Panasonic

2015

CATALOG

Electrolytic Capacitors

(SP-Cap/Conductive Polymer Aluminum Capacitors)

2015. 1 | industrial.panasonic.com/ww/

SP-Cap/ Conductive Polymer Aluminum Capacitors

2-terminals

Standard Products

CX 7.3×4.3×1.9 mm
2 V 560 µF to 6.3 V 180µF
ESR : 12 mΩ, 15 mΩ

Low profile

CT 7.3×4.3×1.4 mm
4 V 180 µF to 6.3 V 100 µF
ESR : 15 mΩ

CS 7.3×4.3×1.1 mm
4 V 120 µF to 6.3 V 68 µF
ESR : 15 mΩ

High Voltage Products

NEW **CX** 7.3×4.3×1.9 mm
10 V 100 µF to 35 V 22 µF
ESR : 40 mΩ

Low profile

NEW **CT** 7.3×4.3×1.4 mm
10 V 68 µF to 35 V 15 µF
ESR : 40 mΩ

NEW **CS** 7.3×4.3×1.1 mm
10 V 47 µF to 35 V 10 µF
ESR : 40 mΩ

Low ESR Products

GX 7.3×4.3×1.9 mm
2 V 560 µF to 2.5 V 470 µF
ESR : 3 mΩ

Super Low ESR

SX 7.3×4.3×1.9 mm
2 V 560 µF to 6.3 V 150 µF
ESR : 4.5 mΩ to 9 mΩ

Low profile

ST 7.3×4.3×1.4 mm
2 V 330 µF to 2.5 V 270 µF
ESR : 6 mΩ

SS 7.3×4.3×1.1 mm
2 V 220 µF to 2.5 V 180 µF
ESR : 6 mΩ

NEW **SR** 7.3×4.3×1.0 mm(max.)
2 V 220 µF to 6.3 V 68 µF
ESR : 4.5 mΩ to 9 mΩ

Guaranteed at125 °C

NEW **HX** 7.3×4.3×1.9 mm
2 V 560 µF to 25 V 33 µF
ESR : 4.5 mΩ to 40 mΩ

3-terminals

Low ESR/Low ESL Products*

GX-L 7.3×4.3×1.9 mm
2 V 560 µF to 2.5 V 470 µF
ESR : 3 mΩ

Super Low ESR

LX 7.3×4.3×1.9 mm
2 V 560 µF to 2.5 V 470 µF
ESR : 4.5 mΩ/6 mΩ

Low profile

LT 7.3×4.3×1.4 mm
2 V 330 µF to 2.5 V 270 µF
ESR : 6 mΩ

LS 7.3×4.3×1.1 mm
2 V 220 µF to 2.5 V 180 µF
ESR : 6 mΩ

NEW **LR** 7.3×4.3×1.0 mm(max.)
2 V 220 µF to 6.3 V 68 µF
ESR : 4.5 mΩ to 9 mΩ

* : ESL : 0.5nH (Typ.)

Old Series

Standard Products

CD 7.3×4.3×1.8 mm
2 V 220 µF to 16 V 8.2 µF
ESR : 15 mΩ to 110 mΩ

UD 7.3×4.3×2.8 mm
2 V 470 µF to 8 V 100 µF
ESR : 9 mΩ to 18 mΩ

UE 7.3×4.3×4.2 mm
2 V 560 µF to 8 V 150 µF
ESR : 7 mΩ to 15 mΩ

Low Profile Products

FD 7.3×4.3×1.1 mm
2 V 68 µF to 12.5 V 15 µF
ESR : 28 mΩ to 40 mΩ

Miniaturization Products

MC 6.3×3.2×1.9 mm
2 V 120 µF to 6.3 V 47 µF
ESR : 12 mΩ to 18 mΩ

Low ESR Products

SL 7.3×4.3×1.9 mm
2 V 220 µF to 6.3 V 56 µF
ESR : 9 mΩ

Please contact us when old series is necessary.

Surface Mount Type **SP-Cap**

Series: **CS, CT, CX** (High Voltage Products)

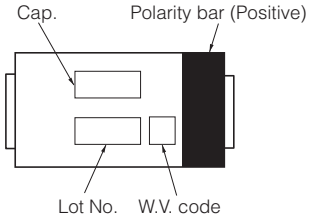
■ Features

- High voltage. (10 V to 35 V)
- Low profile (1.1 mm, 1.4 mm, 1.9 mm height)
- High ripple current (3.2 Ar.m.s.)
- RoHS directive compliant

■ Specifications

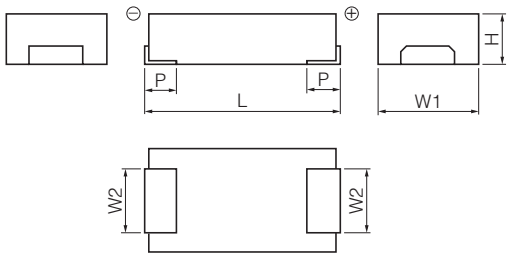
Series & Size Code	CS	CT	CX
Category Temp. Range	–40 °C to +105 °C		
Rated W.V.Range	10 V.DC to 35 V.DC		
Nominal Cap.Range	10 µF to 47 µF	15 µF to 68 µF	15 µF to 100 µF
Capacitance Tolerance	±20 % (120 Hz / + 20 °C)		
DC Leakage Current	I ≦ 0.3 CV (µA) 2minutes		
tan δ	≦ 0.06 (120 Hz/+20 °C)		
Surge Voltage	Rated Working Voltage × 1.25 [10 V.DC to 16 V.DC], × 1.15 [20 V.DC to 35 V.DC](15 °C to 35 °C)		
Endurance	After applying rated working voltage for 2000 hours at 105 °C±2 °C, and then being stabilized at +20 °C, capacitor shall meet the following limits.		
	Capacitance change	±20% of initial measured value	
	tan δ	≦ 200 % of 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	10 V.DC to 35 V.DC	
		+60, –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±0.1	P±0.3
CS	7.3	4.3	2.4	1.1	1.3
CT	7.3	4.3	2.4	1.4	1.3
CX	7.3	4.3	2.4	1.9	1.3

✻ Externals of figure are the reference.

NEW

■ Standard Products

Series & Size Code	Rated W.V. (V.DC)	Capacitance (±20 %) (μF)	Case Size L (mm)	Case Size W (mm)	Case Size H (mm)	Specification Ripple current (Ar.m.s.) ✻1	Specification ESR (mΩ max.) ✻2	Part number Reflow condition : 260 °C ✻3	Min. Packaging Q'ty (pcs) ✻4
CS	10	47	7.3	4.3	1.1	3.2	40	EEFCS1A470R	3500
	16	15	7.3	4.3	1.1	3.2	40	EEFCS1C150R	3500
		22	7.3	4.3	1.1	3.2	40	EEFCS1C220R	3500
		33	7.3	4.3	1.1	3.2	40	EEFCS1C330R	3500
	20	10	7.3	4.3	1.1	3.2	40	EEFCS1D100R	3500
		15	7.3	4.3	1.1	3.2	40	EEFCS1D150R	3500
		22	7.3	4.3	1.1	3.2	40	EEFCS1D220R	3500
	25	10	7.3	4.3	1.1	3.2	40	EEFCS1E100R	3500
		15	7.3	4.3	1.1	3.2	40	EEFCS1E150R	3500
	35	10	7.3	4.3	1.1	3.2	40	EEFCS1V100R	3500
CT	10	68	7.3	4.3	1.4	3.2	40	EEFCT1A680R	3500
	16	47	7.3	4.3	1.4	3.2	40	EEFCT1C470R	3500
	20	33	7.3	4.3	1.4	3.2	40	EEFCT1D330R	3500
		47	7.3	4.3	1.4	3.2	40	EEFCT1D470R	3500
	25	22	7.3	4.3	1.4	3.2	40	EEFCT1E220R	3500
	35	15	7.3	4.3	1.4	3.2	40	EEFCT1V150R	3500
CX	10	47	7.3	4.3	1.9	3.2	40	EEFCX1A470R	3500
		68	7.3	4.3	1.9	3.2	40	EEFCX1A680R	3500
		100	7.3	4.3	1.9	3.2	40	EEFCX1A101R	3500
	16	15	7.3	4.3	1.9	3.2	40	EEFCX1C150R	3500
		22	7.3	4.3	1.9	3.2	40	EEFCX1C220R	3500
		33	7.3	4.3	1.9	3.2	40	EEFCX1C330R	3500
		47	7.3	4.3	1.9	3.2	40	EEFCX1C470R	3500
		68	7.3	4.3	1.9	3.2	40	EEFCX1C680R	3500
	20	22	7.3	4.3	1.9	3.2	40	EEFCX1D220R	3500
		33	7.3	4.3	1.9	3.2	40	EEFCX1D330R	3500
		47	7.3	4.3	1.9	3.2	40	EEFCX1D470R	3500
		56	7.3	4.3	1.9	3.2	40	EEFCX1D560R	3500
	25	15	7.3	4.3	1.9	3.2	40	EEFCX1E150R	3500
		22	7.3	4.3	1.9	3.2	40	EEFCX1E220R	3500
		33	7.3	4.3	1.9	3.2	40	EEFCX1E330R	3500
	35	15	7.3	4.3	1.9	3.2	40	EEFCX1V150R	3500
		22	7.3	4.3	1.9	3.2	40	EEFCX1V220R	3500

✻1: Ripple current (100 kHz/ +45°C), ✻2: ESR (100 kHz/+20 °C)
✻3: Please refer to the page of "Mouting Specifications".
✻4: Please contact us when 500 pcs packing is necessary.

Temperature Compensation Multipliers for Ripple Current		
≦ 45 °C	45 °C < T ≦ 85 °C	85 °C < T ≦ 105 °C
1.0	0.8	0.5

Surface Mount Type **SP-Cap**

Series: **SR, LR, SS, LS, ST, LT, CS, CT** (Low Profile Products)

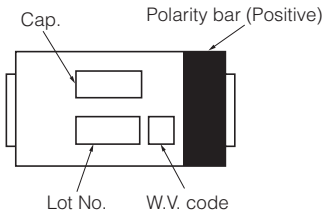
■ Features

- Low profile (1.0 mm (max.), 1.1 mm, 1.4 mm height)
- Low ESR (4.5 mΩ to 15 mΩ)
- Low ESL (50 % less than 3-terminals) [LR,LS,LT series]
- RoHS directive compliant

■ Specifications

Series & Size Code	SR	LR	SS	LS	ST	LT	CS	CT
Category Temp. Range	–40 °C to +105 °C							
Rated W.V.Range	2 V.DC to 6.3 V.DC		2 V.DC to 2.5 V.DC				4 V.DC to 6.3 V.DC	
Nominal Cap.Range	68 µF to 220 µF		180 µF to 220 µF		270 µF to 330 µF		68 µF to 120 µF	100 µF to 180 µF
Capacitance Tolerance	±20 % (120 Hz / + 20 °C)							
DC Leakage Current	I ≦ 0.1 CV (µA) 2minutes							
tan δ	≦ 0.06 (120 Hz/+20 °C)							
Surge Voltage	Rated Working Voltage × 1.25 (15 °C to 35 °C)							
Endurance	After applying rated working voltage for 2000 hours at 105 °C±2 °C, and then being stabilized at +20 °C, capacitor shall meet the following limits.							
	Capacitance change		±20% of initial measured value					
	tan δ		≦ 200 % of initial specified value					
	DC leakage current		≦ 300 % of 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			
			+70, –20 %	+60, –20 %	+50, –20 %			
	tan δ		≦ 200 % of initial specified value					
	DC leakage current		≦ Initial specified value					

