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 °C to + 125 °C
- Very low ESR
- High ripple current
- All tantalum case
- Hermetically sealed
- Low DCL
- Mounting: Axial

APPLICATION NOTES

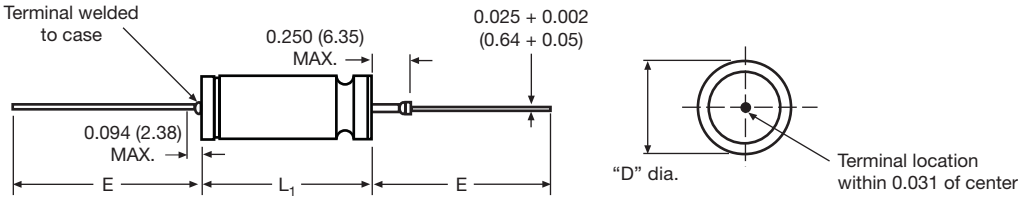
a) No continuous reverse voltage permissible.

b) The peak of the applied AC ripple and the applied DC voltage must not exceed the DC voltage rating of the capacitor.

c) 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.

d) 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 ± 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]
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	
		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 (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		
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			
AMBIENT STILL AIR TEMP. IN °C		≤ 55	85	105	125	≤ 55	85	105	125	≤ 55	85	105	125	≤ 55	85	105	125	≤ 55	85	105	125	≤ 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

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