

## Tantalum Capacitors in Solid Through-hole, Wet SMD, and Wet Through-hole



Solid Tantalum, Through-Hole

Wet Tantalum, Through-Hole

Wet Tantalum, Surface-Mount

### RESOURCES

- Datasheets:
  - Wet: <http://www.vishay.com/capacitors/tantalum/tantalum-wet/>
  - Solid: <http://www.vishay.com/capacitors/tantalum/tantalum-solid/>
- FIT calculator: <http://www.vishay.com/capacitors/tantalum/capacitors/tantalum/tantalum-wet/tantalum-reliability-calculator-list/>
- Technical support: [tantalum@vishay.com](mailto:tantalum@vishay.com)
- Sales contacts: [www.vishay.com/doc?99914](http://www.vishay.com/doc?99914)















# CAPACITORS











## Tantalum



### Capacitors - Solid Through-hole, Wet SMD, and Wet Through-hole Tantalums

Series	Capacitance Range	Voltage Range	Case Size	Features
<b>Through-Hole</b>				
<b>150D</b> 	0.027 $\mu$ F to 330 $\mu$ F	6 V to 125 V	A, B, R, S	TANTALEX™, Hermetically Sealed
<b>152D</b> 	1.2 $\mu$ F to 1000 $\mu$ F	6 V to 60 V	A, B, R, S	TANTALEX™, Hermetically Sealed, Extended Range
<b>550D</b> 	5.6 $\mu$ F to 330 $\mu$ F	6 V to 50 V	R, S	TANTALEX™, Hermetically Sealed, Low ESR
<b>CTS1</b> 	0.10 $\mu$ F to 1000 $\mu$ F	6.3 V to 63 V	A, B, C, D	TANTALEX™, Hermetically Sealed, CECC 30 021 002 Approved
<b>CTS13</b> 	0.10 $\mu$ F to 1000 $\mu$ F	6.3 V to 63 V	A, B, C, D	TANTALEX™, Hermetically Sealed, CECC 30 201 005 Approved
<b>749DX</b> 	0.10 $\mu$ F to 330 $\mu$ F	6.3 V to 63 V	A, B, C, D	TANTALEX™, Hermetically Sealed, CECC 30 201 001 and CECC 30 201 029 Approved
<b>M39003/01</b> 	0.056 $\mu$ F to 330 $\mu$ F	6 V to 100 V	A, B, C, D	TANTALEX™, Hermetically Sealed MIL-PRF-39003 Qualified, CSR13
<b>M39003/03</b> 	1.2 $\mu$ F to 1000 $\mu$ F	6 V to 50 V	A, B, C, D	TANTALEX™, Hermetically Sealed, Extended Range MIL-PRF-39003 Qualified, CSR23
<b>M39003/09</b> 	5.6 $\mu$ F to 330 $\mu$ F	6 V to 50 V	C, D	TANTALEX™, Hermetically Sealed, Low ESR MIL-PRF-39003 Qualified, CSR21
<b>173D</b> 	0.10 $\mu$ F to 330 $\mu$ F	2 V to 50 V	U, V, W, X, Y	TANTALEX™, Molded Case, Axial Lead

Series	Capacitance Range	Voltage Range	Case Size	Features
<b>Through-Hole</b>				
<b>199D</b> 	0.10 $\mu$ F to 680 $\mu$ F	3 V to 50 V	A, B, C, D, E, F	TANTALEX™, Resin-Coated, Radial lead
<b>299D</b> 	0.10 $\mu$ F to 680 $\mu$ F	3 V to 50 V	A, B, C, D, E, F	TANTALEX™, Resin-Coated, Radial Lead, Triple-Lead
<b>489D, 499D</b> 	0.10 $\mu$ F to 680 $\mu$ F	3 V to 50 V	A, B, C, D, E, F, H, M, N, R	TANTALEX™, Resin-Coated, Radial Lead
<b>ETPW</b> 	0.10 $\mu$ F to 330 $\mu$ F	3 V to 50 V	1A - 6R	TANTALEX™, Resin-Coated, Radial Lead
<b>ETQW</b> 	0.10 $\mu$ F to 330 $\mu$ F	3 V to 50 V	1A - 6R	TANTALEX™, Resin-Coated, Radial Lead
<b>790D</b> 	0.10 $\mu$ F to 330 $\mu$ F	6.3 V to 50 V	A, B, C, D	TANTALEX™, Molded Case, Radial Lead
<b>HA</b> 	0.001 $\mu$ F to 68 $\mu$ F	2 V to 50 V	C0 - C9, N1 - N5	Subminiature, Polar or Non-Polar, Cylindrical Case
<b>SHA</b> 	0.22 $\mu$ F to 68 $\mu$ F	2 V to 35 V	C0 - C9, N1 - N5	Subminiature, Polar or Non-Polar, Cylindrical Case
<b>STC</b> 	0.0022 $\mu$ F to 470 $\mu$ F	2 V to 35 V	C0 - C6, CX, N1 - N4	Subminiature, Polar or Non-Polar, Rectangular Case
<b>TC</b> 	0.001 $\mu$ F to 470 $\mu$ F	2 V to 50 V	C0 - C6, CX, N1 - N4	Subminiature, Polar or Non-Polar, Rectangular Case

