

TENTATIVE

New

Vertical chip type FK series

Surface Mount

Low impedance

High Reliability

For Power Supply

■ Features

- Low impedance (40 to 60% lower than FC series)
- Miniaturization (30 to 50% less than FC series)
- Life time : 2000 to 5000 hours at 105°C

■ Specifications

Category Temperature Range	-55 to +105°C									
Rated W. V. Range	6. 3 to 100 V. DC									
Nominal Capacitance Range	3.3 to 6800uF									
Capacitance Tolerance	+-20% (120 Hz/20°C)									
Leakage Current	I = 0. 01CV or 3 (uA) (Whichever is greater) After application of rated working voltage for 2 minutes at +20°C									
Dissipation Factor (tan d)										
	W.V. (V.DC)	6.3	10	16	25	35	50	63	80	100
	tan d (max)	0.26	0.19	0.16	0.14	0.12	0.10	0.08	0.08	0.07
	Add 0.02 per 1000uF for products of 1000uF or more. (120 Hz/20°C)									
Endurance	After the life test with DC rated working voltage at +105 +-2°C for 5000 hours (dia.4 to 10 is 2000 hours), the capacitors shall meet the specified below. Post-test requirements at +20 °C.									
	Capacitance Change			+-30% of the initially measured value						
	Tan d			Under 200% of the initially specified value						
	DC Leakage Current			Under the initially specified value						
Shelf Life	After storage for 1000 hours at +105 +-2 °C with no voltage applied and then being stabilized at +20°C, capacitors shall meet the limits specified in “Endurance”.									

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Surface mount type Aluminum Electrolytic Capacitor (V type FK series)

Description of Part Number

E	E	V	F	K							
Common code			Series code		W. V. code		Capacitance code			Suffix	
Common code		V type									
W. V. code	j	A	C	E	V	H	J	K	2A		
W. V. (V)	6.3	10	16	25	35	50	63	80	100		
										</	

Dimensions (mm) Not to scale

< Dia. 12.5 to 18 > < Dia. 4 to 10 >

() Reference size

[mm]

Working voltage mark

j	6.3V
A	10V
C	16V
E	25V
V	35V
H	50V
J	63V
K	80V
2A	100V

Size code	D	L	A	H max	I	W	P	K
B	4	5.8 $\begin{smallmatrix} -0.3 \\ +0.3 \end{smallmatrix}$	4.3	5.5	1.8	0.65 $\begin{smallmatrix} -0.1 \\ +0.1 \end{smallmatrix}$	1.0	0.35 $\begin{smallmatrix} -0.20 \\ +0.15 \end{smallmatrix}$
C	5	5.8 $\begin{smallmatrix} -0.3 \\ +0.3 \end{smallmatrix}$	5.3	6.5	2.2	0.65 $\begin{smallmatrix} -0.1 \\ +0.1 \end{smallmatrix}$	1.5	0.35 $\begin{smallmatrix} -0.20 \\ +0.15 \end{smallmatrix}$
D	6.3	5.8 $\begin{smallmatrix} -0.3 \\ +0.3 \end{smallmatrix}$	6.6	7.8	2.6	0.65 $\begin{smallmatrix} -0.1 \\ +0.1 \end{smallmatrix}$	1.8	0.35 $\begin{smallmatrix} -0.20 \\ +0.15 \end{smallmatrix}$
E	8	6.2 $\begin{smallmatrix} -0.3 \\ +0.3 \end{smallmatrix}$	8.3	9.5	3.4	0.65 $\begin{smallmatrix} -0.1 \\ +0.1 \end{smallmatrix}$	2.2	0.35 $\begin{smallmatrix} -0.20 \\ +0.15 \end{smallmatrix}$
F	8	10.2 $\begin{smallmatrix} -0.3 \\ +0.3 \end{smallmatrix}$	8.3	10.0	3.4	0.9 $\begin{smallmatrix} -0.3 \\ +0.3 \end{smallmatrix}$	3.1	0.70 $\begin{smallmatrix} -0.20 \\ +0.20 \end{smallmatrix}$
G	10	10.2 $\begin{smallmatrix} -0.3 \\ +0.3 \end{smallmatrix}$	10.3	12.0	3.5	0.9 $\begin{smallmatrix} -0.3 \\ +0.3 \end{smallmatrix}$	4.6	0.70 $\begin{smallmatrix} -0.20 \\ +0.20 \end{smallmatrix}$
H13	12.5	13.5 $\begin{smallmatrix} -0.5 \\ +0.5 \end{smallmatrix}$	13.5	15.0	4.7	0.9 $\begin{smallmatrix} -0.3 \\ +0.3 \end{smallmatrix}$	4.4	0.70 $\begin{smallmatrix} -0.30 \\ +0.30 \end{smallmatrix}$
J16	16	16.5 $\begin{smallmatrix} -0.5 \\ +0.5 \end{smallmatrix}$	17.0	19.0	5.5	1.2 $\begin{smallmatrix} -0.3 \\ +0.3 \end{smallmatrix}$	6.7	0.70 $\begin{smallmatrix} -0.30 \\ +0.30 \end{smallmatrix}$
K16	18	16.5 $\begin{smallmatrix} -0.5 \\ +0.5 \end{smallmatrix}$	19.0	21.0	6.7	1.2 $\begin{smallmatrix} -0.3 \\ +0.3 \end{smallmatrix}$	6.7	0.70 $\begin{smallmatrix} -0.30 \\ +0.30 \end{smallmatrix}$

