



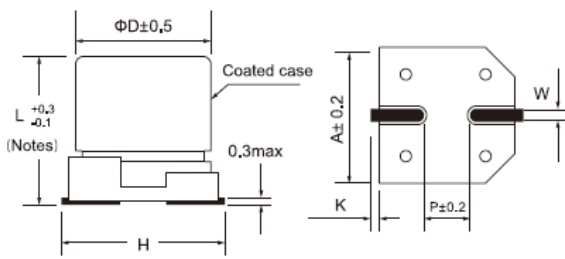
- Endurance: 105°C, 2000hrs
- Recommended Applications: Standard SMD type product
- Corresponding product to RoHS

**Specifications**

Item	Characteristics	
Category Temperature Range	-55 ~ +105°C	
Rated Voltage Range	2.5~25VDC	
Rated Capacitance Range	22~ 1500 μF	
Capacitance Tolerance	± 20 % (120Hz , 20°C)	
Surge Voltage	Rated voltage ( V ) x 1.15	
Leakage Current ( 20°C )	Less than or equal to the value of Table , (After rated voltage applied for 2 minutes ) I : Leakage Current ( μ A ) C : Capacitance( μ F ) V : Rated Voltage Range(VDC)	
Dissipation Factor (MAX) (tan δ ) (120Hz , 20°C)	WV	2.5~25
	tan δ	0.12
Temperature characteristic Impedance ratio (MAX)	Z(100KHz) / WV	2.5 ~ 25V
	Z-25°C / Z+20°C	≤ 1.15
	Z-55°C / Z+20°C	≤ 1.25
Endurance	After applying rated voltage for 2000 hours at 105°C , the capacitor shall meet the following requirement °	
	Appearance	No significant damage
	Capacitance Change	Within ±20% of the initial value
	Dissipation Factor	Not more than 150% of the initial specified value
	Equivalent Series Resistance	Not more than 150% of the initial specified value
Humidity Test	after subjecting 90 to 95% RH for 1000 hours at 60°C , the capacitors shall meet the requirement as Endurance °	
	Capacitance Change	Within ±10% of the initial value
	Dissipation Factor	Not more than 130% of the initial specified value
	Equivalent Series Resistance	Not more than 130% of the initial specified value
	Leakage Current	Not more than the initial specified value
Resistance to Soldering Heat *	Capacitance Change	Within ±10% of the initial value
	Dissipation Factor	Not more than 130% of the initial specified value
	Equivalent Series Resistance	Not more than 130% of the initial specified value
	Leakage Current	Not more than the initial specified value

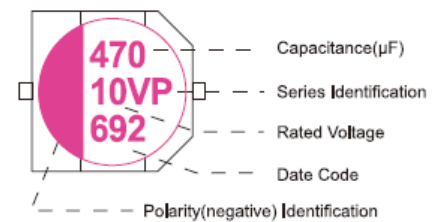
\* For any doubt about measured values, measure the leakage current again after the following voltage treatment °  
Voltage treatment: Applying DC rated voltage to the capacitors for 2 hours at 105°C °

**Diagram of Dimensions**



(Notes) Φ8 ~ Φ10&6.3x7.7=L±0.3

**Marking : case with red printing**



SIZE	Φ D x L	A	H(Max)	W	P	K
CA1	5x5.8	5.3	6.5	0.65±0.15	1.5±0.2	0.35+0.15/-0.2
EA1	6.3x5.8	6.6	7.8	0.65±0.15	1.8±0.2	0.35+0.15/-0.2
EA4	6.3x7.7	6.6	7.8	0.65±0.15	1.8±0.2	0.35+0.15/-0.2
GA6	8x10.4	8.3	10	0.9±0.2	3.1±0.2	0.7±0.2
HA5	10x10.2	10.3	12	0.9±0.2	4.6±0.2	0.7±0.2
HA8	10x12.2	10.3	12	0.9±0.2	4.6±0.2	0.7±0.2

**Multiplier for Ripple Current**

Frequency(HZ)	120 ≤ F < 1K	1K ≤ F < 10K	10K ≤ F < 100K	100K ≤ F ≤ 500K
Coefficient	0.05	0.30	0.70	1.00

