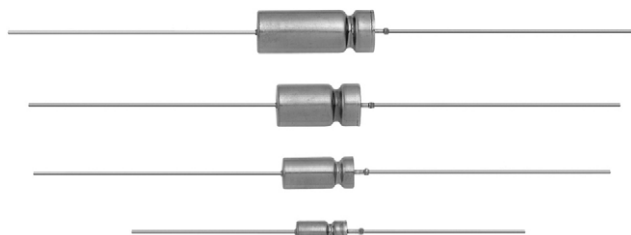


SuperTan® Wet Tantalum Capacitors With Hermetic Seal, Extended Range, Improved Vibration Capability, 200 °C Applications



LINKS TO ADDITIONAL RESOURCES



PERFORMANCE CHARACTERISTICS

Operating Temperature: -55 °C to +85 °C
(to +200 °C with voltage derating)

Capacitance Tolerance: at 120 Hz, +25 °C; $\pm 20 \%$ standard; $\pm 10 \%$

DC Leakage Current (DCL Max.): at +25 °C and above: leakage current shall not exceed the values listed in the Standard Ratings tables.

Life Test: capacitors are capable of withstanding life test at 200 °C at the applicable derated DC working voltage.

FEATURES

- High capacitance, high performance (shock and vibration)
- Hermetically sealed, tantalum case
- +200 °C high temperature
- Terminations: axial, standard tin / lead (SnPb)
- 100 % tin (RoHS-compliant) available
- Mounting: through-hole
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



RoHS*
Available

**HALOGEN
FREE
GREEN
(5-2008)**
Available

Note

* This datasheet provides information about parts that are RoHS-compliant and / or parts that are non RoHS-compliant. For example, parts with lead (Pb) terminations are not RoHS-compliant. Please see the information / tables in this datasheet for details

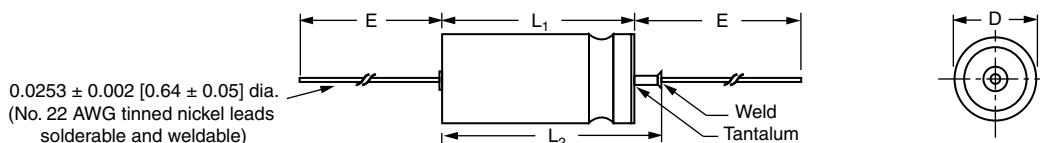
APPLICATIONS

- Industrial
- Petroleum exploration
- High temperature / high stress environment

| ORDERING INFORMATION | | | | | | | | |
|----------------------|----------------------------|---|------------------------------------|---|--|-------------------|--|---------------------|
| T34 | C | 107 | M | 125 | B | Z | 6 | S |
| MODEL | CASE CODE | CAPACITANCE | CAPACITANCE TOLERANCE | DC VOLTAGE RATING AT + 85 °C | TERMINATION AND PACKAGING | RELIABILITY LEVEL | CASE INSULATION | ESR |
| | See Standard Ratings table | This is expressed in picofarads. The first two digits are the significant figures. The third is the number of zeros to follow | K = $\pm 10 \%$ M = $\pm 20 \%$ | This is expressed in volts. To complete the three-digit block, zeros precede the voltage rating | A = 100 % tin (RoHS compliant), bulk B = std., tin / lead, bulk | Z = non-ER | 8 = no outer case insulation 6 = high temperature insulation film | S = std. L = low |

Note

- Packaging: the use of formed plastic trays for packing bulk components is standard

DIMENSIONS in inches [millimeters]


| CASE CODE | | D | L ₁ ⁽¹⁾ | L ₂ (Max.) | E | WEIGHT (g) (Max.) |
|-----------|--------------------|--------------------------------|--|-----------------------|---------------------------------|----------------------|
| TYPE T34 | CLR 79 / 81 EQUIV. | | | | | |
| A | T1 | 0.188 ± 0.016 [4.78 ± 0.41] | 0.453 + 0.031 / - 0.016 [11.51 + 0.79 / - 0.41] | 0.734 [18.64] | 1.500 ± 0.250 [38.10 ± 6.35] | 2.6 |
| B | T2 | 0.281 ± 0.016 [7.14 ± 0.41] | 0.641 + 0.031 / - 0.016 [16.28 + 0.79 / - 0.41] | 0.922 [23.42] | 2.250 ± 0.250 [57.15 ± 6.35] | 6.2 |
| C | T3 | 0.375 ± 0.016 [9.53 ± 0.41] | 0.766 + 0.031 / - 0.016 [19.46 + 0.79 / - 0.41] | 1.047 [26.59] | 2.250 ± 0.250 [57.15 ± 6.35] | 11.6 |
| D | T4 | 0.375 ± 0.016 [9.53 ± 0.41] | 1.062 + 0.031 / - 0.016 [26.97 + 0.79 / - 0.41] | 1.343 [34.11] | 2.250 ± 0.250 [57.15 ± 6.35] | 17.7 |

