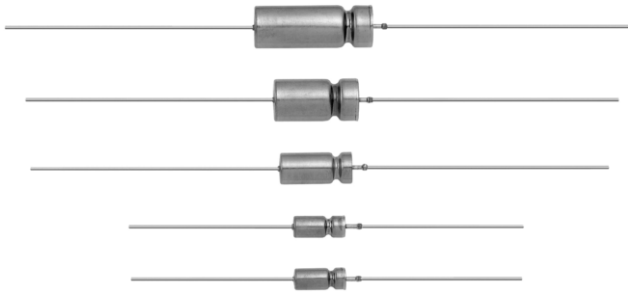


## Wet Tantalum Capacitors Tantalum-Case with Glass-to-Tantalum Hermetic Seal for - 55 °C to + 200 °C Operation



### FEATURES

- Terminations: standard tin/lead (SnPb), 100 % tin (RoHS compliant) available
- Standard and extended ratings
- Model 135D tantalum-case electrolytic capacitors incorporate the advantages of all the varieties of electrolytic capacitors and eliminate most of the disadvantages. These units have a 3 V reverse voltage capability at + 85 °C and a higher ripple current capability than any other electrolytic type with similar combinations of capacitance and case size.
- Designed for the aerospace applications, this capacitor was developed under partial sponsorship of the Marshall Space Flight Center, National Aeronautics and Space Administration. The capacitors have a high resistance to damage from shock and vibration. Extended range ratings and high temperature designs are available.
- Model 135D capacitors are commercial equivalents of Tansitor Style; AQ, AR, HAQ, HAR, Mallory-NACC Style; TLT, TXT, THT, THX and Military Style CLR79 and CLR81, designed to meet the performance requirements of Military Specification MIL-PRF-39006/22/25. Capacitors to meet MIL-PRF-39006/22/25 should be ordered by part numbers shown in that specification.
- Compliant to RoHS directive 2002/95/EC



**RoHS\***  
COMPLIANT

### PERFORMANCE CHARACTERISTICS

**Operating Temperature:** - 55 °C to + 85 °C  
(To + 200 °C with voltage derating)

**Capacitance Tolerance:** At 120 Hz, + 25 °C. ± 20 % standard. ± 10 %, ± 5 % available as special.

**DC Leakage Current (DCL Max.):** At + 25 °C and above: Leakage current shall not exceed the values listed in the Standard Ratings Tables.

**Life Test:** Capacitors are capable of withstanding a 2000 h life test at a temperature of + 85 °C or + 125 °C at the applicable rated DC working voltage.

Following life test:

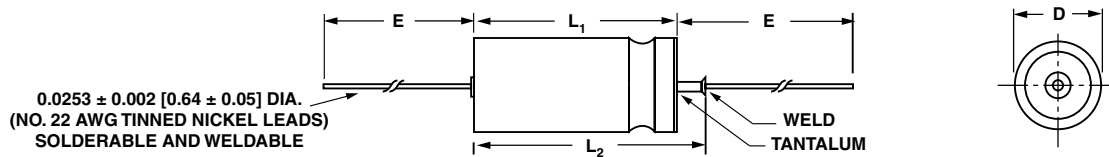
1. DCL, measured at + 85 °C rated voltage, shall not be in excess of the original requirement.
2. The equivalent series resistance shall not exceed 150 % of the initial requirement.
3. Change in capacitance shall not exceed 10 % from the initial measurement.

ORDERING INFORMATION						
135D	306	X0	006	C	2	E3
MODEL	CAPACITANCE	CAPACITANCE TOLERANCE	DC VOLTAGE RATING AT + 85 °C	CASE CODE	STYLE NUMBER	RoHS COMPLIANT
	This is expressed in picofarads. The first two digits are the significant figures. The third is the number of zeros to follow	X0 = ± 20 % X9 = ± 10 % X5 = ± 5 %	This is expressed in volts. To complete the three-digit block, zeros precede the voltage rating. A decimal point is indicated by an "R" (6R3 = 6.3 V)	See Ratings and Case Codes Table	Std. temperature (max. + 125 °C) 0 = No insulating sleeve 2 = Polyester insulation sleeve 3 = High temperature film insulation  High temperature (max. + 200 °C) 6 = High temperature film insulation 8 = No insulating sleeve	E3 = 100 % tin termination (RoHS compliant design) Blank = SnPb termination (standard design)

#### Note

**Packaging:** The use of formed plastic trays for packaging these axial lead components is standard. Tape and reel is not recommended due to the unit weight.

