

## Surface Mount Type

Series : **ZC** Type : **V**  
**High temperature Lead-Free reflow**



### Features

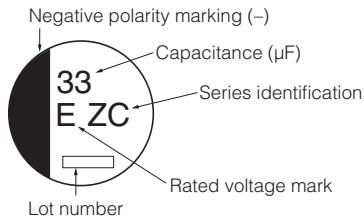
- Endurance: 4000 h at 125 °C (High temperature / Long life)
- Low ESR and high ripple current (85 % over, Lower ESR than current V-TP)
- High-withstand voltage (25 V.DC to 80 V.DC), Low LC (0.01 CV or 3 µA)
- Equivalent to conductive polymer type aluminum electrolytic capacitor (There are little characteristics change by temperature and frequency)
- Vibration-proof product is available upon request. (φ8 mm and larger)
- AEC-Q200 compliant
- RoHS directive compliant

### Specifications

Size code	C	D	D8	F	G				
Category temp. range	-55 °C to +125 °C								
Rated voltage range	25 V.DC to 50 V.DC		25 V.DC to 63 V.DC		25 V.DC to 80 V.DC				
Nominal cap.range	10 µF to 33 µF	10 µF to 56 µF	22 µF to 100 µF	22 µF to 220 µF	33 µF to 330 µF				
Capacitance tolerance	±20 % (120 Hz/+20 °C)								
DC leakage current	$I \leq 0.01 \text{ CV or } 3 \text{ } (\mu\text{A})$ After 2 minutes (whichever is greater)								
Dissipation factor (tan $\delta$ )	Please see the attached standard products list								
Endurance 1	125 °C, 4000 h, apply the rated ripple current without exceeding the rated voltage								
	Capacitance change	Within ±30% of the initial value							
	$\tan \delta$	$\leq 200 \text{ \%}$ of the initial limit							
	E. S. R.	$\leq 200 \text{ \%}$ of the initial limit							
Endurance 2	125 °C, 3000 h, apply the rated ripple current without exceeding the rated voltage								
	Capacitance change	Within ±30% of the initial value							
	$\tan \delta$	$\leq 200 \text{ \%}$ of the initial limit							
	E. S. R.	$\leq 300 \text{ \%}$ of the initial limit							
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)	85 °C, 85 % to 95 %, 2000 h, rated voltage applied								
	Capacitance change	Within ±30% of the initial value							
	$\tan \delta$	$\leq 200 \text{ \%}$ of the initial limit							
	E. S. R.	$\leq 200 \text{ \%}$ of the initial limit							
Resistance to soldering heat	After reflow soldering and then being stabilized at +20 °C, capacitors shall meet the following limits.								
	Capacitance change	Within ±10% of the initial value							
	$\tan \delta$	Within the initial limit							
	DC leakage current	Within the initial limit							

### Marking

Example : 25 V.DC 33 µF Marking color : BLACK



Rated voltage mark

E	25 V.DC	J	63 V.DC
V	35 V.DC	K	80 V.DC
H	50 V.DC		

### Dimensions (not to scale)

Size code	D	L	A, B	H	I	W	P	K	( ) Reference size
									(Unit : mm)
C	5.0	5.8±0.3	5.3	6.5 max.	2.2	0.65±0.1	1.5	0.35±0.25	
D	6.3	5.8±0.3	6.6	7.8 max.	2.6	0.65±0.1	1.8	0.35±0.25	
D8	6.3	7.7±0.3	6.6	7.8 max.	2.6	0.65±0.1	1.8	0.35±0.25	
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	

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.

