

Surface Mount Type

Series: **FK**
FK High temperature Lead-Free reflow (suffix:A*)

Type : **V**

Country of Origin

Japan



- **Features**
- Endurance: 2000 to 5000h at 105°C
 - Low impedance (40 to 60% less than FC series)
 - Miniaturized(30 to 50% less than FC series)
 - Vibration-proof product is available upon request.($\phi 8 \leq$)
 - RoHS directive compliant(Parts No $\phi 4$ to $\phi 10$:EEE*, $\phi 12.5$ to :EEV*)

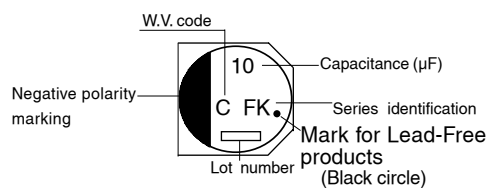
■ **Specifications**

Category temp. range	-55 to +105°C										
Rated W.V. Range	6.3 to 100V .DC										
Nominal Cap. Range	3.3 to 6800 μ F										
Capacitance Tolerance	±20 % (120Hz/+20°C)										
DC Leakage Current	I ≤ 0.01 CV or 3(μA) After 2 minutes application of rated working voltage at +20°C. (Whichever is greater)										
tan δ	Please see the attached standard products list										
Characteristics at Low Temperature	W.V. (V)	6.3	10	16	25	35	50	63	80	100	(Impedance ratio at 120 Hz)
	Z(-25°C) / Z(+20°C)	2	2	2	2	2	2	2	2	2	
	Z(-40°C)/ Z(+20°C)	3	3	3	3	3	3	3	3	3	
	Z(-55°C)/ Z(+20°C)	4	4	4	3	3	3	3	3	3	
Endurance	After applying rated working voltage at +105±2°C for 2000 hours (≥dia.12.5 and suffix “G” in dia.8×10.2, dia.10×10.2 are 5000 hours)the capacitors shall meet the limits specified below. Post-test requirement at +20°C.										
	Capacitance change	±30% of initial measured value (Suffix “G” is 35%)									
	tan δ	≤200 % of initial specified value (Suffix “G” is 300%)									
	DC leakage current	≤initial 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(With voltage treatment)										
Resistance to Soldering Heat	After reflow soldering and then being stabilized at +20°C, capacitor shall meet the following limits.										
	Capacitance change	±10% of initial measured value									
	tan δ	≤initial specified value									
	DC leakage current	≤initial specified value									

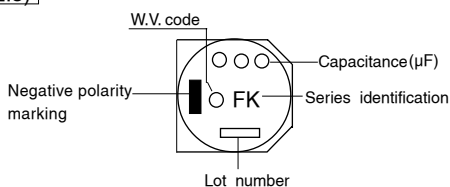
■ **Marking**

Example.16V10 μ F Marking color : BLACK

Lead-Free products($\phi 10$)



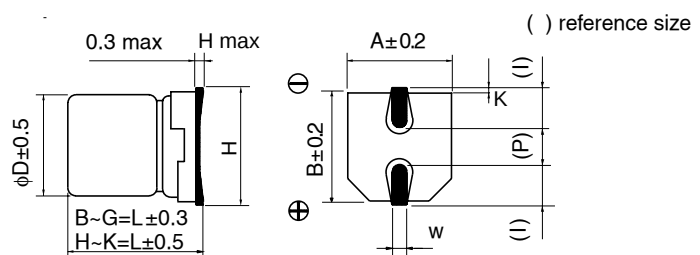
($\geq \phi 12.5$)



W.V. code

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

■ **Dimensions in mm (not to scale)**



(mm)

Size code	D	L	A,B	H max.	I	W	P	K
B	4.0	5.8	4.3	5.5	1.8	0.65 $\pm$ 0.1	1.0	0.35 -0.20 to +0.15
C	5.0	5.8	5.3	6.5	2.2	0.65 $\pm$ 0.1	1.5	0.35 -0.20 to +0.15
D	6.3	5.8	6.6	7.8	2.6	0.65 $\pm$ 0.1	1.8	0.35 -0.20 to +0.15
D8	6.3	7.7	6.6	7.8	2.6	0.65 $\pm$ 0.1	1.8	0.35 -0.20 to +0.15
E	8.0	6.2	8.3	9.5	3.4	0.65 $\pm$ 0.1	2.2	0.35 -0.20 to +0.15
F	8.0	10.2	8.3	10.0	3.4	0.90 $\pm$ 0.2	3.1	0.70 $\pm$ 0.20
G	10.0	10.2	10.3	12.0	3.5	0.90 $\pm$ 0.2	4.6	0.70 $\pm$ 0.20
H13	12.5	13.5	13.5	15.0	4.7	0.90 $\pm$ 0.3	4.4	0.70 $\pm$ 0.30
J16	16.0	16.5	17.0	19.0	5.5	1.20 $\pm$ 0.3	6.7	0.70 $\pm$ 0.30
K16	18.0	16.5	19.0	21.0	6.7	1.20 $\pm$ 0.3	6.7	0.70 $\pm$ 0.30