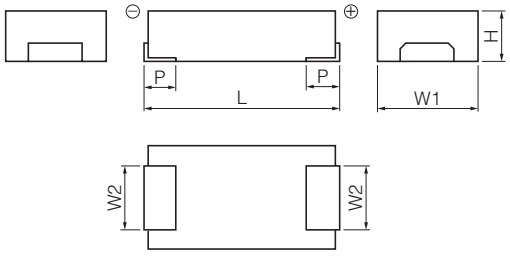
■ Marking



■ Dimensions in mm(not to scale)

(Unit : mm)

SR, SS, ST, CS, CT series

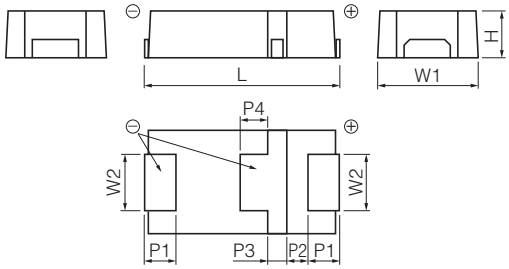


Series & Size Code	L±0.2	W1±0.2	W2±0.1	H±0.1	P±0.3
SR	7.3	4.3	2.4	1.0*1	1.3
SS, CS	7.3	4.3	2.4	1.1	1.3
ST, CT	7.3	4.3	2.4	1.4	1.3

✻ Externals of figure are the reference. ✻1 : Maximum

(Unit : mm)

LR, LS, LT series



Series & Size Code	L±0.2	W1±0.2	W2±0.1	H±0.1	P1±0.3	P2±0.1	P3±0.2	P4±0.2
LR	7.3	4.3	2.4	1.0*1	1.3	1.1	0.7	1.4
LS	7.3	4.3	2.4	1.1	1.3	1.1	0.7	1.4
LT	7.3	4.3	2.4	1.4	1.3	1.1	0.7	1.4

✻ Externals of figure are the reference. ✻1 : Maximum

02 Aug. 2014

NEW

■ Standard Products

Series & Size Code	Rated W.V. (V.DC)	Capacitance (±20 %) (μF)	Case Size L (mm)	Case Size W (mm)	Case Size H (mm)	Specification Ripple current (Ar.m.s.) *1	Specification ESR (mΩ max.) *2	The number of terminals 2	The number of terminals 3	Part number Reflow condition : 260 °C *3	Min. Packaging Q'ty (pcs) *4
SR	2	220	7.3	4.3	1.0 max.	8.5	4.5	○		EEFSR0D221R4	3500
			7.3	4.3	1.0 max.	7.5	6	○		EEFSR0D221R	3500
	2.5	180	7.3	4.3	1.0 max.	8.5	4.5	○		EEFSR0E181R4	3500
			7.3	4.3	1.0 max.	7.5	6	○		EEFSR0E181R	3500
	4	120	7.3	4.3	1.0 max.	6.3	9	○		EEFSR0G121R	3500
	6.3	68	7.3	4.3	1.0 max.	6.3	9	○		EEFSR0J680R	3500
LR	2	220	7.3	4.3	1.0 max.	8.5	4.5		○	EEFLR0D221R4	3500
			7.3	4.3	1.0 max.	7.5	6		○	EEFLR0D221R	3500
	2.5	180	7.3	4.3	1.0 max.	8.5	4.5		○	EEFLR0E181R4	3500
			7.3	4.3	1.0 max.	7.5	6		○	EEFLR0E181R	3500
	4	120	7.3	4.3	1.0 max.	6.3	9		○	EEFLR0G121R	3500
	6.3	68	7.3	4.3	1.0 max.	6.3	9		○	EEFLR0J680R	3500
SS	2	220	7.3	4.3	1.1	7.5	6	○		EEFSS0D221R	3500
	2.5	180	7.3	4.3	1.1	7.5	6	○		EEFSS0E181R	3500
LS	2	220	7.3	4.3	1.1	7.5	6		○	EEFLS0D221R	3500
	2.5	180	7.3	4.3	1.1	7.5	6		○	EEFLS0E181R	3500
ST	2	330	7.3	4.3	1.4	7.5	6	○		EEFST0D331R	3500
	2.5	270	7.3	4.3	1.4	7.5	6	○		EEFST0E271R	3500
LT	2	330	7.3	4.3	1.4	7.5	6		○	EEFLT0D331R	3500
	2.5	270	7.3	4.3	1.4	7.5	6		○	EEFLT0E271R	3500
CS	4	120	7.3	4.3	1.1	5.1	15	○		EEFCS0G121R	3500
	6.3	68	7.3	4.3	1.1	5.1	15	○		EEFCS0J680R	3500
CT	4	180	7.3	4.3	1.4	5.1	15	○		EEFCT0G181R	3500
	6.3	100	7.3	4.3	1.4	5.1	15	○		EEFCT0J101R	3500

*1: Ripple current (100 kHz/ +45 °C), *2: ESR (100 kHz/+20 °C)
*3: Please refer to the page of "Mouting Specifications".
*4: Please contact us when 500 pcs packing is necessary.

Temperature Compensation Multipliers for Ripple Current		
≦ 45 °C	45 °C < T ≦ 85 °C	85 °C < T ≦ 105 °C
1.0	0.7	0.25

Surface Mount Type **SP-Cap**

Series: **CX** (Standard Products)

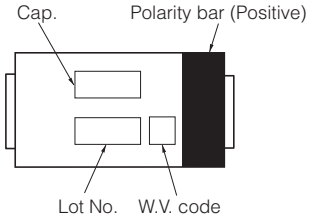
■ Features

- Large capacitance (560µF max.)
- ESR (12 mΩ, 15 mΩ)
- RoHS directive compliant

■ Specifications

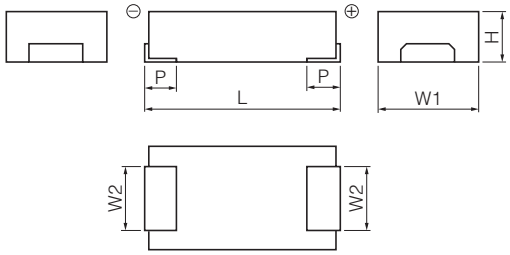
Series & Size Code	CX			
Category Temp. Range	–40 °C to +105 °C			
Rated W.V.Range	2 V.DC to 6.3 V.DC			
Nominal Cap.Range	100 µF to 560 µF			
Capacitance Tolerance	±20 % (120 Hz/+20 °C)			
DC Leakage Current	I ≦ 0.1 CV (µA) 2 minutes			
tan δ	≦ 0.06 (120 Hz/+20 °C)			
Surge Voltage	Rated Working Voltage × 1.25 (15 °C to 35 °C)			
Endurance	After applying rated working voltage for 2000 hours at 105 °C±2 °C, and then being stabilized at +20 °C, capacitor shall meet the following limits.			
	Capacitance change	±20% of initial measured value		
	tan δ	≦ 200 % of initial specified value		
	DC leakage current	≦ 300 % of 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
		+70, –20 %	+60, –20 %	+50, –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±0.1	P±0.3
CX	7.3	4.3	2.4	1.9	1.3

✻ Externals of figure are the reference.

02 Jan. 2015

■ Standard Products

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 ✻3 Reflow condition : 260 °C	✻4 Min. Packaging Q'ty (pcs)
CX	2	220	7.3	4.3	1.9	5.1	15	EEFCX0D221R	3500
		270	7.3	4.3	1.9	5.6	12	EEFCX0D271XR	3500
		330	7.3	4.3	1.9	5.1	15	EEFCX0D331R	3500
			7.3	4.3	1.9	5.6	12	EEFCX0D331XR	3500
		390	7.3	4.3	1.9	5.1	15	EEFCX0D391R	3500
		470	7.3	4.3	1.9	5.1	15	EEFCX0D471R	3500
		560	7.3	4.3	1.9	5.1	15	EEFCX0D561R	3500
	2.5	220	7.3	4.3	1.9	5.1	15	EEFCX0E221R	3500
		330	7.3	4.3	1.9	5.1	15	EEFCX0E331R	3500
		390	7.3	4.3	1.9	5.1	15	EEFCX0E391R	3500
		470	7.3	4.3	1.9	5.1	15	EEFCX0E471R	3500
	4	150	7.3	4.3	1.9	5.1	15	EEFCX0G151R	3500
		180	7.3	4.3	1.9	5.1	15	EEFCX0G181R	3500
			7.3	4.3	1.9	5.6	12	EEFCX0G181XR	3500
		220	7.3	4.3	1.9	5.1	15	EEFCX0G221R	3500
			7.3	4.3	1.9	5.6	12	EEFCX0G221XR	3500
		270	7.3	4.3	1.9	5.1	15	EEFCX0G271R	3500
	6.3	100	7.3	4.3	1.9	5.1	15	EEFCX0J101R	3500
		120	7.3	4.3	1.9	5.1	15	EEFCX0J121R	3500
		150	7.3	4.3	1.9	5.1	15	EEFCX0J151R	3500
			7.3	4.3	1.9	5.6	12	EEFCX0J151XR	3500
		180	7.3	4.3	1.9	5.1	15	EEFCX0J181R	3500

✻1: Ripple current (100 kHz/ +45 °C), ✻2: ESR (100 kHz/+20 °C)
✻3: Please refer to the page of "Mouting Specifications".
✻4: Please contact us when 500 pcs packing is necessary.

Temperature Compensation Multipliers for Ripple Current		
≦ 45 °C	45 °C < T ≦ 85 °C	85 °C < T ≦ 105 °C
1.0	0.7	0.25

Surface Mount Type **SP-Cap**

Series: **SX** (Low ESR Products)

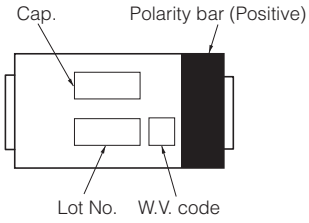
■ Features

- Large capacitance (560 µF max.)
- Low ESR (4.5 mΩ to 9 mΩ)
- RoHS directive compliant

■ Specifications

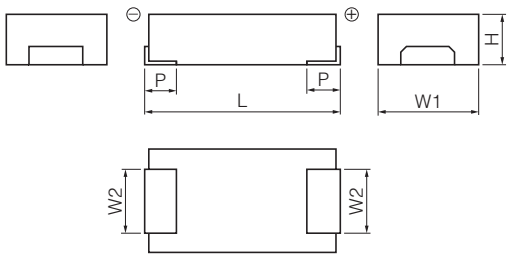
Series & Size Code	SX			
Category Temp. Range	–40 °C to +105 °C			
Rated W.V.Range	2 V.DC to 6.3 V.DC			
Nominal Cap.Range	82 µF to 560 µF			
Capacitance Tolerance	±20 % (120 Hz/+20 °C)			
DC Leakage Current	I ≦ 0.1 CV (µA) 2 minutes			
tan δ	≦ 0.06 (120 Hz/+20 °C)			
Surge Voltage	Rated Working Voltage × 1.25 (15 °C to 35 °C)			
Endurance	After applying rated working voltage for 2000 hours at 105 °C±2 °C, and then being stabilized at +20 °C, capacitor shall meet the following limits.			
	Capacitance change	±20% of initial measured value		
	tan δ	≦ 200 % of initial specified value		
	DC leakage current	≦ 300 % of 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
		+70, –20 %	+60, –20 %	+50, –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±0.1	P±0.3
SX	7.3	4.3	2.4	1.9	1.3

✻ Externals of figure are the reference.

