

## Radial Lead Type

Series : **FK** Type : **A**



**This Series is no longer available for purchase in the country of Japan.**

### Features

- Low impedance (10 % to 30 % less than FC Series)  
Miniaturization (30 % to 40 % less than FC Series)
- Endurance : 105 °C 3000 h to 5000 h
- RoHS compliant

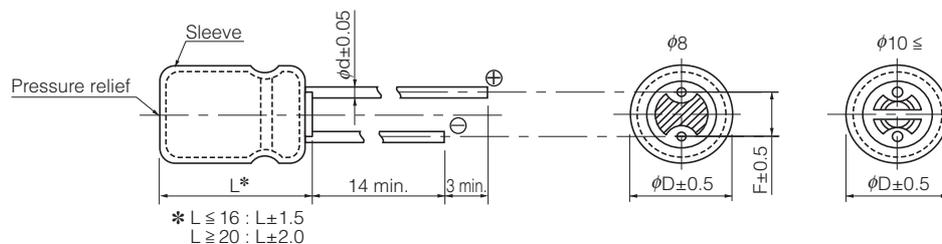
### Specifications

Category temperature range	-55 °C to +105 °C						
Rated voltage range	6.3 V.DC to 35 V.DC						
Capacitance range	180 μF to 12000 μF						
Capacitance tolerance	±20 % (120 Hz/+20 °C)						
Leakage current	$I \leq 0.01 CV (\mu A)$ After 2 minutes						
Dissipation factor (tan $\delta$ )	V.DC	6.3	10	16	25	35	(120 Hz/+20 °C)
	tan $\delta$	0.22	0.19	0.16	0.14	0.12	
Add 0.02 per 1000 μF for products of 1000 μF or more.							
Endurance	After following life test with DC voltage and +105 °C±2 °C ripple current value applied (The sum of DC and ripple peak voltage shall not exceed the rated working voltage), when the capacitors are restored to 20 °C, the capacitors shall meet the limits specified bellow. Duration : $\phi 8$ : 3000 hours , $\phi 10$ : 4000 hours , $\phi 12.5$ to $\phi 18$ : 5000 hours						
	Capacitance change	Within ±20 % of the initial value					
	tan $\delta$	$\leq 200$ % of the initial limit					
	DC leakage current	Within the initial limit					
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)						
AEC-Q200	AEC-Q200 compliant						

### Frequency correction factor for ripple current

Rated voltage (V.DC)	Capacitance (μF)	Frequency (Hz)				
		60	120	1 k	10 k	100 k
6.3 to 35	180 to 330	0.60	0.70	0.85	0.95	1.00
	390 to 1000	0.65	0.75	0.90	0.98	1.00
	1200 to 12000	0.75	0.80	0.95	1.00	1.00

### Dimensions



(Unit : mm)

$\phi D$	8	10	12.5	16	18
L	—	—	12.5 to 25	30 to 40	—
$\phi d$	0.6	0.6	0.6	0.8	0.8
F	3.5	5.0	5.0	5.0	7.5

**Case size/ Impedance/ Ripple current**

Case size (mm) ( $\phi$ D×L)	Impedance ( $\Omega$ )/(100 kHz)		Ripple current (mA r.m.s.)/(100 kHz)
	+20 °C	-10 °C	+105 °C
8 × 11.5	0.090	0.180	630
8 × 15	0.062	0.124	860
8 × 20	0.044	0.088	1220
10 × 12.5	0.063	0.126	900
10 × 16	0.049	0.098	1240
10 × 20	0.035	0.070	1490
10 × 25	0.033	0.066	1680
10 × 30	0.025	0.050	2140
12.5 × 15	0.048	0.096	1400
12.5 × 20	0.029	0.058	1890
12.5 × 25	0.022	0.044	2280
12.5 × 30	0.018	0.036	2720
12.5 × 35	0.016	0.032	2940
12.5 × 40	0.014	0.028	3010
16 × 15	0.038	0.076	1800
16 × 20	0.026	0.052	2330
16 × 25	0.019	0.038	2760
18 × 15	0.036	0.072	2060
18 × 20	0.025	0.050	2640
18 × 25	0.018	0.036	2850