■ Case size VS Capacitance, Impedance and Ripple current

Impedance;(Ω /100kHz,+20°C),

Ripple current;(mA r.m.s./100kHz+105°C)

(): Miniaturization type

Capacitance (μ F)	W.V.	6.3			10			16		
		Size	Impedance	Ripple current	Size	Impedance	Ripple current	Size	Impedance	Ripple current
10					B	1.35	90	B	1.35	90
22		B	1.35	90	B	1.35	90	C(B)	0.70(1.35)	160(90)
33					C(B)	0.70(1.35)	160(90)			
47		C(B)	0.70(1.35)	160(90)				D(C)	0.36(0.70)	240(160)
68								D	0.36	240
100		D(C)	0.36(0.70)	240(160)				D	0.36	240
150					D	0.36	240	D8	0.34	280
220		D	0.36	240	D8	0.34	280	D8	0.34	280
					E	0.26	300	E	0.26	300
330		D8	0.34	280	F	0.16	600	F	0.16	600
		E	0.26	300						
470		F	0.16	600	F	0.16	600	F	0.16	600
680					F	0.16	600	G	0.08	850
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			

Capacitance (μ F)	W.V.	25			35			50		
		Size	Impedance	Ripple current	Size	Impedance	Ripple current	Size	Impedance	Ripple current
4.7					B	1.35	90	B	2.90	60
10		B	1.35	90	C(B)	0.70(1.35)	160(90)	D(C)	0.88(1.52)	165(85)
22		C	0.70	160	C	0.70	160	D	0.88	165
33		D(C)	0.36(0.70)	240(160)	D	0.36	240	D8	0.68	195
								E	0.68	195
47		D	0.36	240	D	0.36	240	E(D8)	0.68	195
68		D	0.36	240	D8	0.34	280			
100		D8	0.34	280	D8	0.34	280	F	0.34	350
		E	0.26	300	F	0.16	600			
150		F	0.16	600	F	0.16	600	G	0.18	670
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	J16	0.073	1610
560								J16	0.073	1610
680					H13	0.06	1100	J16	0.073	1610
1000		H13	0.06	1100	J16	0.035	1800	J16	0.073	1610
1500		J16	0.035	1800	J16	0.035	1800			
2200		J16	0.035	1800						
3300		K16	0.033	2060						

Capacitance (μ F)	W.V.	63			80			100		
		Size	Impedance	Ripple current	Size	Impedance	Ripple current	Size	Impedance	Ripple current
3.3					C	5.00	25			
4.7		C	3.00	50	D	3.00	40			
10		D	1.50	80	D8	2.40	60			
					E	2.40	60			
22		D8	1.20	120	F	1.30	130	F	1.30	130
		E	1.20	120						
33		F	0.65	250	F	1.30	130	G	0.70	200
47		F	0.65	250	G	0.70	200	H13	0.32	500
68		F	0.65	250	H13	0.32	500	H13	0.32	500
100		G	0.35	400	H13	0.32	500	J16	0.17	793
150		H13	0.16	800	H13	0.32	500	J16	0.17	793
220		H13	0.16	800				K16	0.153	917
330					J16	0.17	793	K16	0.153	917
470		J16	0.082	1410	K16	0.153	917			
680		K16	0.080	1690						

Design, and specifications are each subject to change without notice. Ask factory for the current technical specifications before purchase and / or use. Should a safety concern arise regarding this product, please be sure to contact us immediately.

