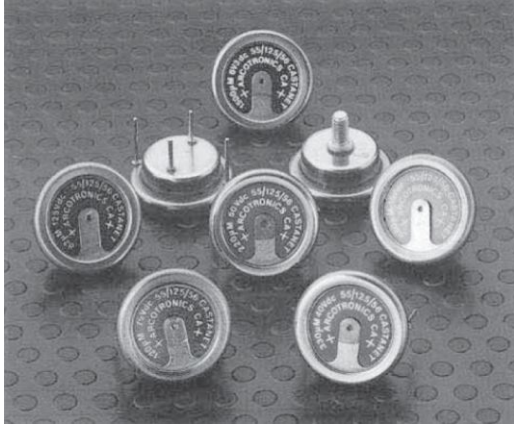


Wet Tantalum Capacitor, Button, All-Tantalum Case, - 55 °C to + 125 °C Operation



INTRODUCTION

This conveniently-packaged polar button unit employs a non-solid electrolyte, and has a sintered tantalum anode. The anode is produced from a high capacitance powder resulting in a capacitor of small size and large CV product.

The cathode is also of tantalum and overcomes the restrictions of a silver cathode system in allowing a high ripple current rating and application of a 3 V reverse potential. This all-tantalum construction results in a non-catastrophic wear-out mechanism.

The seal is a high efficient system comprising a PTFE gasket clamped between coined plates of tantalum by a work-hardened nickel ring. This type of seal, common to all button styles, is largely responsible for their long life and high reliability and severe military environments.

The CE2 series is an extension of the CA2 series with the anode produced from selected powder of very high capacitance giving a higher CV product.

The CE2 series ranges are available in several termination options. These include a mounting stud and pins for circuit mounting.

APPLICATIONS

The CE2 series are designed for use in general military and professional applications. For example: Power supply “smoothing” filter networks, switching, by-pass, timer functions and where reverse potentials occur.

WEIGHT

The CE2 style with a stud termination weighs approximately 18.1 g, including the nut. The CE2 styles, which has a printed circuit board mounting, weighs approximately 17.3 g.

FEATURES

- All-Tantalum electrodes eliminate silver migration
- Withstands high ripple current
- Long life reliability
- Reverse voltage capability
- Instant use after long storage
- Mounting: Through-hole

PERFORMANCE CHARACTERISTICS

Operating Temperature: - 55 °C to + 125 °C

Voltage Range: 6.3 V_{DC} to 125 V_{DC}

Capacitance Range: 82 µF to 1800 µF

SPECIFICATIONS

Environmental classification: 55/125/56

Vibration: 10 Hz to 2000 Hz, 0.75 mm or 98 m/s², 15 h

Bump: 390 m/s², 4000 bumps

Shock: 981 m/s²

Acceleration: 981 m/s²

Low air pressure: 1 kPa

APPROVALS

These capacitors are available released to:

- BS CECC 30 202 002

RIPPLE CURRENT CAPABILITY

The maximum allowable ripple current is 1 A_{RMS} up to 85 °C and 750 mA_{RMS} to 125 °C. These values apply under normal cooling conditions and are irrespective of frequency or waveform. The algebraic sum of the AC peak and DC voltages must not exceed the forward or reverse voltage ratings at the relevant temperature.

At certain frequency/temperature/DC voltage combinations higher levels of ripple current may be used. The applications department should be contacted before the above levels are exceeded.

REVERSE VOLTAGE CAPABILITY

The CE2 series employ tantalum cathodes which allow the continuous application of reverse potentials not exceeding 3 V over the whole temperature range.

SURGE VOLTAGE

The surge voltage capability is 115 % of the voltage rating at the relevant temperature.

TEMPERATURE RANGE

The capacitor is designed for operation between - 55 °C and + 125 °C, with linear voltage derating above + 85 °C to 66 % of the rated voltage at + 125 °C.

CAPACITANCE TOLERANCE

The standard capacitance tolerance is ± 20 % although special tolerances are available by arrangement.

APPLICATION INFORMATION

Capacitors may be operated at less than the rated voltage, resulting in significantly reduced leakage current values.

In timing circuits, or other applications where the device is subjected only to a DC voltage, the ballistic or DC capacitance will be somewhat larger than measured at 50 Hz.

The parametric information must necessarily be brief, although additional comprehensive data is available on request, and the tests tailored to customers' requirements can be made.

RELIABILITY

All capacitors are subjected to burn-in. This is to remove infant mortalities and ensure reliability. The capacitor lifetime is enhanced when the unit is subjected to a reduced ripple current, a low ambient temperature, and is externally cooled. The use of a heat sink is recommended.

