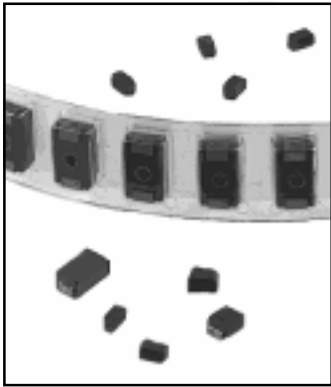


Type T491 - Chips Solid Tantalum Capacitors



- Highest Capacitance per Case
- Low DF and DC Leakage
- Temperature Stable
- Compatible with all Soldering Techniques
- Soldering Temperature up to 260°C for 10 Seconds
- Meets IECQ Standard QC300801/US0001 and EIA Standard 535BAAC
- Compatible with all Tape-Fed Automatic Pick and Place Systems

GENERAL SPECIFICATIONS

Operating Temperature:
-55°C to +125°C
(with proper derating)

Voltage Range:
4 to 50 VDC

Capacitance Range:
0.10 μ F to 220 μ F

Cap Change From Initial Limit
-10% @ -55°C; +10% @ +85°C
+12% @ +125°C

DC Leakage:
At 25°C - See P/N List
At 85°C - 10 x 25°C Limit
At 125°C - 12 x 25°C Limit

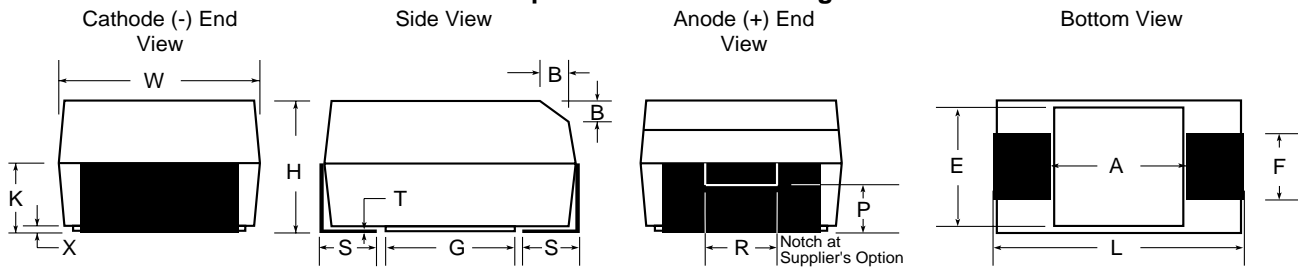
Dissipation Factor:
.1 μ F to 1.0 μ F — 4%
1.5 μ F to 68 μ F — 6%
100 μ F to 220 μ F — 8%

Standard Packaging
Tape & Reel per EIA RS-481-1

Case Code	EIA/IECQ	Qty per 7" Reel	Tape	
			Width	Pitch
S	3216L	2,500	8mm	4mm
T	3528L	2,500	8mm	4mm
A	3216	2,000	8mm	4mm
B	3528	2,000	8mm	4mm
C	6032	500	12mm	8mm
D	7343	500	12mm	8mm
X	7343H	500	12mm	8mm

