

## *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		

### **HITANO ENTERPRISE CORP.**

7F-7, No. 3, Wu Chuan 1<sup>st</sup> Road, New Taipei Industrial Park,  
 New Taipei City, TAIWAN, R.O.C.

Tel: +886 2 2299 1331 (Rep.)

Fax: +886 2 2298 2466, 2298 2969

Prepared by	Checked by	Approved by	Accepted by (customer)
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**

<b>Voltage Range</b>	6.3 to 100 VDC								
<b>Capacitance Range</b>	1.0 to 6800uF								
<b>Temperature Range</b>	-55 to +105°C								
<b>Capacitance Tolerance</b>	+/-20% (at 20°C, 120Hz)								
<b>Leakage Current</b>	I≤0.01CV or 3uA, whichever is greater, 2 minutes after Rated Voltage applied, where C = Rated Capacitance, V = Rated DC working voltage								
<b>Dissipation Factor (tanδ) Max (at 20°C, 120Hz)</b>	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
<b>Stability at Low Temperature (at 120Hz)</b>	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
<b>Load Life</b> 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						
<b>Shelf Life</b>	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

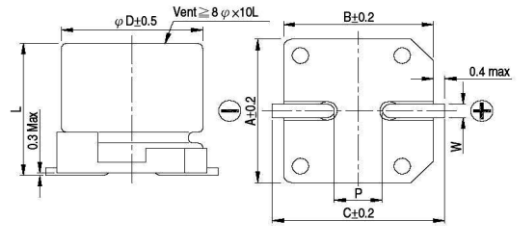
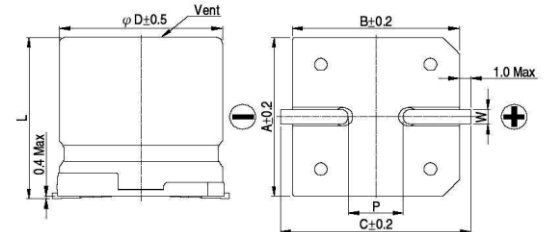


Fig. 2



**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 $\pm 30\%$ of initial value	MIL-STD-202 Method 108	
			Tan $\delta$	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 $\pm 30\%$ of initial value	MIL-STD-202 Method1 08	
			Tan $\delta$	Less than 300% of specified value		
			Leakage Current	Within specified value		
			Appearance	No abnormality		
3	Temperature Cycling	Step1: Max. rated temperature $\pm 3/-3^{\circ}\text{C}$ (30 $\pm$ 3mins) Step2: Min. rated temperature $\pm 3/-3^{\circ}\text{C}$ (30 $\pm$ 3mins) Max.transfer time: 1min According to the step1 to step2, and do 1000cycles	Capacitance change	Within $\pm 10\%$ of initial value	JESD22 Method JA-104	
			Tan $\delta$	Within specified value		
			Leakage Current	Within specified value		
			Appearance	No abnormality		
4	Biased Humidity	Capacitor is placed at the temperature of 85 $\pm$ 3 $^{\circ}\text{C}$ , and humidity of 85% with rated voltage for 1000Hrs	Capacitance change	Within $\pm 20\%$ of initial value	MIL-STD-202 Method 103	
			Tan $\delta$	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 $\pm$ 5 $^{\circ}\text{C}$ . 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 $\pm 10\%$ of initial value	MIL-STD-202 Method 213
		Test items	For automobile	Tan $\delta$	Within specified value	
		Acceleration speed	100g(1000 m/s <sup>2</sup> )	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 $\pm 10\%$ of initial value	MIL-STD-202 Method 204	
			Tan $\delta$	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				