## Characteristics list

Endurance : 105 °C  $\phi$ 8=3000 h,  $\phi$ 10=4000 h,  $\phi$ 12.5 to  $\phi$ 18=5000 h

Rated voltage (V.DC)	Cap. ( $\pm 20\%$ ) ( $\mu$ F)	Case size (mm)		Specification			Lead length (mm)			Part No.	Min. Packaging Q'ty	
		$\phi$ D	L	Ripple current (100 kHz) (+105 °C) (mA r.m.s.)	Impedance (100 kHz) (+20 °C) ( $\Omega$ )	Endurance (hours)	Lead dia. $\phi$ d	Lead space			Straight leads (pcs)	Taping (pcs)
								Straight	Taping *B			
6.3	680	8	11.5	630	0.090	3000	0.6	3.5	5.0	EEUFK0J681( )	200	1000
	1000	8	15	860	0.062	3000	0.6	3.5	5.0	EEUFK0J102L( )	200	1000
		10	12.5	900	0.063	4000	0.6	5.0	5.0	EEUFK0J102( )	200	500
	1500	8	20	1220	0.044	3000	0.6	3.5	5.0	EEUFK0J152L( )	200	1000
		10	16	1240	0.049	4000	0.6	5.0	5.0	EEUFK0J152( )	200	500
	1800	12.5	15	1400	0.048	5000	0.6	5.0	5.0	EEUFK0J182S( )	200	500
	2200	10	20	1490	0.035	4000	0.6	5.0	5.0	EEUFK0J222( )	200	500
		10	25	1680	0.033	4000	0.6	5.0	5.0	EEUFK0J222L( )	200	500
	3300	10	30	2140	0.025	4000	0.6	5.0		EEUFK0J332L	100	
		12.5	20	1890	0.029	5000	0.6	5.0	5.0	EEUFK0J332( )	200	500
		16	15	1800	0.038	5000	0.8	7.5	7.5	EEUFK0J332S( )	100	250
	4700	12.5	25	2280	0.022	5000	0.6	5.0	5.0	EEUFK0J472( )	200	500
		18	15	2060	0.036	5000	0.8	7.5	7.5	EEUFK0J472S( )	100	250
	5600	12.5	30	2720	0.018	5000	0.8	5.0		EEUFK0J562L	100	
		16	20	2330	0.026	5000	0.8	7.5	7.5	EEUFK0J562S( )	100	250
	6800	12.5	35	2940	0.016	5000	0.8	5.0		EEUFK0J682L	100	
	8200	12.5	40	3010	0.014	5000	0.8	5.0		EEUFK0J822L	100	
		16	25	2760	0.019	5000	0.8	7.5	7.5	EEUFK0J822( )	100	250
18		20	2640	0.025	5000	0.8	7.5	7.5	EEUFK0J822S( )	100	250	
12000	18	25	2850	0.018	5000	0.8	7.5	7.5	EEUFK0J123S( )	100	250	
10	560	8	11.5	630	0.090	3000	0.6	3.5	5.0	EEUFK1A561( )	200	1000
	820	8	15	860	0.062	3000	0.6	3.5	5.0	EEUFK1A821L( )	200	1000
		10	12.5	900	0.063	4000	0.6	5.0	5.0	EEUFK1A821( )	200	500
	1200	8	20	1220	0.044	3000	0.6	3.5	5.0	EEUFK1A122L( )	200	1000
		10	16	1240	0.049	4000	0.6	5.0	5.0	EEUFK1A122( )	200	500
	1500	12.5	15	1400	0.048	5000	0.6	5.0	5.0	EEUFK1A152S( )	200	500
	1800	10	20	1490	0.035	4000	0.6	5.0	5.0	EEUFK1A182( )	200	500
		10	25	1680	0.033	4000	0.6	5.0	5.0	EEUFK1A182L( )	200	500
	2700	10	30	2140	0.025	4000	0.6	5.0		EEUFK1A272L	100	
		12.5	20	1890	0.029	5000	0.6	5.0	5.0	EEUFK1A272( )	200	500
		16	15	1800	0.038	5000	0.8	7.5	7.5	EEUFK1A272S( )	100	250
	3900	12.5	25	2280	0.022	5000	0.6	5.0	5.0	EEUFK1A392( )	200	500
		18	15	2060	0.036	5000	0.8	7.5	7.5	EEUFK1A392S( )	100	250
	4700	12.5	30	2720	0.018	5000	0.8	5.0		EEUFK1A472L	100	
		16	20	2330	0.026	5000	0.8	7.5	7.5	EEUFK1A472S( )	100	250
	5600	12.5	35	2940	0.016	5000	0.8	5.0		EEUFK1A562L	100	
	6800	12.5	40	3010	0.014	5000	0.8	5.0		EEUFK1A682L	100	
		16	25	2760	0.019	5000	0.8	7.5	7.5	EEUFK1A682( )	100	250
18		20	2640	0.025	5000	0.8	7.5	7.5	EEUFK1A682S( )	100	250	
8200	18	25	2850	0.018	5000	0.8	7.5	7.5	EEUFK1A822S( )	100	250	