## Standard products

Endurance 1 : 125 °C 4000 h  
Endurance 2 : 125 °C 3000 h

Rated voltage (V.DC)	Capacitance (±20 %) (μF)	Case size (mm)		Size code	Specification			Part number	Min. packaging q'ty	
		φD	L		Ripple current (100 kHz) (+125 °C) (mA r.m.s.)	ESR (100 kHz) (+20 °C) (mΩ)	tanδ (120 Hz) (+20 °C)			
					Endurance 1	Endurance 2				
25	33	5	5.8	C	550	—	80	0.14	EEHZC1E330R	
	56	6.3	5.8	D	900	—	50	0.14	EEHZC1E560P	
	100	6.3	7.7	D8	1400	—	30	0.14	EEHZC1E101XP	
	220	8	10.2	F	1600	1900	27	0.14	EEHZC1E221P	
	330	10	10.2	G	2000	2900	20	0.14	EEHZC1E331P	
35	22	5	5.8	C	550	—	100	0.12	EEHZC1V220R	
	47	6.3	5.8	D	900	—	60	0.12	EEHZC1V470P	
	68	6.3	7.7	D8	1400	—	35	0.12	EEHZC1V680XP	
	150	8	10.2	F	1600	1900	27	0.12	EEHZC1V151P	
	270	10	10.2	G	2000	2800	20	0.12	EEHZC1V271P	
50	10	5	5.8	C	500	—	120	0.10	EEHZC1H100R	
	22	6.3	5.8	D	750	—	80	0.10	EEHZC1H220P	
	33	6.3	7.7	D8	1100	—	40	0.10	EEHZC1H330XP	
	68	8	10.2	F	1250	—	30	0.10	EEHZC1H680P	
	100	10	10.2	G	1600	—	28	0.10	EEHZC1H101P	
63	120	10	10.2	G	1600	—	28	0.10	EEHZC1H121P	
	10	6.3	5.8	D	700	—	120	0.08	EEHZC1J100P	
	22	6.3	7.7	D8	900	—	80	0.08	EEHZC1J220XP	
	33	8	10.2	F	1100	—	40	0.08	EEHZC1J330P	
	56	10	10.2	G	1400	—	30	0.08	EEHZC1J560P	
80	68	10	10.2	G	1400	—	30	0.08	EEHZC1J680P	
	22	8	10.2	F	1050	—	45	0.08	EEHZC1K220P	
	33	10	10.2	G	1360	—	36	0.08	EEHZC1K330P	
80	47	10	10.2	G	1360	—	36	0.08	EEHZC1K470P	

• 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

Rated capacitance	Frequency	100 Hz ≤ f < 200 Hz	200 Hz ≤ f < 300 Hz	300 Hz ≤ f < 500 Hz	500 Hz ≤ f < 1 kHz
C < 47 μF	Correction factor	0.10	0.10	0.15	0.20
47 μF ≤ C < 150 μF		0.15	0.20	0.25	0.30
150 μF ≤ C		0.15	0.25	0.25	0.30
Rated capacitance	Frequency	1 kHz ≤ f < 2 kHz	2 kHz ≤ f < 3 kHz	3 kHz ≤ f < 5 kHz	5 kHz ≤ f < 10 kHz
C < 47 μF	Correction factor	0.30	0.40	0.45	0.50
47 μF ≤ C < 150 μF		0.40	0.45	0.55	0.60
150 μF ≤ C		0.45	0.50	0.60	0.65
Rated capacitance	Frequency	10 kHz ≤ f < 15 kHz	15 kHz ≤ f < 20 kHz	20 kHz ≤ f < 30 kHz	30 kHz ≤ f < 40 kHz
C < 47 μF	Correction factor	0.60	0.65	0.70	0.75
47 μF ≤ C < 150 μF		0.70	0.75	0.80	0.80
150 μF ≤ C		0.75	0.80	0.85	0.85
Rated capacitance	Frequency	40 kHz ≤ f < 50 kHz	50 kHz ≤ f < 100 kHz	100 kHz ≤ f < 500 kHz	500 kHz ≤ f
C < 47 μF	Correction factor	0.80	0.85	1.00	1.05
47 μF ≤ C < 150 μF		0.85	0.90	1.00	1.00
150 μF ≤ C		0.85	0.90	1.00	1.00

## After endurance ESR (100 kHz, -40 °C)

Size	φ5×5.8	φ6.3×5.8	φ6.3×7.7	φ8×10.2	φ10×10.2
ESR (Ω)	2.0	1.4	0.8	0.4	0.3

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