

Data Sheet

Customer: _____

Product: SMD Aluminum Electrolytic Capacitors – EZV Series
AEC-Q200 version available

Size : 4x5.5mm ~ 18x21.5mm _____

Issued Date: 20-Dec.-2023 _____

Edition: Ver. 1 _____

Record of change

| Date | Ver. | Description | Page |
|-------------|------|-------------|------|
| 20-Dec-2023 | 1 | | |
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|-------------|-------------|-------------|------------------------|
| 20-Dec-2023 | 20-Dec-2023 | 20-Dec-2023 | |

- SMD Low Impedance Type. Reflow Soldering is available.
- 4~18φ, 105°C, 2000 ~ 5000 hours load life., Rohs compliant
- Available For High Density Mounting
- AEC-Q200 version available

Characteristics

| | | | | | | | | | |
|---|--|--------------------|---|------|------|------|------|------|------|
| Voltage Range | 6.3 to 100 VDC | | | | | | | | |
| Capacitance Range | 1.0 to 6800uF | | | | | | | | |
| Temperature Range | -55 to +105°C | | | | | | | | |
| Capacitance Tolerance | +/-20% (at 20°C, 120Hz) | | | | | | | | |
| Leakage Current | I≤0.01CV or 3uA, whichever is greater, 2 minutes after Rated Voltage applied, where C = Rated Capacitance, V = Rated DC working voltage | | | | | | | | |
| Dissipation Factor (tanδ) Max (at 20°C, 120Hz) | Rated Voltage (V) | 6.3 | 10 | 16 | 25 | 35 | 50 | 63 | 100 |
| | D.F.(tanδ) | 0.30 | 0.26 | 0.22 | 0.16 | 0.13 | 0.10 | 0.08 | 0.07 |
| Stability at Low Temperature (at 120Hz) | Rated Voltage (V) | 6.3 | 10 | 16 | 25 | 35 | 50 | 63 | 100 |
| | Z-25°C/Z 20°C | 4 | 3 | 2 | 2 | 2 | 2 | 2 | 2 |
| | Z-55°C/Z 20°C | 8 | 5 | 4 | 3 | 3 | 3 | 3 | 3 |
| Load Life After the rated voltage has been applied for 2000~5000 hours at 105°C | 2000hrs for D ≤ 6.3mm, 5000hrs for D ≥ 8mm | Capacitance change | Within ±30% of initial value | | | | | | |
| | | D.F. (tanδ) | 300% or less of initial specified value | | | | | | |
| | | Leakage current | Less than initial specified value | | | | | | |
| Shelf Life | After storage for 1000 hours at 105°C, with no voltage applied and being stabilized at +20°C, Capacitor shall meet the limit specified in load life. | | | | | | | | |

Diagram of dimensions

| SIZE | Dφ | L | A | B | C | W | P±0.2 |
|------|------|----------|------|------|------|---------|-------|
| A | 4 | 5.5±0.2 | 4.3 | 4.3 | 5.1 | 0.5~0.8 | 1.0 |
| B | 5 | 5.5±0.2 | 5.3 | 5.3 | 5.9 | 0.5~0.8 | 1.5 |
| C | 6.3 | 5.5±0.2 | 6.6 | 6.6 | 7.2 | 0.5~0.8 | 2.0 |
| C8 | 6.3 | 7.7±0.3 | 6.6 | 6.6 | 7.2 | 0.5~0.8 | 2.0 |
| D | 8 | 6.5±0.3 | 8.4 | 8.4 | 9.0 | 0.5~0.8 | 2.3 |
| E | 8 | 10.5±0.3 | 8.4 | 8.4 | 9.0 | 0.7~1.1 | 3.1 |
| F | 10 | 10.5±0.3 | 10.4 | 10.4 | 11.0 | 0.7~1.3 | 4.5 |
| G | 12.5 | 14±0.3 | 13.5 | 13.5 | 15.0 | 1.1~1.4 | 4.5 |
| H | 12.5 | 16±0.3 | 13.0 | 13.0 | 15.0 | 1.1~1.4 | 4.5 |
| I | 16 | 16.5±0.5 | 17.0 | 17.0 | 18.0 | 1.1~1.4 | 6.4 |
| J | 16 | 21.5±0.5 | 17.0 | 17.0 | 18.0 | 1.1~1.4 | 6.4 |
| K | 18 | 16.5±0.5 | 19.0 | 19.0 | 20.0 | 1.1~1.4 | 6.4 |
| L | 18 | 21.5±0.5 | 19.0 | 19.0 | 20.0 | 1.1~1.4 | 6.4 |