Note

⁽¹⁾ For insulated parts, add 0.015 inches [0.38 mm] to the diameter. The insulation shall lap over the ends of the capacitor body

RATINGS AND CASE CODES

| μF | 50 V | 60 V | 75 V | 100 V | 125 V |
|------|------|------|------|-------|-------|
| 10 | | | | | A |
| 15 | | | | A | |
| 33 | | | A | A | |
| 47 | | A | | | B |
| 68 | A | | A | B | |
| 100 | | | | | C |
| 110 | | | B | | |
| 150 | | B | | B | D |
| 220 | B | | B | D | |
| 240 | | | | | D |
| 330 | | | C | | |
| 350 | | | | | D |
| 390 | | C | | | |
| 400 | | | | D | |
| 470 | C | | D | D | |
| 560 | | D | | D | |
| 680 | D | | | | |
| 750 | | | D | D | |
| 1000 | | D | D | | |
| 1500 | D | | | | |



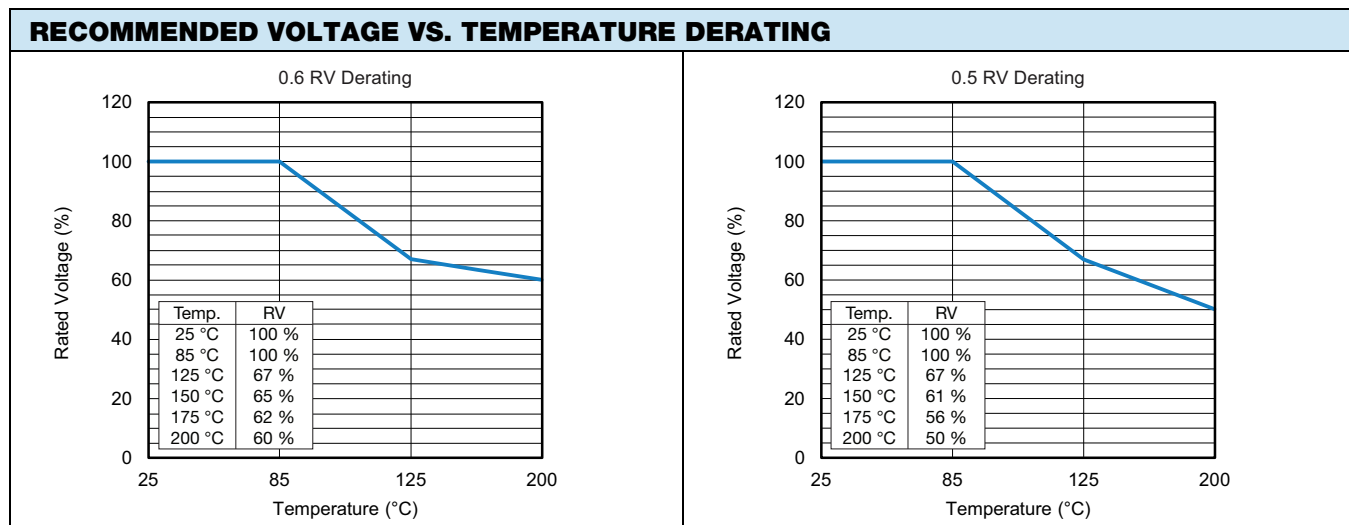
| STANDARD RATINGS | | | | | | | | |
|---|------------------------------|--------------|-------------------------|---------------------------|--|--|--|------|
| CAPACITANCE AT 25 °C 120 Hz (μF) | V _{DC} AT 200 °C | CASE CODE | PART NUMBER | MAX. ESR 120 Hz (Ω) | MAX. DCL (μA) 25 °C 85 °C / 125 °C | AC RIPPLE 85 °C AT 40 kHz (mA _{RMS}) | LIFE TEST PERFORMANCE (h AT +200 °C) | |
| 50 V _{DC} AT +85 °C | | | | | | | | |
| 68 | 30 | A | T34A686(1)050(2)(3)(4)S | 2.5 | 2 | 10 | 1050 | 1000 |
| 220 | 30 | B | T34B227(1)050(2)(3)(4)S | 0.9 | 4 | 20 | 1800 | 1000 |
| 470 | 25 | C | T34C477(1)050(2)(3)(4)S | 0.75 | 3 | 25 | 2100 | 2000 |
| 680 | 25 | D | T34D687(1)050(2)(3)(4)S | 0.7 | 5 | 7 | 2200 | 1000 |
| 1500 | 25 | D | T34D158(1)050(2)(3)(4)S | 0.5 | 15 | 110 | 3000 | 500 |
| 60 V _{DC} AT +85 °C | | | | | | | | |
| 47 | 36 | A | T34A476(1)060(2)(3)(4)S | 2.0 | 2 | 10 | 1050 | 1000 |
| 150 | 36 | B | T34B157(1)060(2)(3)(4)S | 1.5 | 2 | 10 | 1650 | 1000 |
| 390 | 30 | C | T34C397(1)060(2)(3)(4)S | 0.9 | 3 | 25 | 2100 | 1000 |
| 560 | 36 | D | T34D567(1)060(2)(3)(4)S | 0.8 | 5 | 7 | 2500 | 1000 |