13" Reels Available on Special Order

Capacitor Outline Drawing



Case Code		Dimensions - Millimeters (Inches)													
NACC	EIA/IECQ	L	W	H	K	F	S	B (Ref)	X (Ref)	P (Ref)	R (Ref)	T (Ref)	A (Min)	G (Ref)	E (Ref)
A	3216	3.2 ± 0.2 (.126 ± .008)	1.6 ± 0.2 (.063 ± .008)	1.6 ± 0.2 (.063 ± .008)	0.9 ± 0.2 (.035 ± .008)	1.2 ± 0.1 (.047 ± .004)	0.8 ± 0.3 (.031 ± .012)	0.4 ± 0.15 (.016 ± .006)	0.10 ± 0.10 (.004 ± .004)	0.4 (.016)	0.4 (.016)	0.13 (.005)	0.8 (.031)	1.1 (.043)	1.3 (.051)
B	3528	3.5 ± 0.2 (.138 ± .008)	2.8 ± 0.2 (.110 ± .008)	1.9 ± 0.2 (.075 ± .008)	1.1 ± 0.2 (.043 ± .008)	2.2 ± 0.1 (.087 ± .004)	0.8 ± 0.3 (.031 ± .012)	0.4 ± 0.15 (.016 ± .006)	0.10 ± 0.10 (.004 ± .004)	0.5 (.020)	1.0 (.039)	0.13 (.005)	1.1 (.043)	1.8 (.071)	2.2 (.087)
C	6032	6.0 ± 0.3 (.236 ± .012)	3.2 ± 0.3 (.126 ± .012)	2.5 ± 0.3 (.098 ± .012)	1.4 ± 0.2 (.055 ± .008)	2.2 ± 0.1 (.087 ± .004)	1.3 ± 0.3 (.051 ± .012)	0.5 ± 0.15 (.020 ± .006)	0.10 ± 0.10 (.004 ± .004)	0.9 (.035)	1.0 (.039)	0.13 (.005)	2.5 (.098)	2.8 (.110)	2.9 (.114)
D	7343	7.3 ± 0.3 (.287 ± .012)	4.3 ± 0.3 (.169 ± .012)	2.8 ± 0.3 (.110 ± .012)	1.5 ± 0.2 (.059 ± .008)	2.4 ± 0.1 (.094 ± .004)	1.3 ± 0.3 (.051 ± .012)	0.5 ± 0.15 (.020 ± .006)	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	7343H	7.3 ± 0.3 (.287 ± .012)	4.3 ± 0.3 (.169 ± .012)	4.0 ± 0.3 (.157 ± .012)	2.3 ± 0.2 (.091 ± .008)	2.4 ± 0.1 (.094 ± .004)	1.3 ± 0.3 (.051 ± .012)	0.5 ± 0.15 (.020 ± .006)	0.10 ± 0.10 (.004 ± .004)	1.7 (.067)	1.0 (.039)	0.13 (.005)	3.8 (.150)	3.5** (.138)	3.5** (.138)

- Notes: 1 Metric dimensions govern
2 (Ref) - Dimensions provided for reference only
** Round Glue Pad 2.9 ± 0.1mm (.114 ± .004) in diameter at Supplier's option

Low Profile Capacitors

Case Code		Dimensions - Millimeters (Inches)													
NACC	EIA/IECQ	L	W	H Max.	K Min.	F	S	B (Ref)	X (Ref)	P (Ref)	R (Ref)	T (Ref)	A (Min)	G (Ref)	E (Ref)
S	3216L	3.2 ± 0.2 (.126 ± .008)	1.6 ± 0.2 (.063 ± .008)	1.2 (.047)	0.3 (.012)	1.2 ± 0.1 (.047 ± .004)	0.8 ± 0.3 (.031 ± .012)	Note 3	0.05 (.002)	Note 3	Note 3	0.13 (.005)	0.8 (.031)	1.1 (.043)	1.3 (.051)
T	3528L	3.5 ± 0.2 (.138 ± .008)	2.8 ± 0.2 (.110 ± .008)	1.2 (.047)	0.3 (.012)	2.2 ± 0.1 (.087 ± .004)	0.8 ± 0.3 (.031 ± .012)	Note 3	0.05 (.002)	Note 3	Note 3	0.13 (.005)	1.1 (.043)	1.8 (.071)	2.2 (.087)

- Notes: 1 Metric dimensions govern
2 (Ref) - Dimensions provided for reference only
3 No dimensions provided for B, P or R because low profile cases do not have a bevel or notch

Part Number Nomenclature

T491 **B** **105** **K** **035** **A** **S**
(1) (2) (3) (4) (5) (6) (7)

1. T491 Series - Precision Molded Case
2. Case Size Code:
S, T, A, B, C, D, X
3. Capacitance Code (Expressed in Picofarads)
First 2 digits: Significant Figures
Third digit: Number of zeros (Example: 395 = 3.9 μ F)
4. Capacitance Tolerance:
K = ±10%, (M = ±20%, special order only)
5. DC Voltage Rating:
Zeros are used to precede the voltage rating where necessary to complete the three digit block
6. Failure Rate: A = Not applicable
7. Lead Material:
S = Standard Solder Coated
G = Gold Plated

