

# Wet Tantalum Capacitors With Hermetic Seal



## LINKS TO ADDITIONAL RESOURCES



Vishay STA represents a major breakthrough in Wet Tantalum capacitor technology. Its unique cathode system, also used in the ST, provides the highest capacitance per unit volume available. The STA combines the inherent reliability of wet tantalum with the capacitance stability of solid tantalum, and there are no circuit impedance restrictions. The range is exceptionally well suited for low voltage filtering and energy storage applications.

## FEATURES

- All tantalum, hermetically sealed case
- Terminations: axial leaded
- Utilizes proven Vishay SuperTan® technology
- High and stable capacitance
- High reliability, rugged design
- 150  $\mu$ F to 4700  $\mu$ F
- 6 V<sub>DC</sub> to 15 V<sub>DC</sub>
- -55 °C to +125 °C

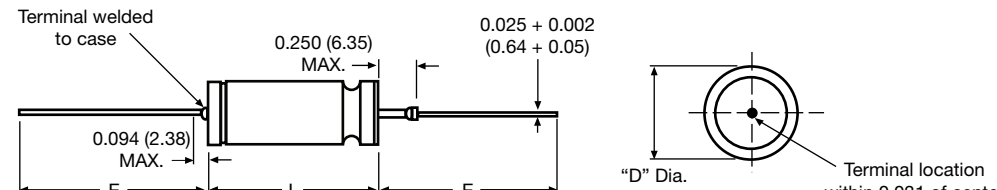
## APPLICATIONS NOTES

- No continuous reverse voltage permissible.
- Transient reverse voltage surges are acceptable under the following conditions:  
The peak reverse voltage does not exceed 1.5 V and the peak current times the duration of the reverse transient does not exceed 0.05 As. In addition, the repetition frequency of the reverse voltage surge is less than 10 Hz.
- The peak of the applied AC ripple and the applied DC voltage must not exceed the DC voltage rating of the capacitor.
- Ripple current ratings by part number at 85 °C and 40 kHz are included in the table. Ripple current correction factors for other temperatures and frequencies are given on the next page.

## ORDERING INFORMATION

STA STYLE	2700 CAPACITANCE $\mu$ F	15 85 °C RATED DC VOLTAGE	T4 CASE CODE	M CAPACITANCE TOLERANCE	I INSULATING SLEEVE
				M = $\pm$ 20 % K = $\pm$ 10 %	I = insulated X = uninsulated

## DIMENSIONS in inches [millimeters]

				
CASE CODE	D MAX. INSULATED	D $\pm$ 0.016 [0.41] UNINSULATED	L + 0.031/- 0.016 [+ 0.79/- 0.41]	E $\pm$ 0.250 [6.35]
T1	0.219 [5.56]	0.188 [4.78]	0.453 [11.51]	1.500 [38.10]
T2	0.312 [7.92]	0.281 [7.14]	0.641 [16.28]	2.250 [57.15]
T3	0.406 [10.31]	0.375 [9.52]	0.766 [19.46]	2.250 [57.15]
T4	0.406 [10.31]	0.375 [9.52]	1.062 [26.97]	2.250 [57.15]

## Notes

- Material at egress is tantalum
- Insulation sleeving will lap over the ends of the capacitor case
- Tinned nickel leads, solderable and weldable
- Approx. weight  
T1: 2.3 g, T2: 5.7 g  
T3: 9.4 g, T4: 14.8 g

**RATINGS AND CASE CODES**

$\mu\text{F}$	6 V	10 V	15 V
150			T1
330		T1	
470	T1		
680			T2
1000		T2	
1500	T2		T3
2200		T3	
2700			T4
3300	T3	T4	
4700	T4		