| 1000 | 36 | D | T34D108(1)060(2)(3)(4)S | 0.7 | 20 | 90 | 3200 | 1000 |
| 75 V _{DC} AT +85 °C | | | | | | | | |
| 33 | 45 | A | T34A336(1)075(2)(3)(4)S | 2.5 | 2 | 10 | 1050 | 2000 |
| 68 | 45 | A | T34A686(1)075(2)(3)(4)S | 3.0 | 2 | 10 | 1050 | 500 |
| 110 | 45 | B | T34B117(1)075(2)(3)(4)S | 1.3 | 2 | 10 | 1650 | 1000 |
| 220 | 37 | B | T34B227(1)075(2)(3)(4)S | 1.8 | 5 | 50 | 2000 | 1000 |
| 330 | 45 | C | T34C337(1)075(2)(3)(4)S | 1.0 | 3 | 25 | 2100 | 1500 |
| 470 | 45 | D | T34D477(1)075(2)(3)(4)S | 0.9 | 5 | 50 | 2750 | 1000 |
| 750 | 45 | D | T34D757(1)075(2)(3)(4)S | 0.7 | 25 | 150 | 3000 | 500 |
| 1000 | 45 | D | T34D108(1)075(2)(3)(4)S | 0.7 | 20 | 90 | 3500 | 1000 |
| 100 V _{DC} AT +85 °C | | | | | | | | |
| 15 | 60 | A | T34A156(1)100(2)(3)(4)S | 3.5 | 1 | 5 | 1050 | 1000 |
| 33 | 60 | A | T34A336(1)100(2)(3)(4)S | 3.0 | 2 | 10 | 1050 | 2000 |
| 68 | 60 | B | T34B686(1)100(2)(3)(4)S | 2.1 | 2 | 10 | 1650 | 1000 |
| 150 | 50 | B | T34B157(1)100(2)(3)(4)S | 1.3 | 7.5 | 25 | 2100 | 1000 |
| 220 | 60 | D | T34D227(1)100(2)(3)(4)S | 1.2 | 5 | 50 | 2750 | 1000 |
| 400 | 60 | D | T34D407(1)100(2)(3)(4)S | 0.8 | 10 | 150 | 3000 | 1500 |
| 470 | 60 | D | T34D477(1)100(2)(3)(4)S | 0.7 | 15 | 150 | 3000 | 1000 |
| 560 | 60 | D | T34D567(1)100(2)(3)(4)S | 1.0 | 25 | 200 | 3000 | 1000 |
| 750 | 50 | D | T34D757(1)100(2)(3)(4)S | 0.7 | 25 | 150 | 3000 | 500 |
| 125 V _{DC} AT +85 °C | | | | | | | | |
| 10 | 75 | A | T34A106(1)125(2)(3)(4)S | 5.5 | 1 | 5 | 1050 | 1000 |
| 47 | 75 | B | T34B476(1)125(2)(3)(4)S | 2.3 | 2 | 20 | 1650 | 1000 |
| 100 | 75 | C | T34C107(1)125(2)(3)(4)S | 1.8 | 3 | 35 | 2100 | 1000 |
| 150 | 75 | D | T34D157(1)125(2)(3)(4)S | 1.6 | 5 | 50 | 2750 | 1000 |
| 240 | 75 | D | T34D247(1)125(2)(3)(4)S | 1.0 | 10 | 50 | 2500 | 1000 |
| 350 | 62 | D | T34D357(1)125(2)(3)(4)S | 0.8 | 25 | 250 | 3000 | 2000 |