\* Pb containing terminations are not RoHS compliant, exemptions may apply

**Wet Tantalum Capacitors Tantalum-Case with Glass-to-Tantalum  
Hermetic Seal for - 55 °C to + 200 °C Operation**
**DIMENSIONS in inches [millimeters]**


CASE CODE		D	L <sub>1</sub>	L <sub>2</sub> (Max.)	E	WEIGHT (g) (Max.)
TYPE 135D	DCLR 79/81 EQUIV.					
C	T1	0.188 ± 0.016 [4.78 ± 0.41]	0.453 + 0.031 - 0.016 [11.51 + 0.79 - 0.41]	0.734 [18.64]	1.500 ± 0.250 [38.10 ± 6.35]	2.6
F	T2	0.281 ± 0.016 [7.14 ± 0.41]	0.641 + 0.031 - 0.016 [16.28 + 0.79 - 0.41]	0.922 [23.42]	2.250 ± 0.250 [57.15 ± 6.35]	6.2
T	T3	0.375 ± 0.016 [9.53 ± 0.41]	0.766 + 0.031 - 0.016 [19.46 + 0.79 - 0.41]	1.047 [26.59]	2.250 ± 0.250 [57.15 ± 6.35]	11.6
K	T4	0.375 ± 0.016 [9.53 ± 0.41]	1.062 + 0.031 - 0.016 [26.97 + 0.79 - 0.41]	1.343 [34.11]	2.250 ± 0.250 [57.15 ± 6.35]	17.7

