

## Wet Tantalum Capacitors Cylindrical Body, Hermetically Sealed



### FEATURES

- High temperature
- High voltage
- High capacitance
- Withstands high frequency vibration to 2000 Hz
- Hermetically sealed
- Long shelf life
- DLA drawings 04022 and 04033
- Terminations: standard 100 % nickel (RoHS compliant)
- Mounting: arrays and assemblies
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



### PERFORMANCE CHARACTERISTICS

**Operating Temperature:** -55 °C to +175 °C with proper derating

**Voltage Range:** 8 V<sub>DC</sub> to 630 V<sub>DC</sub> at 85 °C

**Reverse Voltage:** none

**Capacitance Range:** 2 μF to 2200 μF

**Tolerance Range:**

-15 % to +50 % (standard for XTK, XTM, XTV)

-15 % to +75 % (standard for XTH, XTL)

± 20 % (special order)

### ORDERING INFORMATION

XTV MODEL	126 CAPACITANCE CODE	T CAPACITANCE TOLERANCE	630 DC VOLTAGE RATING	P CASE CODE	0 INSULATION	A TERMINAL CONFIGURATION
XTH XTK XTL XTM XTV	This is expressed in picofarads. The first two digits are the significant figures. The third is the number of zeros to follow.	T = -15 % to +50 % (XTK, XTM, XTV standard) U = -15 % to +75 % (XTH, XTL standard) M = ± 20 % (special order)	This is expressed in volts. To complete the three-digit block, zeros precede the voltage rating.	P = polar (case negative) R = reverse polarity (case positive)	0 = uninsulated (standard) 4 = teflon (+175 °C limit)	See Styles

#### Note

- For styles, terminal configurations, mounting methods and hardware, please see pages following Standard Ratings table

### DIMENSIONS in inches [millimeters]

XTH-XTL-XTV		XTK-XTM	
<b>TYPE</b>	<b>D</b>	<b>H</b>	
XTK - XTM	0.656	0.438 to 1.781	
XTL - XTH	0.875	0.540 to 4.062	
XTV	1.125	0.600 to 2.810	

#### Note

- For insulated parts, add 0.015" [0.38] to the diameter. The insulation shall lap over the ends of the capacitor body



STANDARD RATINGS AND DIMENSIONS															
CAPACITANCE ( $\mu$ F)	MAX. WORKING VOLTAGE		TYP. ESR ( $\Omega$ )	MAX. DCL AT MAX. $V_{DC}$ ( $\mu$ A)			MAX. Z -55 °C ( $\Omega$ )	MAX. % CAP. CHANGE FROM ROOM TEMP.			APPROX. WEIGHT (g)	MAX. RIPPLE 120 Hz RMS -55 °C TO +175 °C (mA)	SIZE		PART NUMBER
	+125 °C	+175 °C		+85 °C	+125 °C	+175 °C		-55 °C	+85 °C	+175 °C			D +0.031 TO -0.015	H +0.062 -0.062	
<b>8 <math>V_{DC}</math> AT +85 °C</b>															
70	7	5	10.0	30	45	60	60	-60	+30	+30	14	137	0.656	0.438	XTK706(1)008P0A
140	7	5	5.0	50	75	100	30	-60	+30	+30	15	213	0.656	0.562	XTM147(1)008P0A
<b>10 <math>V_{DC}</math> AT +85 °C</b>															
50	8.5	7	10.0	25	37	50	75	-60	+30	+30	14	137	0.656	0.438	XTK506(1)010P0A
100	8.5	7	5.0	45	67	90	40	-60	+30	+30	15	213	0.656	0.562	XTM107(1)010P0A
<b>12 <math>V_{DC}</math> AT +85 °C</b>															
580	10	8	1.5	135	197	270	20	-90	+20	+35	48	550	1.125	0.600	XTV587(1)012P0A
850	10	8	1.5	135	197	270	20	-90	+20	+35	50	550	1.125	0.600	XTV857(1)012P0A
1100	10	8	1.5	135	197	270	20	-90	+20	+35	60	694	1.125	1.100	XTV118(1)012P0A
2200	10	8	1.5	135	197	270	20	-90	+20	+35	82	694	1.125	1.100	XTV228(1)012P0A
<b>18 <math>V_{DC}</math> AT +85 °C</b>															
35	15	12	10.0	30	45	60	85	-60	+30	+30	14	137	0.656	0.438	XTK356(1)018P0A
70	15	12	5.0	50	75	100	45	-60	+30	+30	15	213	0.656	0.562	XTM706(1)018P0A
120	15	12	2.8	50	75	100	30	-60	+15	+40	26	328	0.875	0.540	XTL127(1)018P0A
240	15	12	2.5	80	120	160	20	-60	+15	+40	32	390	0.875	0.732	XTH247(1)018P0A
390	15	12	1.5	165	227	330	20	-85	+20	+35	48	550	1.125	0.600	XTV397(1)018P0A
560	15	12	1.5	165	227	330	20	-85	+20	+35	50	550	1.125	0.600	XTV567(1)018P0A
900	15	12	1.5	165	227	330	20	-85	+20	+35	68	694	1.125	1.100	XTV907(1)018P0A
1800	15	12	1.5	165	227	330	20	-85	+20	+35	82	694	1.125	1.100	XTV188(1)018P0A
<b>20 <math>V_{DC}</math> AT +85 °C</b>															
28	17.5	13	10.0	30	45	60	85	-60	+30	+30	14	137	0.656	0.438	XTK286(1)020P0A
56	17.5	13	5.0	50	75	100	45	-60	+30	+30	15	213	0.656	0.562	XTM566(1)020P0A
100	17.5	13	2.8	50	75	100	30	-60	+15	+40	26	328	0.875	0.540	XTL107(1)020P0A
200	17.5	13	2.5	80	120	160	20	-60	+15	+40	32	390	0.875	0.732	XTH207(1)020P0A
<b>30 <math>V_{DC}</math> AT +85 °C</b>															
20	25	20	10.0	35	52	70	125	-40	+20	+20	14	137	0.656	0.438	XTK206(1)030P0A
40	25	20	5.0	60	90	120	75	-40	+20	+20	15	213	0.656	0.562	XTM406(1)030P0A
75	25	20	2.7	55	82	110	45	-45	+15	+30	26	333	0.875	0.540	XTL756(1)030P0A
150	25	20	2.7	90	135	180	30	-45	+15	+30	32	375	0.875	0.732	XTH157(1)030P0A
250	25	20	2.5	195	287	390	20	-65	+20	+35	48	427	1.125	0.600	XTV257(1)030P0A
370	25	20	1.5	125	170	215	15	-65	+20	+35	50	550	1.125	0.600	XTV377(1)030P0A
650	25	20	1.5	145	202	250	15	-85	+20	+35	68	694	1.125	1.100	XTV657(1)030P0A
1300	25	20	1.5	190	282	375	10	-85	+20	+35	82	694	1.125	1.100	XTV138(1)030P0A
<b>35 <math>V_{DC}</math> AT +85 °C</b>															
20	30	23	10.0	35	52	72	125	-40	+20	+20	14	137	0.656	0.438	XTK206(1)035P0A
40	30	23	5.0	60	90	120	75	-40	+20	+20	15	213	0.656	0.562	XTM406(1)035P0A
60	30	23	2.7	55	82	110	45	-45	+10	+30	26	333	0.875	0.540	XTL606(1)035P0A