ORDERING PROCEDURE

Example: CE2C (270 μ F, 40 V_{DC})

Vishay Part Number: CE2C277M040P

ORDERING INFORMATION						
CE2	C	227	M	100	A	-
MODEL	CASE CODE	CAPACITANCE	TOLERANCE	VOLTAGE	TERMINATION AND PACKAGING	
	See Ratings and Case Codes Table	This is expressed in picofarads. The first two digits are the significant figures. The third is the number of zeros to follow	M = 20 % (std) K = 10 % (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)	A = Stud B = PC mount pins C = Twin tag or ribbon D = Panel or potting tag	Blank = Standard (tin/lead coating)

DIMENSIONS in millimeters

The CE2 series is comprised of two case sizes, differing in depth of cup only. The case size dimensions are shown in the table. Four mounting styles are available in both case sizes.

A	B max.	C	D	E	F	G	H	J	K crs.	L crs.	M dia.	N nom.	P	Q dia.	R	S	T dia.	U crs.	V dia.	W nom.
3.6	8.5 ⁽¹⁾	21.8	8.4 ⁽²⁾	8.4	16.2	8.4	1.8	0.8	20.3	10.2	1.1	2.4	13.1	1.0	7.5	10.7	1.6	13.0	3.5	0.30

Notes

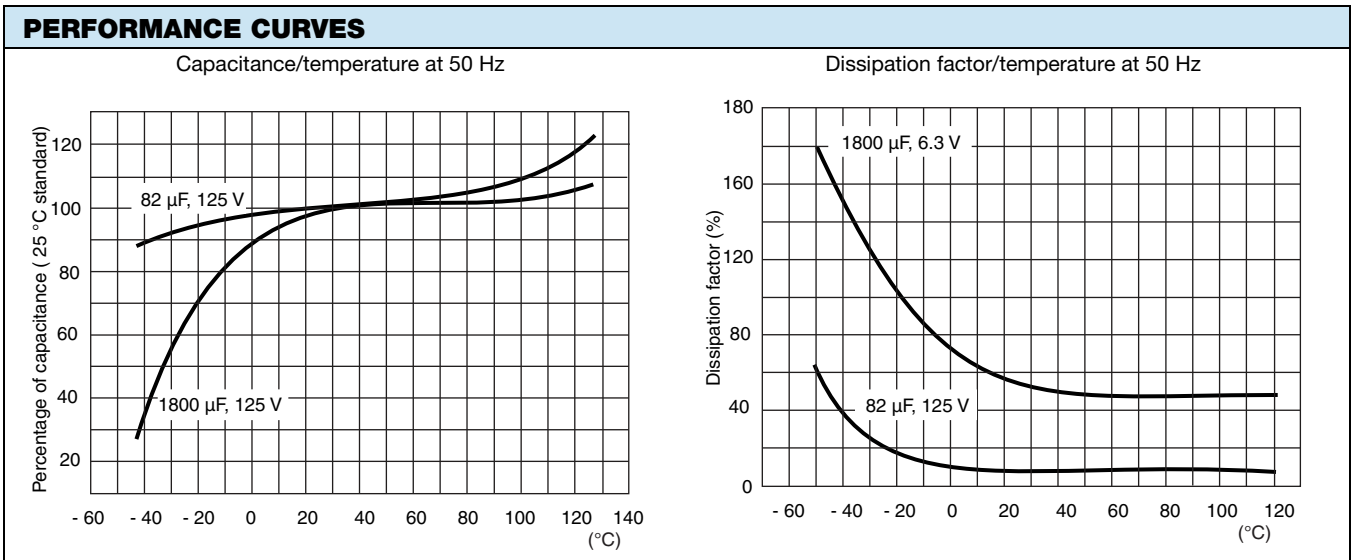
- All dimensions are in mm, and are maximum unless otherwise stated
- (1) For B case size, case height is 6.7 mm
- (2) Width of anode tag 4.22 mm max.



