

## Overview

The solid tantalum capacitor is an essential device in circuits requiring high capacitance voltage product and extended environmental capability. The KEMET GR500 Graded Reliability concept produces state-of-the-art devices, providing maximum assurance of meeting system reliability goals. All Graded Reliability capacitors receive meticulous attention from raw material selection through manufacture, final inspection and shipping. Having survived a very stringent quality control program, the resulting capacitors meet or exceed the most critical requirements of space, satellite, missile and medical applications where failure is, at best, expensive, and at

worst, fatal. KEMET is, therefore, committed to the principle of the highest possible reliability in the manufacture and grading of its GR500 Series capacitors. The KEMET GR500 High Reliability concept disallows grouping of diverse ratings and production batches to determine average failure rates. Instead, data from each and every capacitor batch are statistically fitted to determine failure rate on the basis of 100% life testing. Each homogeneous production batch is “graded” as a single inspection lot, and documented evidence of failure rate achieved is supplied with the parts, providing assurance of the most sophisticated and accurate reliability measurement of method in the industry.

## Benefits

- 100% Thermal Shock (-65°C to +125°C) prior to electrical testing
- 100% Surge Current testing.
- 100% Weibull Grading
- 100% X-ray examined
- Hermeticity testing per MIL-STD-202
- Optional Special testing
- Packaged in individual container compartments
- Marking per MIL-STD-1285
- Capacitance values of 0.0047  $\mu$ F to 330  $\mu$ F
- Tolerances of  $\pm 5\%$ ,  $\pm 10\%$  and  $\pm 20\%$
- Voltage rating of 6– 100 VDC
- Case sizes: A, B, C, D



## Applications

Typical applications include coupling, bypass, filtering, and RC timing circuits in miniaturized circuitry.

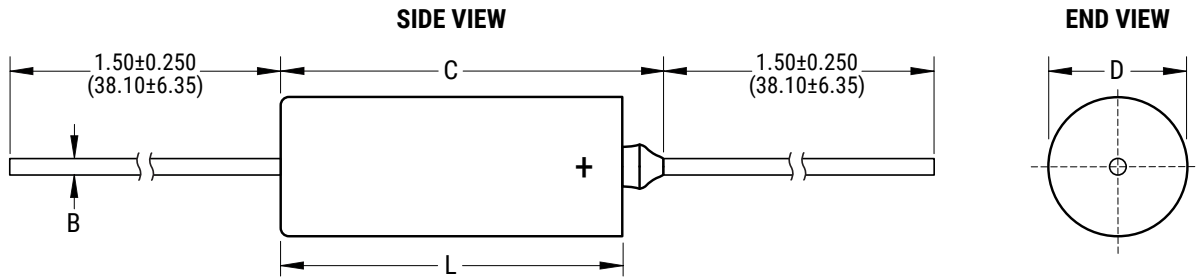
## Ordering Information

T	210	A	105	K	050	R	S	
Capacitor Class	Series	Case Size	Capacitance Code (pF)	Capacitance Tolerance	Rated Voltage (VDC)	Failure Rate	Termination Finish	Packaging
T = Tantalum	210 = GR500/J (KEMET) High reliability, solid electrolyte, graded, hermetic seal, axial lead, polar	A B C D	First two digits represent significant figures. Third digit specifies number of zeros to follow.	J = ±5% K = ±10% M = ±20%	006 = 6.3 010 = 10 015 = 15 020 = 20 025 = 25 035 = 35 050 = 50 075 = 75 100 = 100	M = 1%/k hours P = 0.1%/k hours R = 0.01%/k hours S = 0.001%/k hours	S = Standard (Solder-coated nickel)	Blank = Bulk 7200 = Tape & Reel  All capacitors are sleeved unless specified.

## Performance Characteristics

Item	Performance Characteristics
Operating Temperature	-55°C to 125°C
Rated Capacitance Range	0.0047 – 330 µF at 120 Hz/25°C
Capacitance Tolerance	J Tolerance (5%), K Tolerance (10%), M Tolerance (20%)
Rated Voltage Range	6 – 100 V
DF (120 Hz at 25°C)	Refer to Part Number Electrical Specification Table
ESR and Impedance (100 kHz at 25°C)	Refer to Part Number Electrical Specification Table
Leakage Current	Refer to Part Number Electrical Specification Table (at rated voltage up to +85°C and 2/3 of rated voltage applied at 125°C)
Failure Rate	M – 1%/k hours, P – 0.1%/k hours, R – 0.01%/k hours, S – 0.001%/k hours

## Dimensions – Inches (Millimeters)



Case Size	Uninsulated		Insulated		B ±0.002 ±(0.05)	C Maximum
	D ±0.005 ±(0.13)	L ±0.031 ±(0.79)	D ±0.010 ±(0.25)	L ±0.031 ±(0.79)		
A	0.125 (3.18)	0.250 (6.35)	0.135 (3.43)	0.286 (7.26)	0.020 (0.51)	0.422 (10.72)
B	0.175 (4.45)	0.438 (11.13)	0.185 (4.70)	0.474 (12.04)	0.020 (0.51)	0.610 (15.49)
C	0.279 (7.09)	0.650 (16.51)	0.289 (7.34)	0.686 (17.42)	0.025 (0.64)	0.822 (20.88)
D	0.341 (8.66)	0.750 (19.05)	0.351 (8.92)	0.786 (19.96)	0.025 (0.64)	0.922 (23.42)