02 Jan. 2015

■ Low ESR Products

Series & Size Code	Rated W.V. (V.DC)	Capacitance (±20 %) (μF)	Case Size L (mm)	Case Size W (mm)	Case Size H (mm)	Specification Ripple current (Ar.m.s.) ✻1	Specification ESR (mΩ max.) ✻2	Part number Reflow condition : 260 °C ✻3	✻4 Min. Packaging Q'ty (pcs)
SX	2	180	7.3	4.3	1.9	6.3	9	EEFSX0D181ER	3500
		220	7.3	4.3	1.9	6.3	9	EEFSX0D221ER	3500
		270	7.3	4.3	1.9	6.3	9	EEFSX0D271ER	3500
			7.3	4.3	1.9	7.5	6	EEFSX0D271XE	3500
			7.3	4.3	1.9	8.5	4.5	EEFSX0D271E4	3500
		330	7.3	4.3	1.9	6.3	9	EEFSX0D331ER	3500
			7.3	4.3	1.9	7.5	6	EEFSX0D331XE	3500
			7.3	4.3	1.9	8.5	4.5	EEFSX0D331E4	3500
		390	7.3	4.3	1.9	6.3	9	EEFSX0D391ER	3500
			7.3	4.3	1.9	7.5	6	EEFSX0D391XE	3500
			7.3	4.3	1.9	8.5	4.5	EEFSX0D391E4	3500
		470	7.3	4.3	1.9	6.3	9	EEFSX0D471ER	3500
			7.3	4.3	1.9	7.5	6	EEFSX0D471XE	3500
			7.3	4.3	1.9	8.5	4.5	EEFSX0D471E4	3500
		560	7.3	4.3	1.9	8.5	4.5	EEFSX0D561E4	3500
	2.5	150	7.3	4.3	1.9	6.3	9	EEFSX0E151ER	3500
		180	7.3	4.3	1.9	6.3	9	EEFSX0E181ER	3500
		220	7.3	4.3	1.9	6.3	9	EEFSX0E221ER	3500
			7.3	4.3	1.9	7.0	7	EEFSX0E221E7	3500
		270	7.3	4.3	1.9	7.0	7	EEFSX0E271E7	3500
		330	7.3	4.3	1.9	6.3	9	EEFSX0E331ER	3500
			7.3	4.3	1.9	7.5	6	EEFSX0E331XE	3500
			7.3	4.3	1.9	8.5	4.5	EEFSX0E331E4	3500
		390	7.3	4.3	1.9	6.3	9	EEFSX0E391ER	3500
			7.3	4.3	1.9	7.5	6	EEFSX0E391XE	3500
			7.3	4.3	1.9	8.5	4.5	EEFSX0E391E4	3500
		470	7.3	4.3	1.9	6.3	9	EEFSX0E471ER	3500
			7.3	4.3	1.9	7.5	6	EEFSX0E471XE	3500
			7.3	4.3	1.9	8.5	4.5	EEFSX0E471E4	3500
	4	82	7.3	4.3	1.9	6.3	9	EEFSX0G820ER	3500
		100	7.3	4.3	1.9	6.3	9	EEFSX0G101ER	3500
		150	7.3	4.3	1.9	6.3	9	EEFSX0G151ER	3500
			7.3	4.3	1.9	7.0	7	EEFSX0G151E7	3500
		180	7.3	4.3	1.9	6.3	9	EEFSX0G181ER	3500
		220	7.3	4.3	1.9	6.3	9	EEFSX0G221ER	3500
	6.3	120	7.3	4.3	1.9	7.0	7	EEFSX0J121E7	3500
		150	7.3	4.3	1.9	6.3	9	EEFSX0J151ER	3500

✻1: Ripple current (100 kHz/ +45 °C), ✻2: ESR (100 kHz/+20 °C)
✻3: Please refer to the page of "Mouting Specifications".
✻4: Please contact us when 500 pcs packing is necessary.

Temperature Compensation Multipliers for Ripple Current		
≦ 45 °C	45 °C < T ≦ 85 °C	85 °C < T ≦ 105 °C
1.0	0.7	0.25

Surface Mount Type SP-Cap

Series: **GX** (Super Low ESR Products)

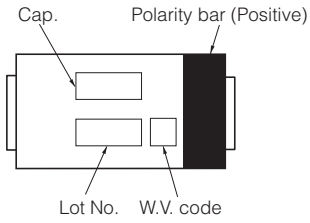
■ Features

- Large capacitance (560 µF max.)
- Super Low ESR (3 mΩ)
- Low ESL (50 % less than 3-terminals) [Suffix : L]
- RoHS directive compliant

■ Specifications

Series & Size Code	GX	
Category Temp. Range	–40 °C to +105 °C	
Rated W.V.Range	2 V.DC to 2.5 V.DC	
Nominal Cap.Range	330 µF to 560 µF	
Capacitance Tolerance	±20 % (120 Hz/+20 °C)	
DC Leakage Current	I ≦ 0.1 CV (µA) 2 minutes	
tan δ	≦ 0.06 (120 Hz/+20 °C)	
Surge Voltage	Rated Working Voltage × 1.25 (15 °C to 35 °C)	
Endurance	After applying rated working voltage for 2000 hours at 105 °C±2 °C, and then being stabilized at +20 °C, capacitor shall meet the following limits.	
	Capacitance change	±20% of initial measured value
	tan δ	≦ 200 % of initial specified value
	DC leakage current	≦ 300 % of initial specified value
Moisture resistance	After storing for 500 hours at 60 °C, 90 %	
	Capacitance change of initial measurd value	2 V.DC to 2.5 V.DC
		+70, –20 %
	tan δ	≦ 200 % of initial specified value
	DC leakage current	≦ Initial specified value

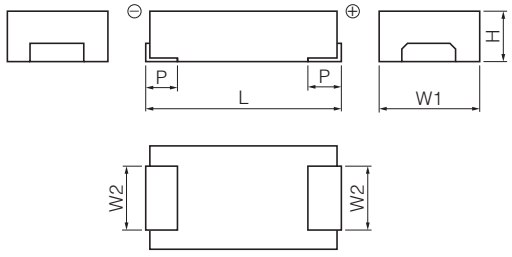
■ Marking



■ Dimensions in mm(not to scale)

(Unit : mm)

2 terminals

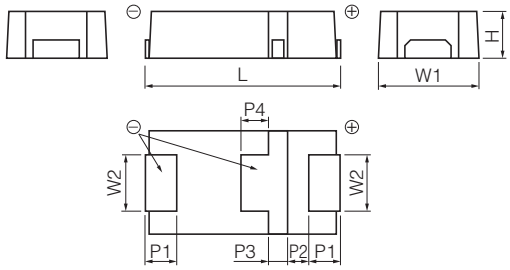


L±0.2	W1±0.2	W2±0.1	H±0.1	P±0.3
7.3	4.3	2.4	1.9	1.3

✻ Externals of figure are the reference.

(Unit : mm)

3 terminals



L±0.2	W1±0.2	W2±0.1	H±0.1	P1±0.3	P2±0.1	P3±0.2	P4±0.2
7.3	4.3	2.4	1.9	1.3	1.1	0.7	1.4

✻ Externals of figure are the reference.

03 Jan. 2015

■ Standard Products

Series & Size Code	Rated W.V. (V.DC)	Capaci-tance (±20 %) (μF)	Case Size			Specification		The number of terminals		Part number	*4 Min. Packaging Q'ty (pcs)
			L (mm)	W (mm)	H (mm)	*1 Ripple current (Ar.m.s.)	*2 ESR (Ω max.)	2	3	*3 Reflow condition : 260 °C	
GX	2	330	7.3	4.3	1.9	10.2	0.003	○		EEFGX0D331R	3500
		470	7.3	4.3	1.9	10.2	0.003	○		EEFGX0D471R	3500
			7.3	4.3	1.9	10.2	0.003		○	EEFGX0D471L	3500
		560	7.3	4.3	1.9	10.2	0.003	○		EEFGX0D561R	3500
			7.3	4.3	1.9	10.2	0.003		○	EEFGX0D561L	3500
	2.5	470	7.3	4.3	1.9	10.2	0.003	○		EEFGX0E471R	3500
			7.3	4.3	1.9	10.2	0.003		○	EEFGX0E471L	3500

*1: Ripple current (100 kHz/ +45 °C), *2: ESR (100 kHz/+20 °C)
*3: Please refer to the page of "Mouting Specifications".
*4: Please contact us when 500 pcs packing is necessary.

Temperature Compensation Multipliers for Ripple Current		
≦ 45 °C	45 °C < T ≦ 85 °C	85 °C < T ≦ 105 °C
1.0	0.7	0.25

Surface Mount Type **SP-Cap**

Series: **LX** (Low ESR / Low ESL Products)

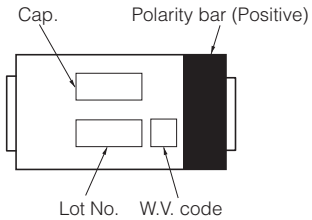
■ Features

- Large capacitance (560 µF max.)
- Low ESR (4.5 mΩ, 6 mΩ)
- Low ESL (50 % less than 3-terminals)
- RoHS directive compliant

■ Specifications

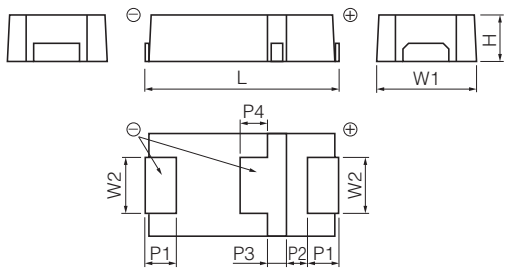
Series & Size Code	LX	
Category Temp. Range	–40 °C to +105 °C	
Rated W.V.Range	2 V.DC to 2.5 V.DC	
Nominal Cap.Range	330 µF to 560 µF	
Capacitance Tolerance	±20 % (120 Hz/+20 °C)	
DC Leakage Current	I ≦ 0.1 CV (µA) 2 minutes	
tan δ	≦ 0.06 (120 Hz/+20 °C)	
Surge Voltage	Rated Working Voltage × 1.25 (15 °C to 35 °C)	
Endurance	After applying rated working voltage for 2000 hours at 105 °C±2 °C, and then being stabilized at +20 °C, capacitor shall meet the following limits.	
	Capacitance change	±20% of initial measured value
	tan δ	≦ 200 % of initial specified value
	DC leakage current	≦ 300 % of initial specified value
Moisture resistance	After storing for 500 hours at 60 °C, 90 %	
	Capacitance change of initial measurd value	2 V.DC to 2.5 V.DC
		+70, –20 %
	tan δ	≦ 200 % of initial specified value
	DC leakage current	≦ Initial specified value

■ Marking



■ Dimensions in mm(not to scale)

(Unit : mm)



L±0.2	W1±0.2	H±0.1	W2±0.1	P1±0.3	P2±0.1	P3±0.2	P4±0.2
7.3	4.3	1.9	2.4	1.3	1.1	0.7	1.4

✻ Externals of figure are the reference.

