

## Dipped, Radial Leaded, Solid Tantalum Capacitors



As a low cost alternative to molded solid tantalum capacitors, the Type TDC, constructed in a tough, radial dipped flame retardant plastic case, assures the user that it is a top performer with such attributes as low DCL, low ESR, low impedance and a great value with low in-place cost. The Type TDC is high shock and vibration resistant and is available in bulk or on radial tape and reel.

### Highlights

- ◆ Tough plastic case
- ◆ Low DCL
- ◆ Low ESR and impedance
- ◆ Low cost
- ◆ Temperature stable
- ◆ UL94VO flammability rating
- ◆ Resistant to shock and vibration

### Specifications

**Capacitance Range:** 0.10  $\mu$ F to 330  $\mu$ F  
**Voltage Range:** 6 WVdc to 50 WVdc at 85 °C  
**Tolerance:**  $\pm$ 10%,  $\pm$ 20%  
**Operating Temperature Range:** -55 °C to +125 °C (with proper derating)

**DC Leakage:** +25 °C - See ratings limit  
+85 °C - 10 x ratings limit  
+125 °C - 12.5 x ratings limit

**Capacitance Change Maximum:** -10% @ -55 °C  
+10% @ +85 °C  
+12% @ +125 °C

**Reverse Voltage (Non-continuous):** 15% of rated voltage @ 25 °C  
5% of rated voltage @ 85 °C  
1% of rated voltage @ 125 °C

#### Reel Packaging:

Case Code	Quantity per Reel
E	1,000
F	1,000
G	1,000



Complies with the EU Directive 2002/95/EC requirement restricting the use of Lead (Pb), Mercury (Hg), Cadmium (Cd), Hexavalent chromium (Cr(VI)), PolyBrominated Biphenyls (PBB) and PolyBrominated Diphenyl Ethers (PBDE).

# Type TDC Solid Tantalum Capacitors

## Capacitor Outline Drawing



Dimensions - Inches (Millimeters)				
Case Code	D (Max.)	H (Max.)	Leads	
			S	Code
E	.175 (4.45)	.350 (8.89)	.125 (3.17) (Standard)	N
			.250 (6.35) (Special)	W
F	.250 (6.35)	.500 (12.7)	.125 (3.17) (Standard)	N
			.250 (6.35) (Special)	W
G	.350 (8.89)	.650 (16.51)	.250 (6.35) (Special)	W

