

## Surface Mount Type

Series: **ZC** Type: **V**

High temperature Lead-Free reflow



### ■ Features

- Endurance: 4000 h at 125 °C  
(The longest endurance in the industry by each case size)
- Low ESR and High ripple current (85 % over, Lower ESR than Current V-TP)
- High-withstand voltage (25 V to 63V), Low LC (0.01 CV or 3μF)
- Equivalent to conductive polymer type Aluminum Electrolytic Capacitor  
(There are little characteristics change by temperature and frequency)
- Vibration-proof product is available upon request. (φ 8 mm and larger)
- AEC-Q200 qualified \*
- RoHS directive compliant

### ■ Specifications

Category Temp. Range	-55 °C to +125 °C	
Rated W.V. Range	25 V.DC to 63 V.DC	
Nominal Cap. Range	10 μF to 330 μF	
Capacitance Tolerance	±20 % (120 Hz/+20 °C)	
DC Leakage Current	I ≤ 0.01 CV or 3 (μA) After 2 minutes (Whichever is greater)	
tan δ	Please see the attached Standard Products list	
Endurance 1	The capacitor shall be subjected to application of the D.C. voltage with full rated ripple current at +125 °C for 4000 hours. After stabilizing at room temperature(+15 to 35 °C), the capacitor shall not exceed the specified limits. (The sum of DC voltage and ripple peak voltage shall not exceed the rated voltage.)	
	Capacitance change	±30 % of initial measured value
	tan δ	≤ 200 % initial specified value
	E.S.R.	≤ 200 % initial specified value
	DC leakage current	≤ initial specified value
Endurance 2	The capacitor shall be subjected to application of the D.C. voltage with full rated ripple current at +125 °C for 3000 hours. After stabilizing at room temperature(+15 to 35 °C), the capacitor shall not exceed the specified limits. (The sum of DC voltage and ripple peak voltage shall not exceed the rated voltage.)	
	Capacitance change	±30 % of initial measured value
	tan δ	≤ 200 % initial specified value
	E.S.R.	≤ 300 % initial specified value
	DC leakage current	≤ initial specified value
Shelf Life	After storage for 1000 hours at +125 °C±2 °C with no voltage applied and then being stabilized at +20 °C, capacitors shall meet the limits specified in Endurance. (With voltage treatment)	
Damp Heat (Load)	After applying rated working voltage for 2000 hours at +85°C±2°C / 85% to 90%RH and then being stabilized at +20°C, Capacitors shall meet the following limits.	
	Capacitance change	±30 % of initial measured value
	tan δ	≤ 200 % initial specified value
	E.S.R.	≤ 200 % initial specified value
	DC leakage current	≤ initial specified value
Resistance to Soldering Heat	After reflow soldering and then being stabilized at +20 °C, capacitors shall meet the following limits.	
	Capacitance change	±10 % of initial measured value
	tan δ	≤ initial specified value
	DC leakage current	≤ initial specified value

### ■ Marking

Example : 25 V 33 μF Marking color : BLACK

Negative polarity marking (-)  
Capacitance (μF)  
Series identification  
Rated Voltage Mark  
Lot number

E	25 V	J	63 V
V	35 V		
H	50 V		

### ■ Dimensions in mm (not to scale)

(Unit : mm)

Pressure Relief (φ 10 and larger) ( ) Reference

Size code	D	L	A, B	H	I	W	P	K
C	5.0	5.8±0.3	5.3	6.5 max.	2.2	0.65±0.1	1.5	0.35 <sup>+0.15</sup> <sub>-0.20</sub>
D	6.3	5.8±0.3	6.6	7.8 max.	2.6	0.65±0.1	1.8	0.35 <sup>+0.15</sup> <sub>-0.20</sub>
D8	6.3	7.7±0.3	6.6	7.8 max.	2.6	0.65±0.1	1.8	0.35 <sup>+0.15</sup> <sub>-0.20</sub>
F	8.0	10.2±0.3	8.3	10.0 max.	3.4	0.90±0.2	3.1	0.70±0.2
G	10.0	10.2±0.3	10.3	12.0 max.	3.5	0.90±0.2	4.6	0.70±0.2

\* This product qualifi for AEC-Q200, but it has some deviations.