**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**

CAPACITANCE (µF)	CASE CODE	PART NUMBER (1)	MAX. ESR	MAX. IMP.	MAX. DCL (µA)		MAX. CAPACITANCE CHANGE (%) at			MAX. RIPPLE 40 kHz I <sub>rms</sub>
			at + 25 °C 120 Hz	at - 55 °C 120 Hz	at + 25 °C	at + 85 °C + 125 °C	- 55 °C	+ 85 °C	+ 125 °C	
<b>6 WVDC at + 85 °C ... 4 WVDC at + 125 °C ... 3.6 WVDC at + 200 °C</b>										
30	C	135D306X0006C2	4.0	100	1.0	2.0	- 40	+ 10.5	+ 12	820
68	C	135D686X0006C2	3.2	60	1.0	2.0	- 40	+ 14	+ 16	960
140	F	135D147X0006F2	2.0	40	1.0	3.0	- 40	+ 14	+ 16	1200
270	F	135D277X0006F2	2.2	25	1.0	6.5	- 44	+ 17.5	+ 20	1375
330	T	135D337X0006T2	1.4	20	2.0	7.9	- 44	+ 14	+ 16	1800
560	T	135D567X0006T2	1.3	25	2.0	13.0	- 64	+ 17.5	+ 20	1900
1200	K	135D128X0006K2	1.0	20	3.0	14.0	- 80	+ 25	+ 25	2265
<b>8 WVDC at + 85 °C ... 5 WVDC at + 125 °C ... 4.8 WVDC at + 200 °C</b>										
25	C	135D256X0008C2	4.0	100	1.0	2.0	- 40	+ 10.5	+ 12	820
56	C	135D566X0008C2	3.3	59	1.0	2.0	- 40	+ 14	+ 16	900
120	F	135D127X0008F2	2.6	50	1.0	2.0	- 44	+ 17.5	+ 20	1230
220	F	135D227X0008F2	2.4	30	1.0	7.0	- 44	+ 17.5	+ 20	1370
290	T	135D297X0008T2	1.8	25	2.0	6.0	- 64	+ 17.5	+ 20	1770
430	T	135D437X0008T2	1.4	25	2.0	14.0	- 64	+ 17.5	+ 20	1825
850	K	135D857X0008K2	1.0	22	4.0	16.0	- 80	+ 25	+ 25	2330
<b>10 WVDC at + 85 °C ... 7 WVDC at + 125 °C ... 6 WVDC at + 200 °C</b>										
20	C	135D206X0010C2	4.0	120	1.0	2.0	- 32	+ 10.5	+ 12	820
47	C	135D476X0010C2	3.7	90	1.0	2.0	- 36	+ 14	+ 16	855
100	F	135D107X0010F2	2.4	60	1.0	4.0	- 36	+ 14	+ 16	1200
180	F	135D187X0010F2	2.2	40	1.0	7.0	- 36	+ 14	+ 16	1365
250	T	135D257X0010T2	1.8	30	2.0	10.0	- 40	+ 14	+ 16	1720
390	T	135D397X0010T2	1.5	25	2.0	16.0	- 64	+ 17.5	+ 20	1800
750	K	135D757X0010K2	1.0	23	4.0	16.0	- 80	+ 25	+ 25	2360
<b>15 WVDC at + 85 °C ... 10 WVDC at + 125 °C ... 9 WVDC at + 200 °C</b>										
15	C	135D156X0015C2	4.4	155	1.0	2.0	- 24	+ 10.5	+ 12	780
33	C	135D336X0015C2	4.0	90	1.0	2.0	- 28	+ 14	+ 16	820
70	F	135D706X0015F2	2.8	75	1.0	4.0	- 28	+ 14	+ 16	1150
120	F	135D127X0015F2	2.6	50	1.0	7.0	- 28	+ 17.5	+ 20	1450
170	T	135D177X0015T2	2.4	35	2.0	10.0	- 32	+ 14	+ 16	1480
270	T	135D277X0015T2	2.2	30	2.0	16.0	- 56	+ 17.5	+ 20	1740
540	K	135D547X0015K2	1.0	23	6.0	24.0	- 80	+ 25	+ 25	2330

**Note**

- (1) Part Numbers are for units with ± 20 % capacitance tolerance, standard + 125 °C maximum temperature, standard polyesterfilm insulation, and tin-lead terminations. For other capacitance tolerances, other maximum temperatures, insulation and termination options, please consult ORDERING INFORMATION on page 1 for proper part number.