**E and F Case Codes:**  
Lead Spacing =  $.125 \pm .025$   
(3.17 ± .64)

**G Case Code:**  
Lead Spacing =  $.250 \pm .025$   
(6.34 ± .64)

## Ratings

Cap (µF)	Catalog Part Number	Case Code	Lead Spacing (S)	Max. DCL @ +25 °C (µA)	Max. DF @ +25 °C 120 Hz (%)	Cap (µF)	Catalog Part Number	Case Code	Lead Spacing (S)	Max. DCL @ +25 °C (µA)	Max. DF @ +25 °C 120 Hz (%)
<b>6 WVdc; 8 Vdc Surge @ 85 °C 4 WVdc; 5 Vdc Surge @ 125 °C</b>						<b>10 WVdc; 13 Vdc Surge @ 85 °C 7 WVdc; 9 Vdc Surge @ 125 °C</b>					
3.3	TDC335*006NSE-F	E	0.125	0.5	5	2.2	TDC225*010NSE-F	E	0.125	0.5	5
3.9	TDC395*006NSE-F	E	0.125	0.5	5	2.7	TDC275*010NSE-F	E	0.125	0.5	5
4.7	TDC475*006NSE-F	E	0.125	0.5	5	3.3	TDC335*010NSE-F	E	0.125	0.5	5
5.6	TDC565*006NSE-F	E	0.125	0.5	5	3.9	TDC395*010NSE-F	E	0.125	0.5	5
6.8	TDC685*006NSE-F	E	0.125	0.5	5	4.7	TDC475*010NSE-F	E	0.125	0.5	5
8.2	TDC825*006NSE-F	E	0.125	0.5	6	5.6	TDC565*010NSE-F	E	0.125	0.5	5
10	TDC106*006NSE-F	E	0.125	0.5	6	6.8	TDC685*010NSE-F	E	0.125	0.5	5
12	TDC126*006NSE-F	E	0.125	0.6	6	8.2	TDC825*010NSE-F	E	0.125	0.7	6
15	TDC156*006NSF-F	F	0.125	0.7	6	10	TDC106*010NSF-F	F	0.125	0.8	6
18	TDC186*006NSF-F	F	0.125	0.9	6	12	TDC126*010NSF-F	F	0.125	1.0	6
22	TDC226*006NSF-F	F	0.125	1.1	6	15	TDC156*010NSF-F	F	0.125	1.2	6
27	TDC276*006NSF-F	F	0.125	1.3	6	18	TDC186*010NSF-F	F	0.125	1.4	6
33	TDC336*006NSF-F	F	0.125	1.6	6	22	TDC226*010NSF-F	F	0.125	1.8	6
39	TDC396*006NSF-F	F	0.125	1.9	6	27	TDC276*010NSF-F	F	0.125	2.2	6
47	TDC476*006NSF-F	F	0.125	2.3	6	33	TDC336*010NSF-F	F	0.125	2.6	6
56	TDC566*006NSF-F	F	0.125	2.7	6	39	TDC396*010NSF-F	F	0.125	3.1	6
68	TDC686*006NSF-F	F	0.125	3.3	6	47	TDC476*010NSF-F	F	0.125	3.8	6
82	TDC826*006NSF-F	F	0.125	3.9	8	56	TDC566*010NSF-F	F	0.125	4.5	6
100	TDC107*006NSF-F	F	0.125	4.8	8	68	TDC686*010NSF-F	F	0.125	5.4	6
120	TDC127*006WSG-F	G	0.25	5.8	8	82	TDC826*010WSG-F	G	0.25	6.6	8
150	TDC157*006WSG-F	G	0.25	7.2	8	100	TDC107*010WSG-F	G	0.25	8.0	8
180	TDC187*006WSG-F	G	0.25	8.6	8	120	TDC127*010WSG-F	G	0.25	9.6	8
220	TDC227*006WSG-F	G	0.25	10	8	150	TDC157*010WSG-F	G	0.25	10.0	8
270	TDC277*006WSG-F	G	0.25	10	8	180	TDC187*010WSG-F	G	0.25	10.0	8
330	TDC337*006WSG-F	G	0.25	10	8	220	TDC227*010WSG-F	G	0.25	10.0	8

\* Indicates capacitance tolerance: K = ±10%, M = ±20%, (J = ±5%, Special Order)

CDE reserves the right to substitute a tighter tolerance, higher voltage capacitor within the same case size.

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# Type TDC Solid Tantalum Capacitors

