Surface Mount Type

Series: **ZE** Type: **V**

High temperature lead-free reflow

Features

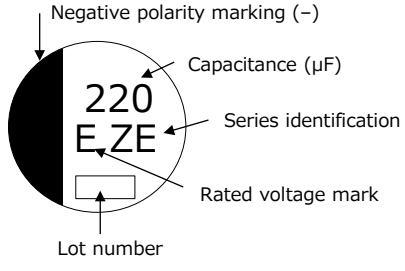
- Endurance: 2000 h at 145 °C (High temperature / Long life)
- Low ESR and high ripple current (85 % over, Lower ESR than current V-TP)
- High-withstand voltage (to 63 V.DC), Low LC (0.01 CV or 3 μA)
- Equivalent to conductive polymer type aluminum electrolytic capacitor
  (There are little characteristics 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	F	G
Category temp. range	−55 ℃ to +145 ℃	
Rated voltage range	25 V.DC to 63 V.DC	
Nominal cap.range	33 μF to 220 μF	56 μF to 330 μF
Capacitance tolerance	±20 % (120 Hz / +20 ℃)	
DC leakage current	I ≦ 0.01 CV or 3 (μA) After 2 minutes (whichever is greater)	
Dissipation factor (tan δ)	Please see the attached characteristics list	
Endurance 1	+145 °C ± 2 °C, 2000 h, apply the rated ripple current without exceeding the rated voltage	
	Capacitance change	Within ±30% of the initial value
	Dissipation factor (tan δ)	≦ 200 % of the initial limit
	E.S.R.	≦ 200 % of the initial limit
	DC leakage current	Within the initial limit
Endurance 2	+135 °C ± 2 °C, 4000 h, apply the rated ripple current without exceeding the rated voltage	
	Capacitance change	Within ±30% of the initial value
	Dissipation factor (tan δ)	≦ 200 % of the initial limit
	E.S.R.	≦ 200 % of the initial limit
	DC leakage current	Within the initial limit
Shelf life	After storage for 1000 hours at +145 °C±2 °C with no voltage applied and then being stabilized at +20 °C, capacitors shall meet the limits specified in endurance 1. (With voltage treatment)	
Damp heat (Load)	85 °C ± 2 °C, 85 % to 90 %, 2000 h, rated voltage applied	
	Capacitance change	Within ±30% of the initial value
	Dissipation factor (tan δ)	≦ 200 % of the initial limit
	E.S.R.	≦ 200 % of the initial limit
	DC leakage current	Within 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
	Dissipation factor (tan δ)	Within the initial limit
	DC leakage current	Within the initial limit

Marking

Example : 25 V.DC 220 μF
Marking color : BLACK



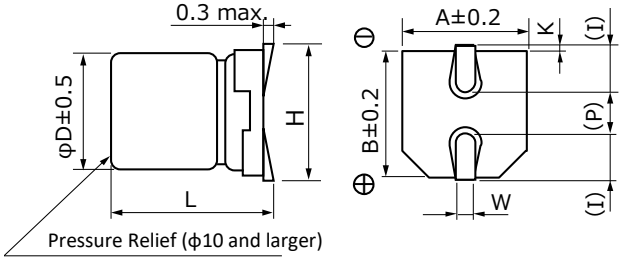
Rated voltage mark

E	25
V	35

Unit : V.DC

H	50
J	63

Dimensions (not to scale)



( )Reference size

Unit : mm

Size code	φD	L	A、B	H	I	W	P	K
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

·The dimensions of the vibration-proof products, please refer to the page of the mounting specification.

Characteristics list

Endurance 1 : 145 ℃ 2000 h
Endurance 2 : 135 ℃ 4000 h

Rated voltage (V.DC)	Capaci-tance (±20 %) (μF)	Case size (mm)		Size code	Specification				Part number		Min. packaging q'ty
		φD	L		Ripple current *1 (mA r.m.s.)		ESR*2 (mΩ)	tan δ *3	Standard product	Vibration-proof product	Taping (pcs)
					Endurance 1 (+145℃)	Endurance 2 (+135℃)					
25	220	8.0	10.2	F	700	1600	27	0.14	EEHZE1E221P	EEHZE1E221V	500
	330	10.0	10.2	G	900	2000	20	0.14	EEHZE1E331P	EEHZE1E331V	500
35	150	8.0	10.2	F	700	1600	27	0.12	EEHZE1V151P	EEHZE1V151V	500
	270	10.0	10.2	G	900	2000	20	0.12	EEHZE1V271P	EEHZE1V271V	500
50	68	8.0	10.2	F	600	1250	30	0.10	EEHZE1H680P	EEHZE1H680V	500
	100	10.0	10.2	G	800	1600	28	0.10	EEHZE1H101P	EEHZE1H101V	500
63	33	8.0	10.2	F	600	1100	40	0.08	EEHZE1J330P	EEHZE1J330V	500
	56	10.0	10.2	G	800	1400	30	0.08	EEHZE1J560P	EEHZE1J560V	500

*1: Ripple current (100 kHz / +145 ℃ or+135℃)
*2: ESR (100 kHz / +20 ℃)
*3: tan δ (120 Hz / +20 ℃)
・Please refer to the page of “Reflow profile” and “The taping dimensions”.
・The dimensions of the vibration-proof products, please refer to the page of the mounting specification.

Frequency correction factor for ripple current

Rated capacitance (C)	Frequency (f)	100Hz ≦ f＜ 200Hz	200Hz ≦ f＜ 300Hz	300Hz ≦ f＜ 500Hz	500Hz ≦ f＜ 1kHz
C ＜ 47μF	Correction factor	0.10	0.10	0.15	0.20
47μF ≦ C ＜ 150μF		0.15	0.20	0.25	0.30
150μF ≦ C		0.15	0.25	0.25	0.30

Rated capacitance (C)	Frequency (f)	1kHz ≦ f＜ 2kHz	2kHz ≦ f＜ 3kHz	3kHz ≦ f＜ 5kHz	5kHz ≦ f＜ 10kHz
C ＜ 47μF	Correction factor	0.30	0.40	0.45	0.50
47μF ≦ C ＜ 150μF		0.40	0.45	0.55	0.60
150μF ≦ C		0.45	0.50	0.60	0.65

Rated capacitance (C)	Frequency (f)	10kHz ≦ f＜ 15kHz	15kHz ≦ f＜ 20kHz	20kHz ≦ f＜ 30kHz	30kHz ≦ f＜ 40kHz
C ＜ 47μF	Correction factor	0.60	0.65	0.70	0.75
47μF ≦ C ＜ 150μF		0.70	0.75	0.80	0.80
150μF ≦ C		0.75	0.80	0.85	0.85

Rated capacitance (C)	Frequency (f)	40kHz ≦ f＜ 50kHz	50kHz ≦ f＜ 100kHz	100kHz ≦ f＜ 500kHz	500kHz ≦ f
C ＜ 47μF	Correction factor	0.80	0.85	1.00	1.05
47μF ≦ C ＜ 150μF		0.85	0.90	1.00	1.00
150μF ≦ C		0.85	0.90	1.00	1.00

After endurance ESR（100 kHz、-40℃）

Size	φ8 x L10.2	φ10 x L10.2
ESR (Ω)	0.4	0.3

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