■ Standard Products

Series & Size Code	Rated W.V. (V.DC)	Capacitance (±20 %) (μF)	Case Size L (mm)	Case Size W (mm)	Case Size H (mm)	Specification Ripple current (Ar.m.s.) ✻1	Specification ESR (mΩ max.) ✻2	Part number Reflow condition : 260 °C ✻3	Min. Packaging Q'ty (pcs) ✻4
LX	2	330	7.3	4.3	1.9	7.5	6	EEFLX0D331R	3500
			7.3	4.3	1.9	8.5	4.5	EEFLX0D331R4	3500
		470	7.3	4.3	1.9	7.5	6	EEFLX0D471R	3500
			7.3	4.3	1.9	8.5	4.5	EEFLX0D471R4	3500
		560	7.3	4.3	1.9	7.5	6	EEFLX0D561R	3500
			7.3	4.3	1.9	8.5	4.5	EEFLX0D561R4	3500
	2.5	330	7.3	4.3	1.9	7.5	6	EEFLX0E331R	3500
			7.3	4.3	1.9	8.5	4.5	EEFLX0E331R4	3500
		470	7.3	4.3	1.9	7.5	6	EEFLX0E471R	3500
			7.3	4.3	1.9	8.5	4.5	EEFLX0E471R4	3500

✻1: Ripple current (100 kHz/ +45 °C), ✻2: ESR (100 kHz/+20 °C)
✻3: Please refer to the page of "Mouting Specifications".
✻4: Please contact us when 500 pcs packing is necessary.

Temperature Compensation Multipliers for Ripple Current		
≦ 45 °C	45 °C < T ≦ 85 °C	85 °C < T ≦ 105 °C
1.0	0.7	0.25

Surface Mount Type **SP-Cap**

Series: **HX** (Guaranteed at 125 °C)

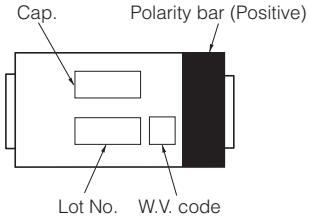
■ Features

- Endurance 125 °C 1000 h
- High voltage & Large capacitance (2 V 560 µF to 25 V 33 µF)
- Low ESR (4.5 mΩ to 40 mΩ)
- RoHS directive compliant

■ Specifications

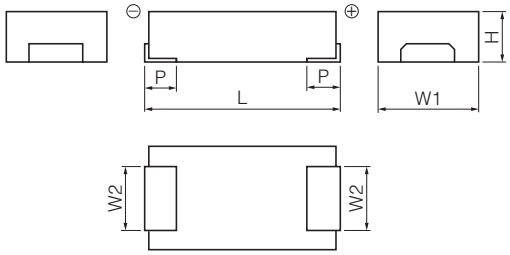
Series & Size Code	HX		
Category Temp. Range	−40 °C to +125 °C		
Rated W.V.Range	2 V.DC to 2.5 V.DC, 10 V.DC to 25 V.DC		
Nominal Cap.Range	15 µF to 560 µF		
Capacitance Tolerance	±20 % (120 Hz/+20 °C)		
DC Leakage Current	2 V.DC to 2.5 V.DC : I ≦ 0.1 CV (µA) 2 minutes, 10 V.DC to 25 V.DC : I ≦ 0.3 CV (µA) 2 minutes		
tan δ	≦ 0.1 (120 Hz/+20 °C)		
Surge Voltage	Rated Working Voltage × 1.25 (15 °C to 35 °C)		
Endurance	After applying Category voltage for 1000 hours at 125 °C±2 °C, and then being stabilized at +20 °C, capacitor shall meet the following limits.		
	Capacitance change	±20% of initial measured value	
	tan δ	≦ 200 % of 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 V.DC to 2.5 V.DC	10 V.DC to 25V DC
		+70, −20 %	+60, −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±0.1	P±0.3
HX	7.3	4.3	2.4	1.9	1.3

✻ Externals of figure are the reference.

NEW

■ Standard Products

Series & Size Code	Rated W.V. (V.DC)	Category 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 ✻3 Reflow condition : 260 °C	✻4 Min. Packaging Q'ty (pcs)
HX	2	1.6	470	7.3	4.3	1.9	5.1	15	EEFHX0D471R	3500
				7.3	4.3	1.9	6.3	9	EEFHX0D471R9	3500
				7.3	4.3	1.9	7.5	6	EEFHX0D471R6	3500
				7.3	4.3	1.9	8.5	4.5	EEFHX0D471R4	3500
			560	7.3	4.3	1.9	5.1	15	EEFHX0D561R	3500
				7.3	4.3	1.9	8.5	4.5	EEFHX0D561R4	3500
	2.5	2	330	7.3	4.3	1.9	5.1	15	EEFHX0E331R	3500
				7.3	4.3	1.9	6.3	9	EEFHX0E331R9	3500
				7.3	4.3	1.9	7.5	6	EEFHX0E331R6	3500
				7.3	4.3	1.9	8.5	4.5	EEFHX0E331R4	3500
			470	7.3	4.3	1.9	5.1	15	EEFHX0E471R	3500
				7.3	4.3	1.9	6.3	9	EEFHX0E471R9	3500
				7.3	4.3	1.9	7.5	6	EEFHX0E471R6	3500
				7.3	4.3	1.9	8.5	4.5	EEFHX0E471R4	3500
	10	8	47	7.3	4.3	1.9	3.2	40	EEFHX1A470R	3500
			68	7.3	4.3	1.9	3.2	40	EEFHX1A680R	3500
			100	7.3	4.3	1.9	3.2	40	EEFHX1A101R	3500
	16	12.8	15	7.3	4.3	1.9	3.2	40	EEFHX1C150R	3500
			22	7.3	4.3	1.9	3.2	40	EEFHX1C220R	3500
			33	7.3	4.3	1.9	3.2	40	EEFHX1C330R	3500
			47	7.3	4.3	1.9	3.2	40	EEFHX1C470R	3500
			68	7.3	4.3	1.9	3.2	40	EEFHX1C680R	3500
	20	16	22	7.3	4.3	1.9	3.2	40	EEFHX1D220R	3500
			33	7.3	4.3	1.9	3.2	40	EEFHX1D330R	3500
			47	7.3	4.3	1.9	3.2	40	EEFHX1D470R	3500
			56	7.3	4.3	1.9	3.2	40	EEFHX1D560R	3500
	25	20	15	7.3	4.3	1.9	3.2	40	EEFHX1E150R	3500
			22	7.3	4.3	1.9	3.2	40	EEFHX1E220R	3500
			33	7.3	4.3	1.9	3.2	40	EEFHX1E330R	3500

✻1: Ripple current (100 kHz/ +45 °C), ✻2: ESR (100 kHz/+20 °C)
✻3: Please refer to the page of "Mouting Specifications".
✻4: Please contact us when 500 pcs packing is necessary.

Temperature Compensation Multipliers for Ripple Current				
	T ≦ 45 °C	45 °C < T ≦ 85 °C	85 °C < T ≦ 105 °C	105 °C ≦ T
2 V.DC to 2.5 V.DC	1.0	0.7	0.25	0.25
10 V.DC to 25 V.DC	1.0	0.8	0.5	0.25

Ripple current should be controlled so that surface temperature of capacitor does not exceed the category temperature.

Surface Mount Type **SP-Cap**

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

Old series

[Our Requests]
Since this series is old, we don't recommend you to adopt it but CX & SX series for your new design.

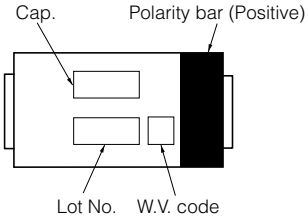
■ Features

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

■ Specifications

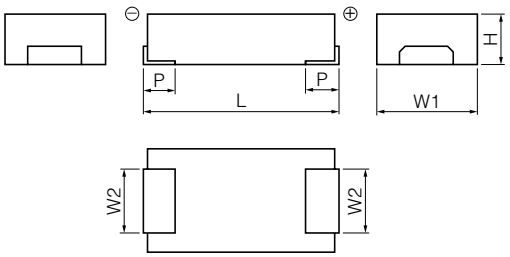
Series & Size Code	FD	CD	UD	UE
Category Temp. Range	−40 °C to +105 °C			
Rated W.V.Range	2 V.DC to 12.5 V.DC	2 V.DC to 16 V.DC	2 V.DC to 8 V.DC	2 V.DC to 8 V.DC
Nominal Cap.Range	15 µF to 68 µF	2.2 µF to 220 µF	68 µF to 470 µF	100 µF to 560 µF
Capacitance Tolerance	±20 %			
DC Leakage Current	Reflow 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
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.

■ 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	○	—	3500
	2.5	56	7.3	4.3	1.1	2.0	28	EEFFD0E560R	○	—	3500
	4	39	7.3	4.3	1.1	2.0	28	EEFFD0G390R	○	—	3500
		47	7.3	4.3	1.1	2.0	28	EEFFD0G470R	○	—	3500
	6.3	33	7.3	4.3	1.1	2.0	28	EEFFD0J330R	○	—	3500
	8	22	7.3	4.3	1.1	2.0	28	EEFFD0K220R	○	—	3500
	12.5	15	7.3	4.3	1.1	1.4	40	EEFFD1B150R	○	—	3500
CD	2	100	7.3	4.3	1.8	2.5	18	EEFCD0D101ER	—	○	3500
			7.3	4.3	1.8	2.7	15	EEFCD0D101XE	—	○	3500
		120	7.3	4.3	1.8	2.5	18	EEFCD0D121ER	—	○	3500
			7.3	4.3	1.8	2.7	15	EEFCD0D121XE	—	○	3500
		150	7.3	4.3	1.8	2.5	18	EEFCD0D151ER	—	○	3500
		180	7.3	4.3	1.8	2.5	18	EEFCD0D181ER	—	○	3500
		220	7.3	4.3	1.8	2.5	18	EEFCD0D221ER	—	○	3500
	2.5	82	7.3	4.3	1.8	2.5	18	EEFCD0E820ER	—	○	3500
			7.3	4.3	1.8	2.7	15	EEFCD0E820XE	—	○	3500
		100	7.3	4.3	1.8	2.5	18	EEFCD0E101ER	—	○	3500
			7.3	4.3	1.8	2.7	15	EEFCD0E101XE	—	○	3500
		120	7.3	4.3	1.8	2.5	18	EEFCD0E121ER	—	○	3500
		150	7.3	4.3	1.8	2.5	18	EEFCD0E151ER	—	○	3500
	4	56	7.3	4.3	1.8	2.5	18	EEFCD0G560ER	—	○	3500
			7.3	4.3	1.8	2.7	15	EEFCD0G560XE	—	○	3500
		68	7.3	4.3	1.8	2.5	18	EEFCD0G680ER	—	○	3500
			7.3	4.3	1.8	2.7	15	EEFCD0G680XE	—	○	3500
		82	7.3	4.3	1.8	2.5	18	EEFCD0G820ER	—	○	3500
			7.3	4.3	1.8	2.7	15	EEFCD0G820XE	—	○	3500
		100	7.3	4.3	1.8	2.5	18	EEFCD0G101ER	—	○	3500
	6.3	10	7.3	4.3	1.8	1.4	55	EEFCD0J100ER	—	○	3500
		22	7.3	4.3	1.8	1.6	40	EEFCD0J220ER	—	○	3500
		33	7.3	4.3	1.8	2.0	28	EEFCD0J330ER	—	○	3500
		47	7.3	4.3	1.8	2.5	18	EEFCD0J470ER	—	○	3500
			7.3	4.3	1.8	2.7	15	EEFCD0J470XE	—	○	3500
		68	7.3	4.3	1.8	2.5	18	EEFCD0J680ER	—	○	3500
			7.3	4.3	1.8	2.7	15	EEFCD0J680XE	—	○	3500
	8	8.2	7.3	4.3	1.8	1.4	55	EEFCD0K8R2ER	—	○	3500
		15	7.3	4.3	1.8	1.6	40	EEFCD0K150ER	—	○	3500
		22	7.3	4.3	1.8	2.0	28	EEFCD0K220ER	—	○	3500
		33	7.3	4.3	1.8	2.5	18	EEFCD0K330ER	—	○	3500
		47	7.3	4.3	1.8	1.8	25	EEFCD0K470ER	—	○	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	○	—	3500
		10	7.3	4.3	1.8	1.0	60	EEFCD1B100R	○	—	3500
		15	7.3	4.3	1.8	1.3	50	EEFCD1B150R	○	—	3500
		22	7.3	4.3	1.8	1.6	30	EEFCD1B220R	○	—	3500
	16	2.2	7.3	4.3	1.8	1.0	110	EEFCD1C2R2R	○	—	3500
		4.7	7.3	4.3	1.8	1.0	80	EEFCD1C4R7R	○	—	3500
		6.8	7.3	4.3	1.8	1.0	70	EEFCD1C6R8R	○	—	3500
		8.2	7.3	4.3	1.8	1.3	45	EEFCD1C8R2R	○	—	3500
UD	2	330	7.3	4.3	2.8	3.0	15	EEFUD0D331ER	—	○	2000
			7.3	4.3	2.8	3.3	12	EEFUD0D331XE	—	○	2000
			7.3	4.3	2.8	3.4	9	EEFUD0D331LE	—	○	2000
		390	7.3	4.3	2.8	3.0	15	EEFUD0D391ER	—	○	2000
			7.3	4.3	2.8	3.4	9	EEFUD0D391LE	—	○	2000
		470	7.3	4.3	2.8	3.4	9	EEFUD0D471LE	—	○	2000
	2.5	220	7.3	4.3	2.8	3.0	15	EEFUD0E221ER	—	○	2000
			7.3	4.3	2.8	3.3	12	EEFUD0E221XE	—	○	2000
			7.3	4.3	2.8	3.4	9	EEFUD0E221LE	—	○	2000
		270	7.3	4.3	2.8	3.0	15	EEFUD0E271ER	—	○	2000
			7.3	4.3	2.8	3.4	9	EEFUD0E271LE	—	○	2000
	4	120	7.3	4.3	2.8	3.0	15	EEFUD0G121ER	—	○	2000
			7.3	4.3	2.8	3.4	12	EEFUD0G121XE	—	○	2000
		150	7.3	4.3	2.8	3.0	15	EEFUD0G151ER	—	○	2000
			7.3	4.3	2.8	3.3	12	EEFUD0G151XE	—	○	2000
			7.3	4.3	2.8	3.4	9	EEFUD0G151LE	—	○	2000
		180	7.3	4.3	2.8	2.5	18	EEFUD0G181ER	—	○	2000
			7.3	4.3	2.8	3.4	9	EEFUD0G181LE	—	○	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".