**Table 1 – Ratings & Part Number Reference**

Rated Voltage	Rated Capacitance	Case Size Code	KEMET Part Number	Graded Failure Rate	Maximum Leakage Current at Rated Voltage			Maximum DF (%) at 120 Hz		ESR Maximum Ohms 100 kHz +25°C
					+25°C (µA)	+85°C (µA)	+125°C (µA)	-55 +25°C	+85 +125°C	
V	µF									
6	3.9	A	T210A395(1)006(2)S	R,S	0.1	1.0	1.25	4.0	4.0	1.00
6	4.7	A	T210A475(1)006(2)S	R,S	0.1	1.0	1.25	4.0	4.0	0.90
6	5.6	A	T210A565(1)006(2)S	R,S	0.1	1.0	1.25	4.0	4.0	0.90
6	6.8	A	T210A685(1)006(2)S	R,S	0.1	1.0	1.25	4.0	6.0	0.80
6	27.0	B	T210B276(1)006(2)S	R,S	0.5	5.0	6.25	4.0	6.0	0.25
6	33.0	B	T210B336(1)006(2)S	R,S	0.5	5.0	6.25	4.0	6.0	0.24
6	39.0	B	T210B396(1)006(2)S	R,S	0.5	5.0	6.25	4.0	6.0	0.24
6	47.0	B	T210B476(1)006(2)S	R,S	0.5	5.0	6.25	4.0	6.0	0.24
6	56.0	B	T210B566(1)006(2)S	R,S	0.5	5.0	6.25	4.0	6.0	0.24
6	82.0	C	T210C826(1)006(2)S	R,S	1.5	15.0	18.75	5.0	8.0	0.12
6	100	C	T210C107(1)006(2)S	R,S	1.5	15.0	18.75	5.0	8.0	0.11
6	120	C	T210C127(1)006(2)S	R,S	1.5	15.0	18.75	5.0	8.0	0.10
6	150	C	T210C157(1)006(2)S	R,S	1.5	15.0	18.75	5.0	8.0	0.09
6	180	C	T210C187(1)006(2)S	R,S	1.5	15.0	18.75	5.0	8.0	0.08
6	220	D	T210D227(1)006(2)S	R,S	2.0	20.0	25.00	6.0	8.0	0.07
6	270	D	T210D277(1)006(2)S	R,S	2.0	20.0	25.00	6.0	8.0	0.07
6	330	D	T210D337(1)006(2)S	R,S	3.0	30.0	39.50	6.0	8.0	0.06
10	2.7	A	T210A275(1)010(2)S	R,S	0.1	1.0	1.25	4.0	4.0	1.20
10	3.3	A	T210A335(1)010(2)S	R,S	0.1	1.0	1.25	4.0	4.0	1.00
10	3.9	A	T210A395(1)010(2)S	R,S	0.1	1.0	1.25	4.0	4.0	1.00
10	4.7	A	T210A475(1)010(2)S	R,S	0.1	1.0	1.25	4.0	4.0	0.90
10	12.0	B	T210B126(1)010(2)S	R,S	0.5	5.0	6.25	4.0	6.0	0.32
10	15.0	B	T210B156(1)010(2)S	R,S	0.5	5.0	6.25	4.0	6.0	0.29
10	18.0	B	T210B186(1)010(2)S	R,S	0.5	5.0	6.25	4.0	6.0	0.27
10	22.0	B	T210B226(1)010(2)S	R,S	0.5	5.0	6.25	4.0	6.0	0.26
10	27.0	B	T210B276(1)010(2)S	R,S	0.5	5.0	6.25	4.0	6.0	0.25
10	33.0	B	T210B336(1)010(2)S	R,S	0.5	5.0	6.25	4.0	6.0	0.24
10	39.0	B	T210B396(1)010(2)S	R,S	0.5	5.0	6.25	4.0	6.0	0.24
10	47.0	C	T210C476(1)010(2)S	R,S	1.5	15.0	18.75	5.0	6.0	0.16
10	56.0	C	T210C566(1)010(2)S	R,S	1.5	15.0	18.75	5.0	6.0	0.15
10	68.0	C	T210C686(1)010(2)S	R,S	1.5	15.0	18.75	5.0	6.0	0.13
10	82.0	C	T210C826(1)010(2)S	R,S	1.5	15.0	18.75	5.0	6.0	0.12
10	100.0	C	T210C107(1)010(2)S	R,S	1.5	15.0	18.75	5.0	8.0	0.11
10	120.0	C	T210C127(1)010(2)S	R,S	1.5	15.0	18.75	5.0	8.0	0.10
10	150.0	D	T210D157(1)010(2)S	R,S	2.0	20.0	25.00	5.0	8.0	0.09
10	180.0	D	T210D187(1)010(2)S	R,S	2.0	20.0	25.00	5.0	8.0	0.08
10	220.0	D	T210D227(1)010(2)S	R,S	3.0	30.0	37.50	5.0	8.0	0.07
15	1.2	A	T210A125(1)015(2)S	R,S	0.25	2.5	3.13	3.0	4.0	1.40
15	1.5	A	T210A155(1)015(2)S	R,S	0.25	2.5	3.13	3.0	4.0	1.30
15	1.8	A	T210A185(1)015(2)S	R,S	0.25	2.5	3.13	3.0	4.0	1.25
15	2.2	A	T210A225(1)015(2)S	R,S	0.25	2.5	3.13	3.0	4.0	1.20
15	2.7	A	T210A275(1)015(2)S	P,R	0.25	2.5	3.13	3.0	4.0	1.20
15	3.3	A	T210A335(1)015(2)S	P,R	0.25	2.5	3.13	3.0	4.0	1.00
15	5.6	B	T210B565(1)015(2)S	R,S	0.5	5.0	6.25	4.0	6.0	0.47
15	6.8	B	T210B685(1)015(2)S	R,S	0.5	5.0	6.25	4.0	6.0	0.43
15	8.2	B	T210B825(1)015(2)S	R,S	0.5	5.0	6.25	4.0	6.0	0.39
15	10.0	B	T210B106(1)015(2)S	R,S	0.5	5.0	6.25	4.0	6.0	0.35
15	12.0	B	T210B126(1)015(2)S	R,S	0.5	5.0	6.25	4.0	6.0	0.32
15	15.0	B	T210B156(1)015(2)S	R,S	0.5	5.0	6.25	4.0	6.0	0.29
15	18.0	B	T210B186(1)015(2)S	P,R	0.5	5.0	6.25	4.0	6.0	0.27
15	22.0	B	T210B226(1)015(2)S	P,R	0.5	5.0	6.25	4.0	6.0	0.26
15	27.0	C	T210C276(1)015(2)S	R,S	1.5	15.0	18.75	4.0	6.0	0.21
15	33.0	C	T210C336(1)015(2)S	R,S	1.5	15.0	18.75	4.0	6.0	0.19
15	39.0	C	T210C396(1)015(2)S	P,R	1.5	15.0	18.75	4.0	6.0	0.17
V	µF				+25°C (µA)	+85°C (µA)	+125°C (µA)	-55 +25°C	+85 +125°C	
Rated Voltage	Rated Capacitance	Case Size Code	KEMET Part Number	Graded Failure Rate	Maximum Leakage Current at Rated Voltage			Maximum DF (%) at 120 Hz	ESR Maximum Ohms 100 kHz +25°C	

(1) To complete KEMET part number, insert M - ±20%, K - ±10%, J - ±5%. Designates Capacitance tolerance.  
(2) To complete KEMET Part Number (T210), insert Graded failure rate - M for 1%/k hours, P for 0.1%/k hours, R for 0.01%/k hours, or S for 0.001%/k hours. Designates Reliability Level.

