Surface Mount Type

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

High temperature Lead-Free reflow

Features

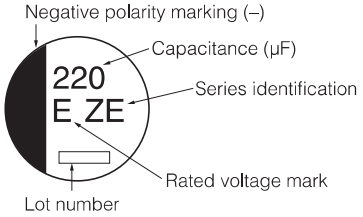
- Endurance: 2000 h at 145 °C (High temperature / Long life)
- Low ESR and high ripple current (85 % over, Lower ESR than current V-TP)
- High-withstand voltage (25 V.DC to 63 V.DC), Low LC (0.01 CV or 3 μA)
- Equivalent to conductive polymer type aluminum electrolytic capacitor (There are little characteristics 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 °C to +145 °C	
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 °C)	
DC leakage current	I ≦ 0.01 CV or 3 (μA) After 2 minutes (whichever is greater)	
Dissipation factor (tan δ)	Please see the attached standard products list	
Endurance 1	145 °C, 2000 h, apply the rated ripple current without exceeding the rated voltage	
	Capacitance change	Within ±30% of the initial value
	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, 4000 h, apply the rated ripple current without exceeding the rated voltage	
	Capacitance change	Within ±30% of the initial value
	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. (With voltage treatment)	
Damp heat (Load)	85 °C, 85 % to 90 %, 2000 h, rated voltage applied	
	Capacitance change	Within ±30% of the initial value
	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
	tan δ	Within the initial limit
	DC leakage current	Within the initial limit

Marking

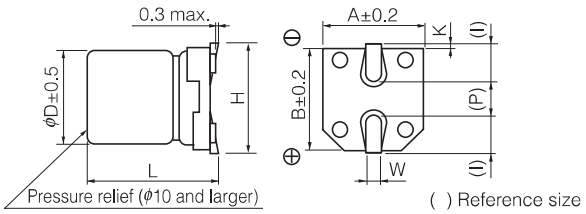
Example : 25 V.DC 220 μF Marking color : BLACK



Rated voltage mark

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

Dimensions (not to scale)



( ) Reference size

(Unit : mm)

Size code	D	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.

Standard products

Endurance 1 : 145 °C 2000 h
Endurance 2 : 135 °C 4000 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) (mA r.m.s.)		ESR (100 kHz) (+20 °C) (mΩ)	tanδ (120 Hz) (+20 °C)	Standard Product	Vibration-proof product	Taping (pcs)
					Endurance 1 (+145 °C)	Endurance 2 (+135 °C)					
25	220	8	10.2	F	700	1600	27	0.14	EEHZE1E221P	EEHZE1E221V	500
	330	10	10.2	G	900	2000	20	0.14	EEHZE1E331P	EEHZE1E331V	500
35	150	8	10.2	F	700	1600	27	0.12	EEHZE1V151P	EEHZE1V151V	500
	270	10	10.2	G	900	2000	20	0.12	EEHZE1V271P	EEHZE1V271V	500
50	68	8	10.2	F	600	1250	30	0.10	EEHZE1H680P	EEHZE1H680V	500
	100	10	10.2	G	800	1600	28	0.10	EEHZE1H101P	EEHZE1H101V	500
63	33	8	10.2	F	600	1100	40	0.08	EEHZE1J330P	EEHZE1J330V	500
	56	10	10.2	G	800	1400	30	0.08	EEHZE1J560P	EEHZE1J560V	500

· Please refer to the page of "Reflow profile" and "The taping dimensions".

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	φ8×10.2	φ10×10.2
ESR (Ω)	0.4	0.3