Type T491 - Chips Solid Tantalum Capacitors

Cap (μ F)	* Cap Tol	Case Code		Catalog Number	DC Leakage μ A @ +25°C Max	DF % @ +25°C 120 Hz Max
		M	EIA/ IECQ			
4 WVDC @ +85°C (2.7 WVDC @ +125°C)						
+ # 15	10%	T	3528L	T491T156K004AS	0.6	6.0
+ # 33	10%	B	3528	T491B336K004AS	1.3	6.0
+ 68	10%	C	6032	T491C686K004AS	2.7	6.0
+ # 100	10%	C	6032	T491C107K004AS	4.0	8.0
100	10%	D	7343	T491D107K004AS	4.0	8.0
+ 150	10%	D	7343	T491D157K004AS	6.0	8.0
* 6 WVDC @ +85°C (4 WVDC @ +125°C)						
+ 4.7	10%	A	3216	T491A475K006AS	0.5	6.0
+ # 4.7	10%	S	3216L	T491S475K006AS	0.5	6.0
+ 6.8	10%	A	3216	T491A685K006AS	0.5	6.0
6.8	10%	B	3528	T491B685K006AS	0.5	6.0
+ # 10	10%	A	3216	T491A106K006AS	0.6	6.0
10	10%	B	3528	T491B106K006AS	0.6	6.0
+ # 10	10%	T	3528L	T491S106K006AS	0.6	6.0
+ # 22	10%	B	3528	T491B226K006AS	1.4	6.0
22	10%	C	6032	T491C226K006AS	1.4	6.0
+ 33	10%	C	6032	T491C336K006AS	2.0	6.0
+ 47	10%	C	6032	T491C476K006AS	2.9	6.0
47	10%	D	7343	T491D476K006AS	2.9	6.0
+ # 68	10%	C	6032	T491C686K006AS	4.1	6.0
+ 100	10%	D	7343	T491D107K006AS	6.0	8.0
+ 150	10%	D	7343	T491D157K006AS	9.0	8.0
+ 220	10%	X	7343H	T491X227K006AS	13.2	8.0
220	10%	D	7343	T491D227K006AS	13.2	8.0
330	10%	X	7343H	T491X337K006AS	19.8	8.0
10 WVDC @ +85°C (7 WVDC @ +125°C)						
2.2	10%	A	3216	T491A225K010AS	0.5	6.0
+ 3.3	10%	A	3216	T491A335K010AS	0.5	6.0
+ # 3.3	10%	S	3216L	T491S335K010AS	0.5	6.0
+ 4.7	10%	A	3216	T491A475K010AS	0.5	6.0
4.7	10%	B	3528	T491B475K010AS	0.5	6.0
+ # 6.8	10%	A	3216	T491A685K010AS	0.7	6.0
6.8	10%	B	3528	T491B685K010AS	0.7	6.0
+ # 6.8	10%	T	3528L	T491T685K010AS	0.7	6.0
+ 10	10%	B	3528	T491B106K010AS	1.0	6.0
10	10%	C	6032	T491C106K010AS	1.0	6.0
+ # 15	10%	B	3528	T491B156K010AS	1.5	6.0
+ 22	10%	C	6032	T491C226K010AS	2.2	6.0
+ 33	10%	C	6032	T491C336K010AS	3.3	6.0
+ # 47	10%	C	6032	T491C476K010AS	4.7	6.0
47	10%	D	7343	T491D476K010AS	4.7	6.0
+ 68	10%	D	7343	T491D686K010AS	6.8	6.0
+ 100	10%	D	7343	T491D107K010AS	10.0	8.0
+ 150	10%	X	7343H	T491X157K010AS	15.0	8.0
220	10%	X	7343H	T491X227K010AS	22.0	8.0
16 WVDC @ +85°C (10 WVDC @ +125°C)						
1	10%	A	3216	T491A105K016AS	0.5	4.0
+ 2.2	10%	A	3216	T491A225K016AS	0.5	6.0
+ # 2.2	10%	S	3216L	T491S225K016AS	0.5	6.0
+ 3.3	10%	A	3216	T491A335K016AS	0.5	6.0
3.3	10%	B	3528	T491B335K016AS	0.5	6.0
+ # 4.7	10%	A	3216	T491A475K016AS	0.8	6.0
4.7	10%	B	3528	T491B475K016AS	0.8	6.0
+ # 4.7	10%	T	3528L	T491T475K016AS	0.8	6.0
+ 6.8	10%	B	3528	T491B685K016AS	1.1	6.0
6.8	10%	C	6032	T491C685K016AS	1.1	6.0
+ # 10	10%	B	3528	T491B106K016AS	1.6	6.0
10	10%	C	6032	T491C106K016AS	1.6	6.0
+ 15	10%	C	6032	T491C156K016AS	2.4	6.0

