

# EC series

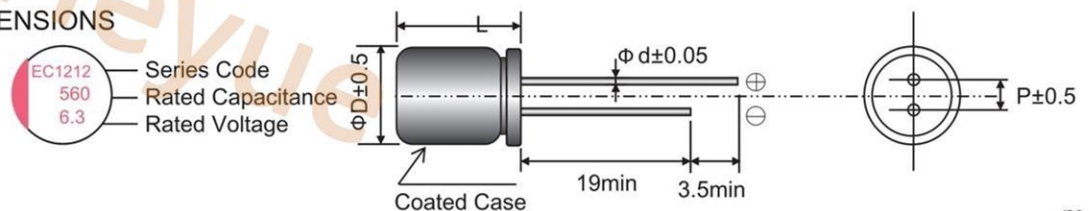
- Low ESR at high frequency range.
- Rated voltage : 2.5~16V
- Endurance : 2,000 hours at 105°C
- Applications : LCD Monitor, LCD-TV, D/A Inverter, SPS, D/D Converter, etc.
- RoHS Compliance.
- Halogen Free compliant

## SPECIFICATIONS

Items	Conditions	Characteristics
Category Temperature Range	—	-55 to +105°C
Rated Voltage Range	—	2.5 ~ 16V
Capacitance Tolerance	at 20°C, 120 Hz	±20% ( M )
Surge Voltage	at 105°C	Rated voltage x 1.15v
Leakage Current	at 20°C after 2 minutes	$I \leq 0.2CV$ or $300(\mu A)$ Whichever is greater measured,after 2minutes application of rated working voltage at +20°C. Please see the attached characteristics list
Dissipation Factor ( tan δ )	at 20°C, 120 Hz	Please see the attached characteristics list
Characteristics of Impedance at low, high temperature	at -55°C,100kHz	$Z(-55^{\circ}C) / Z(+20^{\circ}C) \leq 1.25$
	at -25°C,100kHz	$Z(-25^{\circ}C) / Z(+20^{\circ}C) \leq 1.15$
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage is applied for 2,000 hours at 105°C.	Appearance NO significant damage.
		Capacitance change $\leq \pm 20\%$ of the initial value.
		DF ( tan δ ) $\leq 150\%$ of the initial specified value.
		ESR $\leq 150\%$ of the initial specified value.
		Leakage current $\leq$ The initial specified value.
Damp Heag (Steady State)	The following specifications shall be satisfied when the capacitors are restored to 20°C after subjecting them to store 60°C, 90 to 95% RH for 1,000 hours, without DC applied.	Appearance NO significant damage.
		Capacitance change $\leq \pm 20\%$ of the initial value.
		DF ( tan δ ) $\leq 150\%$ of the initial specified value.
		ESR $\leq 150\%$ of the initial specified value.
		Leakage current $\leq$ The initial specified value.
Surge Voltage	The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltages specified at 105°C for 30 seconds through aprotective resistor (R = 1kΩ) and discharge for 5 minutes 30 seconds.	Appearance NO significant damage.
		Capacitance change $\leq \pm 20\%$ of the initial value.
		DF ( tan δ ) $\leq 150\%$ of the initial specified value.
		ESR $\leq 150\%$ of the initial specified value.
		Leakage current $\leq$ The initial specified value.

※ Note : If any doubt arises, measure the leakage current after following voltage treatment.  
Voltage treatment : DC rated voltage are applied to the capacitors for 120 minutes at 105°C.

## MARKING AND DIMENSIONS



(Unit:mm)

Size	5x6、8	6.3x6	6.3x8	6.3x11	8x8	8x12	8x16	8x20	10x12	10x16、20
φD	5	6.3	6.3	6.3	8	8	8	8	10	10
L	L+1.0 max	L+1.0 max	L+1.5 max	L+1.0 max	L+1.5 max	L+1.0 max	L+1.0 max	L+1.5 max	L+1.0 max	L+1.5 max
φd	0.45	0.45	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6
P	2	2.5	2.5	2.5	3.5	3.5	3.5	3.5	5.0	5.0

注：以上所提供的设计及特性参数仅供参考，任何修改不作预先通知，如有使用上任何疑问，请在采购前与我们联系，以便提供技术上的协助。

**EC SERIES STANDARD CHARACTERISTICS LIST**

Rated Voltage (S.V.)	Cap (μF)	Size DxL	Leakage current (μA) max. ※2	ESR (mΩ) max. 100k to 300kHz / 20°C	Rated Ripple Current (mA rms) 100kHz / 105°C	D.F. (tanδ) max. 120Hz / 20°C
2.5 (2.9)	560	6.3×8	300	8	5,080	0.12
	560	8×8	300	7	5,820	0.12
	820	6.3×8	410	8	5,080	0.12
	1,200	8×8	600	7	5,580	0.12
	1,500	8×12	750	7	5,820	0.12
	2,700	10×12	1,350	7	6,100	0.12
4 (4.6)	560	6.3×8	448	8	5,080	0.12
	560	8×8	448	7	5,580	0.12
	680	8×8	544	7	5,580	0.12
	820	8×12	656	7	5,820	0.12
	2200	10×12	1,760	7	6,100	0.12
6.3 (7.2)	100	5×6	300	13	1,500	0.12
	270	5×8	340	12	2,400	0.12
	470	6.3×8	592	10	4,500	0.12
	560	6.3×8	706	10	5,080	0.12
	560	8×8	706	10	5,580	0.12
	1,000	8×12	1,260	7	5,820	0.12
	1,000	10×12	1,260	7	6,200	0.12
	2,200	10×12	2,772	7	6,200	0.12
10 (11.5)	220	6.3×8	440	10	2,820	0.12
	270	6.3×8	540	10	3,580	0.12
	560	8×8	1,120	8	5,580	0.12
	680	8×8	1,360	9	5,580	0.12
	820	8×12	1,640	9	5,820	0.12
	1,000	10×12	2,000	9	6,100	0.12
	1,500	10×12	3,000	9	6,100	0.12

※ 1. Capacitance tolerance : ±20% (M)

※ 2. After 2 minutes

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16 (18.4)	82	6.3×6	300	30	2,200	0.12
	100	6.3×6	320	30	2,200	0.12
	220	6.3×8	704	15	3,500	0.12
	270	6.3×8	864	15	3,500	0.12
	330	6.3×11	1,056	15	3,500	0.12
	470	8×8	1,504	13	4,500	0.12
	470	8×12	1,504	13	5,400	0.12
	470	10×12	1,504	13	6,100	0.12
	560	8×12	1,792	16	5,400	0.12
	680	10×12	2,176	16	6,100	0.12
	820	10×12	2,624	10	6,100	0.12
	1000	8×16	3,200	10	6,100	0.10
	1000	10×12	3,200	10	6,100	0.10
	1500	8×20	4,800	8	6,100	0.10
	1500	10×16	4,800	8	6,500	0.10
	1800	10×20	5,760	8	6,800	0.10
2200	10×20	7,040	8	6,800	0.10	

※ 1. Capacitance tolerance : ±20% (M)

※ 2. After 2 minutes

**FREQUENCY COEFFICIENT FOR RIPPLE CURRENT**

Frequency	120Hz ≤ f < 1kHz	1kHz ≤ f < 10kHz	10kHz ≤ f < 100kHz	100kHz ≤ f < 500kHz
Coefficient	0.05	0.3	0.7	1

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