**Table 1 – Ratings & Part Number Reference cont.**

Rated Voltage	Rated Capacitance	Case Size Code	KEMET Part Number	Graded Failure Rate	Maximum Leakage Current at Rated Voltage			Maximum DF (%) at 120 Hz		ESR Maximum Ohms 100 kHz +25°C
					+25°C (µA)	+85°C (µA)	+125°C (µA)	-55 +25°C	+85 +125°C	
V	µF									
15	47.0	C	T210C476(1)015(2)S	P,R	1.5	15.0	18.75	4.0	6.0	0.16
15	56.0	C	T210C566(1)015(2)S	P,R	1.5	15.0	18.75	4.0	6.0	0.15
15	68.0	C	T210C686(1)015(2)S	P,R	1.5	15.0	18.75	4.0	6.0	0.13
15	82.0	D	T210D826(1)015(2)S	P,R	2.0	20.0	25.00	5.0	8.0	0.11
15	100.0	D	T210D107(1)015(2)S	P,R	2.0	20.0	25.00	5.0	8.0	0.10
15	120.0	D	T210D127(1)015(2)S	P,R	2.0	20.0	25.00	5.0	8.0	0.09
15	150.0	D	T210D157(1)015(2)S	P,R	3.0	30.0	37.50	5.0	8.0	0.09
20	1.2	A	T210A125(1)020(2)S	P,R	0.25	2.5	3.13	3.0	4.0	1.40
20	1.5	A	T210A155(1)020(2)S	P,R	0.25	2.5	3.13	3.0	4.0	1.30
20	1.8	A	T210A185(1)020(2)S	P,R	0.25	2.5	3.13	3.0	4.0	1.25
20	2.2	A	T210A225(1)020(2)S	P,R	0.25	2.5	3.13	3.0	4.0	1.20
20	4.7	B	T210B475(1)020(2)S	R,S	0.5	5.0	6.25	4.0	6.0	0.51
20	5.6	B	T210B565(1)020(2)S	P,R	0.5	5.0	6.25	4.0	6.0	0.47
20	6.8	B	T210B685(1)020(2)S	P,R	0.5	5.0	6.25	4.0	6.0	0.43
20	8.2	B	T210B825(1)020(2)S	P,R	0.5	5.0	6.25	4.0	6.0	0.39
20	10.0	B	T210B106(1)020(2)S	P,R	0.5	5.0	6.25	4.0	6.0	0.35
20	12.0	B	T210B126(1)020(2)S	P,R	0.5	5.0	6.25	4.0	6.0	0.32
20	15.0	B	T210B156(1)020(2)S	P,R	0.5	5.0	6.25	4.0	6.0	0.29
20	18.0	C	T210C186(1)020(2)S	R,S	1.0	10.0	12.50	4.0	6.0	0.25
20	22.0	C	T210C226(1)020(2)S	R,S	1.0	10.0	12.50	4.0	6.0	0.25
20	27.0	C	T210C276(1)020(2)S	P,R	1.5	15.0	18.75	4.0	6.0	0.21
20	33.0	C	T210C336(1)020(2)S	P,R	1.5	15.0	18.75	4.0	6.0	0.19
20	39.0	C	T210C396(1)020(2)S	P,R	1.5	15.0	18.75	4.0	6.0	0.17
20	47.0	C	T210C476(1)020(2)S	P,R	1.5	15.0	18.75	4.0	6.0	0.16
20	56.0	D	T210D566(1)020(2)S	M,P	2.0	20.0	25.00	4.0	6.0	0.13
20	68.0	D	T210D686(1)020(2)S	M,P	2.0	20.0	25.00	4.0	6.0	0.12
20	82.0	D	T210D826(1)020(2)S	M,P	3.0	30.0	37.50	4.0	6.0	0.11
20	100	D	T210D107(1)020(2)S	M,P	3.0	30.0	37.50	4.0	6.0	0.10
35	0.82	A	T210A824(1)035(2)S	R,S	0.1	1.0	1.25	2.0	4.0	1.60
35	1.00	A	T210A105(1)035(2)S	R,S	0.1	1.0	1.25	2.0	4.0	1.40
35	2.70	B	T210B275(1)035(2)S	R,S	0.25	2.5	3.13	3.0	4.0	0.68
35	3.30	B	T210B335(1)035(2)S	R,S	0.5	5.0	6.25	3.0	4.0	0.62
35	3.90	B	T210B395(1)035(2)S	R,S	0.5	5.0	6.25	3.0	4.0	0.56
35	4.70	B	T210B475(1)035(2)S	R,S	0.5	5.0	6.25	3.0	4.0	0.51
35	5.60	B	T210B565(1)035(2)S	M,P	0.5	5.0	6.25	3.0	4.0	0.47
35	6.80	B	T210B685(1)035(2)S	M,P	0.5	5.0	6.25	3.0	4.0	0.43
35	8.20	C	T210C825(1)035(2)S	R,S	1.0	10.0	12.50	3.0	5.0	0.36
35	10.0	C	T210C106(1)035(2)S	R,S	1.0	10.0	12.50	3.0	5.0	0.33
35	12.0	C	T210C126(1)035(2)S	P,R	1.0	10.0	12.50	3.0	5.0	0.30
35	15.0	C	T210C156(1)035(2)S	P,R	1.0	10.0	12.50	3.0	5.0	0.27
35	18.0	C	T210C186(1)035(2)S	P,R	1.0	10.0	12.50	3.0	5.0	0.25
35	22.0	C	T210C226(1)035(2)S	M,P	1.0	10.0	12.50	3.0	5.0	0.25
35	27.0	D	T210D276(1)035(2)S	M,P	2.0	20.0	25.00	3.0	5.0	0.18
35	33.0	D	T210D336(1)035(2)S	M,P	2.0	20.0	25.00	3.0	5.0	0.17
35	39.0	D	T210D396(1)035(2)S	M,P	2.0	20.0	25.00	4.0	6.0	0.15
35	47.0	D	T210D476(1)035(2)S	M,P	3.0	30.0	37.50	4.0	6.0	0.14
50	0.0047	A	T210A472(1)050(2)S	R,S	0.05	0.5	0.63	2.0	4.0	30.00
50	0.0056	A	T210A562(1)050(2)S	R,S	0.05	0.5	0.63	2.0	4.0	28.00
50	0.0068	A	T210A682(1)050(2)S	R,S	0.05	0.5	0.63	2.0	4.0	26.00
50	0.0082	A	T210A822(1)050(2)S	R,S	0.05	0.5	0.63	2.0	4.0	24.00
50	0.01	A	T210A103(1)050(2)S	R,S	0.05	0.5	0.63	2.0	4.0	22.00
50	0.012	A	T210A123(1)050(2)S	R,S	0.05	0.5	0.63	2.0	4.0	20.00
50	0.015	A	T210A153(1)050(2)S	R,S	0.05	0.5	0.63	2.0	4.0	18.00
50	0.018	A	T210A183(1)050(2)S	R,S	0.05	0.5	0.63	2.0	4.0	16.00
V	µF				+25°C (µA)	+85°C (µA)	+125°C (µA)	-55 +25°C	+85 +125°C	
Rated Voltage	Rated Capacitance	Case Size Code	KEMET Part Number	Graded Failure Rate	Maximum Leakage Current at Rated Voltage			Maximum DF (%) at 120 Hz		ESR Maximum Ohms 100 kHz +25°C