Cap (μ F)	* Cap Tol	Case Code		Catalog Number	DC Leakage μ A @ +25°C Max	DF % @ +25°C 120 Hz Max
		M	EIA/ IECQ			
16 WVDC @ +85°C (10 WVDC @ +125°C)						
+ 22	10%	C	6032	T491C226K016AS	3.6	6.0
22	10%	D	7343	T491D226K016AS	3.6	6.0
+ # 33	10%	C	6032	T491C336K016AS	5.3	6.0
33	10%	D	7343	T491D336K016AS	5.3	6.0
+ 47	10%	D	7343	T491D476K016AS	7.5	6.0
+ 68	10%	D	7343	T491D686K016AS	10.9	6.0
+ 100	10%	X	7343H	T491X107K016AS	16.0	8.0
150	10%	X	7343H	T491X157K016AS	24.0	8.0
20 WVDC @ +85°C (13 WVDC @ +125°C)						
1	10%	A	3216	T491A105K020AS	0.5	4.0
+ 1.5	10%	A	3216	T491A155K020AS	0.5	6.0
+ # 1.5	10%	S	3216L	T491S155K020AS	0.5	6.0
+ 2.2	10%	A	3216	T491A225K020AS	0.5	6.0
2.2	10%	B	3528	T491B225K020AS	0.5	6.0
+ # 3.3	10%	A	3216	T491A335K020AS	0.7	6.0
3.3	10%	B	3528	T491B335K020AS	0.7	6.0
+ # 3.3	10%	T	3528L	T491T335K020AS	0.7	6.0
+ 4.7	10%	B	3528	T491B475K020AS	1.0	6.0
4.7	10%	C	6032	T491C475K020AS	1.0	6.0
+ # 6.8	10%	B	3528	T491B685K020AS	1.4	6.0
6.8	10%	C	6032	T491C685K020AS	1.4	6.0
+ 10	10%	C	6032	T491C106K020AS	2.0	6.0
+ 15	10%	C	6032	T491C156K020AS	3.0	6.0
15	10%	D	7343	T491D156K020AS	3.0	6.0
+ # 22	10%	C	6032	T491C226K020AS	4.4	6.0
22	10%	D	7343	T491D226K020AS	4.4	6.0
+ 33	10%	D	7343	T491D336K020AS	6.6	6.0
+ 47	10%	D	7343	T491D476K020AS	9.4	6.0
+ 68	10%	X	7343H	T491X686K020AS	13.6	6.0
100	10%	X	7343H	T491X107K020AS	20.0	8.0
25 WVDC @ +85°C (17 WVDC @ +125°C)						
0.47	10%	A	3216	T491A474K025AS	0.5	4.0
+ 0.68	10%	A	3216	T491A684K025AS	0.5	4.0
+ 1	10%	A	3216	T491A105K025AS	0.5	4.0
1	10%	B	3528	T491B105K025AS	0.5	4.0
+ 1.5	10%	B	3528	T491B155K025AS	0.5	6.0
+ 2.2	10%	B	3528	T491B225K025AS	0.6	6.0
2.2	10%	C	6032	T491C225K025AS	0.6	6.0
+ 3.3	10%	C	6032	T491C335K025AS	0.9	6.0
4.7	10%	C	6032	T491C475K025AS	1.2	6.0
+ 6.8	10%	C	6032	T491C685K025AS	1.7	6.0
+ 10	10%	C	6032	T491C106K025AS	2.5	6.0
10	10%	D	7343	T491D106K025AS	2.5	6.0
+ 15	10%	D	7343	T491D156K025AS	3.8	6.0
+ 22	10%	D	7343	T491D226K025AS	5.5	6.0
+ 33	10%	X	7343H	T491X336K025AS	8.3	6.0

