Surface Mount Type **SP-Cap**

Series: **FD, CD, CX, UD, UE**



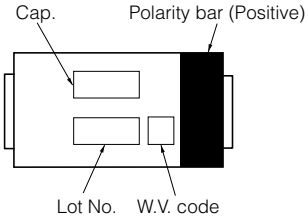
■ Features

- Low ESR
- Excellent Noise-absorbent Characteristics
- RoHS directive compliant

■ Specifications

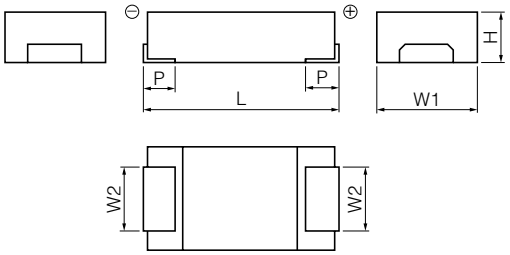
Series & Size Code	FD	CD	CX	UD	UE
Category Temp. Range	−40 °C to +105 °C				
Rated W.V.Range	2 V.DC to 12.5 V.DC	2 V.DC to 16 V.DC	2 V.DC to 6.3 V.DC	2 V.DC to 8 V.DC	2 V.DC to 8 V.DC
Nominal Cap.Range	15 µF to 68 µF	2.2 µF to 220 µF	100 µF to 560 µF	68 µF to 470 µF	100 µF to 560 µF
Capacitance Tolerance	±20 %				
DC Leakage Current	Reflow 240 °C : I ≦ 0.06 CV (µA) 2minutes (2 V.DC to 4 V.DC) I ≦ 0.04 CV or 3 (µA) 2 minutes (6.3 V.DC to 16 V.DC) (Whichever is greater) Reflow 260 °C : I ≦ 0.1 CV (µA) 2 minutes				
tan δ	≦ 0.06 (120 Hz/+20 °C)			≦0.10 (120 Hz/+20 °C)	
Surge Voltage	Rated Working Voltage × 1.25 (15 °C to 35 °C)				
Endurance	After applying rated working voltage for 1000 hours at 105 °C±2 °C, 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			
Moisture resistance	After storing for 500 hours at 60 °C, 90 %				
	Capacitance change of initial measurd value	2, 2.5 V.DC	4 V.DC	6.3 V.DC	8 V.DC to 16 V.DC
		+70, −20 %	+60, −20 %	+50, −20 %	+40, −20 %
	tan δ	≦ 200 % of initial specified value			
	DC leakage current	≦ Initial specified value			

■ Marking



■ Dimensions in mm(not to scale)

(Unit : mm)



Series & Size Code	L±0.2	W1±0.2	W2±0.1	H	P±0.3
FD	7.3	4.3	2.4	1.1±0.1	1.3
CD	7.3	4.3	2.4	1.8±0.1	1.3
CX	7.3	4.3	2.4	1.9±0.2	1.3
UD	7.3	4.3	2.4	2.8±0.2	1.3
UE	7.3	4.3	2.4	4.2±0.1	1.3

✻ Externals of figure are the reference.

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Should a safety concern arise regarding this product, please be sure to contact us immediately.