**Note**

- Part number definitions:
  - (1) Tolerance code:
    - T = -15 % to +50 % (standard for XTK, XTM, XTV)
    - U = -15 % to +75 % (standard for XTH, XTL)
    - M =  $\pm$  20 % (available by special order)



STANDARD RATINGS AND DIMENSIONS															
CAPACITANCE ( $\mu$ F)	MAX. WORKING VOLTAGE		TYP. ESR ( $\Omega$ )	MAX. DCL AT MAX. V <sub>DC</sub> ( $\mu$ A)			MAX. Z -55 °C ( $\Omega$ )	MAX. % CAP. CHANGE FROM ROOM TEMP.			APPROX. WEIGHT (g)	MAX. RIPPLE 120 Hz RMS -55 °C TO +175 °C (mA)	SIZE		PART NUMBER
	+125 °C	+175 °C		+85 °C	+125 °C	+175 °C		-55 °C	+85 °C	+175 °C			D +0.031 -0.015	H +0.062 -0.062	
<b>40 V<sub>DC</sub> AT +85 °C</b>															
190	34	27	2.5	195	297	400	20	-55	+20	+35	48	427	1.125	0.600	XTV197(1)040POA
290	34	27	2.5	200	300	400	20	-55	+20	+35	50	427	1.125	0.600	XTV297(1)040POA
500	34	27	1.5	200	300	400	20	-75	+20	+35	68	694	1.125	1.100	XTV507(1)040POA
1000	34	27	1.5	195	297	400	20	-75	+20	+35	82	694	1.125	1.100	XTV108(1)040POA
<b>50 V<sub>DC</sub> AT +85 °C</b>															
900	44	32	1.5	195	297	400	25	-85	+20	+35	82	694	1.125	1.100	XTV907(1)050POA
<b>60 V<sub>DC</sub> AT +85 °C</b>															
12	50	40	10.0	35	52	70	180	-30	+20	+20	14	137	0.656	0.438	XTK126(1)060POA
25	50	40	5.0	60	90	120	90	-30	+20	+20	15	213	0.656	0.562	XTM256(1)060POA
40	50	40	2.7	60	90	120	65	-35	+10	+20	26	333	0.875	0.540	XTL406(1)060POA
70	50	40	2.7	90	135	180	40	-35	+10	+20	32	375	0.875	0.732	XTH706(1)060POA
80	50	40	2.7	95	142	190	35	-35	+10	+20	32	375	0.875	0.732	XTH806(1)060POA
130	50	40	2.5	210	315	420	30	-50	+20	+35	48	427	1.125	0.600	XTV137(1)060POA
200	50	40	1.5	135	182	230	30	-50	+20	+35	50	550	1.125	0.600	XTV207(1)060POA
350	50	40	1.5	155	210	265	25	-70	+20	+35	68	694	1.125	1.100	XTV357(1)060POA
700	50	40	1.5	200	275	350	15	-70	+20	+35	82	694	1.125	1.100	XTV707(1)060POA
750	50	40	1.5	200	275	350	29	-70	+20	+35	82	694	1.125	1.100	XTV757(1)060POA
<b>90 V<sub>DC</sub> AT +85 °C</b>															
8.0	80	60	10.0	35	52	70	250	-30	+20	+20	14	137	0.656	0.438	XTK805(1)090POA
16	80	60	5.0	60	90	120	125	-30	+20	+20	15	213	0.656	0.562	XTM166(1)090POA
25	80	60	2.7	55	82	110	90	-35	+10	+20	26	333	0.875	0.540	XTL256(1)090POA
50	80	60	2.7	90	135	180	45	-35	+10	+20	32	375	0.875	0.732	XTH506(1)090POA
84	80	60	2.5	195	287	390	40	-40	+20	+35	48	427	1.125	0.600	XTV846(1)090POA
120	80	60	1.5	135	182	230	40	-40	+20	+35	50	550	1.125	0.600	XTV127(1)090POA
220	80	60	1.5	145	202	250	30	-60	+20	+35	68	694	1.125	1.100	XTV227(1)090POA
450	80	60	1.5	195	215	235	25	-60	+20	+35	82	694	1.125	1.100	XTV457(1)090POA
<b>180 V<sub>DC</sub> AT +85 °C</b>															
2.0	160	120	20.0	75	112	150	850	-30	+20	+20	21	108	0.656	0.719	XTK205(1)180POA
4.0	160	120	20.0	35	52	70	500	-30	+20	+20	21	117	0.656	0.719	XTK405(1)180POA
8.0	160	120	10.0	60	90	120	250	-30	+20	+20	23	186	0.656	0.938	XTM805(1)180POA
12	160	120	5.6	55	82	110	180	-35	+10	+20	44	282	0.875	0.920	XTL126(1)180POA
25	160	120	5.3	90	135	180	90	-35	+10	+20	56	341	0.875	1.300	XTH256(1)180POA
42	160	120	5.0	120	162	205	75	-40	+20	+35	74	363	1.125	0.976	XTV426(1)180POA
60	160	120	3.0	135	182	230	60	-40	+20	+35	78	363	1.125	0.976	XTV606(1)180POA
110	160	120	3.0	145	202	250	60	-60	+20	+35	114	631	1.125	1.938	XTV117(1)180POA
230	160	120	3.0	200	275	350	50	-60	+20	+35	142	631	1.125	1.938	XTV237(1)180POA

