

### 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. New lineup of φ6.3 product. (φ6.3, φ8, φ10)
- 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 characteristics list				
Endurance	+105 °C ± 2 °C, 10000 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			
	ESR	≤ 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 ± 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			
	ESR	≤ 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 33 μF  
Marking color : BLACK

Rated voltage mark

E	25	J	63
V	35	K	80
H	50		

Unit : V.DC

#### Dimensions (not to scale)

( ) Reference size

Unit : mm

Size code	φD	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

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

### Characteristics list

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 *1 (mA r.m.s.)	ESR*2 (mΩ)	tan δ*3	Standard Product	Vibration-proof product	Taping (pcs)
25	33	5.0	5.8	C	900	80	0.14	EEHZA1E330R	-	1000
	56	6.3	5.8	D	1300	50	0.14	EEHZA1E560P	EEHZA1E560V	1000
	100	6.3	7.7	D8	2000	30	0.14	EEHZA1E101XP	EEHZA1E101XV	900
	220	8.0	10.2	F	2300	27	0.14	EEHZA1E221P	EEHZA1E221V	500
	330	10.0	10.2	G	2500	20	0.14	EEHZA1E331P	EEHZA1E331V	500
35	22	5.0	5.8	C	900	100	0.12	EEHZA1V220R	-	1000
	27	6.3	5.8	D	1300	60	0.12	EEHZA1V270P	EEHZA1V270V	1000
	47	6.3	5.8	D	1300	60	0.12	EEHZA1V470P	EEHZA1V470V	1000
	68	6.3	7.7	D8	2000	35	0.12	EEHZA1V680XP	EEHZA1V680XV	900
	150	8.0	10.2	F	2300	27	0.12	EEHZA1V151P	EEHZA1V151V	500
	270	10.0	10.2	G	2500	20	0.12	EEHZA1V271P	EEHZA1V271V	500
50	10	5.0	5.8	C	750	120	0.10	EEHZA1H100R	-	1000
	22	6.3	5.8	D	1100	80	0.10	EEHZA1H220P	EEHZA1H220V	1000
	33	6.3	7.7	D8	1600	40	0.10	EEHZA1H330XP	EEHZA1H330XV	900
	68	8.0	10.2	F	1800	30	0.10	EEHZA1H680P	EEHZA1H680V	500
	100	10.0	10.2	G	2000	28	0.10	EEHZA1H101P	EEHZA1H101V	500
63	10	6.3	5.8	D	1000	120	0.08	EEHZA1J100P	EEHZA1J100V	1000
	22	6.3	7.7	D8	1500	80	0.08	EEHZA1J220XP	EEHZA1J220XV	900
	33	8.0	10.2	F	1700	40	0.08	EEHZA1J330P	EEHZA1J330V	500
	56	10.0	10.2	G	1800	30	0.08	EEHZA1J560P	EEHZA1J560V	500
80	22	8.0	10.2	F	1550	45	0.08	EEHZA1K220P	EEHZA1K220V	500
	33	10.0	10.2	G	1700	36	0.08	EEHZA1K330P	EEHZA1K330V	500

\*1: Ripple current (100 kHz / +105 °C)

\*2: ESR (100 kHz / +20 °C)

\*3: tan δ (120 Hz / +20 °C)

• 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 47μF ≤ C < 150μF 150μF ≤ C	Correction factor	0.10	0.10	0.15	0.20
		0.15	0.20	0.25	0.30
		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 47μF ≤ C < 150μF 150μF ≤ C	Correction factor	0.30	0.40	0.45	0.50
		0.40	0.45	0.55	0.60
		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 47μF ≤ C < 150μF 150μF ≤ C	Correction factor	0.60	0.65	0.70	0.75
		0.70	0.75	0.80	0.80
		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 47μF ≤ C < 150μF 150μF ≤ C	Correction factor	0.80	0.85	1.00	1.05
		0.85	0.90	1.00	1.00
		0.85	0.90	1.00	1.00