■ 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	6.3	100	7.3	4.3	2.8	3.0	15	EEFUD0J101ER	—	○	2000
			7.3	4.3	2.8	3.3	12	EEFUD0J101XE	—	○	2000
		120	7.3	4.3	2.8	3.0	15	EEFUD0J121ER	—	○	2000
			7.3	4.3	2.8	3.3	12	EEFUD0J121XE	—	○	2000
			7.3	4.3	2.8	3.4	9	EEFUD0J121LR	○	—	2000
		150	7.3	4.3	2.8	2.5	18	EEFUD0J151ER	—	○	2000
			7.3	4.3	2.8	3.4	9	EEFUD0J151LR	○	—	2000
	8	68	7.3	4.3	2.8	3.0	15	EEFUD0K680ER	—	○	2000
		100	7.3	4.3	2.8	2.5	18	EEFUD0K101ER	—	○	2000
UE	2	270	7.3	4.3	4.2	3.3	12	EEFUE0D271ER	—	○	2000
			7.3	4.3	4.2	3.5	10	EEFUE0D271XE	—	○	2000
		330	7.3	4.3	4.2	3.3	12	EEFUE0D331ER	—	○	2000
			7.3	4.3	4.2	3.5	10	EEFUE0D331XE	—	○	2000
		390	7.3	4.3	4.2	3.3	12	EEFUE0D391ER	—	○	2000
			7.3	4.3	4.2	3.5	10	EEFUE0D391XE	—	○	2000
			7.3	4.3	4.2	3.7	7	EEFUE0D391LE	—	○	2000
		470	7.3	4.3	4.2	3.3	12	EEFUE0D471ER	—	○	2000
			7.3	4.3	4.2	3.5	10	EEFUE0D471XE	—	○	2000
			7.3	4.3	4.2	3.7	7	EEFUE0D471LE	—	○	2000
		560	7.3	4.3	4.2	3.3	12	EEFUE0D561ER	—	○	2000
			7.3	4.3	4.2	3.7	7	EEFUE0D561LE	—	○	2000
	2.5	220	7.3	4.3	4.2	3.3	12	EEFUE0E221ER	—	○	2000
			7.3	4.3	4.2	3.5	10	EEFUE0E221XE	—	○	2000
		270	7.3	4.3	4.2	3.3	12	EEFUE0E271ER	—	○	2000
			7.3	4.3	4.2	3.5	10	EEFUE0E271XE	—	○	2000
		330	7.3	4.3	4.2	3.3	12	EEFUE0E331ER	—	○	2000
			7.3	4.3	4.2	3.5	10	EEFUE0E331XE	—	○	2000
			7.3	4.3	4.2	3.7	7	EEFUE0E331LE	—	○	2000
		390	7.3	4.3	4.2	3.3	12	EEFUE0E391ER	—	○	2000
			7.3	4.3	4.2	3.7	7	EEFUE0E391LE	—	○	2000
		470	7.3	4.3	4.2	3.3	12	EEFUE0E471ER	—	○	2000
			7.3	4.3	4.2	3.7	7	EEFUE0E471LE	—	○	2000
	4	180	7.3	4.3	4.2	3.3	12	EEFUE0G181ER	—	○	2000
			7.3	4.3	4.2	3.5	10	EEFUE0G181XE	—	○	2000
		220	7.3	4.3	4.2	3.3	12	EEFUE0G221ER	—	○	2000
			7.3	4.3	4.2	3.5	10	EEFUE0G221XE	—	○	2000
			7.3	4.3	4.2	3.7	7	EEFUE0G221LE	—	○	2000
		270	7.3	4.3	4.2	3.3	12	EEFUE0G271ER	—	○	2000
			7.3	4.3	4.2	3.7	7	EEFUE0G271LE	—	○	2000
		330	7.3	4.3	4.2	3.3	12	EEFUE0G331ER	—	○	2000
	6.3	150	7.3	4.3	4.2	3.3	12	EEFUE0J151ER	—	○	2000
			7.3	4.3	4.2	3.5	10	EEFUE0J151XE	—	○	2000
		180	7.3	4.3	4.2	3.3	12	EEFUE0J181ER	—	○	2000
			7.3	4.3	4.2	3.5	10	EEFUE0J181XE	—	○	2000
			7.3	4.3	4.2	3.7	7	EEFUE0J181LR	○	—	2000
		220	7.3	4.3	4.2	3.0	15	EEFUE0J221ER	—	○	2000
			7.3	4.3	4.2	3.7	7	EEFUE0J221LR	○	—	2000
	8	100	7.3	4.3	4.2	3.3	12	EEFUE0K101ER	—	○	2000
		150	7.3	4.3	4.2	3.0	15	EEFUE0K151ER	—	○	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".

Surface Mount Type **SP-Cap**

Series: **SL**

Old series

■ Features

- Super Low-ESR (9 mΩ)
- Lower ESR and Higher Capacitance at the same case size as conventional products.
- Excellent Noise-absorbent Characteristics
- High Ripple Current
- RoHS directive compliant

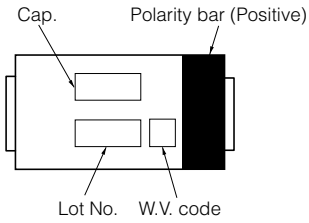
[Our Requests]

Since this series is old, we don't recommend you to adopt it but SX series for your new design.

■ Specifications

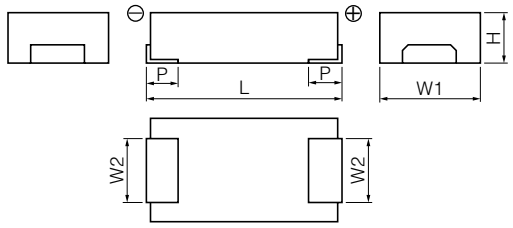
Series & Size Code	SL			
Category Temp. Range	−40 °C to +105 °C			
Rated W.V.Range	2 V.DC to 6.3 V.DC			
Nominal Cap.Range	56 µF to 220 µF			
Capacitance Tolerance	±20 %			
DC Leakage Current	Reflow 240 °C : I ≦ 0.04 CV (µA) 2 minutes (6.3 V.DC) Reflow 260 °C : I ≦ 0.1 CV (µA) 2 minutes			
tan δ	≦ 0.06 (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
		+70, −20 %	+60, −20 %	+50, −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
SL	7.3	4.3	2.4	1.8±0.1	1.3

✻ Externals of figure are the reference.

■ Low ESR 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)
SL	2	100	7.3	4.3	1.8	3.0	9	EEFSL0D101ER	—	○	3500
		120	7.3	4.3	1.8	3.0	9	EEFSL0D121ER	—	○	3500
		150	7.3	4.3	1.8	3.0	9	EEFSL0D151ER	—	○	3500
		180	7.3	4.3	1.8	3.0	9	EEFSL0D181ER	—	○	3500
		220	7.3	4.3	1.8	3.0	9	EEFSL0D221ER	—	○	3500
	2.5	100	7.3	4.3	1.8	3.0	9	EEFSL0E101ER	—	○	3500
		120	7.3	4.3	1.8	3.0	9	EEFSL0E121ER	—	○	3500
		150	7.3	4.3	1.8	3.0	9	EEFSL0E151ER	—	○	3500
	4	82	7.3	4.3	1.8	3.0	9	EEFSL0G820ER	—	○	3500
	6.3	56	7.3	4.3	1.8	3.0	9	EEFSL0J560R	○	—	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".

Surface Mount Type **SP-Cap**

Series: **MC**

Old series

■ Features

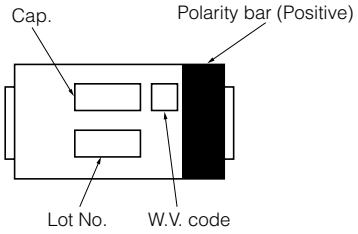
- Achieved 40 % miniaturization on together with ultra low ESR of SP-Cap for further design flexibility.
- RoHS directive compliant
- High temperature reflow soldering applicable. (Peak : 260 °C 10 s, main heating : 230 °C 40 s)

[Our Requests]
Since this series is old, we don't recommend you to adopt it.