**Note**

- Part number definitions:
  - (1) Tolerance code:
    - T = -15 % to +50 % (standard for XTK, XTM, XTV)
    - U = -15 % to +75 % (standard for XTH, XTL)
    - M =  $\pm$  20 % (available by special order)



STANDARD RATINGS AND DIMENSIONS															
CAPACITANCE	MAX. WORKING VOLTAGE		TYP. ESR	MAX. DCL AT MAX. V <sub>DC</sub> (μA)			MAX. Z -55 °C	MAX. % CAP. CHANGE FROM ROOM TEMP.			APPROX. WEIGHT	MAX. RIPPLE 120 Hz RMS -55 °C TO +175 °C	SIZE		PART NUMBER
	(μF)	+125 °C		+175 °C	+85 °C	+125 °C		+175 °C	(Ω)	-55 °C			+85 °C	+175 °C	
<b>270 V<sub>DC</sub> AT +85 °C</b>															
2.5	240	180	30.0	35	52	70	750	-30	+20	+20	28	112	0.656	1.031	XTK255(1)270POA
5.0	240	180	15.0	55	82	110	375	-30	+20	+20	31	179	0.656	1.375	XTM505(1)270POA
8.0	240	180	8.3	55	82	110	270	-35	+10	+20	62	266	0.875	1.270	XTL805(1)270POA
16	240	180	8.3	90	135	180	135	-35	+10	+20	81	320	0.875	1.865	XTH166(1)270POA
28	240	180	7.5	120	162	205	80	-40	+20	+35	100	339	1.125	1.350	XTV286(1)270POA
40	240	180	7.5	135	182	230	100	-40	+20	+35	104	339	1.125	1.350	XTV406(1)270POA
75	240	180	4.5	145	202	250	90	-60	+20	+35	160	608	1.125	2.812	XTV756(1)270POA
150	240	180	4.5	195	215	235	75	-60	+20	+35	202	608	1.125	2.812	XTV157(1)270POA
<b>360 V<sub>DC</sub> AT +85 °C</b>															
2.0	320	240	40.0	35	52	70	1000	-30	+20	+20	37	108	0.656	1.312	XTK205(1)360POA
4.0	320	240	20.0	60	90	120	500	-30	+20	+20	41	175	0.656	1.781	XTM405(1)360POA
6.0	320	240	11.0	55	82	110	360	-35	+10	+20	80	258	0.875	1.635	XTL605(1)360POA
12	320	240	11.0	90	135	180	180	-35	+10	+20	105	314	0.875	2.420	XTH126(1)360POA
22	320	240	10.0	125	170	215	100	-40	+20	+35	126	323	1.125	1.705	XTV226(1)360POA
30	320	240	10.0	135	182	230	120	-40	+20	+35	133	323	1.125	1.705	XTV306(1)360POA
<b>450 V<sub>DC</sub> AT +85 °C</b>															
5.0	400	300	13.0	55	82	110	450	-35	+10	+20	98	262	0.875	2.000	XTL505(1)450POA
10	400	300	13.0	90	135	180	225	-35	+10	+20	130	318	0.875	2.980	XTH106(1)450POA
17	400	300	12.5	125	170	215	130	-40	+20	+35	152	315	1.125	2.080	XTV176(1)450POA
25	400	300	12.5	135	182	230	150	-40	+20	+35	164	315	1.125	2.080	XTV256(1)450POA
<b>540 V<sub>DC</sub> AT +85 °C</b>															
4.0	480	360	16.6	55	82	110	540	-35	+10	+20	114	250	0.875	2.365	XTL405(1)540POA
8.0	480	360	16.6	90	135	180	270	-35	+10	+20	154	306	0.875	3.532	XTH805(1)540POA
14	480	300	15.0	120	162	205	160	-40	+20	+35	178	309	1.125	2.435	XTV146(1)540POA
20	480	300	15.0	135	182	230	170	-40	+20	+35	196	309	1.125	2.435	XTV206(1)540POA
<b>630 V<sub>DC</sub> AT +85 °C</b>															
3.5	560	420	18.9	55	82	110	630	-35	+10	+20	133	249	0.875	2.720	XTL355(1)630POA
7.0	560	420	18.9	90	135	180	315	-35	+10	+20	179	308	0.875	4.062	XTH705(1)630POA
12	560	420	17.5	120	162	205	180	-40	+20	+35	204	306	1.125	2.810	XTV126T630POA
18	560	420	17.5	135	182	230	200	-40	+20	+35	225	306	1.125	2.810	XTV186(1)630POA

