

DSCC 93026 SuperTan[®] Wet Tantalum Capacitors



Vishay's DSCC 93026 capacitor represents a major breakthrough in wet tantalum technology. Its unique cathode system provides the highest capacitance per unit volume. The design facilitates a doubling of capacitance, lower ESR and higher ripple current rating compared with conventional wet tantalum products. Moreover, the DSCC 93026 has the capacitance stability of a solid tantalum capacitor and there are no circuit impedance restrictions.

The DSCC 93026 is housed in an all tantalum, hermetically sealed case and is manufactured to withstand hazardous environments. The DSCC 93026 is used widely in the defense and aerospace industries and whenever there is a space problem.

FEATURES

- Terminations: Standard tin/lead (Sn/Pb)
- Very high capacitance
- 10 μF to 1800 μF
- 25 V_{DC} to 125 V_{DC}
- - 55 $^{\circ}\text{C}$ to + 125 $^{\circ}\text{C}$
- Very low ESR
- High ripple current
- All tantalum case
- Hermetically sealed
- Low DCL
- Mounting: Axial

APPLICATION NOTES

- No continuous reverse voltage permissible.
- 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 $^{\circ}\text{C}$ and 40 kHz are included in the table. Ripple current correction factors for other temperatures and frequencies are given on the next page.
- 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.

DIMENSIONS in inches [millimeters]				
CASE CODE	$D \pm 0.016$ [0.41]	MAX. INSULATED (DIA.)	$L_1 + 0.031$ [0.79] UNINSULATED	$E \pm 0.250$ [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]
L2	0.281 [7.14]	0.312 [7.92]	1.008 [25.60]	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



ORDERING INFORMATION			
93026	-29	K	S
DSCC DRAWING NUMBER	DASH NUMBER	CAPACITANCE TOLERANCE	Sleeved/Un sleeved
		K = ± 10 % M = ± 20 %	S = Sleeved U = Unsleeved

DEFENSE SUPPLY CENTER, COLUMBUS COLUMBUS, OHIO	DRAWING NO. 93026
---	----------------------

STANDARD RATINGS										
CAPACITANCE AT 25 °C 120 Hz (µF)	CASE CODE	MAX. ESR 120 Hz (Ω)	MAX. DCL (µA)		MAX. IMP. AT - 55 °C 120 Hz (Ω)	MAX. CAPACITANCE CHANGE (%)			AC RIPPLE 85 °C 40 kHz (mA) RMS	PART NUMBER
			25 °C	85 °C/ 125 °C		- 55 °C	85 °C	125 °C		
25 V_{DC} AT 85 °C; 15 V_{DC} AT 125 °C										
120	T1	1.3	1	5	25	- 42	+ 8	+ 12	1250	93026-29(1)(2)
560	T2	0.83	2	10	12	- 65	+ 10	+ 15	2100	93026-30(1)(2)
1100	L2	0.5	3	25	7	- 60	+ 20	+ 45	3200	93026-57(1)(2)
1200	T3	0.65	5	20	7	- 70	+ 12	+ 18	2600	93026-31(1)(2)
1800	T4	0.5	6	25	7	- 75	+ 12	+ 20	3100	93026-32(1)(2)
30 V_{DC} AT 85 °C; 20 V_{DC} AT 125 °C										
100	T1	1.3	1	5	25	- 38	+ 8	+ 12	1200	93026-33(1)(2)
470	T2	0.85	2	10	15	- 65	+ 10	+ 18	1800	93026-34(1)(2)
950	L2	0.5	5	30	7	- 55	+ 18	+ 35	3200	93026-58(1)(2)
1000	T3	0.7	7	25	7	- 70	+ 10	+ 18	2500	93026-35(1)(2)
1500	T4	0.6	12	35	6	- 72	+ 10	+ 20	3000	93026-36(1)(2)
50 V_{DC} AT 85 °C; 30 V_{DC} AT 125 °C										
68	T1	1.5	1	5	35	- 25	+ 8	+ 15	1050	93026-37(1)(2)
220	T2	0.9	2	10	17.5	- 50	+ 8	+ 15	1800	93026-38(1)(2)
450	L2	0.6	3	25	7.5	- 45	+ 12	+ 30	2900	93026-59(1)(2)
470	T3	0.75	3	25	10	- 50	+ 8	+ 15	2100	93026-39(1)(2)
680	T4	0.7	5	40	8	- 58	+ 10	+ 20	2750	93026-40(1)(2)
60 V_{DC} AT 85 °C; 40 V_{DC} AT 125 °C										
47	T1	2.0	1	5	44	- 25	+ 8	+ 12	1050	93026-41(1)(2)
150	T2	1.1	2	10	20	- 40	+ 8	+ 15	1650	93026-42(1)(2)
370	L2	0.6	3	25	9	- 33	+ 9	+ 20	2900	93026-60(1)(2)
390	T3	0.9	3	25	15	- 60	+ 8	+ 15	2100	93026-43(1)(2)
560	T4	0.8	5	40	10	- 58	+ 8	+ 15	2750	93026-44(1)(2)
75 V_{DC} AT 85 °C; 50 V_{DC} AT 125 °C										
33	T1	2.5	1	5	66	- 25	+ 5	+ 9	1050	93026-45(1)(2)
110	T2	1.3	2	10	24	- 35	+ 6	+ 10	1650	93026-46(1)(2)
250	L2	0.8	5	30	12	- 30	+ 6	+ 15	2500	93026-61(1)(2)
330	T3	1.0	3	30	12	- 45	+ 6	+ 10	2100	93026-47(1)(2)
470	T4	0.9	5	50	12	- 55	+ 6	+ 10	2750	93026-48(1)(2)