Series	Capacitance Range	Voltage Range	Case Size	Features
<b>Through-Hole</b>				
 <b>CX06</b>	0.10 $\mu$ F to 220 $\mu$ F	2 V to 35 V	A, B, C, D, E, F, G	Subminiature, Polar or Non-Polar, Rectangular Case, Radial Lead, MIL-PRF-49137 Qualified
 <b>CX16</b>	0.10 $\mu$ F to 220 $\mu$ F	2 V to 35 V	A, B, C, D, E, F, G	Subminiature, Polar or Non-Polar, Rectangular Case, Axial Lead, MIL-PRF-49137 Qualified
 <b>109D</b>	1.7 $\mu$ F to 2200 $\mu$ F	6 V to 125 V	C, F, K, T	TANTALEX™, Silver Case, Elastomer Seal
 <b>138D</b>	1.7 $\mu$ F to 2200 $\mu$ F	6 V to 125 V	C, F, K, T	TANTALEX™, Silver Case, Hermetic Seal
 <b>135D</b>	1.7 $\mu$ F to 2200 $\mu$ F	6 V to 125 V	C, F, K, T	TANTALEX™, Tantalum Case, Hermetic Seal, + 200 °C Operation
 <b>136D</b>	1.7 $\mu$ F to 2200 $\mu$ F	6 V to 125 V	C, F, K, T	TANTALEX™, Tantalum Case, Hermetic Seal, Low ESR
 <b>769D</b>	3.6 $\mu$ F to 2200 $\mu$ F	6 V to 125 V	A, B, C, D	TANTALEX™, Silver Case, Elastomer Seal, CECC 30 202 013 Approved
 <b>738D</b>	3.3 $\mu$ F to 1200 $\mu$ F	6.3 V to 125 V	A, B, C, D	TANTALEX™, Silver Case, Hermetic Seal
 <b>CT9</b>	3.9 $\mu$ F to 2200 $\mu$ F	6.3 V to 125 V	A, B, C, D	TANTALEX™, Silver Case, Hermetic Seal, CECC 30 202 004 Approved
 <b>735D</b>	2.7 $\mu$ F to 2200 $\mu$ F	6 V to 125 V	A, B, C, D	TANTALEX™, Tantalum Case, Hermetic Seal, CECC 30 202 001 Approved