- * - \pm 20% Tolerance Available by Special Order
- + - Extended Values
- # - Max Capacitance Change @ 125°C = +15% (All others are +12%)
- * - 6 volt product is equivalent to 6.3 volt product

Note: NACC reserves the right to offer higher rated voltage substitutes within the same case size. The marking will indicate the higher voltage.

Type T491 - Chips Solid Tantalum Capacitors



Solid Tantalum Capacitors

Cap (μ F)	* Cap Tol	Case Code		Catalog Number	DC Leakage μ A @ +25°C Max	DF % @ +25°C 120 Hz Max
		M	EIA/ IECQ			
35 WVDC @ +85°C (23 WVDC @ +125°C)						
0.1	10%	A	3216	T491A104K035AS	0.5	4.0
+ 0.15	10%	A	3216	T491A154K035AS	0.5	4.0
0.22	10%	A	3216	T491A224K035AS	0.5	4.0
0.33	10%	A	3216	T491A334K035AS	0.5	4.0
+ 0.47	10%	A	3216	T491A474K035AS	0.5	4.0
0.47	10%	B	3528	T491B474K035AS	0.5	4.0
0.68	10%	B	3528	T491B684K035AS	0.5	4.0
1.0	10%	B	3528	T491B105K035AS	0.5	4.0
1.5	10%	C	6032	T491C155K035AS	0.5	6.0
2.2	10%	C	6032	T491C225K035AS	0.8	6.0
3.3	10%	C	6032	T491C335K035AS	1.2	6.0
+ 4.7	10%	C	6032	T491C475K035AS	1.7	6.0
4.7	10%	D	7343	T491D475K035AS	1.7	6.0
6.8	10%	D	7343	T491D685K035AS	2.4	6.0
+ 10	10%	D	7343	T491D106K035AS	3.5	6.0
+ 15	10%	X	7343H	T491X156K035AS	5.3	6.0
+ 22	10%	X	7343H	T491X226K035AS	7.7	6.0

Cap (μ F)	* Cap Tol	Case Code		Catalog Number	DC Leakage μ A @ +25°C Max	DF % @ +25°C 120 Hz Max
		M	EIA/ IECQ			
50 WVDC @ +85°C (33 WVDC @ +125°C)						
0.10	10%	A	3216	T491A104K050AS	0.5	4.0
+ 0.15	10%	A	3216	T491A154K050AS	0.5	4.0
0.15	10%	B	3528	T491B154K050AS	0.5	4.0
0.22	10%	B	3528	T491B224K050AS	0.5	4.0
0.33	10%	B	3528	T491B334K050AS	0.5	4.0
+ 0.47	10%	B	3528	T491B474K050AS	0.5	4.0
0.47	10%	C	6032	T491C474K050AS	0.5	4.0
0.68	10%	C	6032	T491C684K050AS	0.5	4.0
1.0	10%	C	6032	T491C105K050AS	0.5	4.0
+ 1.5	10%	C	6032	T491C155K050AS	0.5	6.0
1.5	10%	D	7343	T491D155K050AS	0.8	6.0
2.2	10%	D	7343	T491D225K050AS	1.1	6.0
3.3	10%	D	7343	T491D335K050AS	1.7	6.0
+ 4.7	10%	D	7343	T491D475K050AS	2.4	6.0
+ 6.8	10%	X	7343H	T491X685K050AS	3.5	6.0

Note: NACC reserves the right to offer higher rated voltage substitutes within the same case size. The marking will indicate the higher voltage.

- * - \pm 20% Tolerance Available by Special Order
- + - Extended Values
- # - Max Capacitance Change @ 125°C = +15% (All others are +12%)