· When requesting taped product, please put the letter "B" between the "( )". Lead wire pitch \*B=5 mm, 7.5 mm.  
 · Please refer to the page of "Taping dimensions".

## Characteristics list

Endurance : 105 °C ϕ8=3000 h, ϕ10=4000 h, ϕ12.5 to ϕ18=5000 h

Rated voltage (V.DC)	Cap. (±20 %) (μF)	Case size (mm)		Specification			Lead length (mm)			Part No.	Min. Packaging Q'ty	
		ϕD	L	Ripple current (100 kHz) (+105 °C) (mA r.m.s.)	Impedance (100 kHz) (+20 °C) (Ω)	Endurance (hours)	Lead dia. ϕd	Lead space			Straight leads (pcs)	Taping (pcs)
								Straight	Taping *B			
16	390	8	11.5	630	0.090	3000	0.6	3.5	5.0	EEUFK1C391( )	200	1000
	680	8	15	860	0.062	3000	0.6	3.5	5.0	EEUFK1C681L( )	200	1000
		10	12.5	900	0.063	4000	0.6	5.0	5.0	EEUFK1C681( )	200	500
	820	8	20	1220	0.044	3000	0.6	3.5	5.0	EEUFK1C821L( )	200	1000
	1000	10	16	1240	0.049	4000	0.6	5.0	5.0	EEUFK1C102( )	200	500
	1200	10	20	1490	0.035	4000	0.6	5.0	5.0	EEUFK1C122( )	200	500
		12.5	15	1400	0.048	5000	0.6	5.0	5.0	EEUFK1C122S( )	200	500
	1500	10	25	1680	0.033	4000	0.6	5.0	5.0	EEUFK1C152L( )	200	500
	2200	10	30	2140	0.025	4000	0.6	5.0		EEUFK1C222L	100	
		12.5	20	1890	0.029	5000	0.6	5.0	5.0	EEUFK1C222( )	200	500
		16	15	1800	0.038	5000	0.8	7.5	7.5	EEUFK1C222S( )	100	250
	2700	12.5	25	2280	0.022	5000	0.6	5.0	5.0	EEUFK1C272( )	200	500
		18	15	2060	0.036	5000	0.8	7.5	7.5	EEUFK1C272S( )	100	250
	3300	12.5	30	2720	0.018	5000	0.8	5.0		EEUFK1C332L	100	
	3900	12.5	35	2940	0.016	5000	0.8	5.0		EEUFK1C392L	100	
		16	20	2330	0.026	5000	0.8	7.5	7.5	EEUFK1C392S( )	100	250
	4700	12.5	40	3010	0.014	5000	0.8	5.0		EEUFK1C472L	100	
		18	20	2640	0.025	5000	0.8	7.5	7.5	EEUFK1C472S( )	100	250