Apr. 2005

■ Standard Products

Endurance: 105°C 2000h, ≥dia12.5:5000h)

W.V. (V)	Cap. (±20%) (μF)	Case size			Specification			Part No. (RoHS:compliant)	Min. Packaging Q'ty	
		Dia. (mm)	Length (mm)	Size Code	Ripple current (100kHz) (+105°C) (mA)	Impe- dance (100kHz) (+20°C) (Ω)	tan δ (120Hz) (+20°C)		Reflow	Taping (pcs)
6.3	22	4	5.8	B	90	1.35	0.26	EEEFK0J220R	(1)	2000
	47	4	5.8	B	90	1.35	0.26	EEEFK0J470UR	(1)	2000
		5	5.8	C	160	0.70	0.26	EEEFK0J470R	(1)	1000
	100	5	5.8	C	160	0.70	0.26	EEEFK0J101UR	(1)	1000
		6.3	5.8	D	240	0.36	0.26	EEEFK0J101P	(1)	1000
	220	6.3	5.8	D	240	0.36	0.26	EEEFK0J221P	(1)	1000
	330	6.3	7.7	D8	280	0.34	0.26	EEEFK0J331XP	(1)	900
		8	6.2	E	300	0.26	0.26	EEEFK0J331P	(2)	1000
	470	8	10.2	F	600	0.16	0.26	EEEFK0J471P	(2)	500
	1000	8	10.2	F	600	0.16	0.26	EEEFK0J102P	(2)	500
	1500	10	10.2	G	850	0.08	0.26	EEEFK0J152P	(2)	500
	3300	12.5	13.5	H13	1100	0.06	0.30	EEVFK0J332Q	(3)	200
	6800	16	16.5	J16	1800	0.035	0.36	EEVFK0J682M	(3)	125
10	22	4	5.8	B	90	1.35	0.19	EEEFK1A220R	(1)	2000
	33	4	5.8	B	90	1.35	0.19	EEEFK1A330UR	(1)	2000
		5	5.8	C	160	0.70	0.19	EEEFK1A330R	(1)	1000
	150	6.3	5.8	D	240	0.36	0.19	EEEFK1A151P	(1)	1000
	220	6.3	7.7	D8	280	0.34	0.19	EEEFK1A221XP	(1)	900
		8	6.2	E	300	0.26	0.19	EEEFK1A221P	(2)	1000
	330	8	10.2	F	600	0.16	0.19	EEEFK1A331P	(2)	500
	470	8	10.2	F	600	0.16	0.19	EEEFK1A471P	(2)	500
	680	8	10.2	F	600	0.16	0.19	EEEFK1A681P	(2)	500
	1000	10	10.2	G	850	0.08	0.19	EEEFK1A102P	(2)	500
	2200	12.5	13.5	H13	1100	0.06	0.21	EEVFK1A222Q	(3)	200
	4700	16	16.5	J16	1800	0.035	0.25	EEVFK1A472M	(3)	125
	6800	18	16.5	K16	2060	0.033	0.29	EEVFK1A682M	(3)	125
16	10	4	5.8	B	90	1.35	0.16	EEEFK1C100R	(1)	2000
	22	4	5.8	B	90	1.35	0.16	EEEFK1C220UR	(1)	2000
		5	5.8	C	160	0.70	0.16	EEEFK1C220R	(1)	1000
	47	5	5.8	C	160	0.70	0.16	EEEFK1C470UR	(1)	1000
		6.3	5.8	D	240	0.36	0.16	EEEFK1C470P	(1)	1000
	68	6.3	5.8	D	240	0.36	0.16	EEEFK1C680P	(1)	1000
	100	6.3	5.8	D	240	0.36	0.16	EEEFK1C101P	(1)	1000
	150	6.3	7.7	D8	280	0.34	0.16	EEEFK1C151XP	(1)	900
	220	6.3	7.7	D8	280	0.34	0.16	EEEFK1C221XP	(1)	900
		8	6.2	E	300	0.26	0.16	EEEFK1C221P	(2)	1000
	330	8	10.2	F	600	0.16	0.16	EEEFK1C331P	(2)	500
	470	8	10.2	F	600	0.16	0.16	EEEFK1C471P	(2)	500
	680	10	10.2	G	850	0.08	0.16	EEEFK1C681P	(2)	500
	1500	12.5	13.5	H13	1100	0.06	0.16	EEVFK1C152Q	(3)	200
	3300	16	16.5	J16	1800	0.035	0.20	EEVFK1C332M	(3)	125
	4700	18	16.5	K16	2060	0.033	0.22	EEVFK1C472M	(3)	125
25	10	4	5.8	B	90	1.35	0.14	EEEFK1E100R	(1)	2000
	22	5	5.8	C	160	0.70	0.14	EEEFK1E220R	(1)	1000

The taping dimensions are explained on p.195 of our Catalog. Please use it as a reference guide.
Reflow Profile(Fig-1 to Fig-6) listed on p.193 of our Catalog.

