

### Resin Dipped Type

Series: EF Type : F

■ Features Lead wire terminal (Standard)

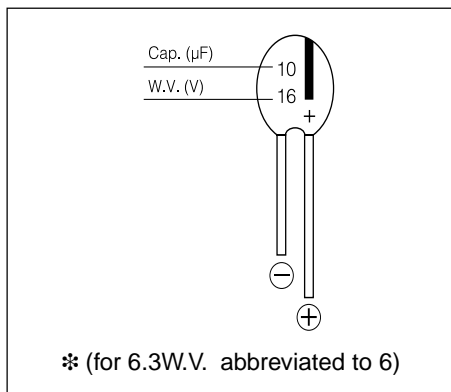
Japan



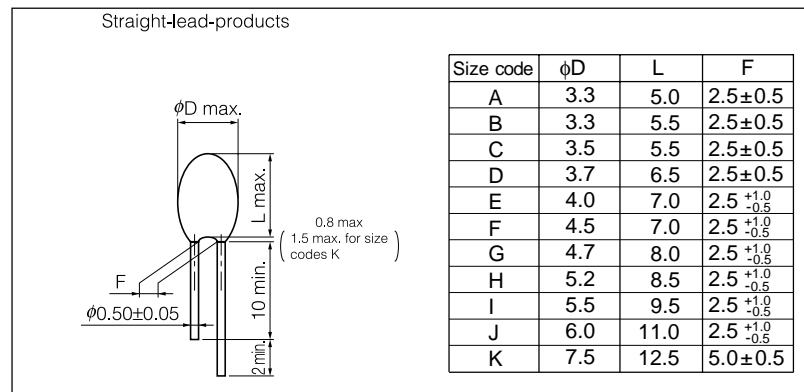
#### ■ Specifications

Category temp. range	-55 to + 85°C (W.V. ≥ 10V.DC : -55 to 105°C)	
Rated W.V. Range	4 to 50 V .DC	
Nominal Cap. Range	0.1 to 220 μ F	
Capacitance Tolerance	±20 % or ±10% (120Hz/+20°C)	
DC Leakage Current	I ≤ 0.008 CV or 0.05 (μA) after 2 minutes application of rated working voltage at +20 °C. (whichever is the greater)	
tan δ	Please see the attached standard products list	
Moisture Resistance	After 500 hours exposure at +40 °C and 90 to 95 % R.H. without load, the capacitor shall meet the following limits.	
	Capacitance change	± 10 % of initial measured value
	tan δ	≤ 150 % of initial specified value
	DC leakage current	0.012 CV or 0.75 (μA) max. whichever is the greater.
Endurance	After 2000 hours application of rated DC working voltage at +85°C or 1000 hours at +105°C with derated voltage for 10 to 50 W.V., the capacitor shall meet the following limits.	
	Capacitance change	±10% of initial measured value
	tan δ	≤ initial specified value
	DC leakage current	0.01 CV or 0.625 (μA) max. whichever is the greater

#### ■ Marking



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



#### ■ Case size

Cap.(μF)	W.V.(V.DC)	4(0G)	6.3(0J)	10(1A)	16(1C)	25(1E)	35(1V)	50(1H)
0.10 (104)							A	A
0.15 (154)							A	A
0.22 (224)							A	B
0.33 (334)							A	C
0.47 (474)							B	D
0.68 (684)							B	D
1.0 (105)					A	B	C	E
1.5 (155)					B	C	C	F
2.2 (225)				B	C	C	D	G
3.3 (335)				C	C	D	E	H
4.7 (475)				C	D	E	F	I
6.8 (685)		C	C	D	E	F	H	
10 (106)		C	D	E	F	H	I	
15 (156)		D	E	F	G	I	J	
22 (226)		E	F	G	H	J	K	
33 (336)		F	G	H	I	K		
47 (476)		G	H	I	J			
68 (686)		H	I	J	K			
100 (107)		I	J	K				
150 (157)		J	K					
220 (227)		K						

Note: 1. ( ) shows W.V. and capacitance code.  
2. Products designated by (●) have the voltage code on the body.

Rev.02/04

Design, Specifications are subject to change without notice. Ask factory for technical specifications before purchase and/or use. Whenever a doubt about safety arises from this product, please inform us immediately for technical consultation without fail.