STANDARD RATINGS												
CAPACITANCE ( $\mu$ F)	CASE CODE	PART NUMBER <sup>(1)</sup>	MAX. ESR		MAX. IMP.		MAX. DCL ( $\mu$ A)		MAX. CAPACITANCE CHANGE (%) at			MAX. RIPPLE 40 kHz rms
			at + 25 °C 120 Hz	at - 55 °C 120 Hz	at + 25 °C	at + 85 °C + 125 °C	at - 55 °C	at + 85 °C	at + 125 °C			
<b>25 WVDC at + 85 °C ... 15 WVDC at + 125 °C ... 12 WVDC at + 200 °C</b>												
10	C	135D106X0025C2	5.3	220	1.0	2.0	- 16	+ 8	+ 9	715		
22	C	135D226X0025C2	4.2	140	1.0	2.0	- 20	+ 10.5	+ 12	800		
50	F	135D506X0025F2	3.0	70	1.0	2.0	- 28	+ 13	+ 15	1130		
100	F	135D107X0025F2	2.8	50	1.0	10.0	- 28	+ 13	+ 15	1435		
120	T	135D127X0025T2	2.6	38	2.0	6.0	- 32	+ 13	+ 15	1450		
180	T	135D187X0025T2	2.2	32	2.0	18.0	- 48	+ 13	+ 15	1525		
350	K	135D357X0025K2	1.3	24	7.0	28.0	- 70	+ 25	+ 25	1970		
<b>30 WVDC at + 85 °C ... 20 WVDC at + 125 °C ... 18 WVDC at + 200 °C</b>												
8	C	135D805X0030C2	6.6	275	1.0	2.0	- 16	+ 8	+ 12	640		
15	C	135D156X0030C2	6.2	175	1.0	2.0	- 20	+ 10.5	+ 12	780		
22	F	135D226X0030F2	4.6	95	1.0	5.0	- 20	+ 10.5	+ 12	1005		
40	F	135D406X0030F2	4.0	65	1.0	5.0	- 24	+ 10.5	+ 12	1120		
68	F	135D686X0030F2	2.9	60	1.0	8.0	- 24	+ 13	+ 15	1285		
100	T	135D107X0030T2	2.7	40	2.0	12.0	- 28	+ 10.5	+ 12	1450		
150	T	135D157X0030T2	2.3	35	2.0	18.0	- 48	+ 13	+ 15	1525		
300	K	135D307X0030K2	1.4	25	8.0	32.0	- 60	+ 25	+ 25	1950		
<b>35 WVDC at + 85 °C ... 22 WVDC at + 125 °C ... 21 WVDC at + 200 °C</b>												
15	C	135D156X0035C2	6.2	175	0.75	1.5	- 20	+ 10.5	+ 12	660		
68	F	135D686X0035F2	2.9	60	1.0	2.0	- 24	+ 13	+ 15	1195		
270	K	135D277X0035K2	1.4	26	3.0	12.0	- 58	+ 25	+ 25	1950		
<b>50 WVDC at + 85 °C ... 30 WVDC at + 125 °C ... 30 WVDC at + 200 °C</b>												
5	C	135D505X0050C2	8.0	400	1.0	2.0	- 16	+ 5	+ 6	580		
10	C	135D106X0050C2	6.4	250	1.0	2.0	- 24	+ 8	+ 9	715		
25	F	135D256X0050F2	4.6	95	1.0	5.0	- 20	+ 10.5	+ 12	1005		
47	F	135D476X0050F2	3.7	70	1.0	9.0	- 28	+ 13	+ 15	1155		
60	T	135D606X0050T2	2.9	45	2.0	12.0	- 16	+ 10.5	+ 12	1335		
82	T	135D826X0050T2	2.5	45	2.0	16.0	- 32	+ 13	+ 15	1400		
160	K	135D167X0050K2	1.5	27	8.0	32.0	- 50	+ 25	+ 25	1900		
<b>60 WVDC at + 85 °C ... 40 WVDC at + 125 °C ... 36 WVDC at + 200 °C</b>												
4	C	135D405X0060C2	9.3	550	1.0	2.0	- 16	+ 5	+ 6	525		
8.2	C	135D825X0060C2	6.6	275	1.0	2.0	- 24	+ 8	+ 9	625		
20	F	135D206X0060F2	4.7	105	1.0	5.0	- 16	+ 8	+ 9	930		
39	F	135D396X0060F2	3.4	90	1.0	9.0	- 28	+ 10.5	+ 15	1110		
50	T	135D506X0060T2	2.9	50	2.0	12.0	- 16	+ 10.5	+ 12	1330		
68	T	135D686X0060T2	2.5	50	2.0	16.0	- 32	+ 10.5	+ 15	1365		
140	K	135D147X0060K2	1.5	28	8.0	32.0	- 40	+ 20	+ 20	1850		
<b>75 WVDC at + 85 °C ... 50 WVDC at + 125 °C ... 45 WVDC at + 200 °C</b>												
3.5	C	135D355X0075C2	9.5	650	1.0	2.0	- 16	+ 5	+ 6	525		
6.8	C	135D685X0075C2	6.8	300	1.0	2.0	- 20	+ 8	+ 9	610		
15	F	135D156X0075F2	5.3	150	1.0	5.0	- 16	+ 8	+ 9	890		
33	F	135D336X0075F2	4.2	90	1.0	10.0	- 24	+ 10.5	+ 15	1000		
40	T	135D406X0075T2	3.0	60	2.0	12.0	- 16	+ 10.5	+ 12	1250		
56	T	135D566X0075T2	2.6	60	2.0	17.0	- 28	+ 10.5	+ 15	1335		
110	K	135D117X0075K2	1.5	29	9.0	36.0	- 35	+ 20	+ 20	1850		