Design, and specifications are each subject to change without notice. Ask factory for the current technical specifications before purchase and / or use. Should a safety concern arise regarding this product, please be sure to contact us immediately.

Apr. 2005

■ Standard Products

Endurance: 105°C 2000h, ≥dia12.5:5000h)

W.V.	Cap. (±20%)	Case size			Specification			Part No. (RoHS:compliant)	Min. Packaging Q'ty	
		Dia.	Length	Size Code	Ripple current (100kHz (+105°C) (mA)	Impe- dance (100kHz) (+20°C) (Ω)	tan δ (120Hz) (+20°C)		Reflow	Taping (pcs)
	(μF)	(mm)	(mm)							
25	33	5	5.8	C	160	0.70	0.14	EEEFK1E330UR	(1)	1000
		6.3	5.8	D	240	0.36	0.14	EEEFK1E330P	(1)	1000
	47	6.3	5.8	D	240	0.36	0.14	EEEFK1E470P	(1)	1000
	68	6.3	5.8	D	240	0.36	0.14	EEEFK1E680P	(1)	1000
	100	6.3	7.7	D8	280	0.34	0.14	EEEFK1E101XP	(1)	900
		8	6.2	E	300	0.26	0.14	EEEFK1E101P	(2)	1000
	150	8	10.2	F	600	0.16	0.14	EEEFK1E151P	(2)	500
	220	8	10.2	F	600	0.16	0.14	EEEFK1E221P	(2)	500
	330	8	10.2	F	600	0.16	0.14	EEEFK1E331P	(2)	500
	470	10	10.2	G	850	0.08	0.14	EEEFK1E471P	(2)	500
	1000	12.5	13.5	H13	1100	0.06	0.14	EEVFK1E102Q	(3)	200
	1500	16	16.5	J16	1800	0.035	0.14	EEVFK1E152M	(3)	125
	2200	16	16.5	J16	1800	0.035	0.16	EEVFK1E222M	(3)	125
	3300	18	16.5	K16	2060	0.033	0.18	EEVFK1E332M	(3)	125
35	4.7	4	5.8	B	90	1.35	0.12	EEEFK1V4R7R	(1)	2000
	10	4	5.8	B	90	1.35	0.12	EEEFK1V100UR	(1)	2000
		5	5.8	C	160	0.70	0.12	EEEFK1V100R	(1)	1000
	22	5	5.8	C	160	0.70	0.12	EEEFK1V220R	(1)	1000
	33	6.3	5.8	D	240	0.36	0.12	EEEFK1V330P	(1)	1000
	47	6.3	5.8	D	240	0.36	0.12	EEEFK1V470P	(1)	1000
	68	6.3	7.7	D8	280	0.34	0.12	EEEFK1V680XP	(1)	900
	100	6.3	7.7	D8	280	0.34	0.12	EEEFK1V101XP	(1)	900
		8	10.2	F	600	0.16	0.12	EEEFK1V101P	(2)	500
	150	8	10.2	F	600	0.16	0.12	EEEFK1V151P	(2)	500
	220	8	10.2	F	600	0.16	0.12	EEEFK1V221P	(2)	500
	330	10	10.2	G	850	0.08	0.12	EEEFK1V331P	(2)	500
	470	12.5	13.5	H13	1100	0.06	0.12	EEVFK1V471Q	(3)	200
	680	12.5	13.5	H13	1100	0.06	0.12	EEVFK1V681Q	(3)	200
	1000	16	16.5	J16	1800	0.035	0.12	EEVFK1V102M	(3)	125
	1500	16	16.5	J16	1800	0.035	0.12	EEVFK1V152M	(3)	125
50	4.7	4	5.8	B	60	2.90	0.10	EEEFK1H4R7R	(1)	2000
	10	5	5.8	C	85	1.52	0.10	EEEFK1H100UR	(1)	1000
		6.3	5.8	D	165	0.88	0.10	EEEFK1H100P	(1)	1000
	22	6.3	5.8	D	165	0.88	0.10	EEEFK1H220P	(1)	1000
	33	6.3	7.7	D8	195	0.68	0.10	EEEFK1H330XP	(1)	900
		8	6.2	E	195	0.68	0.10	EEEFK1H330P	(2)	1000
	47	6.3	7.7	D8	195	0.68	0.10	EEEFK1H470XP	(1)	900
		8	6.2	E	195	0.68	0.10	EEEFK1H470P	(2)	1000
	100	8	10.2	F	350	0.34	0.10	EEEFK1H101P	(2)	500
	150	10	10.2	G	670	0.18	0.10	EEEFK1H151P	(2)	500
	220	10	10.2	G	670	0.18	0.10	EEEFK1H221P	(2)	500
	330	12.5	13.5	H13	900	0.12	0.10	EEVFK1H331Q	(3)	200
	390	12.5	13.5	H13	900	0.12	0.10	EEVFK1H391Q	(3)	200
	470	16	16.5	J16	1610	0.073	0.10	EEVFK1H471M	(3)	125
560	16	16.5	J16	1610	0.073	0.10	EEVFK1H561M	(3)	125	