Note

- Part number definitions:
 - (1) Capacitance tolerance. K = 10 %, M = 20 %
 - (2) Case or body insulation. S = Sleeved, U = Unsleeved



STANDARD RATINGS										
CAPACITANCE AT 25 °C 120 Hz (μ F)	CASE CODE	MAX. ESR 120 Hz (Ω)	MAX. DCL (μ A)		MAX. IMP. AT - 55 °C 120 Hz (Ω)	MAX. CAPACITANCE CHANGE (%)			AC RIPPLE 85 °C 40 kHz (mA) RMS	PART NUMBER
			25 °C	85 °C/ 125 °C		- 55 °C	85 °C	125 °C		
100 V_{DC} AT 85 °C; 65 V_{DC} AT 125 °C										
15	T1	3.5	1	5	125	- 18	+ 3	+ 10	1050	93026-49(1)(2)
68	T2	2.1	2	10	37	- 30	+ 4	+ 12	1650	93026-50(1)(2)
120	L2	1.0	3	25	20.5	- 30	+ 4	+ 12	2200	93026-62(1)(2)
150	T3	1.6	3	25	22	- 35	+ 6	+ 12	2100	93026-51(1)(2)
220	T4	1.2	5	50	15	- 40	+ 6	+ 12	2750	93026-52(1)(2)
125 V_{DC} AT 85 °C; 85 V_{DC} AT 125 °C										
10	T1	5.5	1	5	175	- 15	+ 3	+ 10	1050	93026-53(1)(2)
47	T2	2.3	2	10	47	- 25	+ 5	+ 12	1650	93026-54(1)(2)
90	L2	1.3	5	25	25	- 22	+ 4	+ 15	2000	93026-63(1)(2)
82	T3	1.8	3	25	40	- 35	+ 5	+ 12	1950	n/a
100	T3	1.8	3	25	35	- 35	+ 5	+ 12	2100	93026-55(1)(2)
150	T4	1.6	5	50	20	- 35	+ 6	+ 12	2750	93026-56(1)(2)

Note

- Part number definitions:
 - (1) Capacitance tolerance. K = 10 %, M = 20 %
 - (2) Case or body insulation. S = Sleeved, U = Unsleeved

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			
		\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.

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 and agree to fully indemnify and hold Vishay and its distributors harmless from and against any and all claims, liabilities, expenses and damages arising or resulting in connection with such use or sale, including attorneys fees, even if such claim alleges that Vishay or its distributor was negligent regarding the design or manufacture of the part. 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.