

### Resin Dipped Type

Series: EF Type : F

■ Features Lead wire terminal (Standard)

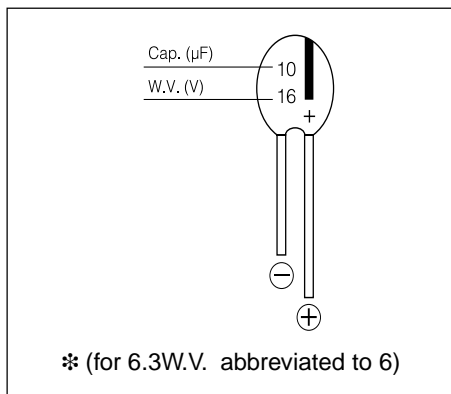
Japan



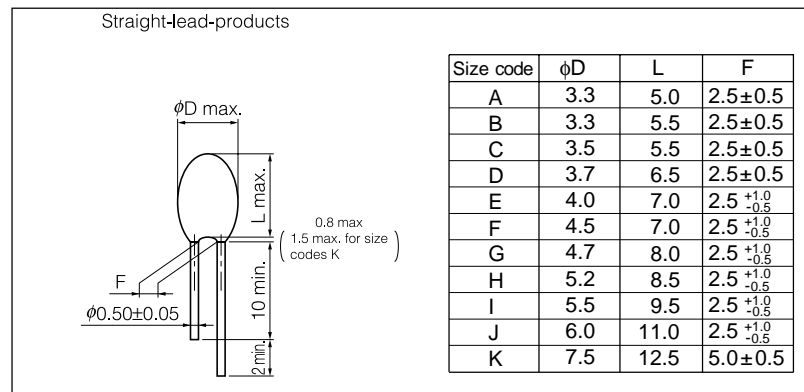
#### ■ Specifications

Category temp. range	-55 to + 85°C (W.V. $\geq$ 10V.DC : -55 to 105°C)		
Rated W.V. Range	4 to 50 V .DC		
Nominal Cap. Range	0.1 to 220 $\mu$ F		
Capacitance Tolerance	$\pm$ 20 % or $\pm$ 10% (120Hz/+20°C)		
DC Leakage Current	$I \leq 0.008 CV$ or $0.05 (\mu A)$ after 2 minutes application of rated working voltage at +20 °C. (Whichever is the greater)		
tan $\delta$	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	$\pm 10$ % of initial measured value	
	tan $\delta$	$\leq 150$ % of initial specified value	
	DC leakage current	0.012 CV or 0.75 ( $\mu A$ ) 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	$\pm 10$ % of initial measured value	
	tan $\delta$	$\leq$ initial specified value	
	DC leakage current	0.01 CV or 0.625 ( $\mu A$ ) max. whichever is the greater	

#### ■ Marking



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



#### ■ Case size

Cap.( $\mu$ F)	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.

### ■ 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

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

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.