The taping dimensions are explained on p.195 of our Catalog. Please use it as a reference guide.
Reflow Profile(Fig-1 to Fig-6) listed on p.193 of our Catalog.

Design, and specifications are each subject to change without notice. Ask factory for the current technical specifications before purchase and / or use. Should a safety concern arise regarding this product, please be sure to contact us immediately.

Apr. 2005

■ Standard Products

Endurance: 105°C 2000h, ≥dia12.5:5000h)

W.V. (V)	Cap. (±20%) (μF)	Case size			Specification			Part No. (RoHS:compliant)	Reflow	Min. Packaging Q'ty
		Dia. (mm)	Length (mm)	Size Code	Ripple current (100kHz) (+105°C) (mA)	Impe- dance (100kHz) (+20°C) (Ω)	tan δ (120Hz) (+20°C)			Taping (pcs)
50	680	16	16.5	J16	1610	0.073	0.10	EEVFK1H681M	(3)	125
	1000	16	16.5	J16	1610	0.073	0.10	EEVFK1H102M	(3)	125
63	4.7	5	5.8	C	50	3.00	0.08	EEEFK1J4R7R	(1)	1000
	10	6.3	5.8	D	80	1.50	0.08	EEEFK1J100P	(1)	1000
	22	6.3	7.7	D8	120	1.20	0.08	EEEFK1J220XP	(1)	900
		8	6.2	E	120	1.20	0.08	EEEFK1J220P	(2)	1000
	33	8	10.2	F	250	0.65	0.08	EEEFK1J330P	(2)	500
	47	8	10.2	F	250	0.65	0.08	EEEFK1J470P	(2)	500
	68	8	10.2	F	250	0.65	0.08	EEEFK1J680UP	(2)	500
	100	10	10.2	G	400	0.35	0.08	EEEFK1J101P	(2)	500
	150	12.5	13.5	H13	800	0.16	0.08	EEVFK1J151Q	(3)	200
	220	12.5	13.5	H13	800	0.16	0.08	EEVFK1J221Q	(3)	200
	470	16	16.5	J16	1410	0.082	0.08	EEVFK1J471M	(3)	125
	680	18	16.5	K16	1690	0.08	0.08	EEVFK1J681M	(3)	125
80	3.3	5	5.8	C	25	5.00	0.08	EEEFK1K3R3R	(1)	1000
	4.7	6.3	5.8	D	40	3.00	0.08	EEEFK1K4R7P	(1)	1000
	10	6.3	7.7	D8	60	2.40	0.08	EEEFK1K100XP	(1)	900
		8	6.2	E	60	2.40	0.08	EEEFK1K100P	(2)	1000
	22	8	10.2	F	130	1.30	0.08	EEEFK1K220P	(2)	500
	33	8	10.2	F	130	1.30	0.08	EEEFK1K330P	(2)	500
	47	10	10.2	G	200	0.70	0.08	EEEFK1K470P	(2)	500
	68	12.5	13.5	H13	500	0.32	0.08	EEVFK1K680Q	(3)	200
	100	12.5	13.5	H13	500	0.32	0.08	EEVFK1K101Q	(3)	200
	150	12.5	13.5	H13	500	0.32	0.08	EEVFK1K151Q	(3)	200
	330	16	16.5	J16	793	0.17	0.08	EEVFK1K331M	(3)	125
	470	18	16.5	K16	917	0.153	0.08	EEVFK1K471M	(3)	125
100	22	8.0	10.2	F	130	1.30	0.07	EEEFK2A220P	(2)	500
	33	10	10.2	G	200	0.70	0.07	EEEFK2A330P	(2)	500
	47	12.5	13.5	H13	500	0.32	0.07	EEVFK2A470Q	(3)	200
	68	12.5	13.5	H13	500	0.32	0.07	EEVFK2A680Q	(3)	200
	100	16	16.5	J16	793	0.17	0.07	EEVFK2A101M	(3)	125
	150	16	16.5	J16	793	0.17	0.07	EEVFK2A151M	(3)	125
	220	18	16.5	K16	917	0.153	0.07	EEVFK2A221M	(3)	125
	330	18	16.5	K16	917	0.153	0.07	EEVFK2A331M	(3)	125