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Surface mount type Aluminum Electrolytic Capacitor (V type FK series)

■ Case Size, Capacitance, Impedance and Ripple current Table.

Impedance/ESR : (ohm) at + 20°C 100(kHz)

Ripple Current : (mA rms) at +105°C 100(kHz)

W. V. (V)DC Cap. (uF)	6.3			10			16		
	Size	Impedance /ESR	Ripple current	Size	Impedance /ESR	Ripple current	Size	Impedance /ESR	Ripple current
10							B	1.35	90
22	B	1.35	90	B	1.35	90	C(B)	0.7(1.35)	160(90)
33				C(B)	0.7(1.35)	160(90)			
47	C(B)	0.7(1.35)	160(90)				D(C)	0.36(0.7)	240(160)
100	D(C)	0.36(0.7)	240(160)				D	0.36	240
220	D	0.36	240	E	0.26	300	E	0.26	300
330	E	0.26	300	F	0.16	600	F	0.16	600
470	F	0.16	600	F	0.16	600	F	0.16	600
1000	F	0.16	600	G	0.08	850			
1500	G	0.08	850				H13	0.06	1100
2200				H13	0.06	1100			
3300	H13	0.06	1100				J16	0.035	1800
4700				J16	0.035	1800	K16	0.033	2060
6800	J16	0.035	1800	K16	0.033	2060			

W. V. (V) DC Cap. (μ F)	25			35			50		
	Size	Impedance /ESR	Ripple current	Size	Impedance /ESR	Ripple current	Size	Impedance /ESR	Ripple current
4.7				B	1.35	90	B	2.9	60
10	B	1.35	90	C(B)	0.7(1.35)	160(90)	D(C)	0.88(1.52)	165(85)
22	C	0.7	160	C	0.7	160	D	0.88	165
33	D(C)	0.36(0.7)	240(160)	D	0.36	240	E	0.68	195
47	D	0.36	240	D	0.36	240	E	0.68	195
100	E	0.26	300	F	0.16	600	F	0.34	350
220	F	0.16	600	F	0.16	600	G	0.18	670
330	F	0.16	600	G	0.08	850	H13	0.12	900
390							H13	0.12	900
470	G	0.08	850	H13	0.06	1100			
680				H13	0.06	1100			
1000	H13	0.06	1100				J16	0.073	1610
1500				J16	0.035	1800			
2200	J16	0.035	1800						

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Surface mount type Aluminum Electrolytic Capacitor (V type FK series)

■ Case Size, Capacitance, impedance and ripple current Table.