5600	16	25	2760	0.019	5000	0.8	7.5	7.5	EEUFK1C562( )	100	250	
6800	18	25	2850	0.018	5000	0.8	7.5	7.5	EEUFK1C682S( )	100	250	
25	270	8	11.5	630	0.090	3000	0.6	3.5	5.0	EEUFK1E271( )	200	1000
	390	8	15	860	0.062	3000	0.6	3.5	5.0	EEUFK1E391L( )	200	1000
	470	10	12.5	900	0.063	4000	0.6	5.0	5.0	EEUFK1E471( )	200	500
	560	8	20	1220	0.044	3000	0.6	3.5	5.0	EEUFK1E561L( )	200	1000
		10	16	1240	0.049	4000	0.6	5.0	5.0	EEUFK1E561( )	200	500
	820	10	20	1490	0.035	4000	0.6	5.0	5.0	EEUFK1E821( )	200	500
		12.5	15	1400	0.048	5000	0.6	5.0	5.0	EEUFK1E821S( )	200	500
	1000	10	25	1680	0.033	4000	0.6	5.0	5.0	EEUFK1E102L( )	200	500
	1200	12.5	20	1890	0.029	5000	0.6	5.0	5.0	EEUFK1E122( )	200	500
	1500	10	30	2140	0.025	4000	0.6	5.0		EEUFK1E152L	100	
		16	15	1800	0.038	5000	0.8	7.5	7.5	EEUFK1E152S( )	100	250
	1800	12.5	25	2280	0.022	5000	0.6	5.0	5.0	EEUFK1E182( )	200	500
		18	15	2060	0.036	5000	0.8	7.5	7.5	EEUFK1E182S( )	100	250
	2200	12.5	30	2720	0.018	5000	0.8	5.0		EEUFK1E222L	100	
		16	20	2330	0.026	5000	0.8	7.5	7.5	EEUFK1E222S( )	100	250
	2700	12.5	35	2940	0.016	5000	0.8	5.0		EEUFK1E272L	100	
	3300	12.5	40	3010	0.014	5000	0.8	5.0		EEUFK1E332L	100	
		16	25	2760	0.019	5000	0.8	7.5	7.5	EEUFK1E332( )	100	250
18		20	2640	0.025	5000	0.8	7.5	7.5	EEUFK1E332S( )	100	250	
4700	18	25	2850	0.018	5000	0.8	7.5	7.5	EEUFK1E472S( )	100	250	

· When requesting taped product, please put the letter "B" between the "( )". Lead wire pitch \*B=5 mm, 7.5 mm.  
 · Please refer to the page of "Taping dimensions".

## Characteristics list

Endurance : 105 °C  $\phi$ 8=3000 h,  $\phi$ 10=4000 h,  $\phi$ 12.5 to  $\phi$ 18=5000 h