(1) To complete KEMET part number, insert M - ±20%, K - ±10%, J - ±5%. Designates Capacitance tolerance.

(2) To complete KEMET Part Number (T210), insert Graded failure rate - M for 1%/k hours, P for 0.1%/k hours, R for 0.01%/k hours, or S for 0.001%/k hours. Designates Reliability Level.

**Table 1 – Ratings & Part Number Reference cont.**

Rated Voltage	Rated Capacitance	Case Size Code	KEMET Part Number	Graded Failure Rate	Maximum Leakage Current at Rated Voltage			Maximum DF (%) at 120 Hz		ESR Maximum Ohms 100 kHz +25°C
					+25°C (µA)	+85°C (µA)	+125°C (µA)	-55 +25°C	+85 +125°C	
V	µF									
50	0.022	A	T210A223(1)050(2)S	R,S	0.05	0.5	0.63	2.0	4.0	14.00
50	0.027	A	T210A273(1)050(2)S	R,S	0.05	0.5	0.63	2.0	4.0	13.00
50	0.033	A	T210A333(1)050(2)S	R,S	0.05	0.5	0.63	2.0	4.0	12.00
50	0.039	A	T210A393(1)050(2)S	R,S	0.05	0.5	0.63	2.0	4.0	11.00
50	0.047	A	T210A473(1)050(2)S	R,S	0.05	0.5	0.63	2.0	4.0	10.00
50	0.056	A	T210A563(1)050(2)S	R,S	0.05	0.5	0.63	2.0	4.0	9.00
50	0.068	A	T210A683(1)050(2)S	R,S	0.05	0.5	0.63	2.0	4.0	8.00
50	0.082	A	T210A823(1)050(2)S	R,S	0.05	0.5	0.63	2.0	4.0	7.50
50	0.1	A	T210A104(1)050(2)S	R,S	0.1	1.0	1.25	2.0	4.0	7.00
50	0.12	A	T210A124(1)050(2)S	R,S	0.1	1.0	1.25	2.0	4.0	6.50
50	0.15	A	T210A154(1)050(2)S	R,S	0.1	1.0	1.25	2.0	4.0	5.50
50	0.18	A	T210A184(1)050(2)S	R,S	0.1	1.0	1.25	2.0	4.0	5.00
50	0.22	A	T210A224(1)050(2)S	R,S	0.1	1.0	1.25	2.0	4.0	4.00
50	0.27	A	T210A274(1)050(2)S	R,S	0.1	1.0	1.25	2.0	4.0	3.50
50	0.33	A	T210A334(1)050(2)S	R,S	0.1	1.0	1.25	2.0	4.0	3.30
50	0.39	A	T210A394(1)050(2)S	R,S	0.1	1.0	1.25	2.0	4.0	3.30
50	0.47	A	T210A474(1)050(2)S	R,S	0.1	1.0	1.25	2.0	4.0	3.00
50	0.56	A	T210A564(1)050(2)S	R,S	0.1	1.0	1.25	2.0	4.0	2.50
50	0.68	A	T210A684(1)050(2)S	R,S	0.1	1.0	1.25	2.0	4.0	1.80
50	0.82	A	T210A824(1)050(2)S	P,R	0.1	1.0	1.25	2.0	4.0	1.60
50	1.00	A	T210A105(1)050(2)S	P,R	0.1	1.0	1.25	2.0	4.0	1.40
50	1.20	B	T210B125(1)050(2)S	R,S	0.25	2.5	3.13	2.0	4.0	1.20
50	1.50	B	T210B155(1)050(2)S	R,S	0.25	2.5	3.13	2.0	4.0	1.10
50	1.80	B	T210B185(1)050(2)S	R,S	0.25	2.5	3.13	2.0	4.0	0.92
50	2.20	B	T210B225(1)050(2)S	R,S	0.25	2.5	3.13	2.0	4.0	0.80
50	2.70	B	T210B275(1)050(2)S	P,R	0.25	2.5	3.13	2.0	4.0	0.68
50	3.30	B	T210B335(1)050(2)S	P,R	0.5	5.0	6.25	2.0	4.0	0.62
50	3.90	B	T210B395(1)050(2)S	P,R	0.5	5.0	6.25	2.0	4.0	0.56
50	4.70	B	T210B475(1)050(2)S	M,P	0.5	5.0	6.25	2.0	4.0	0.51
50	5.60	C	T210C565(1)050(2)S	P,R	1.5	15.0	18.75	3.0	4.0	0.44
50	6.80	C	T210C685(1)050(2)S	P,R	1.5	15.0	18.75	3.0	5.0	0.40
50	8.20	C	T210C825(1)050(2)S	P,R	1.5	15.0	18.75	3.0	5.0	0.36
50	10.0	C	T210C106(1)050(2)S	P,R	1.5	15.0	18.75	3.0	5.0	0.33
50	12.0	C	T210C126(1)050(2)S	M,P	1.5	15.0	18.75	3.0	5.0	0.30
50	15.0	C	T210C156(1)050(2)S	M,P	1.5	15.0	18.75	3.0	5.0	0.27
50	18.0	C	T210C186(1)050(2)S	M,P	1.5	15.0	18.75	3.0	5.0	0.25
50	22.0	D	T210D226(1)050(2)S	M,P	2.0	20.0	25.00	3.0	5.0	0.20
75	0.0047	A	T210A472(1)075(2)S	P,R	0.1	1.0	1.25	2.0	4.0	30.00
75	0.0056	A	T210A562(1)075(2)S	P,R	0.1	1.0	1.25	2.0	4.0	28.00
75	0.0068	A	T210A682(1)075(2)S	P,R	0.1	1.0	1.25	2.0	4.0	26.00
75	0.0082	A	T210A822(1)075(2)S	P,R	0.1	1.0	1.25	2.0	4.0	24.00
75	0.01	A	T210A103(1)075(2)S	P,R	0.1	1.0	1.25	2.0	4.0	22.00
75	0.012	A	T210A123(1)075(2)S	P,R	0.1	1.0	1.25	2.0	4.0	20.00
75	0.015	A	T210A153(1)075(2)S	P,R	0.1	1.0	1.25	2.0	4.0	18.00
75	0.018	A	T210A183(1)075(2)S	P,R	0.1	1.0	1.25	2.0	4.0	16.00
75	0.022	A	T210A223(1)075(2)S	P,R	0.1	1.0	1.25	2.0	4.0	14.00
75	0.027	A	T210A273(1)075(2)S	P,R	0.1	1.0	1.25	2.0	4.0	13.00
75	0.033	A	T210A333(1)075(2)S	P,R	0.1	1.0	1.25	2.0	4.0	12.00
75	0.039	A	T210A393(1)075(2)S	P,R	0.1	1.0	1.25	2.0	4.0	11.00
75	0.047	A	T210A473(1)075(2)S	P,R	0.1	1.0	1.25	2.0	4.0	10.00
75	0.056	A	T210A563(1)075(2)S	P,R	0.1	1.0	1.25	2.0	4.0	9.00
75	0.068	A	T210A683(1)075(2)S	P,R	0.1	1.0	1.25	2.0	4.0	8.00
75	0.082	A	T210A823(1)075(2)S	P,R	0.1	1.0	1.25	2.0	4.0	7.50
75	0.1	A	T210A104(1)075(2)S	P,R	0.25	2.5	3.13	2.0	4.0	7.00
V	µF				+25°C (µA)	+85°C (µA)	+125°C (µA)	-55 +25°C	+85 +125°C	
Rated Voltage	Rated Capacitance	Case Size Code	KEMET Part Number	Graded Failure Rate	Maximum Leakage Current at Rated Voltage			Maximum DF (%) at 120 Hz		ESR Maximum Ohms 100 kHz +25°C