**STANDARD RATINGS**

STANDARD RATINGS											
CAPACITANCE AT 25 °C 120 Hz (μF)	CASE CODE	MAX. ESR (Ω)		MAX. DCL (μA)		MAX. DF AT 120 Hz (%)	MAX. IMP AT - 55 °C AND 120 Hz (Ω)	MAX. CAPACITANCE CHANGE (%)		AC RIPPLE 85 °C 40 kHz (mA) RMS	PART NUMBER <sup>(1)</sup>
		120 Hz	140 Hz	25 °C	85 °C			-55 °C	85 °C		
6 V <sub>DC</sub> AT 85 °C											
470	T1	0.9	0.4	1	3	46	12	-75	+10	1500	STA470-6T1MI
1500	T2	0.7	0.3	3	8	101	9	-80	+10	2200	STA1500-6T2MI
3300	T3	0.5	0.2	8	30	150	7	-90	+18	2800	STA3300-6T3MI
4700	T4	0.3	0.2	10	35	155	5	-90	+18	3500	STA4700-6T4MI
10 V <sub>DC</sub> AT 85 °C											
330	T1	1.0	0.5	1	3	35	15	-70	+8	1400	STA330-10T1MI
1000	T2	0.8	0.3	3	10	70	8	-80	+10	2200	STA1000-10T2MI
2200	T3	0.5	0.3	5	30	109	6	-85	+15	2800	STA2200-10T3MI
3300	T4	0.4	0.2	8	30	119	3	-85	+18	3500	STA3300-10T4MI
15 V <sub>DC</sub> AT 85 °C											
150	T1	1.1	0.5	1	3	16	25	-45	+8	1400	STA150-15T1MI
680	T2	0.8	0.3	2	10	49	10	-65	+10	2200	STA680-15T2MI
1500	T3	0.6	0.2	5	25	81	9	-80	+10	2700	STA1500-15T3MI
2700	T4	0.4	0.2	4	25	109	4	-80	+15	3400	STA2700-15T4MI

**Note**

<sup>(1)</sup> Part numbers shown are for units with  $\pm 20\%$  capacitance tolerance and insulated capacitors.

For units with  $\pm 10\%$  capacitance tolerance change the letter "M" to "K".

For units without insulation, substitute "X" for "I".

For RoHS-compliant add the "E3" for suffix

**RIPPLE CURRENT MULTIPLIERS VS. FREQUENCY, TEMPERATURE, AND APPLIES PEAK VOLTAGE**

FREQUENCY OF APPLIED RIPPLE CURRENT		120 Hz				800 Hz				1 kHz				10 kHz				40 kHz				100 kHz			
AMBIENT STILL AIR TEMP. IN °C		$\leq 55$	85	105	125	$\leq 55$	85	105	125	$\leq 55$	85	105	125	$\leq 55$	85	105	125	$\leq 55$	85	105	125	$\leq 55$	85	105	125
% of 85 °C rated peak voltage	100 %	0.60	0.39	-	-	0.71	0.43	-	-	0.72	0.46	-	-	0.88	0.55	-	-	1.0	0.63	-	-	1.1	0.69	-	-
	90 %	0.60	0.46	-	-	0.71	0.55	-	-	0.72	0.55	-	-	0.88	0.67	-	-	1.0	0.77	-	-	1.1	0.85	-	-
	80 %	0.60	0.52	0.35	-	0.71	0.62	0.42	-	0.72	0.62	0.42	-	0.88	0.76	0.52	-	1.0	0.87	0.59	-	1.1	0.96	0.65	-
	70 %	0.60	0.58	0.44	-	0.71	0.69	0.52	-	0.72	0.70	0.52	-	0.88	0.85	0.64	-	1.0	0.97	0.73	-	1.1	1.07	0.80	-
	66 2/3 %	0.60	0.60	0.46	0.27	0.71	0.71	0.55	0.32	0.72	0.72	0.55	0.32	0.88	0.88	0.68	0.40	1.0	1.0	0.77	0.45	1.1	1.1	0.85	0.50



## 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.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. 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.