Rated voltage (V.DC)	Cap. ( $\pm 20\%$ ) ( $\mu$ F)	Case size (mm)		Specification			Lead length (mm)			Part No.	Min. Packaging Q'ty	
		$\phi$ D	L	Ripple current (100 kHz) (+105 °C) (mA r.m.s.)	Impedance (100 kHz) (+20 °C) ( $\Omega$ )	Endurance (hours)	Lead dia. $\phi$ d	Lead space			Straight leads (pcs)	Taping (pcs)
								Straight	Taping *B			
35	180	8	11.5	630	0.090	3000	0.6	3.5	5.0	EEUFK1V181( )	200	1000
	270	8	15	860	0.062	3000	0.6	3.5	5.0	EEUFK1V271L( )	200	1000
		10	12.5	900	0.063	4000	0.6	5.0	5.0	EEUFK1V271( )	200	500
	390	8	20	1220	0.044	3000	0.6	3.5	5.0	EEUFK1V391L( )	200	1000
		10	16	1240	0.049	4000	0.6	5.0	5.0	EEUFK1V391( )	200	500
	560	10	20	1490	0.035	4000	0.6	5.0	5.0	EEUFK1V561( )	200	500
		12.5	15	1400	0.048	5000	0.6	5.0	5.0	EEUFK1V561S( )	200	500
	680	10	25	1680	0.033	4000	0.6	5.0	5.0	EEUFK1V681L( )	200	500
	820	12.5	20	1890	0.029	5000	0.6	5.0	5.0	EEUFK1V821( )	200	500
	1000	10	30	2140	0.025	4000	0.6	5.0		EEUFK1V102L	100	
		16	15	1800	0.038	5000	0.8	7.5	7.5	EEUFK1V102S( )	100	250
	1200	12.5	25	2280	0.022	5000	0.6	5.0	5.0	EEUFK1V122( )	200	500
		18	15	2060	0.036	5000	0.8	7.5	7.5	EEUFK1V122S( )	100	250
	1500	12.5	30	2720	0.018	5000	0.8	5.0		EEUFK1V152L	100	
	1800	12.5	35	2940	0.016	5000	0.8	5.0		EEUFK1V182L	100	
		16	20	2330	0.026	5000	0.8	7.5	7.5	EEUFK1V182S( )	100	250
	2200	12.5	40	3010	0.014	5000	0.8	5.0		EEUFK1V222L	100	
		16	25	2760	0.019	5000	0.8	7.5	7.5	EEUFK1V222( )	100	250
		18	20	2640	0.025	5000	0.8	7.5	7.5	EEUFK1V222S( )	100	250
	3300	18	25	2850	0.018	5000	0.8	7.5	7.5	EEUFK1V332S( )	100	250

- When requesting taped product, please put the letter "B" between the "( )". Lead wire pitch \*B=5 mm, 7.5 mm.
- Please refer to the page of "Taping dimensions".

## Guidelines and precautions regarding the technical information and use of our products described in this online catalog.

- If you want to use our products described in this online catalog for applications requiring special qualities or reliability, or for applications where the failure or malfunction of the products may directly jeopardize human life or potentially cause personal injury (e.g. aircraft and aerospace equipment, traffic and transportation equipment, combustion equipment, medical equipment, accident prevention, anti-crime equipment, and/or safety equipment), it is necessary to verify whether the specifications of our products fit to such applications. Please ensure that you will ask and check with our inquiry desk as to whether the specifications of our products fit to such applications use before you use our products.
- The quality and performance of our products as described in this online catalog only apply to our products when used in isolation. Therefore, please ensure you evaluate and verify our products under the specific circumstances in which our products are assembled in your own products and in which our products will actually be used.
- If you use our products in equipment that requires a high degree of reliability, regardless of the application, it is recommended that you set up protection circuits and redundancy circuits in order to ensure safety of your equipment.
- The products and product specifications described in this online catalog are subject to change for improvement without prior notice. Therefore, please be sure to request and confirm the latest product specifications which explain the specifications of our products in detail, before you finalize the design of your applications, purchase, or use our products.
- The technical information in this online catalog provides examples of our products' typical operations and application circuits. We do not guarantee the non-infringement of third party's intellectual property rights and we do not grant any license, right, or interest in our intellectual property.
- If any of our products, product specifications and/or technical information in this online catalog is to be exported or provided to non-residents, the laws and regulations of the exporting country, especially with regard to security and export control, shall be observed.

## <Regarding the Certificate of Compliance with the EU RoHS Directive/REACH Regulations>

- The switchover date for compliance with the RoHS Directive/REACH Regulations varies depending on the part number or series of our products.
- When you use the inventory of our products for which it is unclear whether those products are compliant with the RoHS Directive/REACH Regulation, please select "Sales Inquiry" in the website inquiry form and contact us.

**We do not take any responsibility for the use of our products outside the scope of the specifications, descriptions, guidelines and precautions described in this online catalog.**

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