■ Specifications

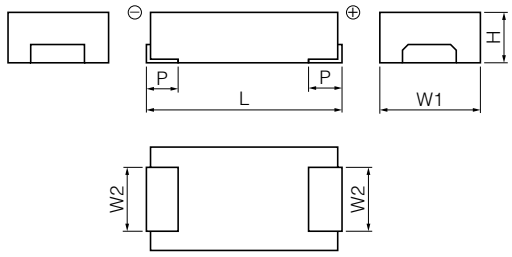
Series & Size Code	MC			
Category Temp. Range	−40 °C to +105 °C			
Rated W.V.Range	2 V.DC to 6.3 V.DC			
Nominal Cap.Range	47 µF to 120 µF			
Capacitance Tolerance	±20 % (120 Hz/+20 °C)			
DC Leakage Current	I ≦ 0.1 CV (µA) 2 minutes			
tan δ	≦ 0.06 (120 Hz/+20 °C)			
Surge Voltage	Rated Working Voltage × 1.25 (15 °C to 35 °C)			
Endurance	After applying rated working voltage for 1000 hours at 105 °C±2 °C and then being atabilized at +20 °C, Capacitor shall			
	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
		+70, −20 %	+60, −20 %	+50, −20 %
	tan δ	≦ 200 % of initial specified value		
	DC leakage current	≦ Initial specified value		

■ Marking



■ Dimensions in mm(not to scale)

(Unit : mm)



L±0.2	W1±0.2	W2±0.1	H±0.2	P±0.3
6.0	3.2	1.8	1..9	1.3

✻ Externals of figure are the reference.

■ Standard Products

Series & Size Code	Rated W.V. (V.DC)	Capacitance (±20 %) (µF)	Case Size L (mm)	Case Size W (mm)	Case Size H (mm)	Specification Ripple current ✻1 (Ar.m.s.)	Specification ESR ✻2 (mΩ max.)	Part number ✻3 Reflow condition : 260 °C	Min. Packaging Q'ty (pcs)
MC	2	120	6.0	3.2	1.9	2.7	12	EEFMC0D121R	3000
	2.5	100	6.0	3.2	1.9	2.7	12	EEFMC0E101R	3000
	4	82	6.0	3.2	1.9	2.2	18	EEFMC0G820R	3000
	6.3	47	6.0	3.2	1.9	2.2	18	EEFMC0J470R	3000

✻1: Ripple current (100 kHz/ +20 to +105 °C), ✻2: ESR (100 kHz/+20 °C)
✻3: Please refer to the page of "Mouting Specifications".

Notices

■ Applicable laws and regulations

- This product satisfies the requirements of the RoHS Directive (2011/65/UC) (related to the specified hazardous substances contained in electrical and electronic equipment).
- The ozone-depleting chemicals regulated by the Montreal Protocol are not intentionally used in the materials used in our manufacturing processes.
- PBDEs (Poly-Brominated Biphenyls) / PBDEs (Poly-Brominated Diphenyl ethers)
  The above specified brominated flame retardants are not intentionally used.
- When exporting this product, observe the export procedures specified in export control laws such as the Foreign Exchange and Foreign Trade Control Law.

■ Limited applications

- This product is intended to be used for general-purpose standard applications for general electronic equipment (such as AV equipment, household appliances, business or office equipment, information or communications equipment, etc.)
- If this product is being examined for possible use in applications where higher reliability or safety is required, in cases where a malfunction of this product may endanger life or property, then the delivery specifications meeting the application requirements must be agreed to and exchanged.

Items to be observed

<1> The purpose of these specifications is to ensure the quality of components as individual components. Before use, check and evaluate their operation when mounted on your products.
<2> Do not use our components outside of the corresponding specifications.

■ When using this capacitor in a product where safety is critical

We take great care in the quality of this product. However, performance may deteriorate and short-circuiting or open-circuiting may occur if it will be used in transportation equipment (e.g. trains, cars, traffic lights), medical equipment airborne equipment, aerospace equipment, electric heating appliances, combustion/gas equipment, rotatingequipment, disaster/crime prevention equipment, or other equipment where a defect in this component may cause the loss of human life or other significant damage. Ensure that the target equipment has a failsafedesign and is provided with the following systems to guarantee adequate safety.
(1) * Ensure the safety of the whole system by installing a protection circuit and a protection device.
(2) Redundant circuits, etc. to maintain the safety of the entire system so that a single independent failure will not lead to unsafe conditions.

■ Conditions of use:

This product is intended to be used in electronic equipment for general-purpose standard applications and is not designed for use in any special environments.
When this capacitor is used in a special environment or under special conditions, its performance may be affected.
Before use, verify the performance and reliability of the capacitor

⚠ Application Guidelines

1. Circuit design

1-1 Prohibited circuits for use

Polymer Aluminum capacitors (SP-Cap) are expected to malfunction in the following circuits. Therefore, their use is prohibited.

(1) Time constant circuits
(2) Coupling circuits
(3) Capacitors connected in series
(4) Circuits significantly affected by leakage current
(5) High-impedance voltage retention circuits

1.2 Polarity and voltage The SP-Cap has polarities.

Do not apply a reversed or alternating-current voltage.
If the polarity is reversed, then a leakage current may occur, leading to short-circuiting or capacitor breakdown.
Do not apply an excessive voltage (a voltage exceeding the rating).
"Applied voltage" refers to a voltage containing a peak transient instantaneous voltage and a peak ripple voltage. It does not only refer to a stationary line voltage. Design circuits so that peak voltages do not exceed the specified voltage.

1.3 Ripple current

Observe the allowable ripple current.
If an excessive ripple current passes through the SP-Cap, then self-generated heat may cause a current leak or a short-circuit. While observing the allowable ripple current, do not apply a ripple voltage as described in paragraph 1.2.

1.4 Leakage current

The leakage current may increase even if the following usage environment is within the specified requirements.
However, even if the leakage current increases, the capacitor's self-repairing function will reduce the leakage current in most cases when a voltage is applied.

(1) After reflow soldering
(2) Unloading conditions such as unloading at a high temperature, high temperature and humidity, rapid temperature change, etc.

1.5 Temperature

Use capacitors within the specified temperature range. If they are used outside the specified temperature range, then the electrical characteristics may vary or deteriorate significantly, leading to failure.
The temperature referred to here includes the ambient temperature including heat produced by heat generating devices (power transistors, resistors, etc.), self-heating due to ripple currents, etc.
Take these factors into consideration when checking the capacitor temperature.

1.6 Failure rate

Most failure modes are "short-circuits" and "leakage current increase". The main causes of failure include thermal stress due to reflow soldering , the temperature of the environment they are being used in, and/or electrical or mechanical stress. Using lower temperatures and voltages even within the specified range enables the defect rate to be reduced. Therefore, provide such allowances during design.
[Estimated defect rate] (Reference)

(1) Data in our reliability tests/46 Fits or less
(Estimation with a rated voltage being applied at 105 °C)
(2) Estimated defect rate in the market/0.13 Fits or less
(c=0, estimation with a reliability level of 60 %)

1.7 Mounting area consideration

Isolate the surface of PCB under the mounted capacitor.

2. Mounting

2.1 When mounting

(1) Check the capacitor ratings (capacitance and voltage) before mounting.
(2) Check the capacitor polarity before mounting.
(3) Check the land size for the capacitor before mounting.
(4) When using a mounter, if the pressure for mounting is too high, then the current leak may increase, short-circuiting may occur, or the capacitor may break down or come off.

2.2 Soldering (reflow soldering)

(1) The SP-Cap is to be used exclusively for reflow soldering. When reflow soldering, use an ambient heat conduction system such as the simultaneous use of infrared and hot-air and not a steam heat conduction system (VPS).
✻ This capacitor cannot be used for flow or dip soldering.
(2) Solder capacitors under these soldering conditions (pre-heating, main-heating temperatures and time) described in the specifications.
(3) Reflow-solder up to twice.
(4) Do not reuse the mounted SP-Cap.
(5) When modifying or correcting by using a soldering iron, etc.:
Use a soldering iron of 30 W or less, whose iron tip temperature is 350 °C or less. Total soldering time should be no longer than 10 seconds. Do not apply excessive force to the capacitor.

2.3 Circuit board cleaning

Apply the following conditions for flux cleaning after soldering.
Temperature: 60 °C or less, duration: Five minutes or less
However, rinse sufficiently and dry the boards (at 100 °C for 20 minutes or less).
[Applicable solvents]
Pine Alpha ST-100S
Clean-thru 750H, 750L, or 710M
Aqua Cleaner 210SEP
Sunelec B-12, DK
Beclear CW-5790
Techno Cleaner 219
Cold Cleaner P3-375
Telpene Cleaner EC-7R
Technocare FRW-17, FRW-1, or FRV-1
AXREL 32
Remarks 1: If you wish to use solvents other than the above or Deionized water, please contact us.
2: Please do not use ozone-depleting chemicals in order to protect the environment.
3: In the case of using ultrasonic cleaning, the terminals may be broken. Therefore, please test before using in mass production.

2.4 Capacitor handling after soldering

(1) Do not apply an excessive force to the capacitor.
Deformed electrode terminals can affect mounting. Short-circuiting, wire breaking, leakage current increase, or damage to the exterior may be caused.
After mounting the capacitor, do not hold its body or apply a force to it.

3. Precautions for using equipment

3.1 Avoid using equipment to which capacitors are fitted in the following environments.

<1> Capacitors are directly exposed to water, salt water, or oil.
<2> Capacitors are exposed to direct sunlight.
<3> Capacitors and exposed to high temperature and humidity and the capacitor surface is condensed.
<4> Capacitors are exposed to various active gases.
<5> Acidic or alkaline environments
<6> Capacitors are subject to high-frequency induction.
<7> Capacitors are subject to excessive vibrations or shocks.

4. Emergency procedures

If the capacitors generate heat, smoke may come out of the exterior resin. If this is the case, then turn off the equipment immediately and stop using it.
Do not place your face or hands close to the capacitor. Otherwise, burns may be caused.

5. Storage

This product must be stored in an environment with controlled moisture protection.
This product must be stored as follows before and after moisture-protection packing is applied.
(If these requirements are not met, then thermal stress caused by moisture absorption of the package may damage the exterior or the internal elements.)
[Storage environment]
Temperature: 5 to 30 °C, humidity: 70 % or less
Storage period before opening the moisture protection seal: 2 years after manufacturing
Storage period after opening the moisture protection seal: 7 days*
✻ The capacitors for reflow 240 °C soldering except FD and CD (12.5 V and 16 V) products must be used within 14 days

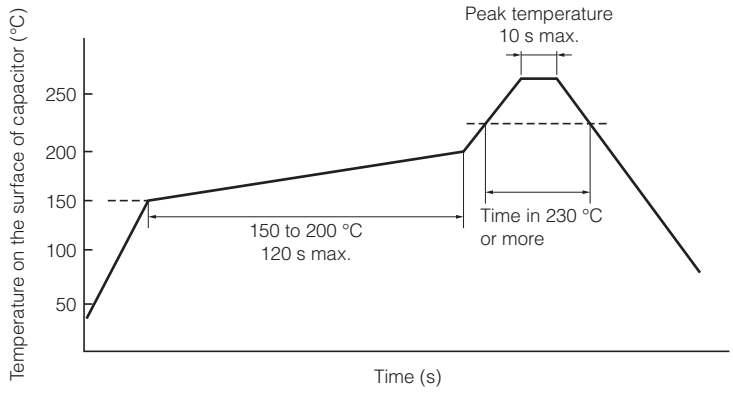
6. Discarding

Dispose of capacitors as industrial waste because they consist of various metals and resin.

The precautions for the use of functional polymer aluminum electrolytic capacitors follow the “Precautionary guidelines for the use of fixed aluminum electrolytic capacitors for electronic equipment”, RCR- 2367B issued by EIAJ in March 2002. Please refer to the above guidelines for details.

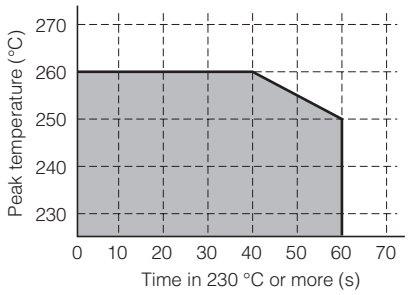
■ Mounting Specifications.