**Note**

<sup>(1)</sup> Part Numbers are for units with  $\pm 20\%$  capacitance tolerance, standard + 125 °C maximum temperature, standard polyesterfilm insulation, and tin-lead terminations. For other capacitance tolerances, other maximum temperatures, insulation and termination options, please consult ORDERING INFORMATION on page 1 for proper part number.



Wet Tantalum Capacitors Tantalum-Case with Glass-to-Tantalum  
Hermetic Seal for - 55 °C to + 200 °C Operation

STANDARD RATINGS										
CAPACITANCE ( $\mu$ F)	CASE CODE	PART NUMBER <sup>(1)</sup>	MAX. ESR	MAX. IMP.	MAX. DCL ( $\mu$ A)		MAX. CAPACITANCE CHANGE (%) at			MAX. RIPPLE 40 kHz rms
			at + 25 °C 120 Hz	at - 55 °C 120 Hz	at + 25 °C	at + 85 °C + 125 °C	- 55 °C	+ 85 °C	+ 125 °C	
<b>100 WVDC at + 85 °C . . . 65 WVDC at + 125 °C . . . 60 WVDC at + 200 °C</b>										
2.5	C	135D255X0100C2	10.6	950	1.0	2.0	- 16	+ 7	+ 8	505
4.7	C	135D475X0100C2	8.5	500	1.0	2.0	- 16	+ 7	+ 8	565
11	F	135D116X0100F2	6.0	200	1.0	4.0	- 16	+ 7	+ 8	835
22	F	135D226X0100F2	4.8	100	1.0	9.0	- 16	+ 7	+ 8	965
30	T	135D306X0100T2	3.3	80	2.0	12.0	- 16	+ 7	+ 8	1240
43	T	135D436X0100T2	2.6	70	2.0	17.0	- 20	+ 7	+ 8	1335
82	K	135D826X0100K2	1.6	39	3.0	24	- 24	+ 18	+ 18	1860
86	K	135D866X0100K2	1.6	30	9.0	36.0	- 25	+ 15	+ 15	1800
<b>125 WVDC at + 85 °C . . . 85 WVDC at + 125 °C . . . 75 WVDC at + 200 °C</b>										
1.7	C	135D175X0125C2	15.6	1250	1.0	2.0	- 16	+ 7	+ 8	415
3.6	C	135D365X0125C2	10.0	600	1.0	2.0	- 16	+ 7	+ 8	520
9	F	135D905X0125F2	7.4	240	1.0	5.0	- 16	+ 7	+ 8	755
14	F	135D146X0125F2	5.7	167	1.0	7.0	- 16	+ 7	+ 8	860
18	T	135D186X0125T2	3.7	129	2.0	9.0	- 16	+ 7	+ 8	1130
25	T	135D256X0125T2	3.2	93	2.0	13.0	- 16	+ 7	+ 8	1200
56	K	135D566X0125K2	1.6	32	10.0	40.0	- 25	+ 15	+ 15	1800

**Note**

<sup>(1)</sup> Part Numbers are for units with  $\pm$  20 % capacitance tolerance, standard + 125 °C maximum temperature, standard polyesterfilm insulation, and tin-lead terminations. For other capacitance tolerances, other maximum temperatures, insulation and termination options, please consult ORDERING INFORMATION on page 1 for proper part number.