**Note**

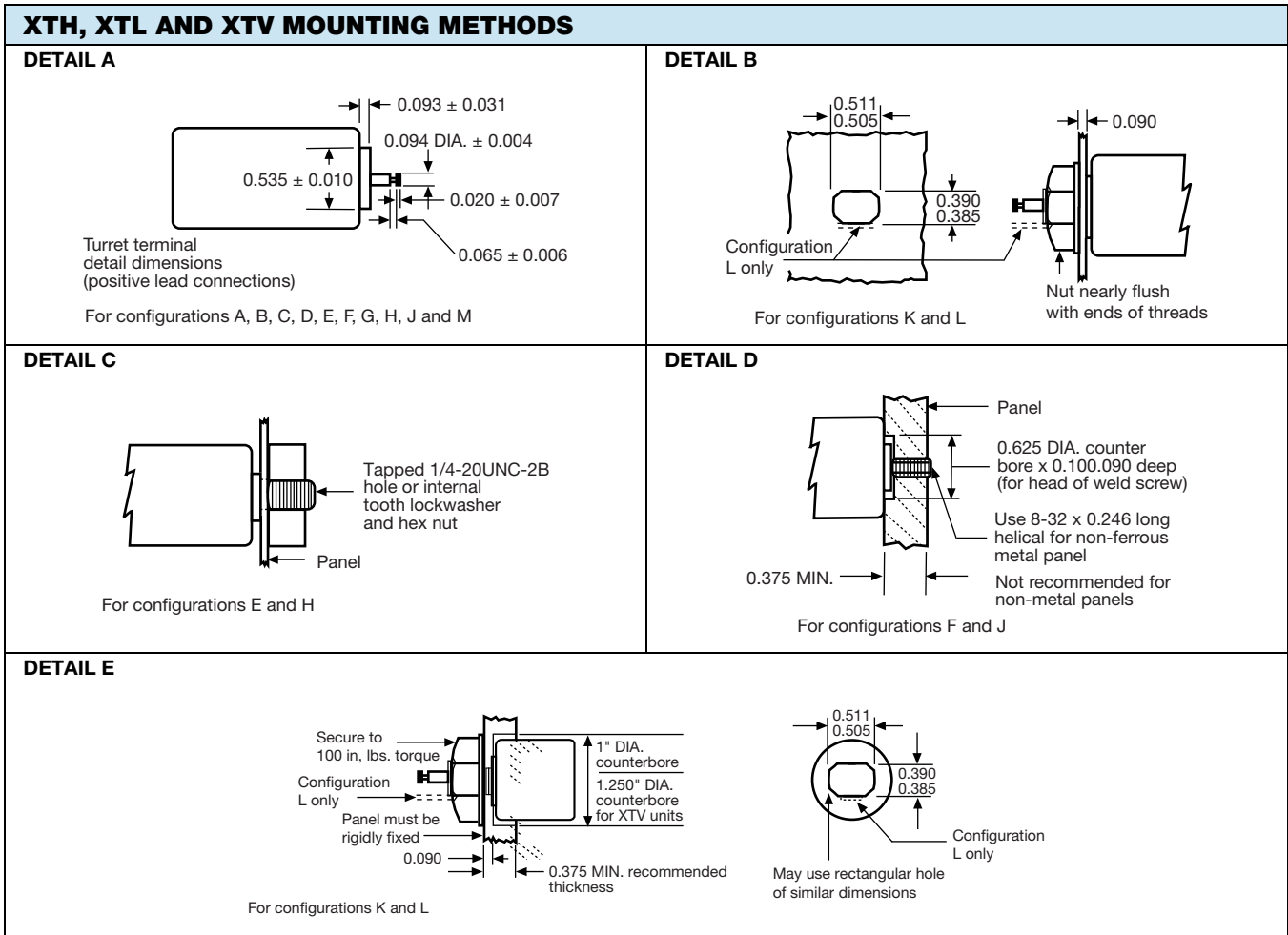
- Part number definitions:
  - (1) Tolerance code:
    - T = -15 % to +50 % (standard for XTK, XTM, XTV)
    - U = -15 % to +75 % (standard for XTH, XTL)
    - M = ± 20 % (available by special order)

