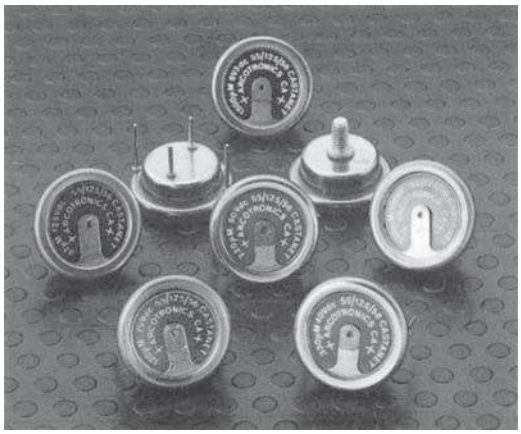
Wet Tantalum Capacitor, Button, All-Tantalum Case, -55 °C to +125 °C Operation



INTRODUCTION

The design employs a non-solid electrolyte and a sintered tantalum anode.

The cathode is also of tantalum and overcomes the restriction of the 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 is common to all button styles it is largely responsible for their long life and high reliability and severe military environment.

APPLICATIONS

The CS2 series are designed as a direct replacement for the obsolete “A” series, where there is no standard CA unit at the required capacitance, and voltage, or when the standard CA unit (8.5 mm) is not acceptable.
It should be noted that the upper category temperature of the CS2 unit is 125 °C for the “A” unit.

WEIGHT

The approximate weights (in grams) for the CS2 capacitors is 14.5 g.

FEATURES

- All-Tantalum electrodes eliminate silver migration
- Withstands high ripple current
- Long life reliability
- Reverse voltage capability
- Replacement for “A” series range of silver cased buttons
- Mounting: through-hole

PERFORMANCE CHARACTERISTICS

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

Voltage Range: 3 V_{DC} to 70 V_{DC}

Capacitance Range: 50 µF to 750 µF

SPECIFICATIONS

Environmental classification: 55/125/56

Vibration: 10 Hz to 2000 Hz, 0.75 mm or 98 m/s^2, 15 h

Bump: 390 m/s^2, 4000 bumps

Shock: 981 m/s^2

Acceleration: 981 m/s^2

Low air pressure: 1 kPa

REVERSE VOLTAGE CAPABILITY

The CS2 series employs 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.

ORDERING PROCEDURE

Example: CS2C (220 µF, 50 V_{DC})

Vishay Part Number: CS2C227M050P

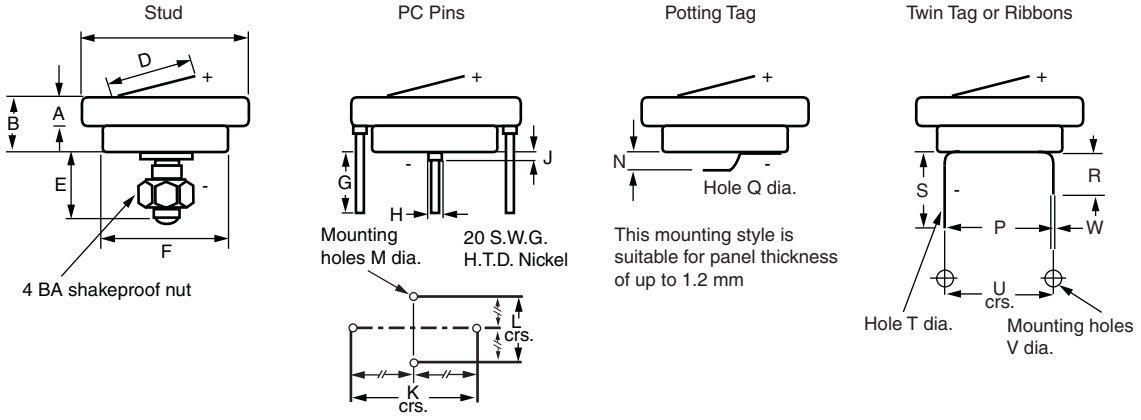
ORDERING INFORMATION

CS2	C	227	M	050	P	-
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)

Note

- **THIS PRODUCT FAMILY WILL BE DISCONTINUED PER PCN-TC-001-2017 REV. 0**

DIMENSIONS in millimeters



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	6.7	21.8	8.4 (1)	8.1	16.2	8.4	1.8	0.8	20.3	10.2	1.1	2.4	12.9	1.0	6.5	9.7	1.6	13.0	3.5	0.30

Notes

- All dimensions are in mm, and are maximum unless otherwise stated

(1) Width of anode tag 4.22 mm max.

STANDARD RATINGS

VISHAY PART NUMBERS	CASE CODE	CAPACITANCE AT 50 Hz (µF)	DISSIPATION FACTOR AT 50 Hz (%)		MAX. ESR AT 25 °C 100 kHz (Ω)	MAX. ESR AT - 55 °C 100 kHz (Ω)	MAX. DCL AT 25 °C (µA)	MAX. DCL AT 125 °C (µA)	ΔC AT 50 Hz (%)	
			20 °C	125 °C					- 55 °C	125 °C
70 V_{DC} AT 85 °C; 54 V_{DC} AT 125 °C										
CS2B506(1)070(2)	B	50	5.0	-	1.0	5.0	3.0	50	10	-
30 V_{DC} AT 85 °C; 23 V_{DC} AT 125 °C										
CS2B147(1)030(2)	B	140	15	-	1.0	5.0	3.0	50	30	-
15 V_{DC} AT 85 °C; 11.3 V_{DC} AT 125 °C										
CS2B257(1)015(2)	B	250	25	-	1.0	5.0	3.0	50	50	-
6 V_{DC} AT 85 °C; 4.6 V_{DC} AT 125 °C										
CS2B507(1)006(2)	B	500	40	-	1.0	5.0	3.0	50	60	-
3 V_{DC} AT 85 °C; 2.3 V_{DC} AT 125 °C										
CS2B757(1)003(2)	B	750	50	-	1.0	5.0	3.0	50	75	-

Notes

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

CROSS REFERENCE

VISHAY PART NUMBER	ARCOTRONICS PART NUMBER
CS2 (STUD)	
CS2B506M070A	402/1/50159/001
CS2B147M030A	402/1/50159/002
CS2B257M015A	402/1/50159/004
CS2B507M006A	402/1/50159/007
CS2B757M003A	402/1/50159/005
Contact marketing [1]	402/1/50159/012
CS2 (PC PINS)	
CS2B506M070B	402/1/50175/001
CS2B147M030B	402/1/50175/002
CS2B257M015B	402/1/50175/004
CS2B507M006B	402/1/50175/007
CS2B757M003B	402/1/50175/005
Contact marketing [1]	402/1/50175/012
CS2 (TWIN TAGS)	
CS2B506M070C	402/1/50183/001
CS2B147M030C	402/1/50183/002
CS2B257M015C	402/1/50183/004
CS2B507M006C	402/1/50183/007
CS2B757M003C	402/1/50183/005
Contact marketing [1]	402/1/50183/012
CS2 (PANEL TAG)	
CS2B506M070D	402/1/50169/001
CS2B147M030D	402/1/50169/002
CS2B257M015D	402/1/50169/004
CS2B507M006D	402/1/50169/007
CS2B757M003D	402/1/50169/005
Contact marketing [1]	402/1/50169/012

Note

[1] Special tolerance of + 20 % to 0 %

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