Design and specifications are each subject to change without notice. Ask factory for the current technical specifications before purchase and/or use. Should a safety concern arise regarding this product, please be sure to contact us immediately.

Endurance 1 : 125 °C 4000 h

Endurance 2 : 125 °C 3000 h

■ **Standard Products**

W.V. (V)	Cap. (±20 %) (μF)	Case size			Specification				Part No. (RoHS: compliant)	Reflow	Min. Packaging Q'ty
		Dia. (mm)	Length (mm)	Size Code	Ripple Current (100 kHz) (+125 °C) (mA r.m.s.)		E.S.R. (100 kHz) (mΩ)	tan δ (120 Hz) (+20 °C)			Taping (pcs)
					Endurance 1	Endurance 2					
25	33	5	5.8	C	550	—	80	0.14	EEHZC1E330R	(5)	1000
	56	6.3	5.8	D	900	—	50	0.14	EEHZC1E560P	(5)	1000
	100	6.3	7.7	D8	1400	—	30	0.14	EEHZC1E101XP	(5)	900
	220	8	10.2	F	1600	1900	27	0.14	EEHZC1E221P	(6)	500
	330	10	10.2	G	2000	2900	20	0.14	EEHZC1E331P	(6)	500
35	22	5	5.8	C	550	—	100	0.12	EEHZC1V220R	(5)	1000
	47	6.3	5.8	D	900	—	60	0.12	EEHZC1V470P	(5)	1000
	68	6.3	7.7	D8	1400	—	35	0.12	EEHZC1V680XP	(5)	900
	150	8	10.2	F	1600	1900	27	0.12	EEHZC1V151P	(6)	500
	270	10	10.2	G	2000	2800	20	0.12	EEHZC1V271P	(6)	500
50	10	5	5.8	C	500	—	120	0.10	EEHZC1H100R	(5)	1000
	22	6.3	5.8	D	750	—	80	0.10	EEHZC1H220P	(5)	1000
	33	6.3	7.7	D8	1100	—	40	0.10	EEHZC1H330XP	(5)	900
	68	8	10.2	F	1250	—	30	0.10	EEHZC1H680P	(6)	500
	100	10	10.2	G	1600	—	28	0.10	EEHZC1H101P	(6)	500
63	10	6.3	5.8	D	700	—	120	0.08	EEHZC1J100P	(5)	1000
	22	6.3	7.7	D8	900	—	80	0.08	EEHZC1J220XP	(5)	900
	33	8	10.2	F	1100	—	40	0.08	EEHZC1J330P	(6)	500
	56	10	10.2	G	1400	—	30	0.08	EEHZC1J560P	(6)	500

• Please refer to the page of "Reflow Profile" and "The Taping Dimensions".

• When requesting vibration-proof product, please put the last "V" instead to "P"

■ **Frequency correction factor for ripple current**

Capacitance (μF)	Frequency (kHz)	0.1	0.12	0.2	0.3	0.5	1	2	3	5	10	15	20	30	40	50	100	300	500	1000
C < 47	Correction factor	0.10	0.10	0.10	0.15	0.20	0.30	0.40	0.45	0.50	0.60	0.65	0.70	0.75	0.80	0.85	1.00	1.00	1.05	1.05
47 ≤ C < 150		0.15	0.15	0.20	0.25	0.30	0.40	0.45	0.55	0.60	0.70	0.75	0.80	0.80	0.85	0.90	1.00	1.00	1.00	1.00
150 ≤ C		0.15	0.15	0.25	0.25	0.30	0.45	0.50	0.60	0.65	0.75	0.80	0.85	0.85	0.85	0.90	1.00	1.00	1.00	1.00

■ **After Endurance ESR (100kHz, -40°C)**

Size	φ 5x5.8	φ 6.3x5.8	φ 6.3x7.7	φ 8x10.2	φ 10x10.2
ESR (Ω)	2.0	1.4	0.8	0.4	0.3

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