Size A~F refer to Fig. 1

Size G~L refer to Fig. 2

Fig. 1

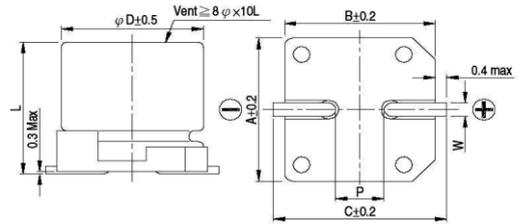
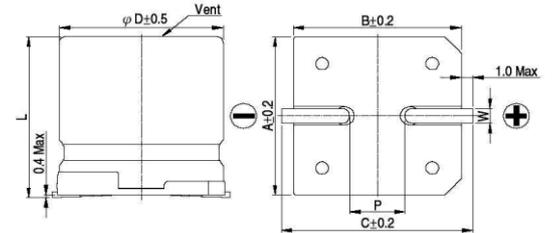


Fig. 2



Multiplier for Ripple Current vs Frequency

| Frequency(Hz) | 60(50) | 120 | 1K | ≥10K |
|---------------|--------|------|------|------|
| Multiplier | 0.60 | 0.70 | 0.85 | 1.00 |

Part Numbering System

AEZV □ □ □ M □ □ R □
Series Capacitance Tolerance Rated Voltage Package Case Size

Reliability for Car- Tronics

AEC Q-200_REV D

Endurance Characteristic:

| No. | Item | Conditions | Specification | | Reference | |
|-----|-------------------------------------|--|------------------------------------|-----------------------------------|------------------------------|------------------------|
| 1 | High Temperature Load Life Test | Capacitor is placed in the highest temperature with rated voltage for 5000+72/-0Hrs. | Capacitance change | Within ±30% of initial value | MIL-STD-202 Method 108 | |
| | | | Tanδ | Less than 300% of specified value | | |
| | | | Leakage Current | Within specified value | | |
| | | | Appearance | No abnormality | | |
| 2 | High Temperature Exposure (Storage) | Capacitor is placed in the highest temperature for 1000+48/-0Hrs. | Capacitance change | Within ±30% of initial value | MIL-STD-202 Method1 08 | |
| | | | Tanδ | Less than 300% of specified value | | |
| | | | Leakage Current | Within specified value | | |
| | | | Appearance | No abnormality | | |
| 3 | Temperature Cycling | Step1: Max. rated temperature±3/-3°C(30±3mins) Step2: Min. rated temperature±3/-3°C(30±3mins) Max.transfer time: 1min According to the step1 to step2, and do 1000cycles | Capacitance change | Within ±10% of initial value | JESD22 Method JA-104 | |
| | | | Tan δ | Within specified value | | |
| | | | Leakage Current | Within specified value | | |
| | | | Appearance | No abnormality | | |
| 4 | Biased Humidity | Capacitor is placed at the temperature of 85±3°C, and humidity of 85% with rated voltage for 1000Hrs | Capacitance change | Within ±20% of initial value | MIL-STD-202 Method 103 | |
| | | | Tanδ | Less than 150% of specified value | | |
| | | | Leakage Current | Within specified value | | |
| | | | Appearance | No abnormality | | |
| 5 | Physical Dimension | | Appearance | No abnormality | JESD22 Method JB-100 | |
| 6 | Resistance To Solvent | 1.The capacitor shall be immersed into the isopropyl. 2.Immersion time: 3 +0.5/-0 minutes at 25±5°C. 3.Use wool brush to brush capacitor for 10 times. Conduct the steps 1~3 for 3 cycles. | Print cannot fall off or ambiguous | | MIL-STD-202 Method 215 | |
| 7 | Mechanical Shock | Capacitor is placed on the PCB and fixed.Conditions as below: | | Capacitance change | Within ±10% of initial value | MIL-STD-202 Method 213 |
| | | Test items | For automobile | Tanδ | Within specified value | |
| | | Acceleration speed | 100g(1000 m/s²) | Leakage Current | Within specified value | |
| | | Shocking direction | X-Y-Z three axles (6 planes) | Appearance | No abnormality | |
| | | Duration(D)(ms) | 6 | | | |
| | | Velocity(m/s) | 3.75 | | | |
| | | Wave | Half sine | | | |
| | | Test times | 18times (3*6=18) | | | |
| 8 | Vibration | Capacitor is placed in the PCB and fixed. Setting the acceleration (5g)and frequency (10-2000Hz) according to the test condition ,vibration 4Hrs from three directions (X-Y-Z). | Capacitance change | Within ±10% of initial value | MIL-STD-202 Method 204 | |
| | | | Tan δ | Within specified value | | |
| | | | Leakage Current | Within specified value | | |
| | | | Appearance | No abnormality | | |

