

ET series

- High temperature, low ESR, High ripple current capability
- Rated voltage :4~50V
- Endurance:1,000hours at 125°C
- Applications: DC-DC Converters, Voltage Regulators, Decoupling Applications for Computer Motherboards, etc.
- ROHS compliant
- Halogen Free compliant

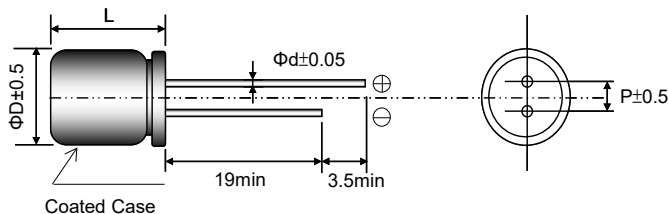
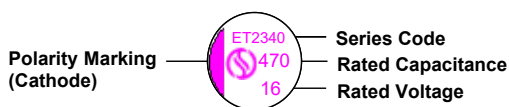


SPECIFICATIONS

Items	Conditions	Characteristics	
Category Temperature Range	—	-55 to +125°C	
Rated Voltage Range	—	4 ~ 50V	
Capacitance Tolerance	at 20°C, 120Hz	±20%(M)	
Surge Voltage	at 125°C	Rated voltage ×1.15V	
Leakage Current	at 20°C after 2 minutes	I ≤ 0.2CV or 300(μA) Whichever is greater measured, after 2 minutes application of rated working voltage at +20°C. Please see the attached characteristics list	
Dissipation Factor (tan δ)	at 20°C, 120Hz	Please see the attached characteristics list	
Low Temperature Characteristics (Max. Impedance Ratio)	at -55°C, 100kHz	Z(-55°C)/Z(+20°C)	≤ 1.25
	at -25°C, 100kHz	Z(-25°C)/Z(+20°C)	≤ 1.15
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage is applied for 1,000 hours at 125°C.	Appearance	No significant damage.
		Capacitance change	≤ ±20% of the initial value.
		DF(tanδ)	≤ 150% of the initial specified value.
		ESR	≤ 150% of the initial specified value.
		Leakage current	≤ The initial specified value.
Damp Heat (Steady State)	The following specifications shall be satisfied when the capacitors are restored to 20°C after subjecting them to store at 60°C, 90 to 95% RH for 1,000 hours, without DC applied.	Appearance	No significant damage.
		Capacitance change	≤ ±20% of the initial value.
		DF(tanδ)	≤ 150% of the initial specified value.
		ESR	≤ 150% of the initial specified value.
		Leakage current	≤ 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	≤ ±20% of the initial value.
		DF(tanδ)	≤ 150% of the initial specified value.
		ESR	≤ 150% of the initial specified value.
		Leakage current	≤ 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 125°C.

MARKING AND DIMENSIONS



(Unit:mm)

Size	6.3x6	6.3x8	8x6	8x8	8x11.5	10x10	10x11.5
ΦD	6.3	6.3	8.0	8.0	8.0	10.0	10.0
L	L+1.0 max	L+1.5 max	L+1.5 max	L+1.5 max	L+1.5 max	L+1.0 max	L+1.5 max
Φd	0.5	0.5	0.5	0.6	0.6	0.6	0.6
P	2.5	2.5	3.5	3.5	3.5	5.0	5.0

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STANDARD RATINGS

Rated voltage (S.V.)	Cap (μF)	Size Code DxL	Leakage current (uA) max.	ESR (mΩ) max. 100k to 300kHz / 20°C	Rated Ripple Current (mA rms)		D.F. (tanδ) max. 120Hz / 20°C
					105°C 100kHz	125°C 100kHz	
4 (4.6)	100	6.3×6	300	40	2390	797	0.12
	330	6.3×8	300	20	3200	1067	0.12
	560	6.3×8	448	20	3200	1067	0.12
	1000	8×8	800	20	3800	1267	0.12
	1200	8×11.5	960	16	4200	1400	0.12
	2500	10×11.5	2000	16	5460	1820	0.12
6.3 (7.2)	100	6.3×6	300	40	2100	700	0.12
	470	6.3×8	592	20	3100	1033	0.12
	560	8×8	705	20	4300	1433	0.12
	1000	8×11.5	1260	16	5100	1700	0.12
	1,200	8×11.5	1512	16	5100	1700	0.12
	1500	10×10	1890	20	5200	1733	0.12
	1800	10×11.5	2268	16	5440	1813	0.12
10 (11.5)	100	6.3×6	300	40	1800	600	0.12
	330	6.3×8	660	20	2360	787	0.12
	330	8×6	660	40	2560	853	0.12
	560	8×8	1120	20	3200	1067	0.12
	820	8×11.5	1640	16	4200	1400	0.12
	1000	10×10	2000	20	5120	1707	0.12
	1200	10×11.5	2400	16	5600	1867	0.12
16 (18.4)	47	6.3×6	300	30	1620	540	0.12
	82	6.3×6	300	30	1620	540	0.12
	100	6.3×8	320	20	2120	707	0.12
	330	8×8	1056	20	4300	1433	0.12
	470	8×11.5	1504	16	4500	1500	0.12
	560	10×11.5	1792	16	4700	1567	0.12
	820	10×11.5	2624	16	4700	1567	0.12
25 (28.8)	47	6.3×6	300	50	2000	667	0.12
	100	6.3×8	500	30	2000	667	0.12
	180	8×8	900	28	3100	1033	0.12
	220	8×11.5	1100	26	3600	1200	0.12
	330	10×11.5	1650	24	4250	1417	0.12
	470	10×11.5	2350	24	4200	1400	0.12
35 (40.3)	22	6.3×6	300	70	1450	483	0.12
	68	6.3×8	476	60	1500	500	0.12
	120	8×8	840	30	2200	733	0.12
	150	8×11.5	1050	28	2600	867	0.12
	220	8×11.5	1540	28	2950	983	0.12
	270	10×10	1890	28	3200	1067	0.12
50 (57.5)	10	6.3×6	300	60	1400	467	0.12
	33	6.3×8	330	60	1500	500	0.12
	47	8×8	470	30	2000	667	0.12
	68	8×11.5	680	28	2200	733	0.12
	100	10×10	1000	28	2300	767	0.12
	100	10×11.5	1000	28	2500	833	0.12

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	1.0