The taping dimensions are explained on p.195 of our Catalog.

Please use it as a reference guide.

Reflow Profile(Fig-1 to Fig-6) listed on p.193 of our Catalog.

■ Endurance 5000h Products

Endurance: 105°C 5000h

W.V. (V)	Cap. (±20%) (μF)	Case size			Specification			Part No. (RoHS:compliant)	Min. Packaging Q'ty	
		Dia. (mm)	Length (mm)	Size Code	Ripple current (100kHz) (+105°C) (mA)	Impe- dance (100kHz) (+20°C) (Ω)	tan δ (120Hz) (+20°C)		Reflow	Taping (pcs)
6.3	470	8	10.2	F	600	0.16	0.26	EEEFK0J471GP	(2)	500
	1000	8	10.2	F	600	0.16	0.26	EEEFK0J102GP	(2)	500
	1500	10	10.2	G	850	0.08	0.26	EEEFK0J152GP	(2)	500
10	330	8	10.2	F	600	0.16	0.19	EEEFK1A331GP	(2)	500
	470	8	10.2	F	600	0.16	0.19	EEEFK1A471GP	(2)	500
	680	8	10.2	F	600	0.16	0.19	EEEFK1A681GP	(2)	500
	1000	10	10.2	G	850	0.08	0.19	EEEFK1A102GP	(2)	500
16	330	8	10.2	F	600	0.16	0.16	EEEFK1C331GP	(2)	500
	470	8	10.2	F	600	0.16	0.16	EEEFK1V471GP	(2)	500
	680	10	10.2	G	850	0.08	0.16	EEEFK1C681GP	(2)	500
25	150	8	10.2	F	600	0.16	0.14	EEEFK1E151GP	(2)	500
	220	8	10.2	F	600	0.16	0.14	EEEFK1E221GP	(2)	500
	330	8	10.2	F	600	0.16	0.14	EEEFK1E331GP	(2)	500
	470	10	10.2	G	850	0.08	0.14	EEEFK1E471GP	(2)	500
35	100	8	10.2	F	600	0.16	0.12	EEEFK1V101GP	(2)	500
	150	8	10.2	F	600	0.16	0.12	EEEFK1V151GP	(2)	500
	220	8	10.2	F	600	0.16	0.12	EEEFK1V221GP	(2)	500
	330	10	10.2	G	850	0.08	0.12	EEEFK1V331GP	(2)	500
50	100	8	10.2	F	350	0.34	0.10	EEEFK1H101GP	(2)	500
	150	10	10.2	G	670	0.18	0.10	EEEFK1H151GP	(2)	500
	220	10	10.2	G	670	0.18	0.10	EEEFK1H221GP	(2)	500