| No. | Item | Conditions | Specification | Reference | | | | | | | |
|---------------|------------------------------|---|--|-----------------------------------|------------------------|--------|------|------|------|------|------|
| 9 | Resistance to Soldering Heat | According to the Control standard operating of Jarson, test twice. | Capacitance change | Within ±10% of initial value | MIL-STD-202 Method 210 | | | | | | |
| | | | Tanδ | Within specified value | | | | | | | |
| | | | Leakage Current | Within specified value | | | | | | | |
| | | Appearance | No abnormality | | | | | | | | |
| | | Rated voltage (V) | 4~50 | 63 up | | 4~100 | | | | | |
| | | Case size (φ) | 4~6.3 | 4~6.3 | | 8~12.5 | | | | | |
| | | Preheat | Temp.(T1~T2,°C) | 150-180 | | | | | | | |
| | | | Time (t1)(Max,secs) | 100 | | | | | | | |
| | | Duration | Temp.(T3,°C) | 217 | | 230 | 217 | 217 | 230 | | |
| | | | Time (t2)(Max,secs) | 90 | | 60 | 60 | 60 | 40 | | |
| Peak | Temp.(T4,°C) | 260 | | 250 | | 250 | | | | | |
| | Time (t3,secs) | 5 | | | | | | | | | |
| Reflow cycles | 2 or less | | | | | | | | | | |
| 10 | Solderability test (SMD) | Solderability test 1: Solder bath temperature: 235±5°C Duration:5±0/-0.5s Solderability test 2:Solder bath temperature:260±5°C Duration:7±0.5s | Sn is more than 95% in the surface of terminal | | J-STD-002B | | | | | | |
| 11 | Electrical Characterization | Whether there is abnormality about electrical characterization in the test that under the ensurance temperature(the lowest ,the highest, atmospheric temperature). | Appearance: No abnormality | | User Spec. | | | | | | |
| 12 | Board Flex | Capacitor is placed in the PCB and pressed to deviate from Original fulcrum more than 2mm for 60 (+5) s. | Capacitance change | Within ±10% of initial value | AEC-Q200-005 | | | | | | |
| | | | Tanδ | Within specified value | | | | | | | |
| | | | Leakage Current | Within specified value | | | | | | | |
| | | | Appearance | No abnormality | | | | | | | |
| 13 | Terminal Strength (SMD) | Test condition: Capacitor is placed in the PCB by solder paste and do high temperature test (Reflow) to endurance the power of 1.8kg for 60S,no dropping condition. | Capacitance change | Within ±10% of initial value | AEC-Q200-006 | | | | | | |
| | | | Tanδ | Within specified value | | | | | | | |
| | | | Leakage Current | Within specified value | | | | | | | |
| | | | Appearance | No abnormality | | | | | | | |
| 14 | Surge Voltage | Capacitor is placed at 15°C~35°C with surge voltage for 30±5(charging) and 330s(discharging),do surge voltage test continuity for 1000 times. Applying voltage: | Capacitance change | Within ±20% of initial value | AEC-Q200-007 | | | | | | |
| | | | Tanδ | Less than 175% of specified value | | | | | | | |
| | | | Leakage Current | Within specified value | | | | | | | |
| | | | Appearance | No abnormality | | | | | | | |
| | | | W.V. | 6.3 | | 10 | 16 | 25 | 35 | 50 | 63 |
| | | | S. V. | 7.3 | | 11.5 | 18.4 | 28.8 | 40.3 | 57.5 | 72.5 |
| W.V. | 80 | 100 | 160 | 200 | 250 | 400 | 450 | | | | |
| S. V. | 92 | 115 | 184 | 230 | 288 | 440 | 495 | | | | |