

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.



EC

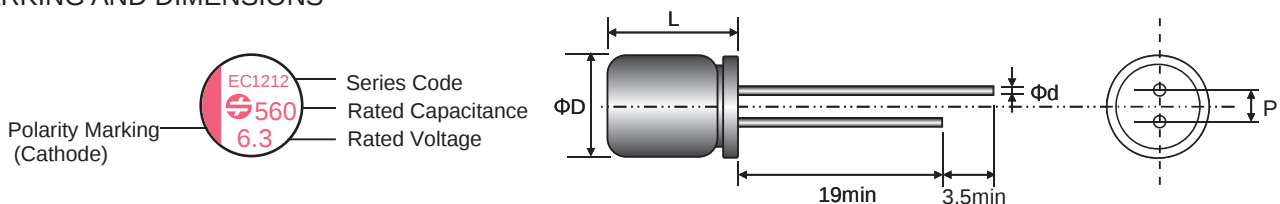
SPECIFICATIONS

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	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, 100 KHz	$Z(-55^{\circ}\text{C}) / Z(+20^{\circ}\text{C}) \leq 0.75$ to 1.25
	at +105°C, 100 KHz	$Z(+105^{\circ}\text{C}) / Z(+20^{\circ}\text{C}) \leq 0.75$ to 1.25
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 a protective 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 60 minutes at 105°C.

MARKING AND DIMENSIONS



(Unit:mm)						
$\Phi D \times L$	6.3x6	6.3x9	6.3x11	8x8	8x12	10x12
$\Phi D \pm 0.5$	6.3	6.3	6.3	8	8	10
L max	6.0	9.5	12.0	8.8	12.0	12.0
$\Phi d \pm 0.05$	0.45	0.5	0.5	0.6	0.6	0.6
P	2.5 ± 0.5	2.5 ± 0.5	2.5 ± 0.5	3.5 ± 0.5	3.5 ± 0.5	5.0 ± 0.5

EC SERIES STANRD CHARACTERISITICS LIST

WV/Vdc (S.V.)	Cap (μ F)	Size DxL	Leakage current (μ A) max. ※2	ESR (m Ω) max. 100k to 300 KHz / 20°C	Rated Ripple Current (mA rms) 100KHz / 105°C	D.F. (tan δ) max. 120Hz / 20°C
2.5 (2.9)	560	6.3x9	500	8	3,500	0.10
	560	8x8	500	7	6,100	0.10
	820	6.3x9	500	8	5,580	0.10
	820	8x8	500	7	6,100	0.10
	1,000	8x12	500	7	6,100	0.10
	1,000	10x12	500	7	6,640	0.10
	1,200	8x8	600	7	5,860	0.10
	1,200	8x12	600	7	6,100	0.10
	1,500	10x12	750	7	6,640	0.10
4 (4.6)	560	6.3x9	500	8	5,580	0.10
	560	8x8	500	7	6,100	0.10
	560	8x12	500	7	6,100	0.10
	680	8x12	544	7	6,100	0.10
	820	8x12	656	7	6,100	0.10
	820	10x12	656	7	6,640	0.10
	1,200	10x12	960	7	6,640	0.10
6.3 (7.2)	100	6.3x9	500	8	2,820	0.10
	270	6.3x9	500	8	3,500	0.10
	470	6.3x9	500	8	3,500	0.10
	470	8x8	592	8	5,580	0.10
	470	8x12	592	7	6,100	0.10
	560	6.3x9	706	8	5,580	0.10
	560	8x8	706	7	6,100	0.10
	680	8x12	857	7	6,100	0.10
	820	8x8	1,033	8	6,100	0.10
	820	8x12	1,033	8	6,100	0.10
	820	10x12	1,033	7	6,640	0.10
	1,000	8x12	1,260	7	6,100	0.10
	1,000	10x12	1,260	7	6,640	0.10
	1,500	10x12	1,890	7	6,640	0.10
10 (11.5)	270	8x12	540	9	5,080	0.10
	390	8x12	780	9	5,080	0.10
	470	8x8	940	8	5,580	0.10
	470	8x12	940	9	6,100	0.10
	470	10x12	940	9	5,650	0.10
	560	10x12	1,120	9	6,100	0.10
	680	8x12	1,360	9	6,100	0.10
	1,000	10x12	1,000	9	6,100	0.10

※ 1. Capacitance tolerance : $\pm 20\%$ (M)

※ 2. After 2 minutes

EC SERIES STANRD CHARACTERISITICS LIST

WV/Vdc (S.V.)	Cap (μF)	Size DxL	Leakage current (μA) max. ※2	ESR (mΩ) max. 100k to 300 KHz / 20°C	Rated Ripple Current (mA rms) 100KHz / 105°C	D.F. (tanδ) max. 120Hz / 20°C
16 (18.4)	100	6.3x9	500	12	3,500	0.10
	100	8x8	500	10	5,080	0.10
	180	8x8	576	10	5,080	0.10
	180	8x12	576	10	5,230	0.10
	220	8x12	704	10	5,230	0.10
	270	8x8	864	12	5,080	0.10
	270	8x12	864	10	5,230	0.10
	270	10x12	864	10	5,500	0.10
	330	8x8	1056	13	4,700	0.10
	330	10x12	1056	10	6,100	0.10
	470	8x12	1504	7	5,080	0.10
	470	10x12	1504	10	6,100	0.10
	680	10x12	2176	10	6,100	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