■Dimensions, Rated Ripple Current, Equivalent Series Resistance

Rated ( Surge ) Voltage(V)	Capacitance ( $\mu$ F)	SIZE $\Phi$ DxL(mm)	RIPPLE (mA/rms, 105 °C 100KHz)	ESR (m $\Omega$ , 20°C 100KHz)	LC ( $\mu$ A max/2min)
2.5 (2.88)	180	5x5.8	1970	30	300
		6.3x5.8	2200	25	300
	220	6.3x5.8	2500	25	300
		6.3x7.7	2720	23	300
	470	6.3x7.7	2720	23	300
		8x10.4	3950	18	500
	1200	10x10.2	4000	12	600
	1500	10x10.2	4000	13	750
10x12.2		5500	12	750	
4(4.6)	100	6.3x5.8	2450	26	300
		6.3x5.8	2450	26	300
		6.3x7.7	2650	25	300
	560	8x10.4	3950	18	448
		8x10.4	3950	18	656
	820	10x12.2	5500	10	656
		10x10.2	4000	12	960
	1200	10x12.2	5500	10	960
6.3(7.25)	47	5x5.8	1380	35	300
		6.3x5.8	2400	27	300
	68	6.3x5.8	2400	27	300
		5x5.8	1380	35	300
	100	6.3x5.8	2400	27	300
		6.3x5.8	2400	27	300
	120	6.3x5.8	2400	27	300
		6.3x7.7	2650	25	300
	220	6.3x5.8	2400	27	300
		6.3x7.7	2650	25	300
	330	6.3x5.8	2400	27	415
		6.3x7.7	2650	25	415
	470	6.3x7.7	2650	25	592
		8x10.4	3610	21	592
	680	8x10.4	3610	21	857
		10x10.2	3650	12	857
820	8x10.4	3610	21	1033	
	10x10.2	3650	12	1033	
1000	10x12.2	5500	10	1033	
	8x10.4	3610	21	1260	
	10x12.2	5500	10	1260	
10(11.5)	22	5x5.8	1270	40	300
		5x5.8	1270	40	300
	33	5x5.8	1270	40	300
		6.3x5.8	2250	31	300
	47	5x5.8	1270	40	300
		6.3x5.8	2250	31	300
	56	6.3x5.8	2250	31	300
		6.3x5.8	2250	31	300
100	6.3x7.7	2560	27	300	
10(11.5)	150	6.3x7.7	2560	27	300
		8x10.4	3950	18	500
	390	8x10.4	3950	18	500
		10x12.2	5500	12	600
	470	10x12.2	5500	12	600
		10x10.2	4000	12	600
16(18.4)	22	5x5.8	1210	90	300
		6.3x5.8	2050	37	300
	33	6.3x5.8	2050	37	300
		6.3x5.8	1600	50	300
	47	6.3x5.8	1600	50	300
		6.3x7.7	2420	30	300
	82	6.3x7.7	2420	30	300
		6.3x7.7	2420	30	320
	100	6.3x7.7	2420	30	320
		6.3x7.7	2420	30	384
	120	6.3x7.7	2420	30	384
		8x10.4	3490	23	480
150	8x10.4	3490	23	480	
	8x10.4	3490	23	576	
180	8x10.4	3490	23	576	
	8x10.4	3490	23	704	
220	10x12.2	5050	14	704	
	10x12.2	5050	14	704	
270	8x10.4	3490	23	864	
	8x10.4	3490	23	864	
330	10x10.2	3100	16	1056	
	10x10.2	3100	16	1056	
330	10x12.2	5050	14	1056	
	8x10.4	3000	23	1248	
390	8x10.4	3000	23	1248	
	10x10.2	3100	16	1504	
470	10x10.2	3100	16	1504	
	10x12.2	5050	14	1504	
560	10x12.2	5050	14	1792	
	10x12.2	5050	14	2176	
680	10x12.2	5050	14	2176	
	10x12.2	5050	14	2624	
20(23)	22	6.3x5.8	1650	50	300
		6.3x7.7	2000	45	300
	47	6.3x7.7	2000	45	300
		8x10.4	3320	24	480
100	8x10.4	3320	24	480	
	10x12.2	4220	21	600	
25(28.75)	22	6.3x5.8	900	65	300
		6.3x7.7	1800	50	300
	27	6.3x5.8	1270	60	300
		6.3x5.8	1300	65	300
	47	6.3x7.7	1800	45	300
		6.3x7.7	1800	45	340
	68	6.3x7.7	1800	45	340
		8x10.4	3320	35	500
	100	8x10.4	3320	35	500
		8x10.4	3320	35	750
150	8x10.4	3320	35	750	
	10x10.2	3100	30	900	
180	10x10.2	3100	30	900	
	8x10.4	3320	35	1100	
220	8x10.4	3320	35	1100	
	10x10.2	3320	30	1350	
270	10x10.2	3320	30	1350	
	10x12.2	3500	28	1650	
330	10x12.2	3500	28	1650	