENCE

Part No.	Case Size	Capacitance (μF)	Rated Voltage (V)	Maximum Operating Temp. (°C)	DCL Max. (μA)	DF Max. (%)	Impedance @100kHz (Ω)	MSL
TCTP1A336M8R	P	33	10	125	16.5	30	4	1
TCTP1A336M8R-E2	P	33	10	125	16.5	30	4	1
TCTAL1A476M8R	AL	47	10	125	4.7	20	4	1
TCTAL1A476M8R-02	AL	47	10	125	4.7	20	4	1
TCTAL1A476M8R-CA2	AL	47	10	125	4.7	20	4	1
TCTAL1A476M8R-E1	AL	47	10	125	4.7	20	4	1
TCTAS1A476M8R	AS	47	10	125	9.4	20	4	1
TCTAS1A476M8R-CA2	AS	47	10	125	4.7	18	2.3	1
TCTP1A476M8R-EV1	P	47	10	125	23.5	30	4	1
TCTP1A476M8R-EV2	P	47	10	125	23.5	30	4	1
TCTAL1A107M8R-V1	AL	100	10	125	50.0	30	2.5	1
TCTAL1A107M8R-V2	AL	100	10	125	50.0	30	2.5	1
16 Volt								
TCTP1C106M8R	P	10	16	125	1.6	20	6	1
TCTP1C106M8R-E1	P	10	16	125	1.6	20	6	1
TCTP1C106M8R-K1	P	10	16	125	1.6	20	*	1
TCTPL1C106M8R	PL	10	16	125	3.2	20	6	1
TCTAL1C156M8R	AL	15	16	125	2.4	15	4	1
TCTAL1C226M8R	AL	22	16	125	3.6	20	4	1
TCTAL1C336M8R	AL	33	16	125	5.3	20	4	1
20 Volt								
TCTU1D334M8R	U	0.33	20	125	0.7	20	30	2
TCTAL1D106M8R	AL	10	20	125	2.0	15	8	2
TCTAL1D226M8R-V1	AL	22	20	125	4.4	20	4	1
25 Volt								
TCTP1E225M8R	P	2.2	25	125	0.6	20	8	1
TCTAL1E475M8R	AL	4.7	25	125	1.2	15	8	1
35 Volt								
TCTAS1V105M8R	AS	1.0	35	125	0.7	15	8	1
TCTAL1V335M8R	AL	3.3	35	125	1.2	15	8	1

*ESR 6 Ω

Moisture Sensitivity Level (MSL) is defined according to J-STD-020.
All technical data relates to an ambient temperature of +25C.

Capacitance and DF are measured at 120Hz, 0.5RMS with DC bias of 1.5 volts.
DCL is measured at rated voltage after 5 minutes.
Impedance allowed to move up to 1.25 times catalog limit post mounting.

NOTE: KYOCERA AVX reserves the rights to supply higher voltage rating in the same case size, to the same reliability standards.

TCT Series

Chip Tantalum Capacitors (Large Capacitance)

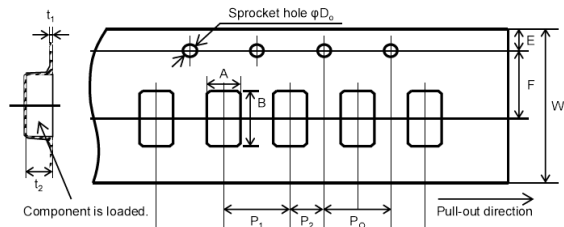
QUALIFICATION TABLE

TEST	TCT series (Temperature range -55°C to +125°C)			
	Condition		Characteristics	
Endurance	Apply rated voltage (Ur) at 85°C for 1000hrs through a serial resistance of $\leq 3.0\Omega$.		Visual examination	no visible damage
			DCL	2x initial limit
			$\Delta C/C$	within +20/-30% of initial value (U case), $\pm 20\%$ (P, PL case) $\pm 30\%$ (AL, AS case)
			DF	2x initial limit (P, PL case), 3x (AL, AS, U case)
Humidity	Store at $60\pm 2^\circ\text{C}$, 90-95% relative humidity for 500 hours.		Visual examination	no visible damage
			DCL	2x initial limit (P, PL, AL, AS case), 10x (U case)
			$\Delta C/C$	within $\pm 20\%$ of initial value
			DF	2x initial limit (P, PL case), 3x (AL, AS, U case)
Temperature Stability	Step	Temperature $^\circ\text{C}$	Duration(min)	
	1	-55	15	
	2	+85	15	
	3	+125	15	
Surge Voltage	Apply 1.3x rated voltage (Ur) at $85\pm 2^\circ\text{C}$ for 1000 cycles, duration 6 min (30 sec charge, 5 min 30 sec discharge) through a charge /discharge resistance of 1000 Ω .		Visual examination	no visible damage
			DCL	2x initial limit
			$\Delta C/C$	$\pm 20\%$ of initial limit
			DF	2x initial limit
Vibration	4.17 JIS C 5101-1 Frequency: 10 to 55 to 10Hz/min. Amplitude: 1.5mm Time: 2hours each in X and Y directions		Visual examination	no visible damage
			DCL	initial limit
			$\Delta C/C$	within $\pm 5\%$ of initial value
			DF	initial limit

*Initial Limit

For use outside of recommended conditions and special request, please contact KYOCERA AVX.

PACKAGING SPECIFICATIONS

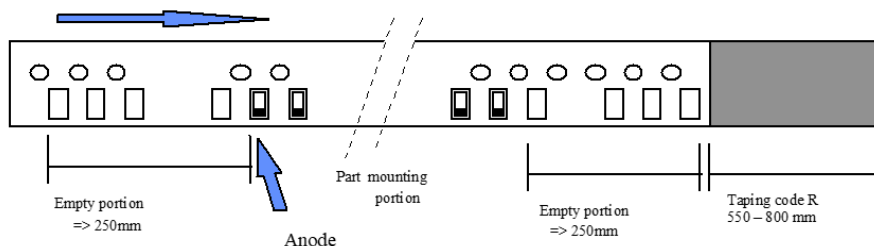


Unit (mm)

Case	A ± 0.10	B ± 0.10	W ± 0.20	E ± 0.10	F ± 0.05	P1 ± 0.10	P2 ± 0.05	PO ± 0.10	DO $\pm 0.10/0$	t1 ± 0.05	t2 ± 0.10	Standard packaging quantity
AL	1.90	3.50	8.00	1.75	3.50	4.00	2.00	4.00	$\phi 1.55\pm 0.05$	0.25	1.30 ± 0.05	3,000 pcs
AS	1.90	3.50	8.00	1.75	3.50	4.00	2.00	4.00	$\phi 1.50$	0.25	1.10	3,000 pcs
P	1.55	2.30	8.00	1.75	3.50	4.00	2.00	4.00	$\phi 1.55\pm 0.05$	0.25	1.32	3,000 pcs
PL	1.60	2.40	8.00	1.75	3.50	4.00	2.00	4.00	$\phi 1.50$	0.25	1.05 ± 0.05	3,000 pcs
U	0.75 ± 0.05	1.40 ± 0.05	8.00	1.75	3.50	2.00	2.00	4.00	$\phi 1.50$	0.20	0.65 ± 0.05	10,000 pcs

Polarity of parts: as indicated in the drawing below, the anodes (+) are at the right with respect to the direction of the tape pull out (on the opposite side to the feeding holes).

Pull -out direction



End

Beginning

TCT Series

Chip Tantalum Capacitors (Large Capacitance)

REEL DIMENSIONS

