Surface Mount Type

Series : **ZA** Type : **V**

High temperature Lead-Free reflow

Features

- Endurance : 10000 h at 105 °C
- Low ESR and high ripple current (70 % over, Lower ESR than current V-FP)
- High voltage (to 80 V.DC)
- 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 compliant

Specifications

Size code	C	D	D8	F	G
Category temp. range	–55 °C to +105 °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 ≦ 0.01 CV or 3 (µA) After 2 minutes (whichever is greater)				
Dissipation factor (tan δ)	Please see the attached standard products list				

Endurance

105 °C, 10000 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

ESR after Endurance (Ω/100 kHz) (–40 °C)

Size code	C	D	D8	F	G
	2.0	1.4	0.8	0.4	0.3

Shelf life

After storage for 1000 hours at +105 °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

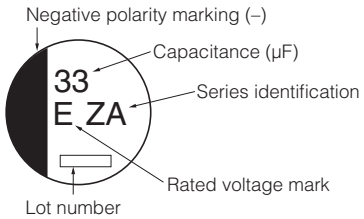
Resistance to soldering heat

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

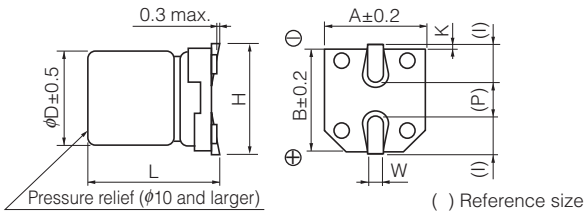
Example : 25 V.DC 33 µF Marking color : BLACK



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)



(Unit : mm)

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	$0.35^{+0.15}_{-0.20}$
D	6.3	5.8±0.3	6.6	7.8 max.	2.6	0.65±0.1	1.8	$0.35^{+0.15}_{-0.20}$
D8	6.3	7.7±0.3	6.6	7.8 max.	2.6	0.65±0.1	1.8	$0.35^{+0.15}_{-0.20}$
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 : 105 °C 10000 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) (+105 °C) (mA r.m.s.)	E.S.R. (100 kHz) (+20 °C) (mΩ)	tan δ (120 Hz) (+20 °C)	Standard Product	Vibration-proof product	Taping (pcs)
25	33	5	5.8	C	900	80	0.14	EEHZA1E330R	–	1000
	56	6.3	5.8	D	1300	50	0.14	EEHZA1E560P	–	1000
	100	6.3	7.7	D8	2000	30	0.14	EEHZA1E101XP	–	900
	220	8	10.2	F	2300	27	0.14	EEHZA1E221P	EEHZA1E221V	500
	330	10	10.2	G	2500	20	0.14	EEHZA1E331P	EEHZA1E331V	500
35	22	5	5.8	C	900	100	0.12	EEHZA1V220R	–	1000
	27	6.3	5.8	D	1300	60	0.12	EEHZA1V270P	–	1000
	47	6.3	5.8	D	1300	60	0.12	EEHZA1V470P	–	1000
	68	6.3	7.7	D8	2000	35	0.12	EEHZA1V680XP	–	900
	150	8	10.2	F	2300	27	0.12	EEHZA1V151P	EEHZA1V151V	500
	270	10	10.2	G	2500	20	0.12	EEHZA1V271P	EEHZA1V271V	500
50	10	5	5.8	C	750	120	0.10	EEHZA1H100R	–	1000
	22	6.3	5.8	D	1100	80	0.10	EEHZA1H220P	–	1000
	33	6.3	7.7	D8	1600	40	0.10	EEHZA1H330XP	–	900
	68	8	10.2	F	1800	30	0.10	EEHZA1H680P	EEHZA1H680V	500
	100	10	10.2	G	2000	28	0.10	EEHZA1H101P	EEHZA1H101V	500
63	10	6.3	5.8	D	1000	120	0.08	EEHZA1J100P	–	1000
	22	6.3	7.7	D8	1500	80	0.08	EEHZA1J220XP	–	900
	33	8	10.2	F	1700	40	0.08	EEHZA1J330P	EEHZA1J330V	500
	56	10	10.2	G	1800	30	0.08	EEHZA1J560P	EEHZA1J560V	500
80	22	8	10.2	F	1550	45	0.08	EEHZA1K220P	EEHZA1K220V	500
	33	10	10.2	G	1700	36	0.08	EEHZA1K330P	EEHZA1K330V	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