Impedance : (ohm) at +20°C 100(kHz)

Ripple current : (mA rms) at +105°C 100(kHz)

W. V. (V)DC Cap. (uF)	63			80			100		
	Size	Impedance /ESR	Ripple current	Size	Impedance /ESR	Ripple current	Size	Impedance /ESR	Ripple current
3.3				C	5.0	25			
4.7	C	3.0	50	D	3.0	40			
10	D	1.5	80	E	1.3	130			
22	E	1.2	120	F	1.3	130			
33	F	0.65	250	F	1.3	130			
47	F	0.65	250	G	0.7	200	H13	0.32	500
68							H13	0.32	500
100	G	0.35	400	H13	0.32	500			
150				H13	0.32	500	J16	0.17	793
220	H13	0.16	800				K16	0.153	917
330				J16	0.17	793			
470	J16	0.082	1410	K16	0.153	917			
680	K16	0.080	1690						

Size code B : Dia. 4 x 5.8L

C : Dia. 5 x 5.8L

D : Dia. 6.3 x 5.8L

E : Dia. 8 x 6.2L

F : Dia. 8 x 10. 2L

G : Dia. 10 x 10. 2L

H13 : Dia. 12.5 x 13.5L

J16: Dia. 16 x 16.5L

K16: Dia. 18 x 16.5L

[mm]

():Miniaturization type

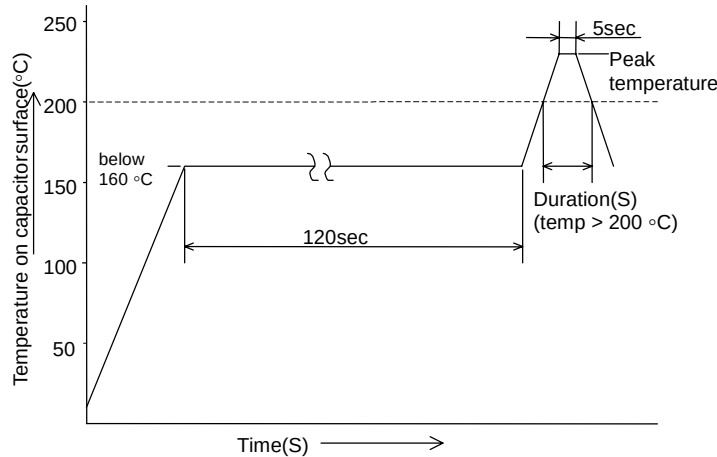
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■ Reflow Soldering

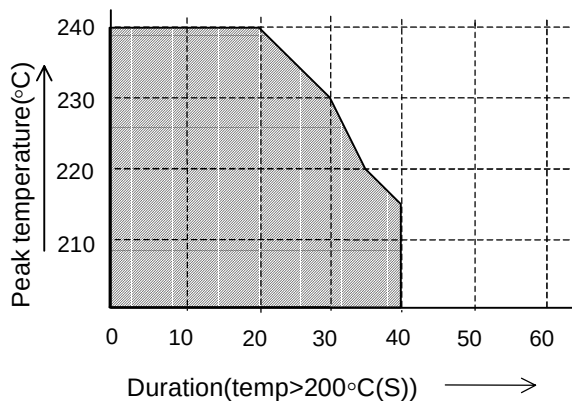
At reflow soldering, the temperature at surface of the capacitor shall not exceed the allowable range described below.

<Diagram 1 >



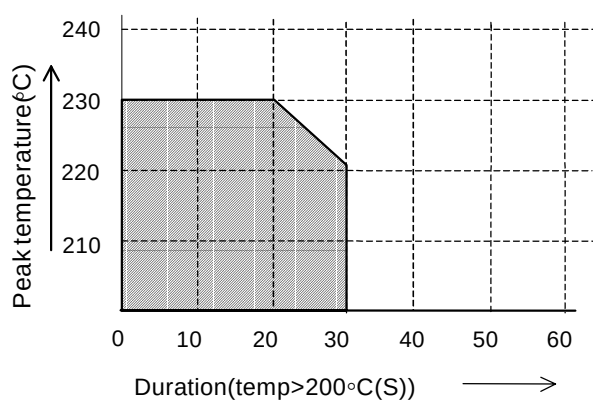
< Diagram 2 >

Peak temperature/Duration(temp>200 °C(S))



Reflow soldering of size code B, C, and D

Peak temperature/Duration (temp>200°C(S))



Reflow soldering of size code E, F, G, H13, J16 and K16

For reflow ,use a thermal condition system such as infrared reduction(IR)or hot blast.

Vapor phase soldering systems (VPS) are not recommended.

The contents of this tentative catalog are subject of change without notice in advance.

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