# CAPACITORS


## Tantalum










### Capacitors - Solid Through-hole, Wet SMD, and Wet Through-hole Tantalums

Series	Capacitance Range	Voltage Range	Case Size	Features
<b>Through-Hole</b>				
<a href="#">735DE</a> 	2.7 $\mu$ F to 2200 $\mu$ F	6 V to 125 V	A, B, C, D	TANTALEX™, Tantalum Case, Hermetic Seal, CECC 30 202 801 Approved
<a href="#">CT79</a> 	3.9 $\mu$ F to 2200 $\mu$ F	6.3 V to 125 V	A, B, C, D	TANTALEX™, Tantalum Case, Hermetic Seal, CECC 30 202 005 Approved
<a href="#">M39006/09</a> 	1.7 $\mu$ F to 1200 $\mu$ F	6 V to 125 V	T1, T2, T3, T4	TANTALEX™, Silver Case, Hermetic Seal, MIL-PRF-39006 Qualified, CLR65
<a href="#">M39006/21</a> 	6.8 $\mu$ F to 2200 $\mu$ F	6 V to 125 V	T1, T2, T3, T4	TANTALEX™, Silver Case, Hermetic Seal, Extended Range MIL-PRF-39006 Qualified, CLR69
<a href="#">M39006/22</a> 	1.7 $\mu$ F to 1200 $\mu$ F	6 V to 125 V	T1, T2, T3, T4	TANTALEX™, Tantalum Case, Hermetic Seal, MIL-PRF-39006 Qualified, CLR79
<a href="#">M39006/25</a> 	6.8 $\mu$ F to 2200 $\mu$ F	6 V to 125 V	T1, T2, T3, T4	TANTALEX™, Tantalum Case, Hermetic Seal, Extended Range MIL-PRF-39006 Qualified, CLR81
<a href="#">M39006/30</a> 	1.7 $\mu$ F to 1200 $\mu$ F	6 V to 125 V	T1, T2, T3, T4	TANTALEX™, Tantalum Case, Hermetic Seal, Low ESR MIL-PRF-39006 Qualified, CLR90
<a href="#">M39006/31</a> 	6.8 $\mu$ F to 2200 $\mu$ F	6 V to 125 V	T1, T2, T3, T4	TANTALEX™, Tantalum Case, Hermetic Seal, Low ESR, Extended Range, MIL-PRF-39006 Qualified, CLR91
<a href="#">DSCC 06013</a> 	1.7 $\mu$ F to 1200 $\mu$ F	6 V to 125 V	T1, T2, T3, T4	TANTALEX™, Tantalum Case, Hermetic Seal, Space Level, CLR79 Ratings
<a href="#">DSCC 06014</a> 	6.8 $\mu$ F to 2200 $\mu$ F	6 V to 125 V	T1, T2, T3, T4	TANTALEX™, Tantalum Case, Hermetic Seal, Extended Range, Space Level, CLR81 Ratings

Series	Capacitance Range	Voltage Range	Case Size	Features
<b>Through-Hole</b>				
 <a href="#">DSCC 06015</a>	1.7 $\mu$ F to 1200 $\mu$ F	6 V to 125 V	T1, T2, T3, T4	TANTALEX™, Tantalum Case, Hermetic Seal, Low ESR, Space Level, CLR90 Ratings
 <a href="#">DSCC 06016</a>	6.8 $\mu$ F to 2200 $\mu$ F	6 V to 125 V	T1, T2, T3, T4	TANTALEX™, Tantalum Case, Hermetic Seal, Low ESR, Extended Range Space Level, CLR91 Ratings
 <a href="#">ST</a>	10 $\mu$ F to 1800 $\mu$ F	25 V to 125 V	L2, T1, T2, T3, T4	SuperTan™, Tantalum Case, Hermetic Seal
 <a href="#">DSCC 93026</a>	10 $\mu$ F to 1800 $\mu$ F	25 V to 125 V	L2, T1, T2, T3, T4	SuperTan™, Tantalum Case, Hermetic Seal, DSCC Approved
 <a href="#">STA</a>	150 $\mu$ F to 4700 $\mu$ F	6 V to 15 V	T1, T2, T3, T4	SuperTan™, Tantalum Case, Hermetic Seal
 <a href="#">STE</a>	180 $\mu$ F to 10 000 $\mu$ F	10 V to 125 V	T1, T2, T3, T4	SuperTan™, Tantalum Case, Hermetic Seal, Extended Range
 <a href="#">DSCC 10004</a>	180 $\mu$ F to 10 000 $\mu$ F	10 V to 125 V	T1, T2, T3, T4	SuperTan™, Tantalum Case, Hermetic Seal, Extended Range DSCC Approved
 <a href="#">134D</a>	10 $\mu$ F to 680 $\mu$ F	50 V to 125 V	C, F, K, T	Hi TMP™, Tantalum Case, Hermetic Seal, + 200 °C Operation
<b>Button Styles</b>				
 <a href="#">CA2</a>	47 $\mu$ F to 1200 $\mu$ F	6 V to 125 V	C	Tantalum Electrodes, Compression Seal, BS CECC 30 202 002 Approved
 <a href="#">CE2</a>	82 $\mu$ F to 1800 $\mu$ F	6.3 V to 125 V	C	Tantalum Electrodes, Compression Seal, Extended Range