● Recommendable reflow soldering temperature 260 °C

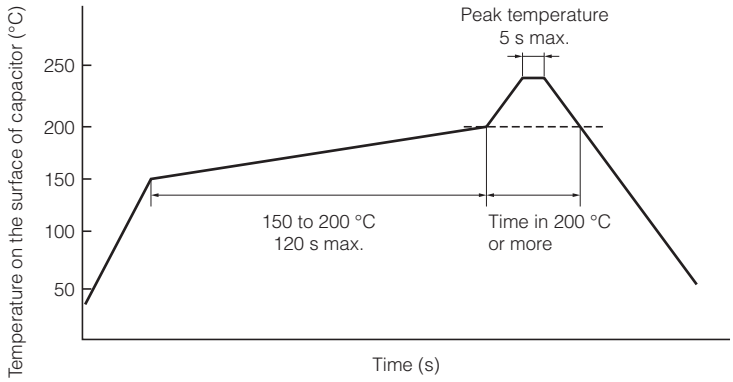


EX.)

Peak temperature	Time in 230 °C or more
260 °C, 10 s max.	40 s max.
250 °C, 10 s max.	60 s max.

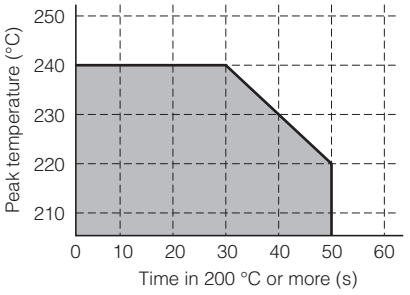


(● Recommendable reflow soldering temperature 240 °C)



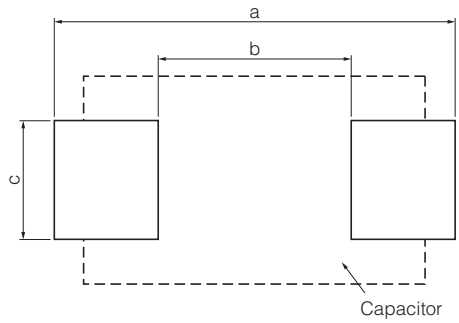
EX.)

Peak temperature	Time in 200 °C or more
240 °C, 5 s max.	30 s max.
230 °C, 5 s max.	40 s max.



● Typical land pattern (mm)

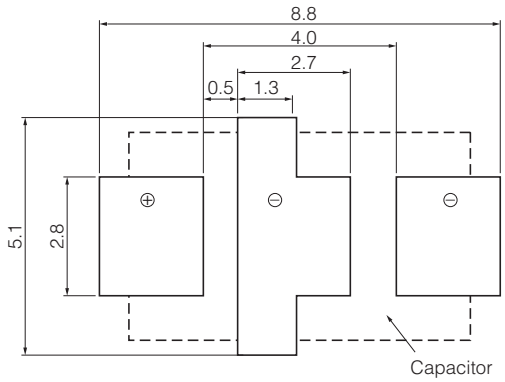
For standard terminal (2-terminals)



Series	a	b	c
Standard (Except MC)	8.8	4.0	2.8
(MC)	7.2	2.6	2.2

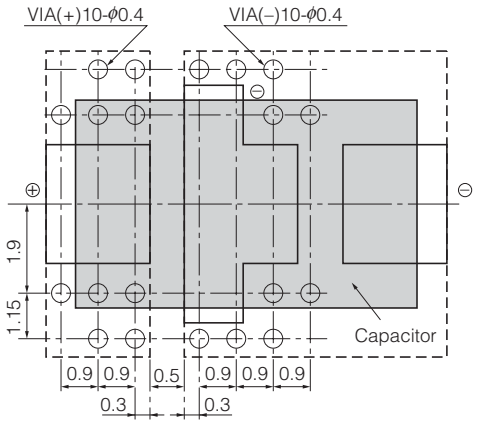
● Typical land pattern (mm)

For Low ESL terminal (3-terminals)
(LR, LS, LT, LX, GX-L series)



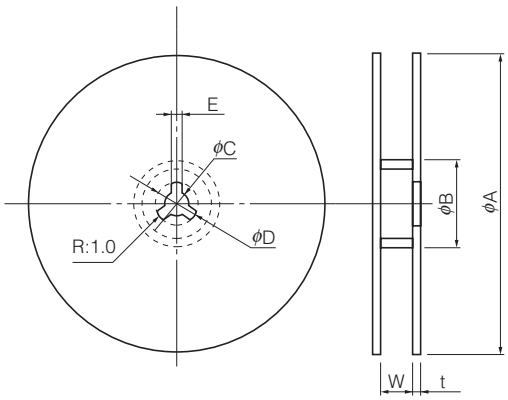
● VIA (mm)

For Low ESL terminal (3-terminals)
(LR, LS, LT, LX, GX-L series)



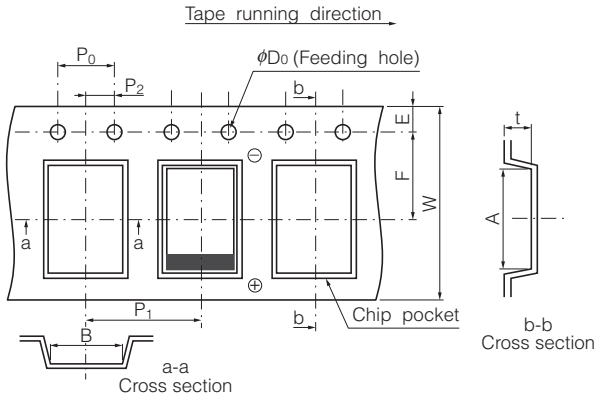
■ Packaging Specifications

● Reel Dimensions (mm)



Reel	ϕA	ϕB	ϕC	ϕD	E	W	t
ϕ330	330	80	13±0.5	21±0.8	2±0.5	14	3

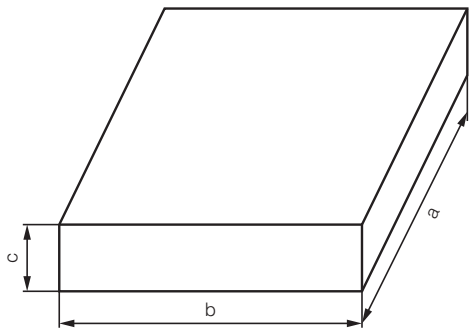
● Embossed Taping (mm)



A		B		W	F	E	P1
Standard	(MC series)	Standard	(MC series)				
7.6±0.2	6.3±0.3	4.5±0.2	3.6±0.3	12.0±0.3	5.5±0.1	1.75±0.10	8.0±0.1

P2	P0	ϕD0	Upper row : Product height (mm) / Lower berth : t				
			to 1.1	1.4 to 1.9	2.8	4.2	(MC series)
2.0±0.1	4.0±0.1	$1.5^{+0.1}_{0}$	1.5±0.2	2.4±0.2	3.5±0.2	4.3±0.2	2.8±0.3

■ Packaging Box Dimensions (mm)



Reel	a	b	c
ϕ330	400 max.	400 max.	135 max.

Replacement Proposal Table of SP-Cap

■ Replacement from UD/UE Series to proposal series (SX, CX)