### ■ Standard Products

W.V. (V)	Cap. (120Hz) (+20°C) (μF)	Body Size			Specification		Lead Space			Part No.	Min. Packaging Qty	
		Dia. (mm)	Length (mm)	Size Code	tanδ (120Hz) (+20°C) (μA)	L.C (μA)	Straight (mm)	Taping B1 (mm)	Taping BB (mm)		Straight Leads (pcs)	Taping (pcs)
4	6.8	3.5 [4.5]	5.5 [9 ]	C	0.1	0.3	2.5	2.5	5.0	ECSF0GE685( )	200	2000
	10	3.5 [4.5]	5.5 [9 ]	C	0.1	0.4	2.5	2.5	5.0	ECSF0GE106( )	200	2000
	15	3.7 [ 5 ]	6.5 [9 ]	D	0.1	0.5	2.5	2.5	5.0	ECSF0GE156( )	200	2000
	22	4 [5.5]	7 [9 ]	E	0.1	0.8	2.5	2.5	5.0	ECSF0GE226( )	200	2000
	33	4.5 [5.5]	7 [10]	F	0.1	1.1	2.5	2.5	5.0	ECSF0GE336( )	200	2000
	47	4.7 [6 ]	8 [11]	G	0.1	1.6	2.5	2.5	5.0	ECSF0GE476( )	200	2000
	68	5.2 [6 ]	8.5[11.5]	H	0.1	2.2	2.5	2.5	5.0	ECSF0GE686( )	200	2000
	100	5.5 [6.5]	9.5[12.5]	I	0.1	3.2	2.5	2.5	5.0	ECSF0GE107( )	200	2000
	150	6	11	J	0.1	4.8	2.5			ECSF0GE157( )	200	
220	7.5	12.5	K	0.1	7.1	5.0			ECSF0GE227( )	100		
6.3	4.7	3.5 [4.5]	5.5 [9 ]	C	0.06	0.3	2.5	2.5	5.0	ECSF0JE475( )	200	2000
	6.8	3.5 [4.5]	5.5 [9 ]	C	0.06	0.4	2.5	2.5	5.0	ECSF0JE685( )	200	2000
	10	3.7 [5 ]	6.5 [9 ]	D	0.06	0.6	2.5	2.5	5.0	ECSF0JE106( )	200	2000
	15	4 [5.5]	7 [9 ]	E	0.06	0.8	2.5	2.5	5.0	ECSF0JE156( )	200	2000
	22	4.5 [5.5]	7 [10]	F	0.06	1.2	2.5	2.5	5.0	ECSF0JE226( )	200	2000
	33	4.7 [6 ]	8 [11]	G	0.06	1.7	2.5	2.5	5.0	ECSF0JE336( )	200	2000
	47	5.2 [6 ]	8.5[11.5]	H	0.06	2.4	2.5	2.5	5.0	ECSF0JE476( )	200	2000
	68	5.5 [6.5]	9.5[12.5]	I	0.06	3.5	2.5	2.5	5.0	ECSF0JE686( )	200	2000
	100	6	11	J	0.08	5.1	2.5			ECSF0JE107( )	200	
150	7.5	12.5	K	0.08	7.6	5.0			ECSF0JE157( )	100		
10	2.2	3.3 [4.5]	5.5 [9 ]	B	0.06	0.2	2.5	2.5	5.0	ECSF1AE225( )	200	2000
	3.3	3.5 [4.5]	5.5 [9 ]	C	0.06	0.3	2.5	2.5	5.0	ECSF1AE335( )	200	2000
	4.7	3.5 [4.5]	5.5 [9 ]	C	0.06	0.4	2.5	2.5	5.0	ECSF1AE475( )	200	2000
	6.8	3.7 [5 ]	6.5 [9 ]	D	0.06	0.6	2.5	2.5	5.0	ECSF1AE685( )	200	2000
	10	4 [5.5]	7 [9 ]	E	0.06	0.8	2.5	2.5	5.0	ECSF1AE106( )	200	2000
	15	4.5 [5.5]	7 [10]	F	0.06	1.2	2.5	2.5	5.0	ECSF1AE156( )	200	2000
	22	4.7 [6 ]	8 [11]	G	0.06	1.8	2.5	2.5	5.0	ECSF1AE226( )	200	2000
	33	5.2 [6 ]	8.5[11.5]	H	0.06	2.7	2.5	2.5	5.0	ECSF1AE336( )	200	2000
	47	5.5 [6.5]	9.5[12.5]	I	0.06	3.8	2.5	2.5	5.0	ECSF1AE476( )	200	2000
68	6	11	J	0.06	5.5	2.5			ECSF1AE686( )	200		
100	7.5	12.5	K	0.08	8.0	5.0			ECSF1AE107( )	100		
16	1	3.3 [4.5]	5 [9 ]	A	0.04	0.2	2.5	2.5	5.0	ECSF1CE105( )	200	2000
	1.5	3.3 [4.5]	5.5 [9 ]	B	0.06	0.2	2.5	2.5	5.0	ECSF1CE155( )	200	2000
	2.2	3.5 [4.5]	5.5 [9 ]	C	0.06	0.3	2.5	2.5	5.0	ECSF1CE225( )	200	2000
	3.3	3.5 [4.5]	5.5 [9 ]	C	0.06	0.5	2.5	2.5	5.0	ECSF1CE335( )	200	2000
	4.7	3.7 [5 ]	6.5 [9 ]	D	0.06	0.7	2.5	2.5	5.0	ECSF1CE475( )	200	2000
	6.8	4 [5.5]	7 [9 ]	E	0.06	0.9	2.5	2.5	5.0	ECSF1CE685( )	200	2000
	10	4.5 [5.5]	7 [10]	F	0.06	1.3	2.5	2.5	5.0	ECSF1CE106( )	200	2000
	15	4.7 [6 ]	8 [11]	G	0.06	2.0	2.5	2.5	5.0	ECSF1CE156( )	200	2000
	22	5.2 [6 ]	8.5[11.5]	H	0.06	2.9	2.5	2.5	5.0	ECSF1CE226( )	200	2000
	33	5.5 [6.5]	9.5[12.5]	I	0.06	4.3	2.5	2.5	5.0	ECSF1CE336( )	200	2000
	47	6	11	J	0.06	6.1	2.5			ECSF1CE476( )	200	
68	7.5	12.5	K	0.06	8.8	5.0			ECSF1CE686( )	100		