XTH-L-V STYLES		
<p><b>STYLE A</b></p> <p>Top Bottom</p>	<p><b>STYLE B</b></p> <p>Top Bottom</p>	<p><b>STYLE C</b></p> <p>Top Bottom</p>
<p><b>STYLE D</b></p> <p>Top Bottom</p> <p>Negative screw lug is for indexing and negative connection only</p>	<p><b>STYLE E</b></p> <p>Top Bottom</p> <p>See Detail C in Mounting Methods table for suggested mounting methods</p>	<p><b>STYLE F</b></p> <p>Top Bottom</p> <p>See Detail D in Mounting Methods table for suggested mounting method</p>
<p><b>STYLE G</b></p> <p>Top Bottom</p> <p>Negative screw lug is for index and negative connection only</p>	<p><b>STYLE H</b></p> <p>Top Bottom</p> <p>See Detail C in Mounting Methods table for suggested mounting methods</p>	<p><b>STYLE J</b></p> <p>Top Bottom</p> <p>See Detail D in Mounting Methods table for suggested mounting methods</p>
<p><b>STYLE K</b></p> <p>Top Bottom</p> <p>See Details B and E in Mounting Methods table for suggested mounting methods</p>	<p><b>STYLE L</b></p> <p>Top Bottom</p> <p>See Detail B and E in Mounting Methods table for suggested mounting methods</p>	<p><b>STYLE M</b></p> <p>Top Bottom</p> <p>* Extends 0.125 on 0.875 DIA. units only</p>

<b>XTK-M STYLES</b>			
<b>STYLE A</b> 	<b>STYLE B</b> 	<b>STYLE C</b> 	<b>STYLE D</b> 
<b>STYLE E</b> 	<b>STYLE F</b> 	<b>STYLE G</b> 	<b>STYLE H</b> 

<b>POSITIVE TERMINALS FOR XTK AND XTM</b>			
<b>STYLE A</b> 	<b>STYLE B, C AND D</b> 	<b>STYLE E, G AND H</b> 	<b>STYLE F</b> 

<b>NEGATIVE TERMINALS FOR XTK AND XTM</b>			
<b>STYLE A</b> 	<b>STYLE B, E AND F</b> 	<b>STYLE C AND G</b> 	<b>STYLE D AND H</b> 



**Note**

- Standard mounting nut provided is plated steel. Stainless steel nut can be obtained by adding "/STN" suffix to part number

04022 RATINGS AND CASE CODES													
DLA DRAWING 04022 PIN	CAP. (NOM.) (µF)	CAP. TOLERANCE (%)	DC LEAKAGE MAX. (µA)			ESR MAX. 120 Hz 25 °C (Ω)	IMPEDANCE MAX. (Ω)	CAPACITANCE CHANGE (%)			RIPPLE CURRENT 1/ (mA)	DIMENSION L ± 0.062 (1.57) (INCHES)	FIGURE
			+25 °C	+85 °C	+125 °C			-55 °C	+85 °C	+125 °C			
<b>8 V<sub>DC</sub> AT +85 °C RATED; 9.2 V<sub>DC</sub> AT +85 °C SURGE</b>													
01	70	+50, -15	6	30	48	12	60	-60	+30	+30	137	0.438 (11.13)	1A
02	140	+50, -15	10	50	80	5.9	30	-60	+30	+30	213	0.562 (14.27)	1A
<b>10 V<sub>DC</sub> AT +85 °C RATED; 11.5 V<sub>DC</sub> AT +85 °C SURGE</b>													
03	50	+50, -15	5	25	40	11.7	75	-60	+30	+30	137	0.438 (11.13)	1A
04	100	+50, -15	9	45	72	5.9	40	-60	+30	+30	213	0.562 (14.27)	1A
<b>20 V<sub>DC</sub> AT +85 °C RATED; 23 V<sub>DC</sub> AT +85 °C SURGE</b>													
05	28	+50, -15	6	30	48	12	85	-40	+20	+20	137	0.438 (11.13)	1A
06	56	+50, -15	10	50	80	6	45	-40	+20	+20	213	0.562 (14.27)	1A
<b>30 V<sub>DC</sub> AT +85 °C RATED; 34.5 V<sub>DC</sub> AT +85 °C SURGE</b>													
07	20	+50, -15	7	35	56	11.7	125	-40	+20	+20	137	0.438 (11.13)	1A
08	40	+50, -15	12	60	96	5.9	75	-40	+20	+20	213	0.562 (14.27)	1A