00 Nov. 2012

■ Standard Products

○ : available, — : not available

Series & Size Code	Rated W.V. (V.DC)	Capacitance (±20 %) (μF)	Case Size L (mm)	Case Size W (mm)	Case Size H (mm)	Specification ✻1 Ripple current (Ar.m.s.)	Specification ✻2 ESR (mΩ max.)	Part number	Reflow condition 240 °C ✻3	Reflow condition 260 °C ✻3	Min. Packaging Q'ty (pcs)
FD	2	68	7.3	4.3	1.1	2.0	28	EEFFD0D680R ✻5	○	—	3500
	2.5	56	7.3	4.3	1.1	2.0	28	EEFFD0E560R ✻5	○	—	3500
	4	39	7.3	4.3	1.1	2.0	28	EEFFD0G390R ✻5	○	—	3500
		47	7.3	4.3	1.1	2.0	28	EEFFD0G470R ✻5	○	—	3500
	6.3	33	7.3	4.3	1.1	2.0	28	EEFFD0J330R ✻5	○	—	3500
	8	22	7.3	4.3	1.1	2.0	28	EEFFD0K220R ✻5	○	—	3500
	12.5	15	7.3	4.3	1.1	1.4	40	EEFFD1B150R ✻5	○	—	3500
CD	2	100	7.3	4.3	1.8	2.5	18	EEFCD0D101ER	✻4	○	3500
			7.3	4.3	1.8	2.7	15	EEFCD0D101XE	✻4	○	3500
		120	7.3	4.3	1.8	2.5	18	EEFCD0D121ER	✻4	○	3500
			7.3	4.3	1.8	2.7	15	EEFCD0D121XE	✻4	○	3500
		150	7.3	4.3	1.8	2.5	18	EEFCD0D151ER	✻4	○	3500
		180	7.3	4.3	1.8	2.5	18	EEFCD0D181ER	✻4	○	3500
		220	7.3	4.3	1.8	2.5	18	EEFCD0D221ER	✻4	○	3500
	2.5	82	7.3	4.3	1.8	2.5	18	EEFCD0E820ER	✻4	○	3500
			7.3	4.3	1.8	2.7	15	EEFCD0E820XE	✻4	○	3500
		100	7.3	4.3	1.8	2.5	18	EEFCD0E101ER	✻4	○	3500
			7.3	4.3	1.8	2.7	15	EEFCD0E101XE	✻4	○	3500
		120	7.3	4.3	1.8	2.5	18	EEFCD0E121ER	✻4	○	3500
		150	7.3	4.3	1.8	2.5	18	EEFCD0E151ER	✻4	○	3500
	4	56	7.3	4.3	1.8	2.5	18	EEFCD0G560ER	✻4	○	3500
			7.3	4.3	1.8	2.7	15	EEFCD0G560XE	✻4	○	3500
		68	7.3	4.3	1.8	2.5	18	EEFCD0G680ER	✻4	○	3500
			7.3	4.3	1.8	2.7	15	EEFCD0G680XE	✻4	○	3500
		82	7.3	4.3	1.8	2.5	18	EEFCD0G820ER	✻4	○	3500
			7.3	4.3	1.8	2.7	15	EEFCD0G820XE	✻4	○	3500
		100	7.3	4.3	1.8	2.5	18	EEFCD0G101ER	✻4	○	3500
	6.3	10	7.3	4.3	1.8	1.4	55	EEFCD0J100ER	✻4	○	3500
		22	7.3	4.3	1.8	1.6	40	EEFCD0J220ER	✻4	○	3500
		33	7.3	4.3	1.8	2.0	28	EEFCD0J330ER	✻4	○	3500
		47	7.3	4.3	1.8	2.5	18	EEFCD0J470ER	✻4	○	3500
			7.3	4.3	1.8	2.7	15	EEFCD0J470XE	✻4	○	3500