EXTENDED RATINGS										
CAPACITANCE ( $\mu$ F)	CASE CODE	PART NUMBER <sup>(1)</sup>	MAX. ESR	MAX. IMP.	MAX. DCL ( $\mu$ A)		MAX. CAPACITANCE CHANGE (%) at			MAX. RIPPLE 40 kHz rms
			at + 25 °C 120 Hz	at - 55 °C 120 Hz	at + 25 °C	at + 85 °C + 125 °C	- 55 °C	+ 85 °C	+ 125 °C	
<b>6 WVDC at + 85 °C . . . 4 WVDC at + 125 °C . . . 3.6 WVDC at + 200 °C</b>										
220	C	135D227X0006C2	3.0	36	2	9	- 64	+ 13	+ 16	1000
560	F	135D567X0006F2	2.5	21	3	9	- 77	+ 16	+ 20	1500
820	F	135D827X0006F2	2.5	18	3	14	- 88	+ 16	+ 20	1500
1200	T	135D128X0006T2	1.5	18	5	18	- 88	+ 20	+ 25	1900
1500	T	135D158X0006T2	1.5	18	5	20	- 90	+ 20	+ 25	1900
2200	K	135D228X0006K2	1.0	13	6	24	- 90	+ 25	+ 30	2300
<b>8 WVDC at + 85 °C . . . 5 WVDC at + 125 °C . . . 4.8 WVDC at + 200 °C</b>										
180	C	135D187X0008C2	3.0	45	2	9	- 60	+ 13	+ 16	1000
680	F	135D687X0008F2	2.5	22	3	14	- 83	+ 16	+ 20	1500
1500	T	135D158X0008T2	1.5	18	5	20	- 90	+ 20	+ 25	1900
1800	K	135D188X0008K2	1.0	14	7	25	- 90	+ 25	+ 30	2300
<b>10 WVDC at + 85 °C . . . 7 WVDC at + 125 °C . . . 6 WVDC at + 200 °C</b>										
120	C	135D127X0010C2	3.2	54	2	6	- 40	+ 14	+ 16	900
150	C	135D157X0010C2	3.0	54	2	9	- 55	+ 13	+ 16	900
390	F	135D397X0010F2	2.5	27	3	9	- 66	+ 16	+ 20	1450
560	F	135D567X0010F2	2.5	27	3	16	- 77	+ 16	+ 20	1450
1200	T	135D128X0010T2	1.5	18	5	20	- 88	+ 20	+ 25	1850
1500	K	135D158X0010K2	1.0	15	7	25	- 88	+ 25	+ 30	2300

**Note**

<sup>(1)</sup> Part Numbers are for units with  $\pm$  20 % capacitance tolerance, standard + 125 °C maximum temperature, standard polyesterfilm insulation, and tin-lead terminations. For other capacitance tolerances, other maximum temperatures, insulation and termination options, please consult ORDERING INFORMATION on page 1 for proper part number.