STANDARD RATINGS										
VISHAY PART NUMBERS	CASE CODE	CAPACITANCE AT 50 Hz (μ F)	DISSIPATION FACTOR AT 50 Hz (%)		MAX. ESR AT 20 °C 100 kHz (Ω)	MAX. ESR AT - 55 °C 100 kHz (Ω)	MAX. DCL AT 20 °C (μ A)	MAX. DCL AT 125 °C (μ A)	Δ C AT 50 Hz (%)	
			20 °C	125 °C					- 55 °C	125 °C
			6.3 V _{DC} AT 85 °C; 4 V _{DC} AT 125 °C							
CE2C158(1)6R3(2)	C	1500	80.0	80.0	1.0	15.0	15.0	50	- 80	30.0
CE2C188(1)6R3(2)	C	1800	85.0	85.0	1.0	15.0	15.0	50	- 80	30.0
10 V _{DC} AT 85 °C; 6.6 V _{DC} AT 125 °C										
CE2C108(1)010(2)	C	1000	65.0	65.0	1.0	15.0	10.0	50	- 80	30.0
CE2C128(1)010(2)	C	1200	75.0	75.0	1.0	15.0	15.0	50	- 80	30.0
16 V _{DC} AT 85 °C; 10 V _{DC} AT 125 °C										
CE2C687(1)016(2)	C	680	45.0	45.0	1.0	15.0	8.0	50	- 70	25.0
CE2C827(1)016(2)	C	820	60.0	60.0	1.0	15.0	10.0	50	- 75	25.0
25 V _{DC} AT 85 °C; 16 V _{DC} AT 125 °C										
CE2C477(1)025(2)	C	470	35.0	35.0	1.0	15.0	5.0	50	- 60	20.0
CE2C567(1)025(2)	C	560	40.0	40.0	1.0	15.0	5.0	50	- 65	20.0
40 V _{DC} AT 85 °C; 25 V _{DC} AT 125 °C										
CE2C277(1)040(2)	C	270	18.0	18.0	1.0	15.0	5.0	50	- 50	12.5
CE2C337(1)040(2)	C	330	22.0	22.0	1.0	15.0	5.0	50	- 50	12.5
CE2C397(1)040(2)	C	390	30.0	30.0	1.0	15.0	5.0	50	- 55	20.0
63 V _{DC} AT 85 °C; 40 V _{DC} AT 125 °C										
CE2C227(1)063(2)	C	220	15.0	15.0	1.0	15.0	4.0	50	- 45	12.5
75 V _{DC} AT 85 °C; 50 V _{DC} AT 125 °C										
CE2C157(1)075(2)	C	150	11.0	11.0	1.0	15.0	4.0	50	- 35	12.5
CE2C187(1)075(2)	C	180	13.0	13.0	1.0	15.0	4.0	50	- 40	12.5
100 V _{DC} AT 85 °C; 66.7 V _{DC} AT 125 °C										
CE2C107(1)100(2)	C	100	7.5	7.5	1.0	15.0	4.0	50	- 22	10.0
CE2C127(1)100(2)	C	120	9.0	9.0	1.0	15.0	4.0	50	- 28	10.0
125 V _{DC} AT 85 °C; 83.3 V _{DC} AT 125 °C										
CE2C826(1)125(2)	C	82	7.0	7.0	1.0	15.0	4.0	50	- 20	10.0

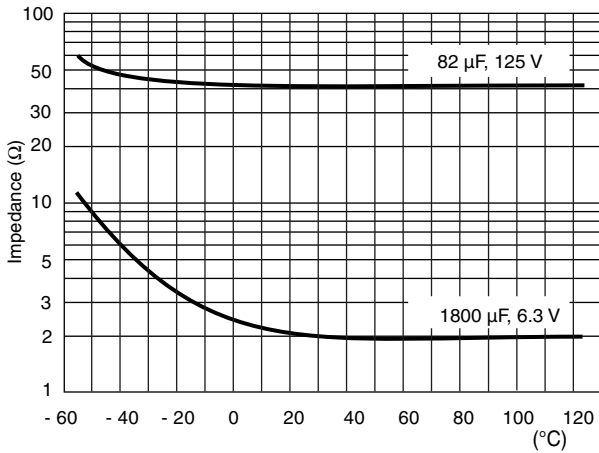
Note

- Part number definitions:
 - Capacitance tolerance
 - M = 20 % standard
 - K = 10 % special order
 - Termination type
 - A = Stud or bolt
 - B = Pins for PCB
 - C = Twin tags or ribbons
 - D = Potting tag