04022 RATINGS AND CASE CODES													
DLA DRAWING 04022 PIN	CAP. (NOM.) (μF)	CAP. TOLERANCE (%)	DC LEAKAGE MAX. (μA)			ESR MAX. 120 Hz 25 °C (Ω)	IMPEDANCE MAX. (Ω)	CAPACITANCE CHANGE (%)			RIPPLE CURRENT I/ (mA)	DIMENSION L ± 0.062 (1.57) (INCHES)	FIGURE
			+25 °C	+85 °C	+125 °C			-55 °C	+85 °C	+125 °C			
			60 V <sub>DC</sub> AT +85 °C RATED; 69 V <sub>DC</sub> AT +85 °C SURGE										
09	12	+50, -15	7	35	56	12	180	-30	+20	+20	137	0.438 (11.13)	1A
10	25	+50, -15	12	60	96	6	90	-30	+20	+20	213	0.562 (14.27)	1A
90 V <sub>DC</sub> AT +85 °C RATED; 103 V <sub>DC</sub> AT +85 °C SURGE													
11	8.0	+50, -15	7	35	56	12	250	-30	+20	+20	137	0.438 (11.13)	1A
12	16	+50, -15	12	60	96	5.9	125	-30	+20	+20	213	0.562 (14.27)	1A
180 V <sub>DC</sub> AT +85 °C RATED; 207 V <sub>DC</sub> AT +85 °C SURGE													
13	4.0	+50, -15	7	35	56	24	500	-30	+20	+20	117	0.719 (18.26)	1A
14	8.0	+50, -15	12	60	96	12	250	-30	+20	+20	186	0.938 (23.83)	1A
270 V <sub>DC</sub> AT +85 °C RATED; 310 V <sub>DC</sub> AT +85 °C SURGE													
15	2.5	+50, -15	7	35	56	36	750	-30	+20	+20	112	1.031 (26.19)	1A
16	5.0	+50, -15	11	55	88	18	375	-30	+20	+20	179	1.375 (34.93)	1A
360 V <sub>DC</sub> AT +85 °C RATED; 414 V <sub>DC</sub> AT +85 °C SURGE													
17	2.0	+50, -15	7	35	56	48	1000	-30	+20	+20	108	1.312 (33.32)	1A
18	4.0	+50, -15	12	60	96	24	500	-30	+20	+20	175	1.781 (45.24)	1A
20 V <sub>DC</sub> AT +85 °C RATED; 23 V <sub>DC</sub> AT +85 °C SURGE													
19	100	+50, -15	10	50	80	3.3	30	-60	+15	+20	333	0.540 (13.72)	1B
20	200	+75, -15	16	80	128	2.8	20	-60	+15	+20	375	0.732 (18.59)	1B
30 V <sub>DC</sub> AT +85 °C RATED; 34.5 V <sub>DC</sub> AT +85 °C SURGE													
21	75	+75, -15	11	55	88	3.1	45	-45	+10	+10	333	0.540 (13.72)	1B
22	150	+75, -15	13	90	104	3	30	-45	+10	+10	375	0.732 (18.59)	1B
60 V <sub>DC</sub> AT +85 °C RATED; 69 V <sub>DC</sub> AT +85 °C SURGE													
23	40	+75, -15	12	60	96	3.2	65	-35	+10	+10	333	0.540 (13.72)	1B
24	80	+75, -15	19	95	152	3.1	35	-35	+10	+10	375	0.732 (18.59)	1B
90 V <sub>DC</sub> AT +85 °C RATED; 103 V <sub>DC</sub> AT +85 °C SURGE													
25	25	+75, -15	11	55	88	3.2	90	-35	+10	+10	333	0.540 (13.72)	1B
26	50	+75, -15	18	90	144	3.1	45	-35	+10	+10	375	0.732 (18.59)	1B
180 V <sub>DC</sub> AT +85 °C RATED; 207 V <sub>DC</sub> AT +85 °C SURGE													
27	12	+75, -15	11	55	88	6.6	180	-35	+10	+10	282	0.920 (23.37)	1B
28	25	+75, -15	18	90	144	6.2	90	-35	+10	+10	341	1.300 (33.02)	1B
270 V <sub>DC</sub> AT +85 °C RATED; 310 V <sub>DC</sub> AT +85 °C SURGE													
29	8.0	+75, -15	11	55	88	9.9	270	-35	+10	+10	266	1.270 (32.36)	1B
30	16	+75, -15	18	90	144	9.8	135	-35	+10	+10	320	1.865 (47.37)	1B
360 V <sub>DC</sub> AT +85 °C RATED; 414 V <sub>DC</sub> AT +85 °C SURGE													
31	6.0	+75, -15	11	55	88	13	360	-35	+10	+10	258	1.635 (41.53)	1B
32	12	+75, -15	18	90	144	13	180	-35	+10	+10	314	2.420 (61.47)	1B
450 V <sub>DC</sub> AT +85 °C RATED; 518 V <sub>DC</sub> AT +85 °C SURGE													
33	5.0	+75, -15	11	55	88	15	450	-35	+10	+10	252	2.000 (50.80)	1B
34	10	+75, -15	18	90	144	15	225	-35	+10	+10	308	2.980 (75.69)	1B
540 V <sub>DC</sub> AT +85 °C RATED; 621 V <sub>DC</sub> AT +85 °C SURGE													
35	4.0	+75, -15	11	55	88	20	540	-35	+10	+10	250	2.365 (60.07)	1B
36	8.0	+75, -15	18	90	144	20	270	-35	+10	+10	308	3.532 (89.71)	1B
630 V <sub>DC</sub> AT +85 °C RATED; 724 V <sub>DC</sub> AT +85 °C SURGE													
37	3.5	+75, -15	11	55	88	22	630	-35	+10	+10	250	2.720 (69.09)	1B