		68	7.3	4.3	1.8	2.5	18	EEFCD0J680ER	✻4	○	3500
			7.3	4.3	1.8	2.7	15	EEFCD0J680XE	✻4	○	3500
	8	8.2	7.3	4.3	1.8	1.4	55	EEFCD0K8R2ER	✻4	○	3500
		15	7.3	4.3	1.8	1.6	40	EEFCD0K150ER	✻4	○	3500
		22	7.3	4.3	1.8	2.0	28	EEFCD0K220ER	✻4	○	3500
		33	7.3	4.3	1.8	2.5	18	EEFCD0K330ER	✻4	○	3500
		47	7.3	4.3	1.8	1.8	25	EEFCD0K470ER	✻4	○	3500
	10	22	7.3	4.3	1.8	1.6	30	EEFCD1A220ER	—	○	3500
		33	7.3	4.3	1.8	1.8	25	EEFCD1A330ER	—	○	3500
		39	7.3	4.3	1.8	1.8	25	EEFCD1A390ER	—	○	3500
	12.5	4.7	7.3	4.3	1.8	1.0	80	EEFCD1B4R7R ✻5	○	—	3500
		10	7.3	4.3	1.8	1.0	60	EEFCD1B100R ✻5	○	—	3500
		15	7.3	4.3	1.8	1.3	50	EEFCD1B150R ✻5	○	—	3500
		22	7.3	4.3	1.8	1.6	30	EEFCD1B220R ✻5	○	—	3500
	16	2.2	7.3	4.3	1.8	1.0	110	EEFCD1C2R2R ✻5	○	—	3500
		4.7	7.3	4.3	1.8	1.0	80	EEFCD1C4R7R ✻5	○	—	3500
		6.8	7.3	4.3	1.8	1.0	70	EEFCD1C6R8R ✻5	○	—	3500
		8.2	7.3	4.3	1.8	1.3	45	EEFCD1C8R2R ✻5	○	—	3500
CX	2	220	7.3	4.3	1.9	2.7	15	EEFCX0D221R	—	○	3500
		270	7.3	4.3	1.9	3.0	12	EEFCX0D271XR	—	○	3500
		330	7.3	4.3	1.9	2.7	15	EEFCX0D331R	—	○	3500
			7.3	4.3	1.9	3.0	12	EEFCX0D331XR	—	○	3500
		390	7.3	4.3	1.9	2.7	15	EEFCX0D391R	—	○	3500
		470	7.3	4.3	1.9	2.7	15	EEFCX0D471R	—	○	3500
		560	7.3	4.3	1.9	2.7	15	EEFCX0D561R	—	○	3500
	2.5	220	7.3	4.3	1.9	2.7	15	EEFCX0E221R	—	○	3500
		330	7.3	4.3	1.9	2.7	15	EEFCX0E331R	—	○	3500
		390	7.3	4.3	1.9	2.7	15	EEFCX0E391R	—	○	3500
		470	7.3	4.3	1.9	2.7	15	EEFCX0E471R	—	○	3500
	4	150	7.3	4.3	1.9	2.7	15	EEFCX0G151R	—	○	3500
		180	7.3	4.3	1.9	2.7	15	EEFCX0G181R	—	○	3500
			7.3	4.3	1.9	3.0	12	EEFCX0G181XR	—	○	3500
		220	7.3	4.3	1.9	2.7	15	EEFCX0G221R	—	○	3500
			7.3	4.3	1.9	3.0	12	EEFCX0G221XR	—	○	3500
		270	7.3	4.3	1.9	2.7	15	EEFCX0G271R	—	○	3500
	6.3	100	7.3	4.3	1.9	2.7	15	EEFCX0J101R	—	○	3500
		120	7.3	4.3	1.9	2.7	15	EEFCX0J121R	—	○	3500
		150	7.3	4.3	1.9	2.7	15	EEFCX0J151R	—	○	3500
			7.3	4.3	1.9	3.0	12	EEFCX0J151XR	—	○	3500
		180	7.3	4.3	1.9	2.7	15	EEFCX0J181R	—	○	3500