(1) To complete KEMET part number, insert M - ±20%, K - ±10%, J - ±5%. Designates Capacitance tolerance.  
(2) To complete KEMET Part Number (T210), insert Graded failure rate - M for 1%/k hours, P for 0.1%/k hours, R for 0.01%/k hours, or S for 0.001%/k hours. Designates Reliability Level.

**Table 1 – Ratings & Part Number Reference cont.**

Rated Voltage	Rated Capacitance	Case Size Code	KEMET Part Number	Graded Failure Rate	Maximum Leakage Current at Rated Voltage			Maximum DF (%) at 120 Hz		ESR Maximum Ohms 100 kHz +25°C
					+25°C (µA)	+85°C (µA)	+125°C (µA)	-55 +25°C	+85 +125°C	
V	µF									
75	0.12	A	T210A124(1)075(2)S	P,R	0.25	2.5	3.13	2.0	4.0	6.50
75	0.15	A	T210A154(1)075(2)S	P,R	0.25	2.5	3.13	2.0	4.0	4.40
75	0.18	A	T210A184(1)075(2)S	P,R	0.25	2.5	3.13	2.0	4.0	4.00
75	0.22	A	T210A224(1)075(2)S	P,R	0.25	2.5	3.13	2.0	4.0	3.50
75	0.27	A	T210A274(1)075(2)S	P,R	0.25	2.5	3.13	2.0	4.0	3.10
75	0.33	A	T210A334(1)075(2)S	P,R	0.25	2.5	3.13	2.0	4.0	2.80
75	0.39	A	T210A394(1)075(2)S	P,R	0.25	2.5	3.13	2.0	4.0	2.60
75	0.47	A	T210A474(1)075(2)S	P,R	0.25	2.5	3.13	2.0	4.0	2.40
75	0.56	A	T210A564(1)075(2)S	P,R	0.25	2.5	3.13	2.0	4.0	2.25
75	0.68	A	T210A684(1)075(2)S	M,P	0.25	2.5	3.13	2.0	4.0	2.10
75	1.8	B	T210B185(1)075(2)S	P,R	0.5	5.0	6.25	2.0	4.0	0.92
75	2.2	B	T210B225(1)075(2)S	P,R	0.5	5.0	6.25	2.0	4.0	0.80
75	2.7	B	T210B275(1)075(2)S	M,P	0.5	5.0	6.25	2.0	4.0	0.68
75	3.3	B	T210B335(1)075(2)S	M,P	0.75	7.5	9.40	2.0	4.0	0.62
75	3.9	B	T210B395(1)075(2)S	M,P	0.75	7.5	9.40	2.0	4.0	0.56
75	4.7	C	T210C475(1)075(2)S	P,R	1.5	15.0	18.75	3.0	4.0	0.47
75	5.6	C	T210C565(1)075(2)S	P,R	1.5	15.0	18.75	3.0	4.0	0.44
75	6.8	C	T210C685(1)075(2)S	M,P	2.0	20.0	25.00	3.0	4.0	0.44
75	8.2	C	T210C825(1)075(2)S	M,P	2.0	20.0	25.00	3.0	5.0	0.36
75	10.0	C	T210C106(1)075(2)S	M,P	2.0	20.0	25.00	3.0	5.0	0.33
75	12.0	D	T210D126(1)075(2)S	M,P	2.5	25.0	31.25	3.0	5.0	0.26
75	15.0	D	T210D156(1)075(2)S	M,P	2.5	25.0	31.25	3.0	5.0	0.23
100	0.0047	A	T210A472(1)100(2)S	M,P	0.1	1.0	1.25	2.0	4.0	30.00
100	0.0056	A	T210A562(1)100(2)S	M,P	0.1	1.0	1.25	2.0	4.0	28.00
100	0.0068	A	T210A682(1)100(2)S	M,P	0.1	1.0	1.25	2.0	4.0	26.00
100	0.0082	A	T210A822(1)100(2)S	M,P	0.1	1.0	1.25	2.0	4.0	24.00
100	0.01	A	T210A103(1)100(2)S	M,P	0.1	1.0	1.25	2.0	4.0	22.00