<b>EXTENDED RATINGS</b>										
CAPACITANCE ( $\mu$ F)	CASE CODE	PART NUMBER (1)	MAX. ESR	MAX. IMP.	MAX. DCL ( $\mu$ A)		MAX. CAPACITANCE CHANGE (%) at			MAX. RIPPLE 40 kHz rms
			at + 25 °C 120 Hz	at - 55 °C 120 Hz	at + 25 °C	at + 85 °C + 125 °C	- 55 °C	+ 85 °C	+ 125 °C	
<b>15 WVDC at + 85 °C ... 10 WVDC at + 125 °C ... 9 WVDC at + 200 °C</b>										
82	C	135D826X0015C2	3.9	72	2	6	- 35	+ 12	+ 16	900
100	C	135D107X0015C2	3.9	72	2	9	- 44	+ 13	+ 16	900
270	F	135D277X0015F2	2.5	31	3	9	- 62	+ 16	+ 15	1450
390	F	135D397X0015F2	2.5	31	3	16	- 66	+ 16	+ 20	1450
680	T	135D687X0015T2	1.8	22	6	18	- 74	+ 20	+ 25	1800
820	T	135D827X0015T2	1.8	22	6	24	- 77	+ 20	+ 25	1800
1000	K	135D108X0015K2	1.2	17	8	32	- 77	+ 25	+ 30	2330
<b>25 WVDC at + 85 °C ... 15 WVDC at + 125 °C ... 12 WVDC at + 200 °C</b>										
47	C	135D476X0025C2	5.2	100	2	6	- 23	+ 12	+ 15	800
56	C	135D566X0025C2	4.3	90	2	6	- 25	+ 12	+ 15	850
68	C	135D686X0025C2	4.3	90	2	9	- 40	+ 12	+ 15	850
180	F	135D187X0025F2	2.7	33	3	9	- 54	+ 13	+ 15	1400
270	F	135D277X0025F2	2.7	33	3	16	- 62	+ 13	+ 16	1400
390	T	135D397X0025T2	1.8	25	6	18	- 55	+ 18	+ 25	1500
470	T	135D477X0025T2	1.8	24	6	18	- 65	+ 18	+ 25	1750
560	T	135D567X0025T2	1.8	24	7	28	- 72	+ 20	+ 25	1750
680	K	135D687X0025K2	1.2	19	8	32	- 72	+ 25	+ 30	2100
<b>30 WVDC at + 85 °C ... 20 WVDC at + 125 °C ... 18 WVDC at + 200 °C</b>										
47	C	135D476X0030C2	5.2	100	2	6	- 23	+ 12	+ 15	800
56	C	135D566X0030C2	5.2	100	2	9	- 38	+ 12	+ 15	800
150	F	135D157X0030F2	2.5	36	3	9	- 42	+ 13	+ 15	1200
220	F	135D227X0030F2	2.5	36	3	16	- 60	+ 13	+ 16	1200
390	T	135D397X0030T2	1.8	25	6	18	- 55	+ 18	+ 25	1500
470	T	135D477X0030T2	1.8	25	8	32	- 65	+ 20	+ 25	1500
560	K	135D567X0030K2	1.3	20	9	36	- 65	+ 25	+ 30	2000
<b>35 WVDC at + 85 °C ... 22 WVDC at + 125 °C ... 21 WVDC at + 200 °C</b>										
39	C	135D396X0035C2	4.1	61	2	6	- 22	+ 12	+ 14	820
120	F	135D127X0035F2	2.5	31	3	10	- 40	+ 13	+ 15	1315
330	T	135D337X0035T2	1.8	20	6	18	- 50	+ 16	+ 25	1640
370	K	135D377X0035K2	1.3	15	9	36	- 60	+ 25	+ 30	2040
<b>40 WVDC at + 85 °C ... 25 WVDC at + 125 °C ... 20 WVDC at + 200 °C</b>										
39	C	135D396X0040C2	4.1	61	2	6	- 22	+ 12	+ 14	820
<b>50 WVDC at + 85 °C ... 30 WVDC at + 125 °C ... 30 WVDC at + 200 °C</b>										
33	C	135D336X0050C2	5.0	135	2	9	- 29	+ 10	+ 12	700
100	F	135D107X0050F2	2.8	49	4	12	- 36	+ 13	+ 15	1200
120	F	135D127X0050F2	2.5	49	4	24	- 42	+ 12	+ 15	1200
270	T	135D277X0050T2	2.0	30	8	32	- 46	+ 20	+ 25	1450
330	K	135D337X0050K2	1.5	30	9	36	- 46	+ 25	+ 30	1900
<b>60 WVDC at + 85 °C ... 40 WVDC at + 125 °C ... 36 WVDC at + 200 °C</b>										
18	C	135C186X0060C2	7.0	160	2	12	- 20	+ 7	+ 8	700
27	C	135D276X0060C2	5.0	144	3	12	- 24	+ 10	+ 12	700
82	F	135D826X0060F2	2.9	54	4	16	- 30	+ 15	+ 15	1100
100	F	135D107X0060F2	2.5	54	4	20	- 36	+ 12	+ 15	1100
220	T	135D227X0060T2	1.8	29	8	32	- 40	+ 16	+ 20	1400
270	K	135D277X0060K2	1.4	23	9	36	- 45	+ 20	+ 25	1850
330	K	135D337X0060K2	1.3	31	10	40	- 72	+ 25	+ 25	1850

**Note**

(1) Part Numbers are for units with  $\pm 20$  % capacitance tolerance, standard + 125 °C maximum temperature, standard polyesterfilm insulation, and tin-lead terminations. For other capacitance tolerances, other maximum temperatures, insulation and termination options, please consult ORDERING INFORMATION on page 1 for proper part number.