## Ratings

Cap ( $\mu$ F)	Catalog Part Number	Case Code	Lead Spacing (S)	Max. DCL @ +25 °C ( $\mu$ A)	Max. DF @ +25 °C 120 Hz (%)	Cap ( $\mu$ F)	Catalog Part Number	Case Code	Lead Spacing (S)	Max. DCL @ +25 °C ( $\mu$ A)	Max. DF @ +25 °C 120 Hz (%)
<b>16 WVdc; 20 Vdc Surge @ 85 °C</b>						<b>20 WVdc; 26 Vdc Surge @ 85 °C</b>					
<b>10 WVdc; 12 Vdc Surge @ 125 °C</b>						<b>13 WVdc; 16 Vdc Surge @ 125 °C</b>					
1.5	TDC155*016NSE-F	E	0.125	0.5	5	8.2	TDC825*020NSF-F	F	0.125	1.3	6
1.8	TDC185*016NSE-F	E	0.125	0.5	5	10	TDC106*020NSF-F	F	0.125	1.6	6
2.2	TDC225*016NSE-F	E	0.125	0.5	5	12	TDC126*020NSF-F	F	0.125	1.9	6
2.7	TDC275*016NSE-F	E	0.125	0.5	5	15	TDC156*020NSF-F	F	0.125	2.4	6
3.3	TDC335*016NSE-F	E	0.125	0.5	5	18	TDC186*020NSF-F	F	0.125	2.9	6
3.9	TDC395*016NSE-F	E	0.125	0.5	5	22	TDC226*020NSF-F	F	0.125	3.5	6
4.7	TDC475*016NSE-F	E	0.125	0.6	5	33	TDC336*020WSG-F	G	0.25	5.3	6
5.6	TDC565*016NSE-F	E	0.125	0.7	5	39	TDC396*020WSG-F	G	0.25	6.2	6
6.8	TDC685*016NSE-F	E	0.125	0.9	5	47	TDC476*020WSG-F	G	0.25	7.5	6
8.2	TDC825*016NSE-F	E	0.125	1.0	6	56	TDC566*020WSG-F	G	0.25	9.0	6
10	TDC106*016NSF-F	F	0.125	1.3	6	68	TDC686*020WSG-F	G	0.25	10.0	6
12	TDC126*016NSF-F	F	0.125	1.5	6	82	TDC826*020WSG-F	G	0.25	10.0	8
15	TDC156*016NSF-F	F	0.125	1.8	6	100	TDC107*020WSG-F	G	0.25	10.0	8
18	TDC186*016NSF-F	F	0.125	2.2	6	<b>25 WVdc; 32 Vdc Surge @ 85 °C</b>					
22	TDC226*016NSF-F	F	0.125	2.6	6	<b>17 WVdc; 22 Vdc Surge @ 125 °C</b>					
27	TDC276*016NSF-F	F	0.125	3.2	6	1.0	TDC105*025NSE-F	E	0.125	0.50	3
33	TDC336*016NSF-F	F	0.125	4.0	6	1.2	TDC125*025NSE-F	E	0.125	0.50	5
39	TDC396*016WSG-F	G	0.25	4.7	6	1.5	TDC155*025NSE-F	E	0.125	0.50	5
47	TDC476*016WSG-F	G	0.25	5.6	6	1.8	TDC185*025NSE-F	E	0.125	0.50	5
56	TDC566*016WSG-F	G	0.25	6.8	6	2.2	TDC225*025NSE-F	E	0.125	0.50	5
68	TDC686*016WSG-F	G	0.25	8.2	6	2.7	TDC275*025NSE-F	E	0.125	0.50	5
82	TDC826*016WSG-F	G	0.25	9.8	8	3.3	TDC335*025NSE-F	E	0.125	0.70	5
100	TDC107*016WSG-F	G	0.25	10.0	8	3.9	TDC395*025NSE-F	E	0.125	0.80	5
120	TDC127*016WSG-F	G	0.25	10.0	8	4.7	TDC475*025NSF-F	F	0.125	0.90	5
150	TDC157*016WSG-F	G	0.25	10.0	8	5.6	TDC565*025NSF-F	F	0.125	1.10	5
<b>20 WVdc; 26 Vdc Surge @ 85 °C</b>						6.8	TDC685*025NSF-F	F	0.125	1.40	5
<b>13 WVdc; 16 Vdc Surge @ 125 °C</b>						8.2	TDC825*025NSF-F	F	0.125	1.60	6
1.0	TDC105*020NSE-F	E	0.125	0.5	3	10	TDC106*025NSF--F	F	0.125	2.0	6
1.2	TDC125*020NSE-F	E	0.125	0.5	5	12	TDC126*025NSF-F	F	0.125	2.4	6
1.5	TDC155*020NSE-F	E	0.125	0.5	5	15	TDC156*025NSF-F	F	0.125	3.0	6
1.8	TDC185*020NSE-F	E	0.125	0.5	5	18	TDC186*025NSF-F	F	0.125	3.6	6
2.2	TDC225*020NSE-F	E	0.125	0.5	5	22	TDC226*025NSF-F	F	0.125	4.4	6
2.7	TDC275*020NSE-F	E	0.125	0.5	5	27	TDC276*025WSG-F	G	0.250	5.4	6
3.3	TDC335*020NSE-F	E	0.125	0.5	5	33	TDC336*025WSG-F	G	0.250	6.6	6
3.9	TDC395*020NSE-F	E	0.125	0.6	5	39	TDC396*025WSG-F	G	0.250	7.8	6
4.7	TDC475*020NSE-F	E	0.125	0.8	5	47	TDC476*025WSG-F	G	0.250	9.4	6
5.6	TDC565*020NSF-F	F	0.125	0.9	5	56	TDC566*025WSG-F	G	0.250	10.0	6
6.8	TDC685*020NSF-F	F	0.125	1.1	5	68	TDC686*025WSG-F	G	0.250	10.0	6