100	0.012	A	T210A123(1)100(2)S	M,P	0.1	1.0	1.25	2.0	4.0	20.00
100	0.015	A	T210A153(1)100(2)S	M,P	0.1	1.0	1.25	2.0	4.0	18.00
100	0.018	A	T210A183(1)100(2)S	M,P	0.1	1.0	1.25	2.0	4.0	16.00
100	0.022	A	T210A223(1)100(2)S	M,P	0.1	1.0	1.25	2.0	4.0	14.00
100	0.027	A	T210A273(1)100(2)S	M,P	0.1	1.0	1.25	2.0	4.0	13.00
100	0.033	A	T210A333(1)100(2)S	M,P	0.1	1.0	1.25	2.0	4.0	12.00
100	0.039	A	T210A393(1)100(2)S	M,P	0.1	1.0	1.25	2.0	4.0	11.00
100	0.047	A	T210A473(1)100(2)S	M,P	0.1	1.0	1.25	2.0	4.0	10.00
100	0.056	A	T210A563(1)100(2)S	M,P	0.1	1.0	1.25	2.0	4.0	9.00
100	0.068	A	T210A683(1)100(2)S	M,P	0.1	1.0	1.25	2.0	4.0	8.00
100	0.082	A	T210A823(1)100(2)S	M,P	0.1	1.0	1.25	2.0	4.0	7.50
100	0.1	A	T210A104(1)100(2)S	M,P	0.25	2.5	3.13	2.0	4.0	7.00
100	0.12	A	T210A124(1)100(2)S	M,P	0.25	2.5	3.13	2.0	4.0	6.50
100	0.15	A	T210A154(1)100(2)S	M,P	0.25	2.5	3.13	2.0	4.0	4.40
100	0.18	A	T210A184(1)100(2)S	M,P	0.25	2.5	3.13	2.0	4.0	4.00
100	0.22	A	T210A224(1)100(2)S	M,P	0.25	2.5	3.13	2.0	4.0	3.50
100	0.27	A	T210A274(1)100(2)S	M,P	0.25	2.5	3.13	2.0	4.0	3.10
100	0.33	A	T210A334(1)100(2)S	M,P	0.25	2.5	3.13	2.0	4.0	2.80
100	0.39	A	T210A394(1)100(2)S	M,P	0.25	2.5	3.13	2.0	4.0	2.60
100	0.47	A	T210A474(1)100(2)S	M,P	0.25	2.5	3.13	2.0	4.0	2.40
100	0.56	A	T210A564(1)100(2)S	M,P	0.25	2.5	3.13	2.0	4.0	2.25
100	0.68	B	T210B684(1)100(2)S	M,P	0.25	2.5	3.13	2.0	4.0	2.10
100	0.82	B	T210B824(1)100(2)S	M,P	0.25	2.5	3.13	2.0	4.0	1.47
100	1	B	T210B105(1)100(2)S	M,P	0.25	2.5	3.13	2.0	4.0	1.40
100	1.2	B	T210B125(1)100(2)S	M,P	0.25	2.5	3.13	2.0	4.0	1.33
100	1.5	B	T210B155(1)100(2)S	M,P	0.5	5.0	6.25	2.0	4.0	1.06
100	1.8	B	T210B185(1)100(2)S	M,P	0.5	5.0	6.25	2.0	4.0	0.92
V	µF				+25°C (µA)	+85°C (µA)	+125°C (µA)	-55 +25°C	+85 +125°C	
Rated Voltage	Rated Capacitance	Case Size Code	KEMET Part Number	Graded Failure Rate	Maximum Leakage Current at Rated Voltage			Maximum DF (%) at 120 Hz		ESR Maximum Ohms 100 kHz +25°C

(1) To complete KEMET part number, insert M - ±20%, K - ±10%, J - ±5%. Designates Capacitance tolerance.  
(2) To complete KEMET Part Number (T210), insert Graded failure rate - M for 1%/k hours, P for 0.1%/k hours, R for 0.01%/k hours, or S for 0.001%/k hours. Designates Reliability Level.