Wet Tantalum Capacitors Tantalum-Case with Glass-to-Tantalum  
Hermetic Seal for - 55 °C to + 200 °C Operation

135D

Vishay

<b>EXTENDED RATINGS</b>										
CAPACITANCE ( $\mu$ F)	CASE CODE	PART NUMBER <sup>(1)</sup>	MAX. ESR	MAX. IMP.	MAX. DCL ( $\mu$ A)		MAX. CAPACITANCE CHANGE			MAX. RIPPLE 40 kHz rms
			at + 25 °C 120 Hz	at - 55 °C 120 Hz	at + 25 °C	at + 85 °C + 125 °C	(%) at - 55 °C	(%) at + 85 °C	(%) at + 125 °C	
<b>63 WVDC at + 85 °C . . . 40 WVDC at + 125 °C . . . 31 WVDC at + 200 °C</b>										
10	C	135D106X0063C2	5.3	250	1.0	2.0	- 20	+ 8	+ 9	715
27	C	135D276X0063C2	5.0	144	3	12	- 24	+ 10	+ 12	700
100	F	135D107X0063F2	2.5	54	2	12	- 36	+ 12	+ 15	1100
<b>75 WVDC at + 85 °C . . . 50 WVDC at + 125 °C . . . 45 WVDC at + 200 °C</b>										
12	C	135D126X0075C2	5.1	157	3	12	- 19	+ 10	+ 12	600
22	C	135D226X0075C2	5.1	157	3	12	- 19	+ 10	+ 12	600
68	F	135D686X0075F2	3.0	63	4	16	- 25	+ 12	+ 15	1000
82	F	135D826X0075F2	2.5	63	4	24	- 30	+ 12	+ 15	1000
180	T	135D187X0075T2	2.2	30	9	36	- 35	+ 16	+ 20	1300
220	K	135D227X0075K2	1.8	24	10	40	- 40	+ 20	+ 25	1800
300	K	135D307X0075K2	1.8	32	12	48	- 60	+ 22	+ 22	2000
<b>100 WVDC at + 85 °C . . . 65 WVDC at + 125 °C . . . 60 WVDC at + 200 °C</b>										
10	C	135D106X0100C2	5.9	200	3	12	- 17	+ 10	+ 12	800
39	F	135D396X0100F2	3.5	80	5	24	- 20	+ 12	+ 15	1300
68	T	135D686X0100T2	2.2	40	10	40	- 30	+ 14	+ 16	1600
120	K	135D127X0100K2	2.7	30	12	48	- 35	+ 15	+ 17	2000
<b>125 WVDC at + 85 °C . . . 85 WVDC at + 125 °C . . . 75 WVDC at + 200 °C</b>										
6.8	C	135D685X0125C2	11.7	300	3	12	- 14	+ 10	+ 12	700
27	F	135D276X0125F2	3.5	90	5	24	- 18	+ 12	+ 15	1200
47	T	135D476X0125T2	2.2	50	10	40	- 26	+ 14	+ 16	1500
68	K	135D686X0125K2	2.2	32	11	44	- 28	+ 15	+ 16	1850
82	K	135D826X0125K2	2.8	32	12	48	- 30	+ 15	+ 17	1900

**Note**

<sup>(1)</sup> Part Numbers are for units with  $\pm$  20 % capacitance tolerance, standard + 125 °C maximum temperature, standard polyesterfilm insulation, and tin-lead terminations. For other capacitance tolerances, other maximum temperatures, insulation and termination options, please consult ORDERING INFORMATION on page 1 for proper part number.



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