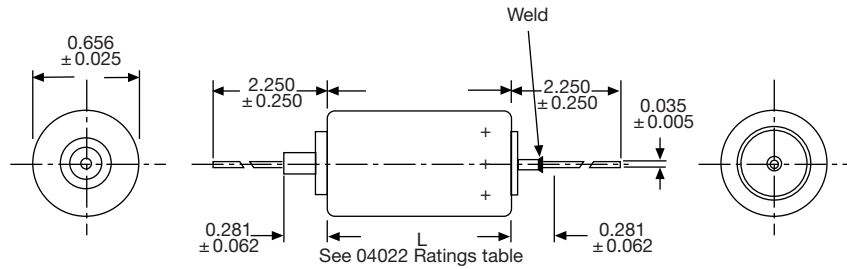




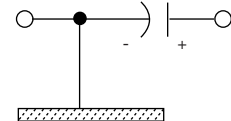
04022 RATINGS AND CASE CODES													
DLA DRAWING 04022 PIN	CAP. (NOM.) (µF)	CAP. TOLERANCE (%)	DC LEAKAGE MAX. (µA)			ESR MAX. 120 Hz 25 °C (Ω)	IMPEDANCE MAX. (Ω)	CAPACITANCE CHANGE (%)			RIPPLE CURRENT 1/ (mA)	DIMENSION L ± 0.062 (1.57) (INCHES)	FIGURE
			+25 °C	+85 °C	+125 °C			-55 °C	+85 °C	+125 °C			
			30 V <sub>DC</sub> AT +85 °C RATED; 34.5 V <sub>DC</sub> AT +85 °C SURGE										
39	370	± 20	18	125	180	1.7	15	-65	+20	+25	550	0.600 (15.24)	1C
40	370	+50, -15	18	125	180	1.7	15	-65	+20	+25	550	0.600 (15.24)	1C
41	650	± 20	21	145	210	1.8	15	-85	+20	+25	694	1.100 (27.94)	1C
42	650	+50, -15	21	145	210	1.8	15	-85	+20	+25	694	1.100 (27.94)	1C
43	1300	± 20	27	190	270	1.8	10	-85	+20	+25	694	1.100 (27.94)	1C
44	1300	+50, -15	27	190	270	1.8	10	-85	+20	+25	694	1.100 (27.94)	1C
60 V <sub>DC</sub> AT +85 °C RATED; 69 V <sub>DC</sub> AT +85 °C SURGE													
45	200	± 20	19	135	190	1.8	30	-50	+20	+25	550	0.600 (15.24)	1C
46	200	+50, -15	19	135	190	1.8	30	-50	+20	+25	550	0.600 (15.24)	1C
47	350	± 20	22	155	220	1.8	25	-70	+20	+25	694	1.100 (27.94)	1C
48	350	+50, -15	22	155	220	1.8	25	-70	+20	+25	694	1.100 (27.94)	1C
49	700	± 20	29	200	290	1.8	15	-70	+20	+25	694	1.100 (27.94)	1C
50	700	+50, -15	29	200	290	1.8	15	-70	+20	+25	694	1.100 (27.94)	1C
90 V <sub>DC</sub> AT +85 °C RATED; 103 V <sub>DC</sub> AT +85 °C SURGE													
51	120	± 20	19	135	190	1.7	40	-40	+20	+25	550	0.600 (15.24)	1C
52	120	+50, -15	19	135	190	1.7	40	-40	+20	+25	550	0.600 (15.24)	1C
53	220	± 20	21	145	210	1.8	30	-60	+20	+25	694	1.100 (27.94)	1C
54	220	+50, -15	21	145	210	1.8	30	-60	+20	+25	694	1.100 (27.94)	1C
55	450	± 20	29	195	290	1.7	35	-60	+20	+25	694	1.100 (27.94)	1C
56	450	+50, -15	29	195	290	1.7	35	-60	+20	+25	694	1.100 (27.94)	1C
180 V <sub>DC</sub> AT +85 °C RATED; 207 V <sub>DC</sub> AT +85 °C SURGE													
57	42	± 20	17	120	170	6	75	-40	+20	+25	363	0.976 (24.79)	1C
58	42	+50, -15	17	120	170	6	75	-40	+20	+25	363	0.976 (24.79)	1C
59	60	± 20	19	135	190	3.4	60	-40	+20	+25	363	0.976 (24.79)	1C
60	60	+50, -15	19	135	190	3.4	60	-40	+20	+25	363	0.976 (24.79)	1C
61	110	± 20	21	145	210	3.5	60	-60	+20	+25	631	1.938 (49.23)	1C
62	110	+50, -15	21	145	210	3.5	60	-60	+20	+25	631	1.938 (49.23)	1C
63	230	± 20	29	200	290	3.5	50	-60	+20	+25	631	1.938 (49.23)	1C
64	230	+50, -15	29	200	290	3.5	50	-60	+20	+25	631	1.938 (49.23)	1C
270 V <sub>DC</sub> AT +85 °C RATED; 310 V <sub>DC</sub> AT +85 °C SURGE													
65	28	± 20	19	120	190	9	80	-40	+20	+25	339	1.350 (34.29)	1C
66	28	+50, -15	19	120	190	9	80	-40	+20	+25	339	1.350 (34.29)	1C
67	40	± 20	19	135	190	8.8	100	-40	+20	+25	339	1.350 (34.29)	1C
68	40	+50, -15	19	135	190	8.8	100	-40	+20	+25	339	1.350 (34.29)	1C
69	75	± 20	21	145	210	5.2	90	-60	+20	+25	608	2.812 (71.42)	1C
70	75	+50, -15	21	145	210	5.2	90	-60	+20	+25	608	2.812 (71.42)	1C
71	150	± 20	28	195	280	5.4	75	-60	+20	+25	608	2.812 (71.42)	1C
72	150	+50, -15	28	195	280	5.4	75	-60	+20	+25	608	2.812 (71.42)	1C
360 V <sub>DC</sub> AT +85 °C RATED; 414 V <sub>DC</sub> AT +85 °C SURGE													
73	22	± 20	18	125	180	11.4	100	-40	+20	+25	323	1.705 (43.31)	1C
74	22	+50, -15	18	125	180	11.6	100	-40	+20	+25	323	1.705 (43.31)	1C
75	30	± 20	19	135	190	11.7	120	-40	+20	+25	323	1.705 (43.31)	1C
76	30	+50, -15	19	135	190	11.7	120	-40	+20	+25	323	1.705 (43.31)	1C
450 V <sub>DC</sub> AT +85 °C RATED; 518 V <sub>DC</sub> AT +85 °C SURGE													
77	17	± 20	18	125	180	15	130	-40	+20	+25	315	2.080 (52.83)	1C
78	17	+50, -15	18	125	180	15	130	-40	+20	+25	315	2.080 (52.83)	1C
79	25	± 20	19	135	190	15	150	-40	+20	+25	315	2.080 (52.83)	1C
80	25	+50, -15	19	135	190	15	150	-40	+20	+25	315	2.080 (52.83)	1C
540 V <sub>DC</sub> AT +85 °C RATED; 621 V <sub>DC</sub> AT +85 °C SURGE													
81	14	± 20	17	120	170	18	160	-40	+20	+25	309	2.435 (61.85)	1C
82	14	+50, -15	17	120	170	18	160	-40	+20	+25	309	2.435 (61.85)	1C
83	20	± 20	19	135	190	18	170	-40	+20	+25	309	2.435 (61.85)	1C
84	20	+50, -15	19	135	190	18	170	-40	+20	+25	309	2.435 (61.85)	1C
630 V <sub>DC</sub> AT +85 °C RATED; 724 V <sub>DC</sub> AT +85 °C SURGE													
85	12	± 20	17	120	170	16	180	-40	+20	+25	306	2.810 (71.37)	1C
86	12	+50, -15	17	120	170	16	180	-40	+20	+25	306	2.810 (71.37)	1C
87	18	± 20	19	135	190	16	200	-40	+20	+25	306	2.810 (71.37)	1C
88	18	+50, -15	19	135	190	16	200	-40	+20	+25	306	2.810 (71.37)	1C