Notes

- Typical AC ripple current values at 85 °C, 40 kHz
- Part number definitions:
 - (1) Capacitance tolerance: K, M
 - (2) Termination and packaging: A = 100 % tin, bulk; B = std., tin / lead, bulk
 - (3) Reliability level: Z = non-ER
 - (4) Style number: 6 = high temperature film insulation, 8 = no film insulation

TYPICAL PERFORMANCE CHARACTERISTICS OF T34 CAPACITORS

| ELECTRICAL CHARACTERISTICS | |
|---------------------------------|---|
| ITEM | PERFORMANCE CHARACTERISTICS |
| Operating temperature range | -55 °C to +85 °C (to +200 °C with voltage derating) |
| Capacitor tolerance | ± 20 %, ± 10 % at 120 Hz, at +25 °C |
| Capacitor change by temperature | Limit per Standard Ratings table |
| ESR | Limit per Standard Ratings table, at +25 °C, 120 Hz |
| DCL (leakage current) | Limit per Standard Ratings table |
| Reverse voltage | There shall be no continuous reverse voltage. Transient reverse voltage surges are acceptable under the following conditions: a) The peak reverse voltage is equal to or less than 1.5 V and the product of the peak current times the duration of the reverse transient is 0.05 As or less b) The repetition rate of the reverse voltage surges is less than 10 Hz |
| Surge voltage | The DC rated surge voltage is the maximum voltage to which the capacitors can be subjected under any conditions including transients and peak ripple at the highest line voltage. The DC surge voltage is 115 % of rated DC voltage. |



| PERFORMANCE CHARACTERISTICS | |
|-----------------------------|---|
| ITEM | PERFORMANCE CHARACTERISTICS |
| Life testing | Capacitors shall be capable of withstanding life test at temperature +200 °C at derated voltage. After the test, the capacitors shall meet the following requirements: a) Capacitance shall be within +10 %, -20 % of the initial value b) ESR shall not exceed 200 % of the applicable value from "Standard Ratings" table |

| ENVIRONMENTAL CHARACTERISTICS | | |
|-------------------------------|--------------------------------------|---|
| ITEM | CONDITION | COMMENTS |
| Seal | MIL-STD-202, method 112, condition C | When the capacitors are tested as specified there will be no evidence of leakage. |
| Moisture resistance | MIL-STD-202, method 106 | 10 continuous cycles, 6 V _{DC} |
| Barometric pressure (reduced) | MIL-STD-202, method 105, condition E | Altitude 150 000 feet |

**MECHANICAL CHARACTERISTICS**

| ITEM | CONDITION | COMMENTS |
|---------------------------|-------------------------|--|
| Shock (specified pulse) | MIL-STD-202, method 213 | Test condition D (500 g) |
| Vibration, high frequency | MIL-STD-202, method 204 | Test condition H (80 g) |
| Random vibration | MIL-STD-202, method 214 | Test condition II-K (53.8 g) |
| Thermal shock | MIL-STD-202, method 107 | Test condition A, 30 cycles |
| Solderability | MIL-STD-202, method 208 | ANSI / J-STD-002, test A |
| Terminal strength | MIL-STD-202, method 211 | Condition A |
| Resistance to solder heat | MIL-STD-202, method 210 | Condition C |
| Terminals | MIL-STD-1276 | Terminals shall be as specified in MIL-STD-1276. The length and diameter of the terminals shall be as specified in Dimensions table. All terminals shall be permanently secured internally and externally, as applicable. All external joints shall be welded. |
| Marking | MIL-STD-1285 | Marking of capacitors conforms to method I of MIL-STD-1285 and include capacitance (in μF), capacitance tolerance letter, rated voltage, date code, lot symbol and Vishay trademark. |

SELECTOR GUIDES

| | |
|----------------------------|--|
| Tantalum Selector Guide | www.vishay.com/doc?49054 |
| Parameter Comparison Guide | www.vishay.com/doc?42088 |



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