✻1: Ripple current (100 kHz/ +20 to +105 °C), ✻2: ESR (100 kHz/+20 °C)
✻3: Please refer to the page of "Mouting Specifications".
✻4: Please use high temperature Lead-Free reflow (260 °C) for new design.
✻5: In the case of new design please contact us.

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■ Standard Products

○ : available, — : not available

Series & Size Code	Rated W.V. (V.DC)	Capacitance (±20 %) (μF)	Case Size L (mm)	Case Size W (mm)	Case Size H (mm)	Specification ✻1 Ripple current (Ar.m.s.)	Specification ✻2 ESR (mΩ max.)	Part number	Reflow condition 240 °C ✻3	Reflow condition 260 °C ✻3	Min. Packaging Q'ty (pcs)
UD	2	330	7.3	4.3	2.8	3.0	15	EEFUD0D331ER ✻5	✻4	○	2000
			7.3	4.3	2.8	3.3	12	EEFUD0D331XE ✻5	✻4	○	2000
			7.3	4.3	2.8	3.4	9	EEFUD0D331LE ✻5	✻4	○	2000
		390	7.3	4.3	2.8	3.0	15	EEFUD0D391ER ✻5	✻4	○	2000
			7.3	4.3	2.8	3.4	9	EEFUD0D391LE ✻5	✻4	○	2000
		470	7.3	4.3	2.8	3.4	9	EEFUD0D471LE ✻5	✻4	○	2000
	2.5	220	7.3	4.3	2.8	3.0	15	EEFUD0E221ER ✻5	✻4	○	2000
			7.3	4.3	2.8	3.3	12	EEFUD0E221XE ✻5	✻4	○	2000
			7.3	4.3	2.8	3.4	9	EEFUD0E221LE ✻5	✻4	○	2000
		270	7.3	4.3	2.8	3.0	15	EEFUD0E271ER ✻5	✻4	○	2000
			7.3	4.3	2.8	3.4	9	EEFUD0E271LE ✻5	✻4	○	2000
	4	120	7.3	4.3	2.8	3.0	15	EEFUD0G121ER ✻5	✻4	○	2000
			7.3	4.3	2.8	3.4	12	EEFUD0G121XE ✻5	✻4	○	2000
		150	7.3	4.3	2.8	3.0	15	EEFUD0G151ER ✻5	✻4	○	2000
			7.3	4.3	2.8	3.3	12	EEFUD0G151XE ✻5	✻4	○	2000
			7.3	4.3	2.8	3.4	9	EEFUD0G151LE ✻5	✻4	○	2000
		180	7.3	4.3	2.8	2.5	18	EEFUD0G181ER ✻5	✻4	○	2000
			7.3	4.3	2.8	3.4	9	EEFUD0G181LE ✻5	✻4	○	2000
	6.3	100	7.3	4.3	2.8	3.0	15	EEFUD0J101ER ✻5	✻4	○	2000
			7.3	4.3	2.8	3.3	12	EEFUD0J101XE ✻5	✻4	○	2000
		120	7.3	4.3	2.8	3.0	15	EEFUD0J121ER ✻5	✻4	○	2000
			7.3	4.3	2.8	3.3	12	EEFUD0J121XE ✻5	✻4	○	2000
			7.3	4.3	2.8	3.4	9	EEFUD0J121LR ✻5	○	—	2000
		150	7.3	4.3	2.8	2.5	18	EEFUD0J151ER ✻5	✻4	○	2000
			7.3	4.3	2.8	3.4	9	EEFUD0J151LR ✻5	○	—	2000
	8	68	7.3	4.3	2.8	3.0	15	EEFUD0K680ER	✻4	○	2000
		100	7.3	4.3	2.8	2.5	18	EEFUD0K101ER	✻4	○	2000
UE	2	270	7.3	4.3	4.2	3.3	12	EEFUE0D271ER ✻5	✻4	○	2000
			7.3	4.3	4.2	3.5	10	EEFUE0D271XE ✻5	✻4	○	2000
		330	7.3	4.3	4.2	3.3	12	EEFUE0D331ER ✻5	✻4	○	2000
