

# T51 AEC-Q200 Qualified vPolyTan™ Polymer SMD Capacitors Combine Low ESR Down to 40 mΩ With High Volumetric Efficiency and High Temperature Operation



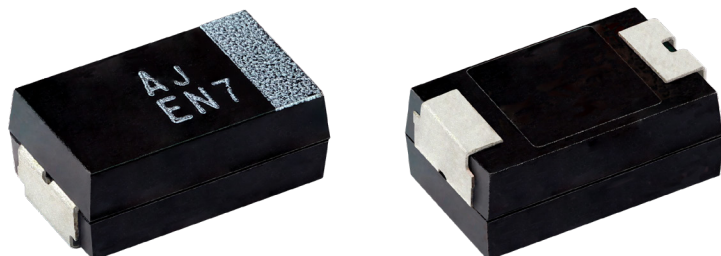
## ADVANTAGE



Delivering improved reliability and performance in high temperature, high humidity operating conditions, the AEC-Q200 qualified T51 series offers lower ESR, reduced voltage derating requirements, and a benign failure mode.

## KEY PRODUCT FEATURES

- ✓ AEC-Q200 qualified polymer tantalum capacitors
- ✓ High volumetric efficiency - able to offer more capacitance than available in other technologies
- ✓ Low ESR - more highly conductive polymer cathode system provides lower ESR than traditional tantalum capacitors



## RESOURCES



## MARKETS AND APPLICATIONS



### MOBILITY

- ADAS and Infotainment
- Body Electronics
  - Light and rain sensors
  - Communication bus
  - Car alarms
  - Windshield wipers
  - Small motor drives
  - Tire pressure sensors
- In-Vehicle Systems
  - USB type C chargers
  - Seat controls
  - Window and mirror controls
  - Panoramic roof systems
  - Cruise control



## ADDITIONAL BENEFITS

The introduction of the T51 brings to market a highly robust polymer solution that offers an improvement over standard tantalum, MLCC, and aluminum electrolytic capacitors in demanding automotive applications.

## SPECIFICATIONS:

- Specific temperature operation: -55 °C to +125 °C
- Capacitance range: 2.2 µF to 330 µF
- Voltage ratings: 2.5 V<sub>DC</sub> to 35 V<sub>DC</sub>
- Case sizes:
  - V - 7343-20
  - B - 3528-21
  - D - 7343-31

| RATINGS AND CASE CODES (ESR mΩ) |                       |                       |                       |                       |        |         |                        |                        |
|---------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|--------|---------|------------------------|------------------------|
| µD                              | 2.5 V                 | 4.0 V                 | 6.3 V                 | 10 V                  | 16 V   | 20 V    | 25 V                   | 35 V                   |
| 2.2                             |                       |                       |                       |                       |        |         |                        | B <sup>(1)</sup> (300) |
| 3.3                             |                       |                       |                       |                       |        |         |                        | B <sup>(1)</sup> (300) |
| 4.7                             |                       |                       |                       |                       |        |         | B <sup>(1)</sup> (300) | B <sup>(1)</sup> (300) |
| 6.8                             |                       |                       |                       |                       |        |         |                        | D (120)                |
| 10                              |                       |                       |                       |                       |        |         | D (120)                | D (120)                |
| 15                              |                       |                       |                       |                       |        |         | D (100)                |                        |
| 22                              |                       |                       |                       |                       |        |         | D (100)                |                        |
| 33                              |                       |                       |                       | B <sup>(1)</sup> (70) | D (70) | D (100) | D (100)                |                        |
| 47                              |                       |                       | B <sup>(1)</sup> (70) | B <sup>(1)</sup> (70) | D (70) |         | D (80)                 |                        |
| 68                              |                       |                       | B <sup>(1)</sup> (70) |                       | D (70) |         |                        |                        |
| 100                             | B <sup>(1)</sup> (70) | B <sup>(1)</sup> (70) | B <sup>(1)</sup> (70) | D (40)                | D (50) |         |                        |                        |
| 150                             |                       | D (40)                | D (40)                | D (40)                |        |         |                        |                        |
| 220                             | V (40)                | D (40)                | D (40)                | D (40)                |        |         |                        |                        |
| 330                             | V (40)                | D (40)                | D (40)                |                       |        |         |                        |                        |

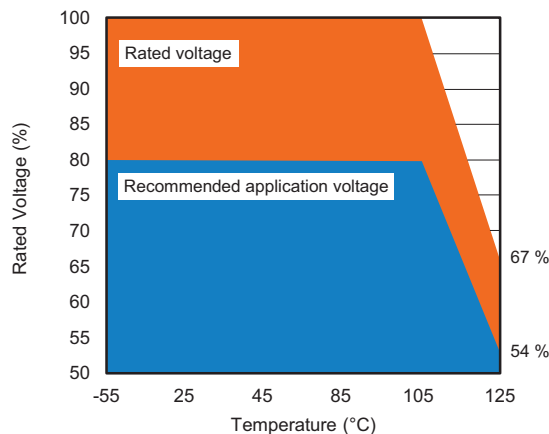
### Note

<sup>(1)</sup> Rating in development, contact factory for availability

## LOWER VOLTAGE DERATING

In addition to significantly lower ESR, the devices' conductive polymer cathode is more resilient to voltage stress and therefore requires less voltage derating than traditional tantalum capacitors.

In the illustration, we see that for a rated voltage ( $V_R$ ) of 10 V or less, only 10 % derating is required, while for  $V_R > 10$  V, 20 % derating is suggested (90 % and 80 % of application voltage respectively). These guidelines are consistent up to 105 °C. After 105 °C, we see a linear decline of the recommended derating to 40 % of  $V_R$  for < 10 V at 125 °C. Likewise, capacitors with a  $V_R > 10$  V see a decrease to a recommended derating of 46 %.



Looking for a better alternative to MLCC, aluminum electrolytic, and traditional tantalum capacitors in automotive power supplies, ADAS, infotainment, and other in-vehicle electronic systems? Please contact us, if you would like to [purchase the T51](#) or [order samples](#).