■ High temperature Lead-Free reflow Products

Endurance: 105°C 2000h

W.V. (V)	Cap. (±20%) (μF)	Case size			Specification			Part No. (RoHS:compliant)	Min. Packaging Q'ty	
		Dia. (mm)	Length (mm)	Size Code	Ripple current (100kHz) (+105°C) (mA)	Impe- dance (100kHz) (+20°C) (Ω)	tan δ (120Hz) (+20°C)		Reflow	Taping (pcs)
6.3	22	4	5.8	B	90	1.35	0.26	EEEFK0J220AR	(5)	2000
	47	4	5.8	B	90	1.35	0.26	EEEFKJ470UAR	(5)	2000
		5	5.8	C	160	0.70	0.26	EEEFK0J470AR	(5)	1000
	100	5	5.8	C	160	0.70	0.26	EEEFKJ101UAR	(5)	1000
		6.3	5.8	D	240	0.36	0.26	EEEFK0J101AP	(5)	1000
	220	6.3	5.8	D	240	0.36	0.26	EEEFK0J221AP	(5)	1000
	330	6.3	7.7	D8	280	0.34	0.26	EEEFKJ331XAP	(5)	900
		8	6.2	E	300	0.26	0.26	EEEFK0J331AP	(6)	1000
	470	8	10.2	F	600	0.16	0.26	EEEFK0J471AP	(6)	500
	1000	8	10.2	F	600	0.16	0.26	EEEFK0J102AP	(6)	500
10	1500	10	10.2	G	850	0.08	0.26	EEEFK0J152AP	(6)	500
	22	4	5.8	B	90	1.35	0.19	EEEFK1A220AR	(5)	2000
	33	4	5.8	B	90	1.35	0.19	EEEFKA330UAR	(5)	2000
		5	5.8	C	160	0.70	0.19	EEEFK1A330AR	(5)	1000
	150	6.3	5.8	D	240	0.36	0.19	EEEFK1A151AP	(5)	1000
	220	6.3	7.7	D8	280	0.34	0.19	EEEFKA221XAP	(5)	900
		8	6.2	E	300	0.26	0.19	EEEFK1A221AP	(6)	1000

If part number exceeds 12 digits, voltage code is abbreviated as follows; 0J→J, 1A→A, 1C→C, 1E→E, 1V→V

The taping dimensions are explained on p.195 of our Catalog. Please use it as a reference guide.

Reflow Profile(Fig-1 to Fig-6) listed on p.193 of our Catalog.

Design, and specifications are each subject to change without notice. Ask factory for the current technical specifications before purchase and / or use. Should a safety concern arise regarding this product, please be sure to contact us immediately.