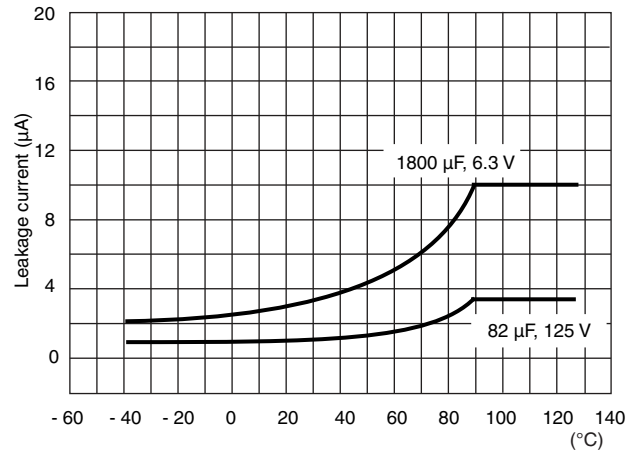


PERFORMANCE CURVES

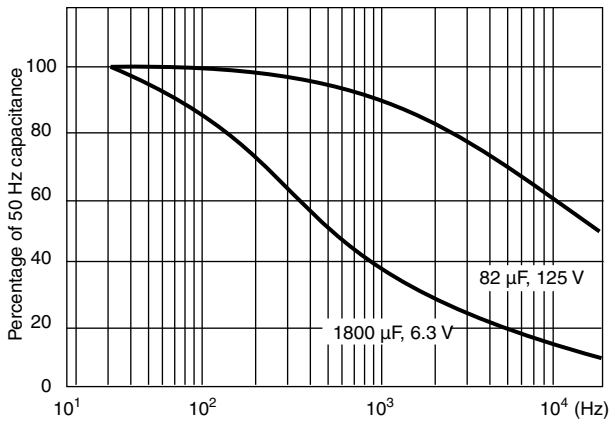
Impedance/temperature at 50 Hz



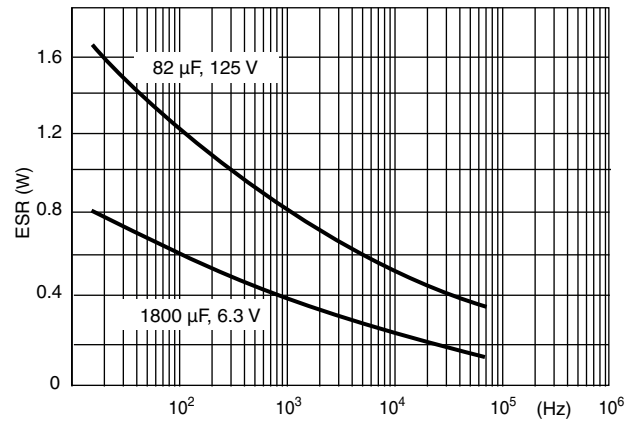
Leakage current/temperature at maximum voltage



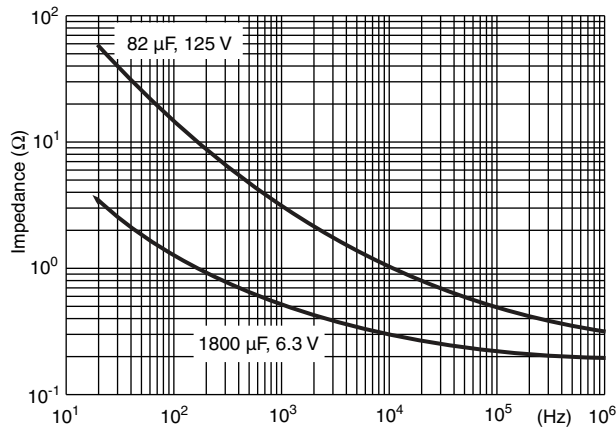
Capacitance/frequency at 25 °C



ESR/frequency at 25 °C



Impedance/frequency at 25 °C



Note

- All performance curves are provided from historic Arcotronics style CA/CAE datasheet information



CROSS REFERENCE		
VISHAY PART NUMBER	ARCOTRONICS PART NUMBER	NATO PART NUMBER
CE		
CE2C826M125A	402/1/50157/050	To be allocated
CE2C107M100A	402/1/50157/051	
CE2C127M100A	402/1/50157/052	
CE2C157M075A	402/1/50157/053	
CE2C187M075A	402/1/50157/054	
CE2C227M063A	402/1/50157/055	
CE2C277M040A	402/1/50157/056	
CE2C337M040A	402/1/50157/057	
CE2C397M040A	402/1/50157/058	
CE2C477M025A	402/1/50157/059	
CE2C567M025A	402/1/50157/060	
CE2C687M016A	402/1/50157/061	
CE2C827M016A	402/1/50157/062	
CE2C108M010A	402/1/50157/063	
CE2C128M010A	402/1/50157/064	
CE2C158M6R3A	402/1/50157/065	
CE2C188M6R3A	402/1/50157/066	
CEPC		
CE2C826M125B	402/1/50158/050	To be allocated
CE2C107M100B	402/1/50158/051	
CE2C127M100B	402/1/50158/052	
CE2C157M075B	402/1/50158/053	
CE2C187M075B	402/1/50158/054	
CE2C227M063B	402/1/50158/055	
CE2C277M040B	402/1/50158/056	
CE2C337M040B	402/1/50158/057	
CE2C397M040B	402/1/50158/058	
CE2C477M025B	402/1/50158/059	
CE2C567M025B	402/1/50158/060	
CE2C687M016B	402/1/50158/061	
CE2C827M016B	402/1/50158/062	
CE2C108M010B	402/1/50158/063	
CE2C128M010B	402/1/50158/064	
CE2C158M6R3B	402/1/50158/065	
CE2C188M6R3B	402/1/50158/066	



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.