

SuperTan[®] Extended (STE) Capacitors, Wet Tantalum Capacitors with Hermetic Seal



FEATURES

Vishay SuperTan[®] Extended (STE) 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 STE 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. Ideal for designs targeting the military and aerospace industry.

The SuperTan[®] Extended (STE) is housed in an all tantalum, hermetically sealed case and is manufactured to withstand high stress and hazardous environments.

- Axial through-hole terminations: Standard tin/lead (Sn/Pb) 100 % tin (RoHS compliant) available
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912

Note

* Lead (Pb)-containing terminations are not RoHS-compliant. Exemptions may apply.



PERFORMANCE CHARACTERISTICS

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

Capacitance Tolerance: At 120 Hz, + 25 °C. ± 20 % standard. ± 10 % 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 at the applicable rated DC working voltage.

| ORDERING INFORMATION | | | | | | |
|----------------------|-------------------|---------------------------------|-----------|--------------------------|----------------------------------|---|
| STE | 6000 | 16 | T4 | M | I | E3 |
| TYPE | CAPACITANCE μF | DC VOLTAGE RATING AT + 85 °C | CASE SIZE | CAPACITANCE TOLERANCE | INSULATING SLEEVE | RoHS COMPLIANT |
| | | | | M = ± 20 % K = ± 10 % | I = Insulated X = Uninsulated | E3 = 100 % tin termination (RoHS compliant) Blank = SnPb termination (standard design) |

Note

- Packaging: The use of formed plastic trays for packaging this type of axial lead component is standard. Tape and reel is not recommended due to the unit weight.

| DIMENSIONS in inches [millimeters] | | | | |
|------------------------------------|------------------|-----------------------|---|-----------------------|
| | | | | |
| CASE CODE | D ± 0.016 [0.41] | MAX. INSULATED (DIA.) | L ₁ + 0.031 [0.79] UNINSULATED | E ± 0.250 [6.35] MAX. |
| T1 | 0.188 [4.78] | 0.219 [5.56] | 0.453 [11.51] | 1.500 [38.10] |
| T2 | 0.281 [7.14] | 0.312 [7.92] | 0.641 [16.28] | 2.250 [57.15] |
| T3 | 0.375 [9.52] | 0.406 [10.31] | 0.766 [19.46] | 2.250 [57.15] |
| T4 | 0.375 [9.52] | 0.406 [10.31] | 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