**Table 1 – Ratings & Part Number Reference cont.**

Rated Voltage	Rated Capacitance	Case Size Code	KEMET Part Number	Graded Failure Rate	Maximum Leakage Current at Rated Voltage			Maximum DF (%) at 120 Hz		ESR Maximum Ohms 100 kHz +25°C
					+25°C (µA)	+85°C (µA)	+125°C (µA)	-55 +25°C	+85 +125°C	
V	µF				+25°C (µA)	+85°C (µA)	+125°C (µA)	-55 +25°C	+85 +125°C	
100	2.2	B	T210B225(1)100(2)S	M,P	0.5	5.0	6.25	2.0	4.0	0.80
100	2.7	B	T210B275(1)100(2)S	M,P	0.5	5.0	6.25	2.0	4.0	0.68
100	3.3	C	T210C335(1)100(2)S	M,P	2.0	20.0	25.00	3.0	5.0	0.62
100	3.9	C	T210C395(1)100(2)S	M,P	2.0	20.0	25.00	3.0	5.0	0.56
100	4.7	C	T210C475(1)100(2)S	M,P	2.0	20.0	25.00	3.0	5.0	0.47
100	5.6	C	T210C565(1)100(2)S	M,P	2.0	20.0	25.00	3.0	5.0	0.44
100	6.8	C	T210C685(1)100(2)S	M	2.0	20.0	25.00	3.0	5.0	0.40
100	8.2	D	T210D825(1)100(2)S	M	2.5	25.0	31.25	3.0	5.0	0.36
100	10.0	D	T210D106(1)100(2)S	M	2.5	25.0	31.25	3.0	5.0	0.33
V	µF				+25°C (µA)	+85°C (µA)	+125°C (µA)	-55 +25°C	+85 +125°C	
Rated Voltage	Rated Capacitance	Case Size Code	KEMET Part Number	Graded Failure Rate	Maximum Leakage Current at Rated Voltage			Maximum DF (%) at 120 Hz		ESR Maximum Ohms 100 kHz +25°C

(1) To complete KEMET part number, insert M - ±20%, K - ±10%, J - ±5%. Designates Capacitance tolerance.

(2) To complete KEMET Part Number (T210), insert Graded failure rate - M for 1%/k hours, P for 0.1%/k hours, R for 0.01%/k hours, or S for 0.001%/k hours. Designates Reliability Level.

## Ripple Current/Ripple Voltage

Permissible AC ripple voltage is related to the ESR of the capacitor and the power dissipation capabilities of a particular case size.

Thermal capacities for the various case sizes have been determined empirically and are listed below.

Temperature Compensation Multipliers for Maximum Power Dissipation		
T ≤ 25°C	T ≤ 85°C	T ≤ 125°C
1.00	0.90	0.40

T = Environmental Temperature

Permissible AC ripple current can be determined by the following:

$$I(max) = Z \sqrt{P max/R}$$

P max = maximum watts

R = ESR at specified frequency (ohms)

I = rms ripple current (amperes)

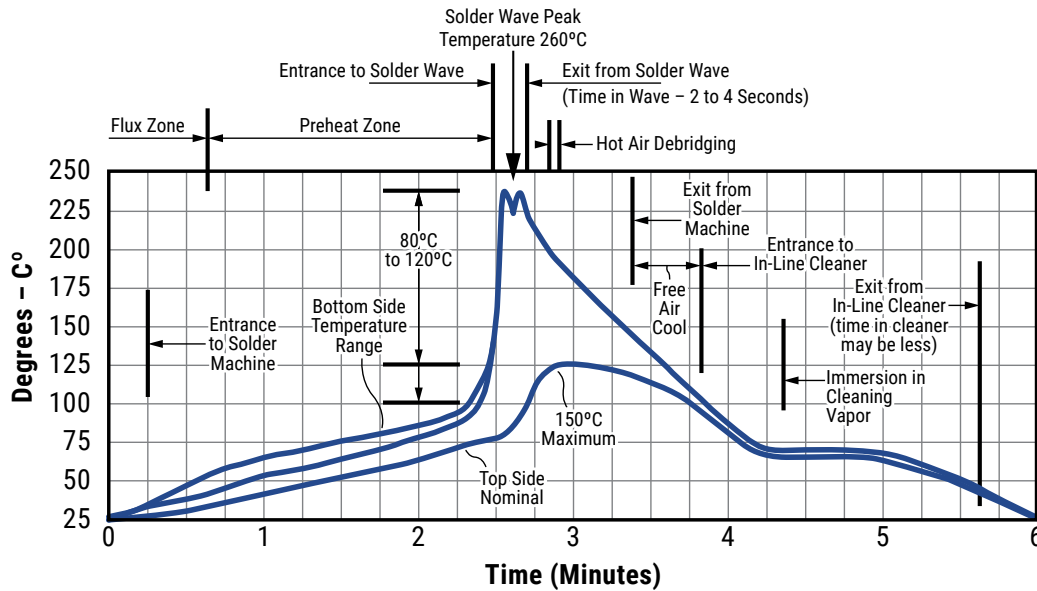
Z = capacitor impedance in ohms at the specified frequency

Case Size	Maximum Power Dissipation (P max)	T2XX
A	0.09	0.070
B	0.100	0.090
C	0.125	–
D	0.180	–

