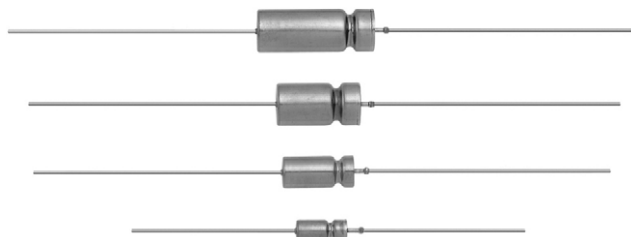


Wet Tantalum Capacitors Silver Case With Glass-to-Metal Hermetic Seal, TANTALEX™



LINKS TO ADDITIONAL RESOURCES



3D Models

PERFORMANCE CHARACTERISTICS

Operating Temperature: -55 °C to +85 °C
(+125 °C with voltage derating)

Capacitance Range:

3.3 µF to 1200 µF

Capacitance Tolerance:

± 10 %, ± 20 %, ± 5 % (special order)

Voltage Rating: 6 V_{DC} to 125 V_{DC}

FEATURES

- Terminations: axial, standard tin / lead (SnPb), 100 % tin (RoHS-compliant) available
- High CV per unit volume
- Extremely low leakage current
- Improved reliability through the use of a glass-to-metal true hermetic anode seal is the prime feature of the 738D TANTALEX capacitors
- The construction offers outstanding resistance to thermal shock
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912


RoHS*
Available

HALOGEN
FREE
GREEN
(5-2008)
Available

Note

* This datasheet provides information about parts that are RoHS-compliant and / or parts that are non RoHS-compliant. For example, parts with lead (Pb) terminations are not RoHS-compliant. Please see the information / tables in this datasheet for details

DC Leakage Current (DCL Max.): at +25 °C, +85 °C, and +125 °C: leakage current shall not exceed the values listed in the Standard Ratings tables.

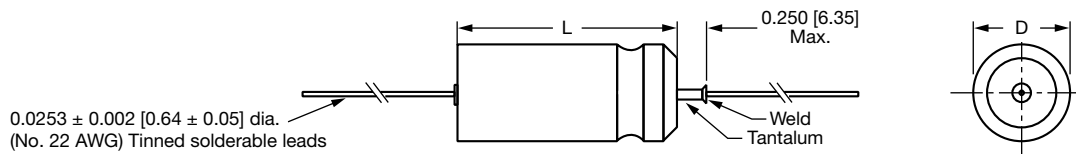
Life Test: capacitors are capable of withstanding a 2000 h life test at a temperature of +85 °C or +125 °C at the applicable rated DC working voltage.

ORDERING INFORMATION

738D	226	X0	100	B	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 % special order	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	0 = bare case 2 = outer polyester film insulation 6 = high temperature film insulation	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 available due to the unit weight

DIMENSIONS in inches [millimeters]


CASE CODE	D	L	D (MAX.)	L ⁽¹⁾	LEAD LENGTH	MAX. WEIGHT (oz. / g)
	BARE TUBE		WITH OUTER PLASTIC-FILM INSULATION			
A	0.188 ± 0.016 [4.78 ± 0.41]	0.453 + 0.031 / - 0.016 [11.51 + 0.79 / - 0.41]	0.219 [5.56]	0.608 [15.45]	1.500 ± 0.250 [38.10 ± 6.35]	0.07 [2.0]
B	0.281 ± 0.016 [7.14 ± 0.41]	0.641 + 0.031 / - 0.016 [16.28 + 0.79 / - 0.41]	0.312 [7.92]	0.796 [20.22]	2.250 ± 0.250 [57.15 ± 6.35]	0.18 [5.1]
C	0.375 ± 0.016 [9.53 ± 0.41]	0.766 + 0.031 / - 0.016 [19.46 + 0.79 / - 0.41]	0.406 [10.31]	0.921 [23.40]	2.250 ± 0.250 [57.15 ± 6.35]	0.36 [10.2]
D	0.375 ± 0.016 [9.53 ± 0.41]	1.062 + 0.031 / - 0.023 [26.97 + 0.79 / - 0.58]	0.406 [10.31]	1.127 [30.91]	2.250 ± 0.250 [57.15 ± 6.35]	0.49 [13.9]