Series	Capacitance Range	Voltage Range	Case Size	Features
<b>Button Styles</b>				
<a href="#">CH2</a> 	33 $\mu$ F to 470 $\mu$ F	3 V to 75 V	B, C	Button Style, Tantalum Electrodes, Compression Seal, High Temperature
<a href="#">ANP2</a> 	15 $\mu$ F to 470 $\mu$ F	3 V to 75 V	B, C	Tantalum Electrodes, Compression Seal, Non-Polar
<a href="#">CS2</a> 	50 $\mu$ F to 750 $\mu$ F	3 V to 70 V	B	Tantalum Electrodes, Compression Seal, Silver Button Replacement
<b>High Energy</b>				
<a href="#">HE3</a> 	1100 $\mu$ F to 72 000 $\mu$ F	25 V to 125 V	A, B, C	Tantalum Case, Hermetic Seal, Largest Cap Value Available
<a href="#">DSCC 10011</a> 	1100 $\mu$ F to 72 000 $\mu$ F	25 V to 80 V	A, B, C	Tantalum Case, Hermetic Seal, Largest Cap Value Available, DSCC Approved
<b>Arrays &amp; Assemblies</b>				
<a href="#">285D</a> 	1.0 $\mu$ F to 410 $\mu$ F	6 V to 300 V	A, B, C, D, E, F, G, H	TANTALEX™, Tantalum Case, Replacement for Tantalum Foil M39006/01, /02, /03, /04, /16, /17 Series
<a href="#">200D, 202D</a> 	70 $\mu$ F to 15 000 $\mu$ F	6 V to 150 V	A1 - A5, B1 - B7, D3	TANTALEX™, Tantalum Case, Hermetic Seal, TANTAPAK™ Capacitor Assemblies
<a href="#">DSCC 04021</a> 	70 $\mu$ F to 2400 $\mu$ F	15 V to 150 V	A1, A2, A3, A4, A5	Tantalum Case, Hermetic Seal, Capacitor Assemblies, Replacement for MIL-DTL-3965/21 (CL55)
<a href="#">211D</a> 	70 $\mu$ F to 14 000 $\mu$ F	10 V to 150 V	A1 - A5, B1 - B7	TANTALEX™, Tantalum Case, Hermetic Seal, TANTAPAK™ Capacitor Assemblies

Series	Capacitance Range	Voltage Range	Case Size	Features
<b>Arrays &amp; Assemblies</b>				
<b>XTH-K-L-M-V</b> 	2.0 $\mu$ F to 2200 $\mu$ F	8 V to 630 V	A - M	Cylindrical Case, Hermetic Seal, Capacitor Assemblies
<b>DSCC 04022</b> 	2.0 $\mu$ F to 1300 $\mu$ F	8 V to 630 V	1A, 1B, 1C	Cylindrical Case, Hermetic Seal, Capacitor Assemblies, Replacement for MIL-PRF-39006/18, /19, /20 (CLR10, CLR14, CLR17) Replacement for MIL-DTL-3965/20, /1, /19 (CL10, CL14, CL17)
<b>DSCC 04033</b> 	2.0 $\mu$ F to 1300 $\mu$ F	8 V to 630 V	1A, 1B, 1C	Cylindrical Case, Hermetic Seal, Capacitor Assemblies, Replacement for MIL-DTL-3965/20, /1, /19 (CL13, CL16, CL18)
<b>MC2</b> 	235 $\mu$ F to 9100 $\mu$ F	6 V to 125 V	D	Epoxy Resin Modules, Internal Button Elements with Tantalum Electrodes
<b>MT2</b> 	220 $\mu$ F to 6000 $\mu$ F	6 V to 125 V	B	Epoxy Resin Modules, Internal Axial Lead, Tantalum Case, Hermetic Seal Elements
<b>Surface-Mount</b>				
<b>M35</b> 	1.7 $\mu$ F to 220 $\mu$ F	6 V to 125 V	C	Molded
<b>M34</b> 	10 $\mu$ F to 120 $\mu$ F	25 V to 125 V	C	Molded, Extended Range