Diameter, length in brackets [ ] represent the formed lead type such as H,KH,BB,2B

When requesting taped product, please put the letter "B1" or "BB" between the "( )".

### ■ Standard Products

W.V. (V)	Cap. (120Hz) (+20°C) (μF)	Body Size			Specification		Lead Space			Part No.	Min. Packaging Q'ty	
		Dia. (mm)	Length (mm)	Size Code	tanδ (120Hz) (+20°C)	L.C (μA)	Straight (mm)	Taping B1 (mm)	Taping BB (mm)		Straight Leads (pcs)	Taping (pcs)
25	1	3.3 [4.5]	5.5 [9 ]	B	0.04	0.2	2.5	2.5	5.0	ECSF1EE105( )	200	2000
	1.5	3.5 [4.5]	5.5 [9 ]	C	0.06	0.3	2.5	2.5	5.0	ECSF1EE155( )	200	2000
	2.2	3.5 [4.5]	5.5 [9 ]	C	0.06	0.5	2.5	2.5	5.0	ECSF1EE225( )	200	2000
	3.3	3.7 [5 ]	6.5 [9 ]	D	0.06	0.7	2.5	2.5	5.0	ECSF1EE335( )	200	2000
	4.7	4 [5.5]	7 [9 ]	E	0.06	1.0	2.5	2.5	5.0	ECSF1EE475( )	200	2000
	6.8	4.5 [5.5]	7 [10]	F	0.06	1.4	2.5	2.5	5.0	ECSF1EE685( )	200	2000
	10	5.2 [6 ]	8.5[11.5]	H	0.06	2.0	2.5	2.5	5.0	ECSF1EE106( )	200	2000
	15	5.5 [6.5]	9.5[12.5]	I	0.06	3.0	2.5	2.5	5.0	ECSF1EE106( )	200	2000
	22	6	11	J	0.06	4.4	2.5			ECSF1EE226( )	200	
33	7.5	12.5	K	0.06	6.6	5.0			ECSF1EE336( )	100		
35	0.1	3.3 [4.5]	5 [9 ]	A	0.04	0.05	2.5	2.5	5.0	ECSF1VE104( )	200	2000
	0.15	3.3 [4.5]	5 [9 ]	A	0.04	0.05	2.5	2.5	5.0	ECSF1VE154( )	200	2000
	0.22	3.3 [4.5]	5 [9 ]	A	0.04	0.07	2.5	2.5	5.0	ECSF1VE224( )	200	2000
	0.33	3.3 [4.5]	5 [9 ]	A	0.04	0.1	2.5	2.5	5.0	ECSF1VE334( )	200	2000
	0.47	3.3 [4.5]	5.5 [9 ]	B	0.04	0.2	2.5	2.5	5.0	ECSF1VE474( )	200	2000
	0.68	3.3 [4.5]	5.5 [9 ]	B	0.04	0.2	2.5	2.5	5.0	ECSF1VE686( )	200	2000
	1	3.5 [4.5]	5.5 [9 ]	C	0.04	0.3	2.5	2.5	5.0	ECSF1VE105( )	200	2000
	1.5	3.5 [4.5]	5.5 [9 ]	C	0.06	0.5	2.5	2.5	5.0	ECSF1VE155( )	200	2000