\* Indicates capacitance tolerance: K =  $\pm 10\%$ , M =  $\pm 20\%$ , (J =  $\pm 5\%$ , Special Order)

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# Type TDC Solid Tantalum Capacitors

## Ratings

Cap ( $\mu$ F)	Catalog Part Number	Case Code	Lead Spacing (S)	Max. DCL @ +25 °C ( $\mu$ A)	Max. DF @ +25 °C 120 Hz (%)	Cap ( $\mu$ F)	Catalog Part Number	Case Code	Lead Spacing (S)	Max. DCL @ +25 °C ( $\mu$ A)	Max. DF @ +25 °C 120 Hz (%)
<b>35 WVdc; 46 Vdc Surge @ 85 °C 23 WVdc; 28 Vdc Surge @ 125 °C</b>						<b>50 WVdc; 65 Vdc Surge @ 85 °C 33 WVdc; 40 Vdc Surge @ 125 °C</b>					
0.10	TDC104*035NSE-F	E	0.125	0.5	3	.10	TDC104*050NSE-F	E	0.125	0.5	3
0.12	TDC124*035NSE-F	E	0.125	0.5	3	.12	TDC124*050NSE-F	E	0.125	0.5	3
0.15	TDC154*035NSE-F	E	0.125	0.5	3	.15	TDC154*050NSE-F	E	0.125	0.5	3
0.18	TDC184*035NSE-F	E	0.125	0.5	3	.18	TDC184*050NSE-F	E	0.125	0.5	3
0.22	TDC224*035NSE-F	E	0.125	0.5	3	.22	TDC224*050NSE-F	E	0.125	0.5	3
0.27	TDC274*035NSE-F	E	0.125	0.5	3	.27	TDC274*050NSE-F	E	0.125	0.5	3
0.33	TDC334*035NSE-F	E	0.125	0.5	3	.33	TDC334*050NSE-F	E	0.125	0.5	3
0.39	TDC394*035NSE-F	E	0.125	0.5	3	.39	TDC394*050NSE-F	E	0.125	0.5	3
0.47	TDC474*035NSE-F	E	0.125	0.5	3	.47	TDC474*050NSE-F	E	0.125	0.5	3
0.56	TDC564*035NSE-F	E	0.125	0.5	3	.56	TDC564*050NSE-F	E	0.125	0.5	3
0.68	TDC684*035NSE-F	E	0.125	0.5	3	.68	TDC684*050NSE-F	E	0.125	0.5	3
0.82	TDC824*035NSE-F	E	0.125	0.5	3	.82	TDC824*050NSE-F	E	0.125	0.5	3
1.0	TDC105*035NSE-F	E	0.125	0.5	3	1.0	TDC105*050NSE-F	E	0.125	0.5	3
1.2	TDC125*035NSE-F	E	0.125	0.5	5	1.2	TDC125*050NSE-F	E	0.125	0.5	5
1.5	TDC155*035NSE-F	E	0.125	0.5	5	1.5	TDC155*050NSE-F	E	0.125	0.6	5
1.8	TDC185*035NSE--F	E	0.125	0.5	5	1.8	TDC185*050NSF-F	F	0.125	0.7	5
2.2	TDC225*035NSE-F	E	0.125	0.6	5	2.2	TDC225*050NSF-F	F	0.125	0.9	5
