

Surface Mount Type

Series : **ZK** Type : **V**

High temperature Lead-Free reflow



Features

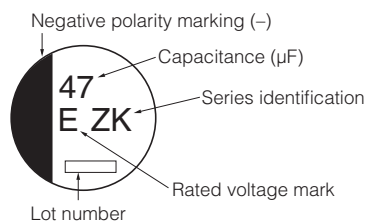
- High capacitance and High ripple current compared with ZC series
- Endurance : 4000 h at 125 °C (High temperature / Long life)
- Low ESR (85 % over, Lower ESR than Current V-TP), Low LC (0.01 CV or 3 μF)
- Equivalent to conductive polymer type Aluminum Electrolytic Capacitor
(There are little characteristics 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	C	D	D8	F	G															
Category temp. range	-55 °C to +125 °C																			
Rated voltage range	25 V.DC to 35 V.DC																			
Nominal cap.range	33 μF to 47 μF	56 μF to 68 μF	100 μF to 150 μF	180 μF to 270 μF	330 μF to 470 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	125 °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																		
	ESR after Endurance (Ω/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 +125 °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																		
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

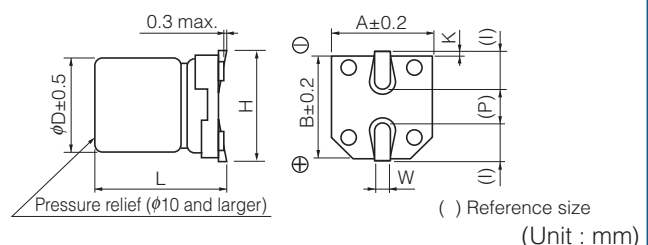
Example : 25 V.DC 47 μF Marking color : BLACK



Rated voltage mark

E	25 V.DC
V	35 V.DC

Dimensions (not to scale)



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 : 125 °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) (+125 °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	47	5	5.8	C	660	80	0.14	EEHZK1E470R	–	1000
	68	6.3	5.8	D	1080	50	0.14	EEHZK1E680P	–	1000
	150	6.3	7.7	D8	1680	30	0.14	EEHZK1E151XP	–	900
	270	8	10.2	F	1920	27	0.14	EEHZK1E271P	EEHZK1E271V	500
	470	10	10.2	G	2800	20	0.14	EEHZK1E471P	EEHZK1E471V	500
35	33	5	5.8	C	660	100	0.12	EEHZK1V330R	–	1000
	56	6.3	5.8	D	1080	60	0.12	EEHZK1V560P	–	1000
	100	6.3	7.7	D8	1680	35	0.12	EEHZK1V101XP	–	900
	180	8	10.2	F	1920	27	0.12	EEHZK1V181P	EEHZK1V181V	500
	330	10	10.2	G	2800	20	0.12	EEHZK1V331P	EEHZK1V331V	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