

Surface Mount Type

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

High temperature Lead-Free reflow



Features

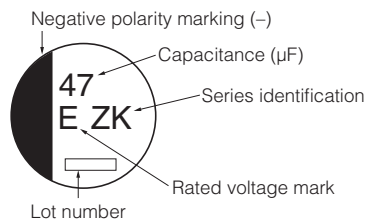
- High capacitance and High ripple current compared with ZC series
- Endurance : 4000 h at 125 °C (High temperature / Long life)
- Low ESR (85 % over, Lower ESR than Current V-TP), Low LC (0.01 CV or 3 μF)
- Equivalent to conductive polymer type Aluminum Electrolytic Capacitor
(There are little characteristics 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 220 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)	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 +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 95 %, 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

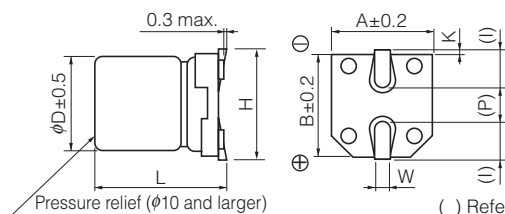
Example : 25 V.DC 47 μF Marking color : BLACK



Rated voltage mark

E	25 V.DC
V	35 V.DC

Dimensions (not to scale)



() Reference size
(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

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)		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	500
	470	10	10.2	G	2800	20	0.14	EEHZK1E471P	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	500
	330	10	10.2	G	2800	20	0.12	EEHZK1V331P	500

- Please refer to the page of "Reflow profile" and "The taping dimensions".
- When requesting vibration-proof product, please put the last "V" instead to "P".

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