

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 μ F to 1800 μ F
- 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

- 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 °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 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 |



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