Note
⁽¹⁾ For reference only

RATINGS AND CASE CODES

μF	6.3	8	10	16	25	30	40	50	63	75	100	125
3.3												A
3.9											A	A
4.7											A	
5.6										A		
6.8										A		
8.2									A			
10								A				B
12							A					B
15						A						B
18					A						B	C
22					A						B	C
27				A					A	B		C
33				A						B	C	
39			A						B		C	D
47			A					B			C	D
50					B							
56		A					B			C		D
68	A					B			C		D	
82					B			C			D	
100				A	B		C			D		
120				B		C				D		
150			B			C			D			
180			B		C			D				
220		B		C			D					
270	B			C		D						
300						C						
330			C		D							
390			C		D							
470		C		D								
560	C			D								
680			D									
820		D										
1000	D											
1200	D											



STANDARD RATINGS

CAPACITANCE (μ F)	CASE CODE	PART NUMBER	MAX. DF AT +20 °C (%)	MAX. IMP. AT -55 °C 100 kHz (Ω)	MAX. IMP. AT +20 °C 100 kHz (Ω)	MAX. DCL (μ A) AT +20 °C +85 °C +125 °C	MAX. CAPACITANCE CHANGE (%) AT -55 °C +85 °C +125 °C	MAX. IMPEDANCE ⁽¹⁾ AT -55 °C 100 Hz (Ω)
6.3 V _{DC} AT +85 °C; 4 V _{DC} AT +125 °C; 3 V _{DC} AT +175 °C								
68	A	738D686X06R3A2	17.1	10	1.0	1 2	-40 +10.5 +17.5	72
270	B	738D277X06R3B2	67.8	10	1.0	1 7	-44 +17.5 +20	30
560	C	738D567X06R3C2	151.9	10	1.0	2 13	-64 +17.5 +20	30
1000	D	738D108X06R3D2	100.5	10	1.0	3 14	-80 +25 +25	-
1200	D	738D128X06R3D2	120.6	10	1.0	3 14	-80 +25 +25	24
8 V _{DC} AT +85 °C; 5 V _{DC} AT +125 °C; 4 V _{DC} AT +175 °C								
56	A	738D566X0008A2	14.1	10	1.0	1 2	-40 +10.5 +16	-
220	B	738D227X0008B2	55.2	10	1.0	1 7	-44 +17.5 +20	-
470	C	738D477X0008C2	82.6	10	1.0	2 14	-64 +17.5 +20	-
820	D	738D827X0008D2	51.5	10	1.0	4 16	-80 +25 +25	-
10 V _{DC} AT +85 °C; 6.3 V _{DC} AT +125 °C; 5 V _{DC} AT +175 °C								
39	A	738D396X0010A2	15.1	10	1.0	1 2	-36 +12 +16	-
47	A	738D476X0010A2	15.1	10	1.0	1 2	-36 +14 +16	120
150	B	738D157X0010B2	28.2	10	1.0	1 6	-36 +14 +16	-