| STANDARD RATINGS | | | | | | | | | | | | | |
|--|-----------|-----------|-----------------|---|-------------------------|-----------------|------------------------------|----------------------------|----------------|-----------------|--------------------------|------------------------------|--|
| CAPACITANCE (μF) | VOLTAGE | CASE CODE | PART NUMBER | MAX. ESR AT | TYP. ESR AT | MAX. DCL AT | | MAX. CAPACITANCE CHANGE AT | | | MAX. IMP. AT | AC RIPPLE | |
| | | | | + 25 °C 120 Hz (Ω) | + 25 °C 1 kHz (Ω) | + 25 °C (μA) | + 85 °C/ + 125 °C (μA) | - 55 °C (%) | + 85 °C (%) | + 125 °C (%) | - 55 °C 120 Hz (Ω) | 85 °C 40 kHz mA RMS | |
| 10 V_{DC} at + 85 °C; 7 V_{DC} at + 125 °C | | | | | | | | | | | | | |
| 680 | 10 | T1 | | <i>Preliminary value, contact marketing</i> | | | | | | | | | |
| 2000 | 10 | T2 | | <i>Preliminary value, contact marketing</i> | | | | | | | | | |
| 4700 | 10 | T3 | STE4700-10T3MI | 0.35 | < 0.200 | 16 | 100 | - 80 | 10 | 20 | 3.50 | 4000 | |
| 10 000 | 10 | T4 | STE10000-10T4MI | 0.25 | < 0.100 | 25 | 150 | - 85 | 20 | 35 | 3.00 | 5000 | |
| 16 V_{DC} at + 85 °C; 11 V_{DC} at + 125 °C | | | | | | | | | | | | | |
| 430 | 16 | T1 | | <i>Preliminary value, contact marketing</i> | | | | | | | | | |
| 1200 | 16 | T2 | | <i>Preliminary value, contact marketing</i> | | | | | | | | | |
| 3300 | 16 | T3 | STE3300-16T3MI | 0.35 | < 0.200 | 16 | 100 | - 80 | 10 | 15 | 3.50 | 4000 | |
| 6000 | 16 | T4 | STE6000-16T4MI | 0.30 | < 0.150 | 25 | 150 | - 80 | 15 | 20 | 3.00 | 4500 | |
| 25 V_{DC} at + 85 °C; 15 V_{DC} at + 125 °C | | | | | | | | | | | | | |
| 270 | 25 | T1 | | <i>Preliminary value, contact marketing</i> | | | | | | | | | |
| 1000 | 25 | T2 | | <i>Preliminary value, contact marketing</i> | | | | | | | | | |
| 2200 | 25 | T3 | | <i>Preliminary value, contact marketing</i> | | | | | | | | | |
| 4000 | 25 | T4 | STE4000-25T4MI | 0.35 | < 0.150 | 25 | 125 | - 80 | 15 | 20 | 5.00 | 4250 | |
| 30 V_{DC} at + 85 °C; 20 V_{DC} at + 125 °C | | | | | | | | | | | | | |
| 220 | 30 | T1 | | <i>Preliminary value, contact marketing</i> | | | | | | | | | |
| 820 | 30 | T2 | | <i>Preliminary value, contact marketing</i> | | | | | | | | | |
| 1800 | 30 | T3 | | <i>Preliminary value, contact marketing</i> | | | | | | | | | |
| 3300 | 30 | T4 | STE3300-30T4MI | 0.35 | < 0.200 | 25 | 125 | - 80 | 20 | 25 | 4.00 | 2750 | |
| 35 V_{DC} at + 85 °C; 22 V_{DC} at + 125 °C | | | | | | | | | | | | | |
| 180 | 35 | T1 | | <i>Preliminary value, contact marketing</i> | | | | | | | | | |
| 680 | 35 | T2 | | <i>Preliminary value, contact marketing</i> | | | | | | | | | |
| 1500 | 35 | T3 | | <i>Preliminary value, contact marketing</i> | | | | | | | | | |
| 2800 | 35 | T4 | STE2800-35T4MI | 0.35 | < 0.200 | 25 | 125 | - 80 | 20 | 30 | 4.50 | 4000 | |