			7.3	4.3	4.2	3.5	10	EEFUE0D331XE ✻5	✻4	○	2000
		390	7.3	4.3	4.2	3.3	12	EEFUE0D391ER ✻5	✻4	○	2000
			7.3	4.3	4.2	3.5	10	EEFUE0D391XE ✻5	✻4	○	2000
			7.3	4.3	4.2	3.7	7	EEFUE0D391LE ✻5	✻4	○	2000
		470	7.3	4.3	4.2	3.3	12	EEFUE0D471ER ✻5	✻4	○	2000
			7.3	4.3	4.2	3.5	10	EEFUE0D471XE ✻5	✻4	○	2000
			7.3	4.3	4.2	3.7	7	EEFUE0D471LE ✻5	✻4	○	2000
		560	7.3	4.3	4.2	3.3	12	EEFUE0D561ER ✻5	✻4	○	2000
			7.3	4.3	4.2	3.7	7	EEFUE0D561LE ✻5	✻4	○	2000
	2.5	220	7.3	4.3	4.2	3.3	12	EEFUE0E221ER ✻5	✻4	○	2000
			7.3	4.3	4.2	3.5	10	EEFUE0E221XE ✻5	✻4	○	2000
		270	7.3	4.3	4.2	3.3	12	EEFUE0E271ER ✻5	✻4	○	2000
			7.3	4.3	4.2	3.5	10	EEFUE0E271XE ✻5	✻4	○	2000
		330	7.3	4.3	4.2	3.3	12	EEFUE0E331ER ✻5	✻4	○	2000
			7.3	4.3	4.2	3.5	10	EEFUE0E331XE ✻5	✻4	○	2000
			7.3	4.3	4.2	3.7	7	EEFUE0E331LE ✻5	✻4	○	2000
		390	7.3	4.3	4.2	3.3	12	EEFUE0E391ER ✻5	✻4	○	2000
			7.3	4.3	4.2	3.7	7	EEFUE0E391LE ✻5	✻4	○	2000
		470	7.3	4.3	4.2	3.3	12	EEFUE0E471ER ✻5	✻4	○	2000
			7.3	4.3	4.2	3.7	7	EEFUE0E471LE ✻5	✻4	○	2000
	4	180	7.3	4.3	4.2	3.3	12	EEFUE0G181ER ✻5	✻4	○	2000
			7.3	4.3	4.2	3.5	10	EEFUE0G181XE ✻5	✻4	○	2000
		220	7.3	4.3	4.2	3.3	12	EEFUE0G221ER ✻5	✻4	○	2000
			7.3	4.3	4.2	3.5	10	EEFUE0G221XE ✻5	✻4	○	2000
			7.3	4.3	4.2	3.7	7	EEFUE0G221LE ✻5	✻4	○	2000
		270	7.3	4.3	4.2	3.3	12	EEFUE0G271ER ✻5	✻4	○	2000
			7.3	4.3	4.2	3.7	7	EEFUE0G271LE ✻5	✻4	○	2000
		330	7.3	4.3	4.2	3.3	12	EEFUE0G331ER	✻4	○	2000
	6.3	150	7.3	4.3	4.2	3.3	12	EEFUE0J151ER ✻5	✻4	○	2000
			7.3	4.3	4.2	3.5	10	EEFUE0J151XE ✻5	✻4	○	2000
		180	7.3	4.3	4.2	3.3	12	EEFUE0J181ER ✻5	✻4	○	2000
			7.3	4.3	4.2	3.5	10	EEFUE0J181XE ✻5	✻4	○	2000
			7.3	4.3	4.2	3.7	7	EEFUE0J181LR ✻5	○	—	2000
		220	7.3	4.3	4.2	3.0	15	EEFUE0J221ER	✻4	○	2000
			7.3	4.3	4.2	3.7	7	EEFUE0J221LR ✻5	○	—	2000
	8	100	7.3	4.3	4.2	3.3	12	EEFUE0K101ER ✻5	✻4	○	2000
		150	7.3	4.3	4.2	3.0	15	EEFUE0K151ER	✻4	○	2000

✻1: Ripple current (100 kHz/ +20 to +105 °C), ✻2: ESR (100 kHz/+20 °C)
✻3: Please refer to the page of "Mouting Specifications".
✻4: Please use high temperature Lead-Free reflow (260 °C) for new design.
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