180	B	738D187X0010B2	45.2	10	1.0	1 7	-36 +14 +16	48
330	C	738D337X0010C2	51.9	10	1.0	2 16	-60 +17.5 +20	-
390	C	738D397X0010C2	73.5	10	1.0	2 16	-64 +17.5 +20	30
680	D	738D687X0010D2	42.7	10	1.0	4 16	-80 +25 +25	-
16 V _{DC} AT +85 °C; 10 V _{DC} AT +125 °C; 8 V _{DC} AT +175 °C								
27	A	738D276X0016A2	10.3	10	1.0	1 2	-28 +10.5 +16	-
33	A	738D336X0016A2	10.3	10	1.0	1 2	-28 +14 +16	108
100	A	738D107X9016A2	25.0	10	1.0	1 10	-44 +13 +16	88
120	B	738D127X0016B2	30.2	10	1.0	1 7	-28 +17.5 +20	60
220	C	738D227X0016C2	34.5	10	1.0	2 16	-50 +17.5 +18	-
270	C	738D277X0016C2	50.8	10	1.0	2 16	-56 +17.5 +20	36
470	D	738D477X0016D2	35.4	10	1.0	6 24	-80 +25 +25	-
560	D	738D567X0016D2	42.2	10	1.0	6 24	-80 +25 +25	28
25 V _{DC} AT +85 °C; 16 V _{DC} AT +125 °C; 13 V _{DC} AT +175 °C								
18	A	738D186X0025A2	6.9	10	1.0	1 2	-20 +10.5 +12	-
22	A	738D226X0025A2	6.9	10	1.0	1 2	-20 +10.5 +12	168
50	B	738D506X0025B2	15.0	10	1.0	1 5	-28 +13 +15	-
82	B	738D826X0025B2	20.6	10	1.0	1 10	-28 +13 +15	-
100	B	738D107X0025B2	25.1	10	1.0	1 10	-28 +13 +15	60
180	C	738D187X0025C2	42.2	10	1.0	2 18	-48 +13 +15	39
330	D	738D337X0025D2	27.2	10	1.0	7 28	-70 +25 +25	-
390	D	738D397X0025D2	31.8	10	1.0	7 28	-70 +25 +25	29
30 V _{DC} AT +85 °C; 19 V _{DC} AT +125 °C; 15 V _{DC} AT +175 °C								
15	A	738D156X0030A2	7.5	10	1.0	1 2	-20 +10.5 +12	-
68	B	738D686X0030B2	25.6	10	1.0	1 8	-24 +13 +15	-
120	C	738D127X0030C2	24.4	10	1.0	2 17	-44 +13 +15	-
150	C	738D157X0030C2	37.7	10	1.0	2 18	-48 +13 +15	-
270	D	738D277X0030D2	27.2	10	1.0	8 32	-60 +25 +25	-
300	C	738D307X0030C2	40.7	10	1.0	8 32	-60 +20 +25	-
40 V _{DC} AT +85 °C; 25 V _{DC} AT +125 °C; 20 V _{DC} AT +175 °C								
12	A	738D126X0040A2	6.7	10	1.0	1 2	-24 +8 +10	234
56	B	738D566X0040B2	21.1	10	1.0	1 9	-28 +13 +15	78
100	C	738D107X0040C2	15.7	10	1.0	2 17	-40 +13 +15	48
220	D	738D227X0040D2	25.0	10	1.0	8 32	-55 +25 +25	31