| STANDARD RATINGS | | | | | | | | | | | | | | |
|---|------------|--------------|----------------|-----------------------------------|----------------------------------|-----------------------|------------------------------------|----------------|----------------|-------------------------------|-------|------|--|--|
| CAPACITANCE (μ F) | VOLTAGE | CASE CODE | PART NUMBER | MAX. ESR AT | | TYP. ESR AT | | MAX. DCL AT | | MAX. CAPACITANCE CHANGE AT | | | MAX. IMP. AT - 55 °C 120 Hz (Ω) | AC RIPPLE 85 °C 40 kHz mA RMS |
| | | | | + 25 °C 120 Hz (Ω) | + 25 °C 1 kHz (Ω) | + 25 °C (μ A) | + 85 °C/ + 125 °C (μ A) | - 55 °C (%) | + 85 °C (%) | + 125 °C (%) | | | | |
| 50 V_{DC} at + 85 °C; 30 V_{DC} at + 125 °C | | | | | | | | | | | | | | |
| 110 | 50 | T1 | | | | | | | | | | | <i>Preliminary value, contact marketing</i> | |
| 350 | 50 | T2 | | | | | | | | | | | <i>Preliminary value, contact marketing</i> | |
| 900 | 50 | T3 | | | | | | | | | | | <i>Preliminary value, contact marketing</i> | |
| 1500 | 50 | T4 | STE1500-50T4MI | 0.35 | < 0.215 | 15 | 110 | - 70 | 20 | 20 | 6.00 | 3500 | | |
| 2200 | 50 | T4 | STE2200-50T4MI | 0.60 | < 0.400 | 25 | 125 | - 80 | 25 | 30 | 4.50 | 3000 | | |
| 60 V_{DC} at + 85 °C; 40 V_{DC} at + 125 °C | | | | | | | | | | | | | | |
| 68 | 60 | T1 | | | | | | | | | | | <i>Preliminary value, contact marketing</i> | |
| 220 | 60 | T2 | | | | | | | | | | | <i>Preliminary value, contact marketing</i> | |
| 560 | 60 | T3 | | | | | | | | | | | <i>Preliminary value, contact marketing</i> | |
| 1000 | 60 | T4 | STE1000-60T4MI | 0.50 | < 0.300 | 20 | 120 | - 40 | 10 | 15 | 5.50 | 3500 | | |
| 75 V_{DC} at + 85 °C; 50 V_{DC} at + 125 °C | | | | | | | | | | | | | | |
| 56 | 75 | T1 | | | | | | | | | | | <i>Preliminary value, contact marketing</i> | |
| 180 | 75 | T2 | STE180-75T2MI | 1.50 | < 0.500 | 5 | 25 | - 35 | 15 | 20 | 30.00 | 2000 | | |
| 470 | 75 | T3 | STE470-75T3MI | 0.60 | < 0.325 | 25 | 100 | - 45 | 10 | 25 | 10.00 | 3000 | | |
| 750 | 75 | T4 | STE750-75T4MI | 0.50 | < 0.400 | 20 | 120 | - 35 | 10 | 15 | 6.50 | 3500 | | |
| 100 V_{DC} at + 85 °C; 65 V_{DC} at + 125 °C | | | | | | | | | | | | | | |
| 27 | 100 | T1 | | | | | | | | | | | <i>Preliminary value, contact marketing</i> | |
| 86 | 100 | T2 | | | | | | | | | | | <i>Preliminary value, contact marketing</i> | |
| 220 | 100 | T3 | STE220-100T3MI | 1.40 | < 0.200 | 5 | 25 | - 55 | 10 | 15 | 18.00 | 2500 | | |
| 400 | 100 | T4 | STE400-100T4MI | 0.70 | < 0.400 | 10 | 120 | - 40 | 6 | 12 | 15.00 | 3000 | | |
| 125 V_{DC} at + 85 °C; 85 V_{DC} at + 125 °C | | | | | | | | | | | | | | |
| 18 | 125 | T1 | | | | | | | | | | | <i>Preliminary value, contact marketing</i> | |
| 56 | 125 | T2 | | | | | | | | | | | <i>Preliminary value, contact marketing</i> | |
| 150 | 125 | T3 | | | | | | | | | | | <i>Preliminary value, contact marketing</i> | |
| 240 | 125 | T4 | STE240-125T4MI | 0.80 | < 0.600 | 15 | 150 | - 35 | 6 | 12 | 20.00 | 2500 | | |



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.

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.

Material Category Policy

Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as RoHS-Compliant fulfill the definitions and restrictions defined under Directive 2011/65/EU of The European Parliament and of the Council of June 8, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE) - recast, unless otherwise specified as non-compliant.

Please note that some Vishay documentation may still make reference to RoHS Directive 2002/95/EC. We confirm that all the products identified as being compliant to Directive 2002/95/EC conform to Directive 2011/65/EU.

Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as Halogen-Free follow Halogen-Free requirements as per JEDEC JS709A standards. Please note that some Vishay documentation may still make reference to the IEC 61249-2-21 definition. We confirm that all the products identified as being compliant to IEC 61249-2-21 conform to JEDEC JS709A standards.

Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «JONHON», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «FORSTAR».



JONHON

«JONHON» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели, кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



Телефон: 8 (812) 309-75-97 (многоканальный)

Факс: 8 (812) 320-03-32

Электронная почта: ocean@oceanchips.ru

Web: <http://oceanchips.ru/>

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А