	2.2	3.7 [5 ]	6.5 [9 ]	D	0.06	0.7	2.5	2.5	5.0	ECSF1VE225( )	200	2000
	3.3	4 [5.5]	7 [9 ]	E	0.06	1.0	2.5	2.5	5.0	ECSF1VE335( )	200	2000
	4.7	4.5 [5.5]	7 [10]	F	0.06	1.4	2.5	2.5	5.0	ECSF1VE475( )	200	2000
	6.8	5.2 [6 ]	8.5[11.5]	H	0.06	2.0	2.5	2.5	5.0	ECSF1VE685( )	200	2000
	10	5.5 [6.5]	9.5[12.5]	I	0.06	2.8	2.5	2.5	5.0	ECSF1VE106( )	200	2000
	15	6	11	J	0.06	4.2	2.5			ECSF1VE156( )	200	
22	7.5	12.5	K	0.06	6.2	5.0			ECSF1VE226( )	100		
50	0.1	3.3 [4.5]	5 [9 ]	A	0.04	0.05	2.5	2.5	5.0	ECSF1HE104( )	200	2000
	0.15	3.3 [4.5]	5 [9 ]	A	0.04	0.06	2.5	2.5	5.0	ECSF1HE154( )	200	2000
	0.22	3.3 [4.5]	5.5 [9 ]	B	0.04	0.09	2.5	2.5	5.0	ECSF1HE224( )	200	2000
	0.33	3.5 [4.5]	5.5 [9 ]	C	0.04	0.2	2.5	2.5	5.0	ECSF1HE334( )	200	2000
	0.47	3.7 [5 ]	6.5[9 ]	D	0.04	0.2	2.5	2.5	5.0	ECSF1HE474( )	200	2000
	0.68	3.7 [5 ]	6.5[9 ]	D	0.04	0.3	2.5	2.5	5.0	ECSF1HE684( )	200	2000
	1	4 [5.5]	7 [9 ]	E	0.04	0.4	2.5	2.5	5.0	ECSF1HE105( )	200	2000
	1.5	4.5 [5.5]	7 [10 ]	F	0.06	0.6	2.5	2.5	5.0	ECSF1HE155( )	200	2000
	2.2	4.7 [6 ]	8 [11 ]	G	0.06	0.9	2.5	2.5	5.0	ECSF1HE225( )	200	2000
	3.3	5.2 [6 ]	8.5[11.5]	H	0.06	1.4	2.5	2.5	5.0	ECSF1HE335( )	200	2000
4.7	5.5 [6.5]	9.5[12.5]	I	0.06	1.9	2.5	2.5	5.0	ECSF1HE475( )	200	2000	

### ■ Suffix for the Part Numbers in ( )

Lead style Capacitance Tolerance	Bulk		Taping	
	Straight Lead A~J Size : 2.5mm K Size : 5.0mm	Formed Lead A~J Size : 5.0mm K Size : N/A	Straight Lead A~I Size : 2.5mm J, K Size : N/A	Formed Lead A~I Size : 5.0mm J, K Size : N/A
± 20%	Not applicable	H	B1	BB
± 10%	K	KH	B2	2B

Diameter, length in brackets [ ] represent the formed lead type such as H,KH,BB,2B

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