

## Surface Mount Type

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

**High temperature Lead-Free reflow**



### Features

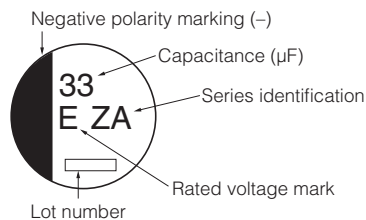
- Endurance : 10000 h at 105 °C
- Low ESR and high ripple current (70 % over, Lower ESR than current V-FP)
- High voltage (to 80 V.DC)
- Equivalent to conductive polymer type aluminum electrolytic capacitor  
(There are little characteristics change by temperature and frequency)
- Vibration-proof product is available upon request. New lineup of  $\phi 6.3$  product. ( $\phi 6.3$  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 $\mu$ F to 33 $\mu$ F	10 $\mu$ F to 56 $\mu$ F	22 $\mu$ F to 100 $\mu$ F	22 $\mu$ F to 220 $\mu$ F	33 $\mu$ F to 330 $\mu$ F															
Capacitance tolerance	$\pm 20$ % (120 Hz/+20 °C)																			
DC leakage current	$I \leq 0.01 CV$ or 3 ( $\mu$ A) After 2 minutes (whichever is greater)																			
Dissipation factor (tan $\delta$ )	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 $\pm 30$ % of the initial value																		
	tan $\delta$	$\leq 200$ % of the initial limit																		
	E. S. R.	$\leq 200$ % of the initial limit																		
	DC leakage current	Within the initial limit																		
	ESR after Endurance ( $\Omega/100$ kHz) (-40 °C)	<table border="1"> <thead> <tr> <th colspan="5">Size code</th> </tr> <tr> <th>C</th> <th>D</th> <th>D8</th> <th>F</th> <th>G</th> </tr> </thead> <tbody> <tr> <td>2.0</td> <td>1.4</td> <td>0.8</td> <td>0.4</td> <td>0.3</td> </tr> </tbody> </table>					Size code					C	D	D8	F	G	2.0	1.4	0.8	0.4
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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 $\pm 2$ °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 $\pm 30$ % of the initial value																		
	tan $\delta$	$\leq 200$ % of the initial limit																		
	E. S. R.	$\leq 200$ % 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 $\pm 10$ % of the initial value																		
	tan $\delta$	Within the initial limit																		
	DC leakage current	Within the initial limit																		

### Marking

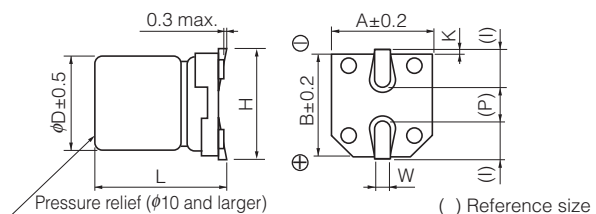
Example : 25 V.DC 33  $\mu$ F Marking color : BLACK



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)



( ) Reference size

(Unit : mm)

Size code	D	L	A, B	H	I	W	P	K
C	5.0	5.8 $\pm 0.3$	5.3	6.5 max.	2.2	0.65 $\pm 0.1$	1.5	0.35 $\pm 0.15$
D	6.3	5.8 $\pm 0.3$	6.6	7.8 max.	2.6	0.65 $\pm 0.1$	1.8	0.35 $\pm 0.15$
D8	6.3	7.7 $\pm 0.3$	6.6	7.8 max.	2.6	0.65 $\pm 0.1$	1.8	0.35 $\pm 0.15$
F	8.0	10.2 $\pm 0.3$	8.3	10.0 max.	3.4	0.90 $\pm 0.2$	3.1	0.70 $\pm 0.2$
G	10.0	10.2 $\pm 0.3$	10.3	12.0 max.	3.5	0.90 $\pm 0.2$	4.6	0.70 $\pm 0.2$

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	<b>NEW</b> EEHZA1E560V	1000
	100	6.3	7.7	D8	2000	30	0.14	EEHZA1E101XP	<b>NEW</b> EEHZA1E101XV	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	<b>NEW</b> EEHZA1V270V	1000
	47	6.3	5.8	D	1300	60	0.12	EEHZA1V470P	<b>NEW</b> EEHZA1V470V	1000
	68	6.3	7.7	D8	2000	35	0.12	EEHZA1V680XP	<b>NEW</b> EEHZA1V680XV	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	<b>NEW</b> EEHZA1H220V	1000
	33	6.3	7.7	D8	1600	40	0.10	EEHZA1H330XP	<b>NEW</b> EEHZA1H330XV	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	<b>NEW</b> EEHZA1J100V	1000
	22	6.3	7.7	D8	1500	80	0.08	EEHZA1J220XP	<b>NEW</b> EEHZA1J220XV	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