Apr. 2005

■ High temperature Lead-Free reflow Products

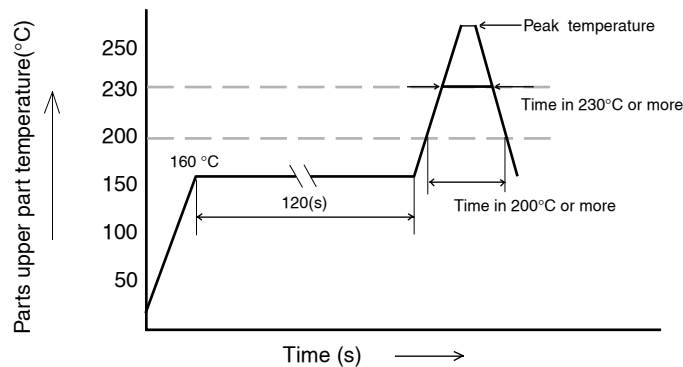
Endurance: 105°C 2000h

W.V. (V)	Cap. (±20%) (μF)	Case size			Specification			Part No. (RoHS:compliant)	Min. Packaging Q'ty
		Dia. (mm)	Length (mm)	Size Code	Ripple current (100kHz) (+105°C) (mA)	Impe- dance (100kHz) (+20°C) (Ω)	tan δ (120Hz) (+20°C)		
10	330	8	10.2	F	600	0.16	0.19	EEEFK1A331AP	(6) 500
	470	8	10.2	F	600	0.16	0.19	EEEFK1A471AP	(6) 500
	680	8	10.2	F	600	0.16	0.19	EEEFK1A681AP	(6) 500
	1000	10	10.2	G	850	0.08	0.19	EEEFK1A102AP	(6) 500
16	10	4	5.8	B	90	1.35	0.16	EEEFK1C100AR	(5) 2000
	22	4	5.8	B	90	1.35	0.16	EEEFK1C220UAR	(5) 2000
		5	5.8	C	160	0.70	0.16	EEEFK1C220AR	(5) 1000
	47	5	5.8	C	160	0.70	0.16	EEEFK1C470UAR	(5) 1000
		6.3	5.8	D	240	0.36	0.16	EEEFK1C470AP	(5) 1000
	68	6.3	5.8	D	240	0.36	0.16	EEEFK1C680AP	(5) 1000
	100	6.3	5.8	D	240	0.36	0.16	EEEFK1C101AP	(5) 1000
	150	6.3	7.7	D8	280	0.34	0.16	EEEFK1C151XAP	(5) 900
		6.3	7.7	D8	280	0.34	0.16	EEEFK1C221XAP	(5) 900
	220	8	6.2	E	300	0.26	0.16	EEEFK1C221AP	(6) 1000
		8	6.2	E	300	0.26	0.16	EEEFK1C221AP	(6) 1000
	330	8	10.2	F	600	0.16	0.16	EEEFK1C331AP	(6) 500
25	470	8	10.2	F	600	0.16	0.16	EEEFK1C471AP	(6) 500
	680	10	10.2	G	850	0.08	0.16	EEEFK1C681AP	(6) 500
	10	4	5.8	B	90	1.35	0.14	EEEFK1E100AR	(5) 2000
	22	5	5.8	C	160	0.70	0.14	EEEFK1E220AR	(5) 1000
	33	5	5.8	C	160	0.70	0.14	EEEFK1E330UAR	(5) 1000
		6.3	5.8	D	240	0.36	0.14	EEEFK1E330AP	(5) 1000
	47	6.3	5.8	D	240	0.36	0.14	EEEFK1E470AP	(5) 1000
	68	6.3	5.8	D	240	0.36	0.14	EEEFK1E680AP	(5) 1000
	100	6.3	7.7	D8	280	0.34	0.14	EEEFK1E101XAP	(5) 900
		8	6.2	E	300	0.26	0.14	EEEFK1E101AP	(6) 1000
	150	8	10.2	F	600	0.16	0.14	EEEFK1E151AP	(6) 500
	220	8	10.2	F	600	0.16	0.14	EEEFK1E221AP	(6) 500
35	330	8	10.2	F	600	0.16	0.14	EEEFK1E331AP	(6) 500
	470	10	10.2	G	850	0.08	0.14	EEEFK1E471AP	(6) 500
	4.7	4	5.8	B	90	1.35	0.12	EEEFK1V4R7AR	(5) 2000
	10	4	5.8	B	90	1.35	0.12	EEEFK1V100UAR	(5) 2000
		5	5.8	C	160	0.70	0.12	EEEFK1V100AR	(5) 1000
	22	5	5.8	C	160	0.70	0.12	EEEFK1V220AR	(5) 1000
	33	6.3	5.8	D	240	0.36	0.12	EEEFK1V330AP	(5) 1000
	47	6.3	5.8	D	240	0.36	0.12	EEEFK1V470AP	(5) 1000
	68	6.3	7.7	D8	280	0.34	0.12	EEEFK1V680XAP	(5) 900
	100	8	10.2	F	600	0.16	0.12	EEEFK1V101AP	(6) 500
	150	8	10.2	F	600	0.16	0.12	EEEFK1V151AP	(6) 500
	220	8	10.2	F	600	0.16	0.12	EEEFK1V221AP	(6) 500
	330	10	10.2	G	850	0.08	0.12	EEEFK1V331AP	(6) 500

If part number exceeds 12 digits, voltage code is abbreviated as follows; 0J→J, 1A→A, 1C→C, 1E→E, 1V→V
 The taping dimensions are explained on p.195 of our Catalog. Please use it as a reference guide.
 Reflow Profile(Fig-1 to Fig-6) listed on p.193 of our Catalog.

■ Reflow guaranteed condition

● RoHS compliant



Lead-Free reflow

Reflow No	Fig.(1)	Fig.(2)	Fig.(3)	Fig.(4)
Category	φ 3 to φ 6.3	φ 8 to φ 10	φ 12.5 to φ 18	EB series only (φ 10 to φ 18)
Peak temperature	250°C	235°C	230°C (220°C)	230°C
Time in peak temperature	5s	5s	5s (s)	5s
Time in 200°C or more	60s	60s	20s (30s)	20s
Time of reflow	1 time	1 time	1 time	1 time

High temperature Lead-Free reflow

Reflow No	Fig.(5)	Fig.(6)
Category	φ 4 to φ 6.3	φ 8 to φ 10
Peak temperature	260°C (255°C)	245°C
Time around peak temperature	5s in (10s) in 250°C or more	10s in 240°C or more
Time in 230°C or more	30s	30s
Time in 200°C or more	70s	70s
Time of reflow	2 times	2 times

● RoHS not compliant

Category	Dia. φ3 to φ 6.3 EEV-, ECEV- Part No.	Dia. φ8 to φ 10 EEV-, ECEV- Part No.
Reflow condition	Peak temperature/ Time in 200°C or more	Peak temperature/ Time in 200°C or more

※ For reflow, use athermal condition system such as infrared radiation(IR) or hot blast.

※ Vapor heat transfer systems(VPS) are not recommended.

Design, and specifications are each subject to change without notice. Ask factory for the current technical specifications before purchase and / or use. Should a safety concern arise regarding this product, please be sure to contact us immediately.