

### Surface Mount Type

Series: **Medium-size FK** Type: **V**  
**FK High temperature Lead-Free reflow(suffix:A\*)**



#### ■ Features

- Endurance: 5000 h at 105 °C
- Vibration-proof product is available upon request.
- AEC-Q200 qualified\*
- RoHS directive compliant

#### ■ Specifications

Category Temp. Range	-55 °C to +105 °C										
Rated W.V.Range	6.3 V.DC to 100 V.DC										
Nominal Cap.Range	47 μF to 6800 μF										
Capacitance Tolerance	±20 % (120 Hz/+20 °C)										
DC Leakage Current	I ≤ 0.01 CV (μA) After 2 minutes										
tan δ	Please see the attached High temperature lead-free reflow 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 for 5000 hours at +105 °C±2 °C and then being stabilized at +20 °C, Capacitors shall meet the following limits.										
	Capacitance change	±30 % of initial measured value									
	tan δ	≤ 200 % of initial specified value									
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)										
	After reflow soldering and then being stabilized at +20 °C, capacitors shall meet the following limits.										
	Capacitance change	±10 % of initial measured value									
Resistance to Soldering Heat	tan δ	≤ initial specified value									
	DC leakage current	≤ initial specified value									

#### ■ Frequency correction factor for ripple current

Cap (μF)	Frequency (Hz)			
	120	1 k	10 k	100 k to
47 to 6800	0.75	0.90	0.95	1.00

#### ■ Marking

Example: 6.3 V 3300 μF Marking color : BLACK

**Rated Voltage Mark**

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

#### ■ Dimensions in mm (not to scale)

(Unit : mm)

( ) Reference

Size code	D	L	A, B	H	I	W	P	K
H13	12.5	13.5±0.5	13.5	15.0 max.	4.7	0.90±0.3	4.4	0.70±0.30
J16	16.0	16.5±0.5	17.0	19.0 max.	5.5	1.20±0.3	6.7	0.70±0.30
K16	18.0	16.5±0.5	19.0	21.0 max.	6.7	1.20±0.3	6.7	0.70±0.30

\* This product qualify for AEC-Q200, but it has some deviations.

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.

■ High temperature Lead-Free reflow Products

Endurance : 105 °C 5000 h

W.V.	Cap. (±20 %)	Case size			Specification			Part No. (RoHS:compliant)	Reflow	Min. Packaging Q'ty
		Dia.	Length	Size Code	Ripple Current (100 kHz) (+105 °C) (mA r.m.s.)	Impedance (100 kHz) (+20 °C)	tan δ (120 Hz) (+20 °C)			Taping (pcs)
(V)	(μF)	(mm)	(mm)							
6.3	3300	12.5	13.5	H13	1100	0.06	0.30	EEEFK0J332AQ	(9)	200
	6800	16	16.5	J16	1800	0.035	0.36	EEEFK0J682AM	(9)	125
10	2200	12.5	13.5	H13	1100	0.06	0.21	EEEFK1A222AQ	(9)	200
	4700	16	16.5	J16	1800	0.035	0.25	EEEFK1A472AM	(9)	125
	6800	18	16.5	K16	2060	0.033	0.29	EEEFK1A682AM	(9)	125
16	1500	12.5	13.5	H13	1100	0.06	0.16	EEEFK1C152AQ	(9)	200
	3300	16	16.5	J16	1800	0.035	0.20	EEEFK1C332AM	(9)	125
	4700	18	16.5	K16	2060	0.033	0.22	EEEFK1C472AM	(9)	125
25	1000	12.5	13.5	H13	1100	0.06	0.14	EEEFK1E102AQ	(9)	200
	1500	16	16.5	J16	1800	0.035	0.16	EEEFK1E152AM	(9)	125
	2200	16	16.5	J16	1800	0.035	0.16	EEEFK1E222AM	(9)	125
	3300	18	16.5	K16	2060	0.033	0.18	EEEFK1E332AM	(9)	125
35	470	12.5	13.5	H13	1100	0.06	0.12	EEEFK1V471AQ	(9)	200
	680	12.5	13.5	H13	1100	0.06	0.12	EEEFK1V681AQ	(9)	200
	1000	16	16.5	J16	1800	0.035	0.12	EEEFK1V102AM	(9)	125
	1500	16	16.5	J16	1800	0.035	0.12	EEEFK1V152AM	(9)	125
50	330	12.5	13.5	H13	900	0.12	0.12	EEEFK1H331AQ	(10)	200
	390	12.5	13.5	H13	900	0.12	0.12	EEEFK1H391AQ	(10)	200
	470	16	16.5	J16	1610	0.073	0.12	EEEFK1H471AM	(10)	125
	560	16	16.5	J16	1610	0.073	0.12	EEEFK1H561AM	(10)	125
	680	16	16.5	J16	1610	0.073	0.12	EEEFK1H681AM	(10)	125
	1000	16	16.5	J16	1610	0.073	0.12	EEEFK1H102AM	(10)	125
63	150	12.5	13.5	H13	800	0.16	0.10	EEEFK1J151AQ	(10)	200
	220	12.5	13.5	H13	800	0.16	0.10	EEEFK1J221AQ	(10)	200
	470	16	16.5	J16	1410	0.082	0.10	EEEFK1J471AM	(10)	125
	680	18	16.5	K16	1690	0.08	0.10	EEEFK1J681AM	(10)	125
80	68	12.5	13.5	H13	500	0.32	0.08	EEEFK1K680AQ	(11)	200
	100	12.5	13.5	H13	500	0.32	0.08	EEEFK1K101AQ	(11)	200
	150	12.5	13.5	H13	500	0.32	0.08	EEEFK1K151AQ	(11)	200
	330	16	16.5	J16	793	0.17	0.08	EEEFK1K331AM	(11)	125
	470	18	16.5	K16	917	0.153	0.08	EEEFK1K471AM	(11)	125
100	47	12.5	13.5	H13	500	0.32	0.07	EEEFK2A470AQ	(11)	200
	68	12.5	13.5	H13	500	0.32	0.07	EEEFK2A680AQ	(11)	200
	100	16	16.5	J16	793	0.17	0.07	EEEFK2A101AM	(11)	125
	150	16	16.5	J16	793	0.17	0.07	EEEFK2A151AM	(11)	125
	220	18	16.5	K16	917	0.153	0.07	EEEFK2A221AM	(11)	125
	330	18	16.5	K16	917	0.153	0.07	EEEFK2A331AM	(11)	125

- Please refer to the page of "Reflow Profile" and "The Taping Dimensions".
- When requesting vibration-proof product, please put the last "V" instead to "Q or M"