STANDARD RATINGS

CAPACITANCE (μ F)	CASE CODE	PART NUMBER	MAX. DF	MAX. IMP.	MAX. IMP.	MAX. DCL		MAX. CAPACITANCE			MAX.
			AT +20 °C (%)	AT -55 °C 100 kHz (Ω)	AT +20°C 100 kHz (Ω)	(μ A) AT	CHANGE (%) AT			IMPEDANCE ⁽¹⁾ AT -55 °C 100 Hz (Ω)	
						+20 °C	+85 °C +125 °C	-55 °C	+85 °C	+125 °C	
50 V _{DC} AT +85 °C; 32 V _{DC} AT +125 °C; 25 V _{DC} AT +175 °C											
10	A	738D106X0050A2	5.7	10	1.0	1	2	-24	+8	+9	-
47	B	738D476X0050B2	17.7	10	1.0	1	9	-28	+12	+15	-
82	C	738D826X0050C2	20.6	10	1.0	2	16	-32	+12	+15	-
180	D	738D187X0050D2	23.7	10	1.0	8	32	-50	+25	+25	-
63 V _{DC} AT +85 °C; 40 V _{DC} AT +125 °C; 32 V _{DC} AT +175 °C											
8.2	A	738D825X0063A2	4.1	10	1.0	1	2	-24	+8	+9	330
27	A	738D276X9063A2	8.0	10	1.0	2	15	-24	+10	+12	180
39	B	738D396X0063B2	17.2	10	1.0	1	9	-28	+10.5	+12	108
68	C	738D686X0063C2	25.6	10	1.0	2	16	-32	+10.5	+12	60
150	D	738D157X0063D2	23.6	10	1.0	8	32	-40	+20	+20	34
75 V _{DC} AT +85 °C; 50 V _{DC} AT +125 °C; 38 V _{DC} AT +175 °C											
5.6	A	738D565X0075A2	3.4	10	1.0	1	2	-20	+8	+9	-
6.8	A	738D685X0075A2	3.4	10	1.0	1	2	-20	+8	+9	-
27	B	738D276X0075B2	11.8	10	1.0	1	9	-22	+11	+13	-
33	B	738D336X0075B2	14.5	10	1.0	1	10	-24	+15	+15	-
56	C	738D566X0075C2	21.8	10	1.0	2	17	-28	+15	+15	-
100	D	738D107X0075D2	19.5	10	1.0	9	36	-35	+20	+20	-
120	D	738D127X0075D2	23.3	10	1.0	9	36	-35	+20	+20	-
100 V _{DC} AT +85 °C; 63 V _{DC} AT +125 °C; 50 V _{DC} AT +175 °C											
3.9	A	738D395X0100A2	2.0	30	3.0	1	2	-16	+7	+8	-
4.7	A	738D475X0100A2	2.9	30	3.0	1	2	-16	+7	+8	600
18	B	738D186X0100B2	7.8	15	1.5	1	8	-16	+7	+8	-
22	B	738D226X0100B2	9.7	15	1.5	1	9	-16	+7	+8	132
33	C	738D336X0100C2	9.3	15	1.0	2	15	-16	+7	+8	-
39	C	738D396X0100C2	14.7	15	1.0	2	17	-20	+7	+8	-
47	C	738D476X0100C2	17.7	15	1.0	2	17	-20	+7	+8	84
68	D	738D686X0100D2	13.7	15	1.5	9	36	-25	+15	+15	-
82	D	738D826X0100D2	16.4	15	1.5	9	36	-25	+15	+15	40
125 V _{DC} AT +85 °C; 80 V _{DC} AT +125 °C; 63 V _{DC} AT +175 °C											
3.3	A	738D335X0125A2	3.4	30	3.0	1	2	-10	+7	+8	-
3.9	A	738D395X0125A2	3.4	30	3.0	1	2	-16	+7	+8	720
10	B	738D106X0125B2	9.4	15	1.5	1	5	-16	+7	+8	-
12	B	738D126X0125B2	8.3	15	1.5	1	6	-16	+7	+8	-
15	B	738D156X0125B2	11.2	15	1.5	1	7	-16	+7	+8	200
18	C	738D186X0125C2	10	15	1.0	2	9	-16	+7	+8	-
22	C	738D226X0125C2	12.1	15	1.0	2	11	-16	+7	+8	-
27	C	738D276X0125C2	16.7	15	1.0	2	13	-16	+7	+8	106
39	D	738D396X0125D2	7.5	15	1.5	10	40	-25	+15	+15	-
47	D	738D476X0125D2	9.2	15	1.5	10	40	-25	+15	+15	-
56	D	738D566X0125D2	14.2	15	1.5	10	40	-25	+15	+15	58

Note

(1) Data only applies to the former CT9 ratings



Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Hyperlinks included in this datasheet may direct users to third-party websites. These links are provided as a convenience and for informational purposes only. Inclusion of these hyperlinks does not constitute an endorsement or an approval by Vishay of any of the products, services or opinions of the corporation, organization or individual associated with the third-party website. Vishay disclaims any and all liability and bears no responsibility for the accuracy, legality or content of the third-party website or for that of subsequent links.

Vishay products are not designed for use in life-saving or life-sustaining applications or any application in which the failure of the Vishay product could result in personal injury or death unless specifically qualified in writing by Vishay. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.