**FIGURES**

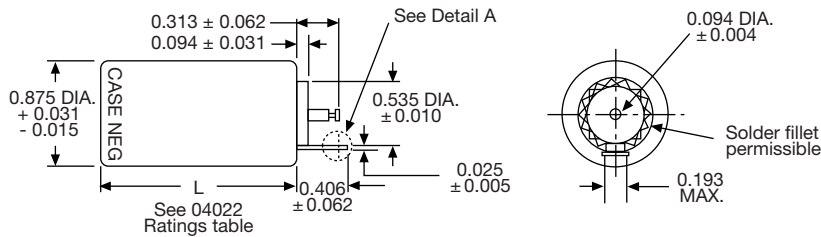
**FIGURE 1A**



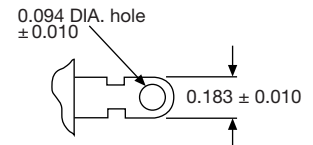
**CASE CIRCUIT DIAGRAM**



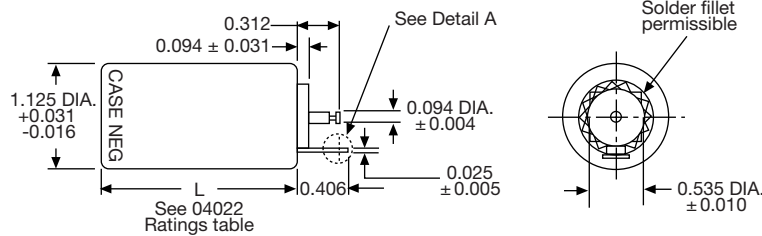
**FIGURE 1B**



**DETAIL A  
SOLDER LUG  
TERMINAL**



**FIGURE 1C**





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