



DID YOU KNOW?

WET TANTALUM CAPACITORS FOR HIGH RELIABILITY

Wet tantalum capacitors are the capacitor of choice for space, military, down-hole drilling, and other high reliability applications. Vishay is the global leader in this technology and offers the broadest portfolio, as well as the industry's leading performance families.

Here are **six reasons** wet tantalum capacitors are the ideal solution for high reliability and harsh environment applications:

1 Low DC leakage. For example, the 135D series offers DCL values down to 1 μA at 25 $^{\circ}\text{C}$

- This increases battery life and reduces power consumption in DC circuits
- The internal electro-chemical process also means this value will improve over the life of the part, further optimizing circuit efficiency

2 Withstand up to 3 V of reverse voltage for wet tantalum capacitors with a tantalum metal case

- Solid tantalum or silver tantalum cased parts can exhibit catastrophic failure due to reverse voltages

3 High ripple currents. For example, 2360 mA at 40 kHz for the 10 V, 750 μF 135D series

- This stops the device from overheating and subsequently failing during operation
- It means they significantly outperform aluminum electrolytic equivalents

4 No derating up to 85 $^{\circ}\text{C}$

- This enables designers to achieve more capacitance per specified and rated voltage when used below 85 $^{\circ}\text{C}$
- Solid tantalum equivalents require up to 50 % derating

5 High temperature operation. For example, 230 $^{\circ}\text{C}$ for the T11 series

- Most wet tantalum families are restricted to +125 $^{\circ}\text{C}$ operation

6 No aging or reforming required after prolonged storage

- They also have an unlimited shelf life when stored in a controlled environment
- Some devices have been successfully used in avionics and space applications for over 50 years

Vishay wet tantalum capacitor capabilities:

- Capacitance values from 1.7 μF to 72 000 μF
- Voltage range from 6 V to 150 V
- 300 thermal shocks, -55 $^{\circ}\text{C}$ to +125 $^{\circ}\text{C}$
- 500 g mechanical shock
- 80 g sine wave vibration, 54 g random vibration
- Both tin / lead and 100 % tin RoHS-compliant terminations are available
- Meet NASA radiation-tolerant testing requirements
- Can operate at altitudes up to 150 000 feet
- Production experience since 1926
- Vishay wet tantalum technology is the best of Sprague, Philips, Tansitor, Mallory, and Arcotronics