

Surface Mount Type

Series: **FT** Type: **V**

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



■ Features

- Endurance: 2000 h at 105 °C
- Miniaturized, Low ESR (1 size smaller than series FK)
- Vibration-proof product is available upon request. ($\phi 8 \leq$)
- RoHS directive compliant

■ Specifications

Category Temp. Range	-55 °C to +105 °C	
Rated W.V.Range	25 V.DC to 50 V.DC	
Nominal Cap.Range	22 μ F to 820 μ F	
Capacitance Tolerance	± 20 % (120 Hz/+20 °C)	
DC Leakage Current	$I \leq 0.01$ CV After 2 minutes	
$\tan \delta$	Please see the attached High temperature lead-free reflow products list.	
Endurance	After applying rated working voltage for 2000 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
	$\tan \delta$	≤ 200 % of initial specified value
	DC leakage current	\leq 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)	
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
	$\tan \delta$	\leq initial specified value
	DC leakage current	\leq initial specified value

■ Marking

Example: 25 V 22 μ F
Marking color : BLACK

Capacitance (μ F)

Series identification

Mark for Lead-Free Products Black Dot (Square)

Rated Voltage Mark

Lot number

E	25 V
V	35 V
H	50 V

■ Dimensions in mm (not to scale)

() reference size

(mm)

Size code	D	L	A, B	H	I	W	P	K
B	4.0	5.8 ± 0.3	4.3	5.5 max.	1.8	0.65 ± 0.1	1.0	0.35 $^{+0.15}_{-0.20}$
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 ± 0.20
G	10.0	10.2 ± 0.3	10.3	12.0 max.	3.5	0.90 ± 0.2	4.6	0.70 ± 0.20

NEW

■ High temperature Lead-Free reflow

Endurance : 105 °C 2000 h

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 (100 kHz) (+105 °C) (mA r.m.s.)	ESR (100 kHz) (+20 °C) (Ω)	tan δ (120 Hz) (+20 °C)			Taping (pcs)
25	22	4	5.8	B	160	0.85	0.14	EEEFT1E220AR	(5)	2000
	33	4	5.8	B	160	0.85	0.14	EEEFT1E330AR	(5)	2000
	47	5	5.8	C	240	0.36	0.14	EEEFT1E470AR	(5)	1000
	68	5	5.8	C	240	0.36	0.14	EEEFT1E680AR	(5)	1000
	100	6.3	5.8	D	300	0.26	0.14	EEEFT1E101AP	(5)	1000
	150	6.3	7.7	D8	600	0.16	0.14	EEEFTE151XAP	(5)	900
	220	6.3	7.7	D8	600	0.16	0.14	EEEFTE221XAP	(5)	900
	470	8	10.2	F	850	0.08	0.14	EEEFT1E471AP	(6)	500
	820	10	10.2	G	1190	0.06	0.14	EEEFT1E821AP	(6)	500
35	22	4	5.8	B	160	0.85	0.12	EEEFT1V220AR	(5)	2000
	33	5	5.8	C	240	0.36	0.12	EEEFT1V330AR	(5)	1000
	47	5	5.8	C	240	0.36	0.12	EEEFT1V470AR	(5)	1000
	68	6.3	5.8	D	300	0.26	0.12	EEEFT1V680AP	(5)	1000
	100	6.3	5.8	D	300	0.26	0.12	EEEFT1V101AP	(5)	1000
	150	6.3	7.7	D8	600	0.16	0.12	EEEFV151XAP	(5)	900
	330	8	10.2	F	850	0.08	0.12	EEEFT1V331AP	(6)	500
	560	10	10.2	G	1190	0.06	0.12	EEEFT1V561AP	(6)	500
50	10	4	5.8	(B)	85	2.30	0.10	EEEFTH100UAR	(5)	2000
	10	5	5.8	C	165	0.88	0.10	EEEFTH100AR	(5)	1000
	22	5	5.8	C	165	0.88	0.10	EEEFTH1020AR	(5)	1000
	47	6.3	5.8	D	195	0.68	0.10	EEEFTH10470AP	(5)	1000
	100	6.3	7.7	D8	350	0.34	0.10	EEEFTH101XAP	(5)	900
	220	8	10.2	F	670	0.18	0.10	EEEFTH10221AP	(6)	500
	330	10	10.2	G	900	0.12	0.10	EEEFTH10331AP	(6)	500

*Size code():Miniaturization product

If Part number exceeds 12 digits, voltage code is abbreviated as follows; 1E→E, 1V→V, 1H→H

The taping dimensions are explained on EE188 of our Catalog. Please use it as a reference guide.

Reflow Profile(Fig-1 to Fig-8) listed on EE186 of our Catalog.