Maximum Power Dissipation: 25°C Ambient



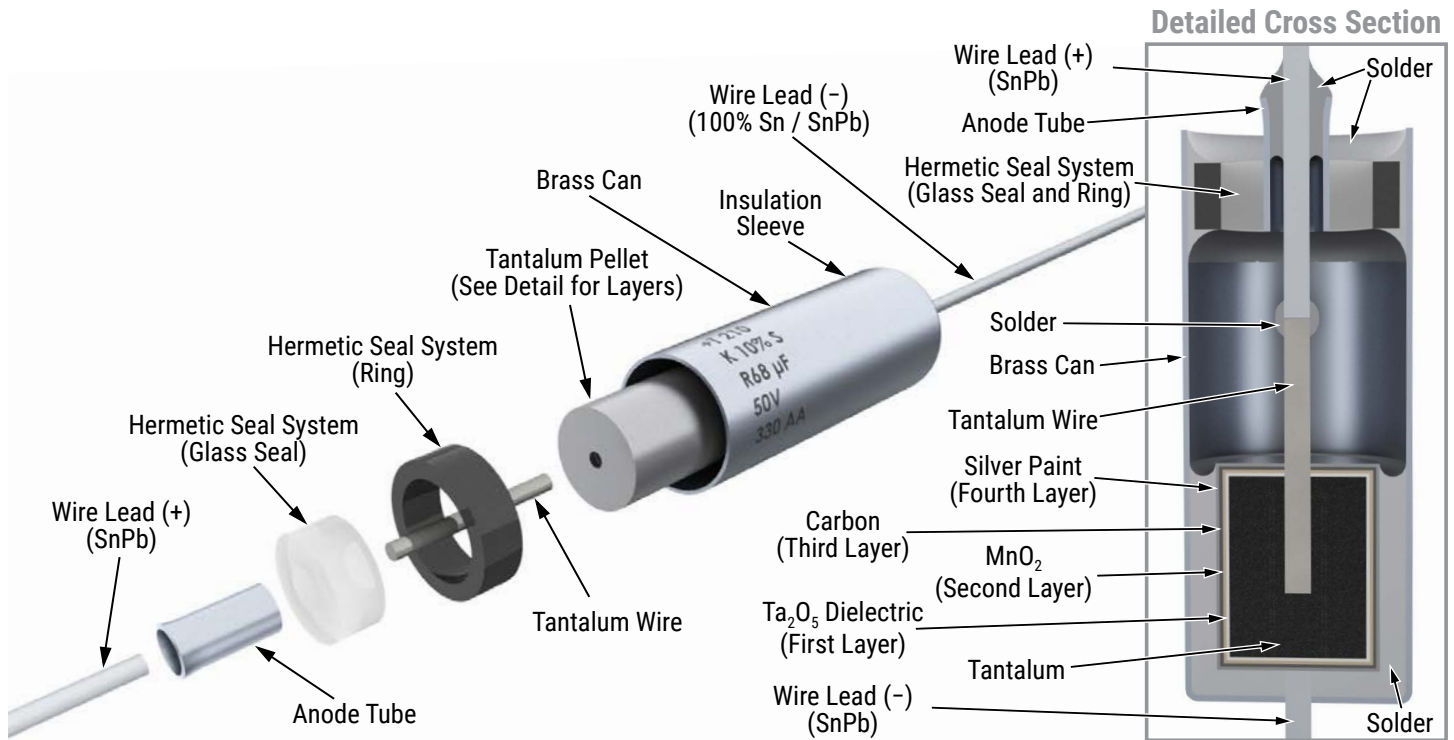
## Optimum Solder Wave Profile



## Mounting

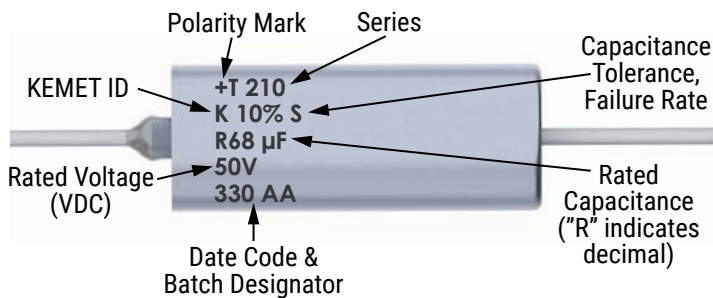
All encased capacitors will pass the Resistance to Soldering Heat Test of MIL-STD-202, Method 210, Condition C. This test simulates wave solder of topside board mount product. This demonstration of resistance to solder heat is in accordance with what is believed to be the industry standard. More severe treatment must be considered reflective of an improper soldering process. The above figure is a recommended solder wave profile for both axial and radial leaded solid tantalum capacitors.

## Construction

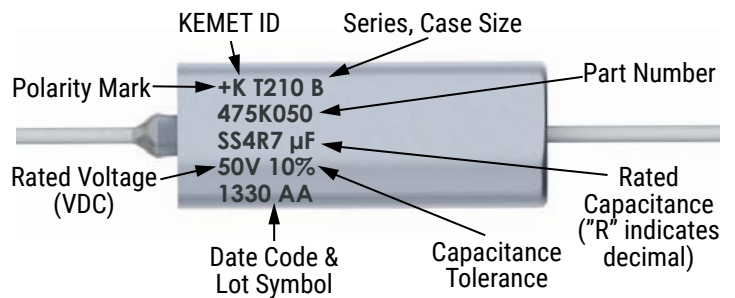


## Capacitor Marking

### Case A

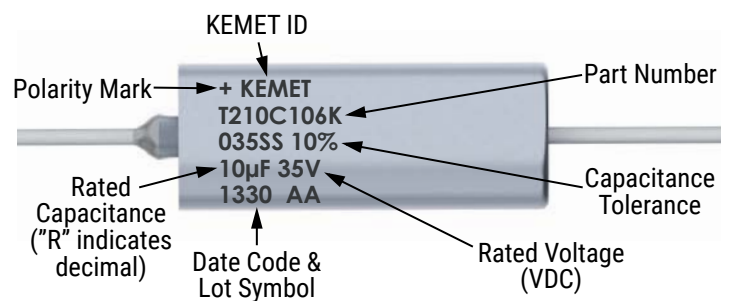


### Case B



Date Code	3 Digit	4 Digit
Year	9 = 2019 0 = 2020 1 = 2021 2 = 2022 3 = 2023	19 = 2019 20 = 2020 21 = 2021 22 = 2022 23 = 2023
Week	01 = 1 <sup>st</sup> week of the year to 52 = 52 <sup>nd</sup> week of the year	

### Case C & D



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## Storage

Tantalum hermetically sealed capacitors should be stored in normal working environments. While the capacitors themselves are quite robust in other environments, solderability will be degraded by exposure to high temperatures, high humidity, corrosive atmospheres, and long term storage. In addition, packaging materials will be degraded by high temperature– reels may soften or warp and tape peel force may increase. KEMET recommends that maximum storage temperature not exceed 40°C and maximum storage humidity not exceed 60% relative humidity. Temperature fluctuations should be minimized to avoid condensation on the parts and atmospheres should be free of chlorine and sulphur bearing compounds. For optimized solderability capacitors stock should be used promptly, preferably within three years of receipt.

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## Packaging

Capacitors shall be packaged in individual container compartments. Packaging methods and materials used shall prevent degradation of capacitor characteristics as determined by this specification.

## KEMET Electronics Corporation Sales Offices

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Although KEMET designs and manufactures its products to the most stringent quality and safety standards, given the current state of the art, isolated component failures may still occur. Accordingly, customer applications which require a high degree of reliability or safety should employ suitable designs or other safeguards (such as installation of protective circuitry or redundancies) in order to ensure that the failure of an electrical component does not result in a risk of personal injury or property damage.

Although all product-related warnings, cautions and notes must be observed, the customer should not assume that all safety measures are indicated or that other measures may not be required.

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