	2 V (0D)		2.5 V (0E)		4 V (0G)		6.3 V (0J)		8 V (0K)	
	UD/UE Series	Standard	UD/UE Series	Standard	UD/UE Series	Standard	UD/UE Series	Standard	UD/UE Series	Standard
68 µF (680)									EEFUD0K680R UD(15 mΩ/3.0 A)	EEFCX1A100R CX(40 mΩ/3.0 A)
100 µF (101)							EEFUD0J101R/ER UD(15 mΩ/3.0 A) EEFUD0J101XR/XE UD(12 mΩ/3.3 A)	EEFCX0J101R CX(15 mΩ/2.7 A)	EEFUD0K101R UD(18 mΩ/2.5 A) EEFUE0K101R UE(12 mΩ/3.3 A)	EEFCX1A100R CX(40 mΩ/3.0 A)
120 µF (121)					EEFUD0G121R/ER UD(15 mΩ/3.0 A) EEFUD0G121XR/XE UD(12 mΩ/3.3 A)	EEFCX0G151R CX(15 mΩ/2.7 A) / EEFSX0G151ER SX(9 mΩ/3.0 A) / Please integrate into 150 µF	EEFUD0J121R/ER UD(15 mΩ/3.0 A) EEFUD0J121XR/XE UD(12 mΩ/3.3 A) EEFUD0J121LR UD-L(9 mΩ/3.4 A)	EEFCX0J121R CX(15 mΩ/2.7 A) / EEFSX0J121E7 SX(7 mΩ/3.5 A)		
150 µF (151)			EEFUD0E151R/ER UD(15 mΩ/3.0 A) EEFUD0E151XR/XE UD(12 mΩ/3.3 A)	EEFCX0G151R CX(15 mΩ/2.7 A) / EEFSX0E151ER SX(9 mΩ/3.0 A)	EEFUD0G151R/ER UD(15 mΩ/3.0 A) EEFUD0G151XR/XE UD(12 mΩ/3.3 A) EEFUD0G151LR/LE UD-L(9 mΩ/3.4 A)	EEFCX0G151R CX(15 mΩ/2.7 A) / EEFSX0G151ER SX(9 mΩ/3.0 A)	EEFUD0J151R/ER UD(18 mΩ/2.5 A) EEFUD0J151LR UD-L(9 mΩ/3.4 A) EEFUE0J151R/ER UE(12 mΩ/3.3 A) EEFUE0J151XR/XE UE(10 mΩ/3.5 A)	EEFCX0J151R CX(15 mΩ/2.7 A) / EEFSX0J151ER SX(9 mΩ/3.0 A)	EEFUE0K151R UE(15 mΩ/3.0 A)	EEFCX1A100R CX(40mΩ/3. 0A)
180 µF (181)	EEFUD0D181R/ER UD(15 mΩ/3.0 A) EEFUD0D181XR/XE UD(12 mΩ/3.3 A)	EEFSX0D181ER SL(9 mΩ/3.0 A)	EEFUD0E181R/ER UD(15 mΩ/3.0 A) EEFUD0E181XR/XE UD(12 mΩ/3.3 A)	EEFSX0E181ER SX(9 mΩ/3.0 A)	EEFUD0G181R/ER UD(18 mΩ/2.5 A) EEFUD0G181LR/LE UD-L(9 mΩ/3.4 A) EEFUE0G181R/ER UE(12 mΩ/3.3 A) EEFUE0G181XR/XE UE(10 mΩ/3.5 A)	EEFCX0G181R CX(15 mΩ/2.7 A) / EEFSX0G181ER SX(9 mΩ/3.0 A)	EEFUE0J181R UE(12 mΩ/3.3 A) EEFUE0J181XR UE(10 mΩ/3.5 A)	EEFCX0J181R CX(15 mΩ/2.7 A)		
220 µF (221)	EEFUD0D221R/ER UD(15 mΩ/3.0 A) EEFUD0D221XR/XE UD(12 mΩ/3.3 A)	EEFCX0D221R CX(15 mΩ/2.7 A) / EEFSX0D221ER SX(9 mΩ/3.0 A)	EEFUD0E221R/ER UD(15 mΩ/3.0 A) EEFUD0E221XR/XE UD(12 mΩ/3.3 A) EEFUD0E221LR/LE UD-L(9 mΩ/3.4 A) EEFUE0E221R/ER UE(12 mΩ/3.3 A) EEFUE0E221XR/XE UE(10 mΩ/3.5 A)	EEFCX0E221R CX(15 mΩ/2.7 A) / EEFSX0E221ER SX(9 mΩ/3.0 A)	EEFUE0G221R/ER UE(12 mΩ/3.3 A) EEFUE0G221XR/XE UE(10 mΩ/3.5 A) EEFUE0G221LR/LE UE-L(7 mΩ/3.7 A)	EEFCX0G221R CX(15 mΩ/2.7 A) / EEFSX0G221ER SX(9 mΩ/3.0 A)	EEFUE0J221R UE(15 mΩ/3.0 A)	EEFCX0J181R CX(15 mΩ/2.7 A)		
270 µF (271)	EEFUD0D271R/ER UD(15 mΩ/3.0 A) EEFUD0D271XR/XE UD(12 mΩ/3.3 A) EEFUD0D271LR/LE UD-L(9 mΩ/3.4 A) EEFUE0D271R/ER UE(12 mΩ/3.3 A) EEFUE0D271XR/XE UE(10 mΩ/3.5 A)	EEFSX0D271ER SX(9 mΩ/3.0 A) / EEFCX0D331R CX(15 mΩ/2.7 A) / EEFSX0D331ER SX(9 mΩ/3.0 A) / Please integrate into 330 µF	EEFUD0E271R/ER UD(15 mΩ/3.0 A) EEFUD0E271LR/LE UD-L(9 mΩ/3.4 A) EEFUE0E271R/ER UE(12 mΩ/3.3 A) EEFUE0E271XR/XE UE(10 mΩ/3.5 A)	EEFCX0E331R CX(15 mΩ/2.7 A) / EEFSX0E331ER SX(9 mΩ/3.0 A) / Please integrate into 330 µF	EEFUE0G271R UE(12 mΩ/3.3 A) EEFUE0G271LR UE-L(7 mΩ/3.7 A)	EEFCX0G271R CX(15 mΩ/2.7 A)				
330 µF (331)	EEFUD0D331R/ER UD(15 mΩ/3.0 A) EEFUD0D331XR/XE UD(12 mΩ/3.3 A) EEFUD0D331LR/LE UD-L(9 mΩ/3.4 A) EEFUE0D331R/ER UE(12 mΩ/3.3 A) EEFUE0D331XR/XE UE(10 mΩ/3.5 A)	EEFCX0D331R CX(15 mΩ/2.7 A) / EEFSX0D331ER SX(9 mΩ/3.0 A) / EEFSX0D331XE SX(6 mΩ/3.5 A)	EEFUE0E331R/ER UE(12 mΩ/3.3 A) EEFUE0E331XR/XE UE(10 mΩ/3.5 A) EEFUE0E331LR/LE UE-L(7 mΩ/3.7 A)	EEFCX0E331R CX(15 mΩ/2.7 A) / EEFSX0E331ER SX(9 mΩ/3.0 A) / EEFSX0E331XE SX(6 mΩ/3.5 A)	EEFUE0G331R UE(12 mΩ/3.3 A)	EEFCX0G271R CX(15 mΩ/2.7 A)				
390 µF (391)	EEFUD0D391R/ER UD(15 mΩ/3.0 A) EEFUD0D391LR/LE UD-L(9 mΩ/3.4 A) EEFUE0D391R/ER UE(12 mΩ/3.3 A) EEFUE0D391XR/XE UE(10 mΩ/3.5 A) EEFUE0D391LR/LE UE-L(7 mΩ/3.7 A)	EEFCX0D391R CX(15 mΩ/2.7 A) / EEFSX0D391ER SX(9 mΩ/3.0A) / EEFSX0D391XE SX(6 mΩ/3.5A)	EEFUE0E391R/ER UE(12 mΩ/3.3 A) EEFUE0E391LR/LE UE-L(7 mΩ/3.7 A)	EEFCX0E391R CX(15 mΩ/2.7 A) / EEFSX0E391ER SX(9 mΩ/3.0 A) / EEFSX0E391XE SX(6 mΩ/3.5 A)						
470 µF (471)	EEFUD0D471LR/LE UD-L(9 mΩ/3.3 A) EEFUE0D471R/ER UE(12 mΩ/3.3 A) EEFUE0D471XR/XE UE(10 mΩ/3.5 A) EEFUE0D471LR/LE UE-L(7 mΩ/3.7 A)	EEFCX0D471R CX(15 mΩ/2.7 A) / EEFSX0D471ER SX(9 mΩ/3.0 A) / EEFSX0D471XE SX(6 mΩ/3.5 A)	EEFUE0E471R UE(12 mΩ/3.3 A) EEFUE0E471LR UE-L(7 mΩ/3.7 A)	EEFCX0E471R CX(15 mΩ/2.7 A) / EEFSX0E471ER SX(9 mΩ/3.0 A) / EEFSX0E471XE SX(6 mΩ/3.5 A)						
560 µF (561)	EEFUE0D561R/ER UE(12 mΩ/3.3 A) EEFUE0D561LR/LE UE-L(7 mΩ/3.7 A)	EEFSX0D561E4 SX(4.5 mΩ/3.8 A)								

(ESR / Rated ripple current)

MEMO

MEMO

For more Information please contact the respective sales office of factory

Factory

Capacitor Business Division
Automotive & Industrial Systems Company, Panasonic Corporation

25, Nishinaka, Kowata, Uji, Kyoto, 611-8585 JAPAN TEL 81-774-32-1111

SALES OFFICES

Automotive & Industrial Systems Company
Panasonic Corporation (JAPAN)
Industrial Marketing & Sales Division
1006 Kadoma Kadoma-shi, Osaka 571-8506, JAPAN

North & Latin Americas
PIDSA
Panasonic Industrial Devices Sales Company of America,
A Division of Panasonic Corporation of North America
Industrial Components Division
Two Riverfront Plaza, 7th Floor Newark, NJ 07102-2550, U.S.A.
Tel: 1-800-344-2112

Panasonic Canada Inc.
5770 Ambler Drive Mississauga, Ontario L4W 2T3 CANADA
Tel: 1-905-238-2311

Panasonic do Brasil Limitada
Av. do Cafe, 277-Bloco A-8 andar, CEP04311-900,
Sao Paulo, SP, BRASIL
Tel: 55-11-3889-4145

SANYO Electronic Device (U.S.A.) Corporation
A Division of SANYO North America Corporation
San Diego Headquarter
2055 Sanyo Ave., San Diego ,CA 92154, U.S.A.
Tel: 1-619-671-4356

Cupertino office
10900 North Tantau Ave., Ste #120 Cupertino, CA 95014, U.S.A.
Tel: 1-408-861-3959

Dallas sales office
2600 Network Blvd, 6th Floor, Frisco, TX 75034, U.S.A.
Tel: 1-469-362-5465

Europe
PIDSEU
Panasonic Industrial Devices Sales Europe GmbH
Winsbergring 15, D-22525 Hamburg, GERMANY
Tel: 49-40-85386-370

PIDSEU-UK
Panasonic Industrial Devices Sales Europe GmbH UK Branch
Willoughby Road, Bracknell, Berkshire RG12 8FP, U.K.
Tel: 44-1344-862-444

PIDSEU-Paris
Panasonic Industrial Devices Sales Europe GmbH Paris Office
8/10 Rue des petits Ruisseaux, 91370 Verrieres-Le-Buisson,
FRANCE
Tel: 33-(0)-1-60-13-57-00

PIDSEU-Milan
Panasonic Industrial Devices Sales Europe GmbH Milan Office
C/O Panasonic Italia S.p.A. Viale Dell'Innovazione 3-20125
Milano, ITALY
Tel: 39-02-6788-321

PIDSEU-Barcelona
Panasonic Industrial Devices Sales Europe GmbH Barcelona Office
Parque Empresarial @ Sant Cugat, Via Augusta 15_25 Edificio
B2 Planta 4 Oficina 17, 08174 Sant Cugat del Vales, Barcelona,
SPAIN
Tel: 34-93-504-3010

PIDSEU-Helsinki
Panasonic Industrial Devices Sales Europe GmbH Helsinki Sales Office
Urho Kekkosen Katu 7B, 00100 Helsinki, Finland
Tel: 358-9-6898-4150

East Asia and China
PIDSCN
Panasonic Industrial Devices Sales (China) Co.,Ltd
Floor 7, China Insurance Building, 166 East Road LujiaZui,
PuDong New District, Shanghai 200120, CHINA
Tel: 86-21-3855-2000

PSIDSHK
Panasonic Shun Hing Industrial Devices Sales (Hong Kong) Co.,Ltd.
Top Floor South Wing Chinachem Golden Plaza 77 Mody
Road Tsim Sha Tsui East Kowloon, HONG KONG
Tel: 852-2529-7322

PSIDSSZN
Panasonic SH Industrial Devices Sales (Shenzhen) Co.,Ltd.
8/F, Tower Three, Kerry Plaza, 1-1zhongxin 4th Road,
Futian District, Shenzhen 518048, CHINA
Tel: 86-755-8255-8888

SANYO Electric (Hong Kong) Ltd.
SANYO Electronic Components Company
Hong Kong Headquarter
Level 27, Tower 1, Kowloon Commerce Centre, 51 Kwai
Cheong Road, Kwai Chung, N.T., Hong Kong
Tel: 852-2484-5000

Beijing representative office
3th Floor, Tower, C Office Park, No.5, Jinghua South Street,
Chaoyang Distric, Beijing, P.R China, 100025
Tel: 86-10-6562-6688

PIDSTW
Panasonic Industrial Devices Sales Taiwan Co.,Ltd.
12F, No.9, SongGao Rd., Taipei 110, TAIWAN, R.O.C.
Tel: 886-2-2757-1900

SANYO Electric (Hong Kong) Ltd.
SANYO Electronic Components Company
Taiwan branch
10/F, No.101, Sec.2, Nanjing E. Rd., Jhongshan District,
Taipei City 104, Taiwan(R.O.C.)
Tel: 886-2-2536-1855

PIDSKR
Panasonic Industrial Devices Sales Korea Co.,Ltd.
DONGIL Tower 4·6F, 1004, Daechi dong, 114-38,
Teheran-ro, Gangnam-gu, Seoul, KOREA
Tel: 82-2-795-9600

South Asia
PIDS
Panasonic Industrial Devices Sales Asia Pte,Ltd.
No.3 Bedok South Road Singapore 469269,
THE REPUBLIC OF SINGAPORE
Tel: 65-6299-9181

PIDSMY
Panasonic Industrial Devices Sales (M) Sdn. Bhd.
15th Floor, Menara IGB, Mid Valley City, Lingkaran Syed
Putra, 59200 Kuala Lumpur, MALAYSIA
Tel: 60-3-2297-6888

PIDSTH
Panasonic Industrial Devices Sales (Thailand) Co.,Ltd.
252/133 Muang Thai-Phatra Complex Bld., 31st Fl.,
Rachadaphisek Rd., Huaykwang, Bangkok 10320, THAILAND
Tel: 66-2693-3403-21

PI-INDD
Panasonic Industrial Devices Sales India
7th Floor ABW Tower, Sector 25, IFFCO Chowk, MG Road,
Gurgaon-122001, Haryana, INDIA
Tel: 91-124-459-6600

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● Factory

Capacitor Business Division
Automotive & Industrial Systems Company
Panasonic Corporation
25 Nishinaka, Kowata, UjiCity, Kyoto
611-8585,JAPAN
Tel : 81-774-32-1111

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