2.7	TDC275*035NSF-F	F	0.125	0.7	5	2.7	TDC275*050NSF-F	F	0.125	1.1	5
3.3	TDC335*035NSF-F	F	0.125	0.9	5	3.3	TDC335*050NSF-F	F	0.125	1.3	5
3.9	TDC339*035NSF-F	F	0.125	1.0	5	3.9	TDC395*050NSF-F	F	0.125	1.6	5
4.7	TDC475*035NSF-F	F	0.125	1.3	5	4.7	TDC475*050NSF-F	F	0.125	1.9	5
5.6	TDC565*035NSF-F	F	0.125	1.6	5	5.6	TDC565*050NSF-F	F	0.125	2.2	5
6.8	TDC685*035NSF-F	F	0.125	1.9	5	6.8	TDC685*050WSG-F	G	0.25	2.7	5
8.2	TDC825*035NSF-F	F	0.125	2.3	6	8.2	TDC825*050WSG-F	G	0.25	3.3	6
10	TDC106*035NSF-F	F	0.125	2.8	6	10	TDC106*050WSG-F	G	0.25	4.0	6
12	TDC126*035WSG-F	G	0.25	3.4	6	12	TDC126*050WSG-F	G	0.25	4.8	6
15	TDC156*035WSG-F	G	0.25	4.2	6	15	TDC156*050WSG-F	G	0.25	6.0	6
18	TDC186*035WSG-F	G	0.25	5.0	6	18	TDC186*050WSG-F	G	0.25	7.2	6
22	TDC226*035WSG-F	G	0.25	6.2	6	22	TDC226*050WSG-F	G	0.25	8.8	6
27	TDC276*035WSG-F	G	0.25	7.6	6						
33	TDC336*035WSG-F	G	0.25	9.2	6						
39	TDC396*035WSG-F	G	0.25	10	6						
47	TDC476*035WSG-F	G	0.25	10	6						

\* Indicates capacitance tolerance: K =  $\pm 10\%$ , M =  $\pm 20\%$ , (J =  $\pm 5\%$ , Special Order)

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## Part Numbering System

TDC	107	K	016	W	S	G	-F
Series	Capacitance	Tolerance	Voltage	Lead Spacing	Lead Length	Case Code	RoHS Compliant
<b>TDC</b>	<b>394</b> = 0.39 $\mu$ F	<b>J</b> = $\pm$ 5%	<b>006</b> = 6 Vdc	<b>N</b> = .125	<b>S</b> = .187	<b>E</b>	<b>-F</b> = Compliant
	<b>105</b> = 1.0 $\mu$ F	<b>K</b> = $\pm$ 10%	<b>010</b> = 10 Vdc	<b>W</b> = .250	<b>T</b> = Tape & Reel	<b>F</b>	<b>Blank</b> = Not Compliant
	<b>225</b> = 2.2 $\mu$ F	<b>M</b> = $\pm$ 20%	<b>016</b> = 16 Vdc			<b>G</b>	
	<b>186</b> = 18 $\mu$ F		<b>020</b> = 20 Vdc				
	<b>107</b> = 100 $\mu$ F		<b>025</b> = 25 Vdc				
			<b>035</b> = 35 Vdc				
			<b>050</b> = 50 Vdc				