

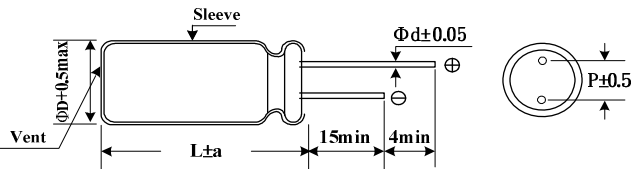


- Endurance: 85°C 2000hours
- Recommended Applications :For general purpose , decoupling , by pass and filtering circuit in entertainment electronics
- Corresponding product to RoHS

■ SPECIFICATIONS

Item	Characteristics	
Category Temperature Range	-40~+85°C	-25~+85°C
Rated Voltage Range	6.3 ~ 100VDC	160 ~ 500VDC
Rated Capacitance Range	1 ~ 22000 µF	1 ~ 470 µF
Capacitance Tolerance	± 20 % (120Hz , 20°C)	± 20 % (120Hz , 20°C)
Leakage Current (20°C)	I=0.01CV or 3 µ A whichever is greater. (After rated voltage applied for 2 minutes) I : Max. leakage current (µ A), C : Nominal capacitance (µ F), V : Rated voltage (V)	
Dissipation Factor(MAX) (tan δ) (120Hz ,20°C)	WV	6.3 10 16 25 35 50 63 100 160~250 350~500
	tan δ	0.24 0.20 0.16 0.14 0.12 0.10 0.10 0.10 0.20 0.24
When nominal capacitance is over 1000 µ F,tan δ shall be added 0.02 to the listed value with increase of every 1000 µ F.		
Low Temperature Stability Impedance Ratio (MAX)	Z(120Hz)	6.3 10 16 25 35~100 160~250 315~350 400~500
	Z-25°C / Z+20°C	8 6 5 3 3 7 10 15
	Z-40°C / Z+20°C	10 8 6 4 3 — — —
Endurance	After applying rated voltage for 2000 hours at 85°C,Stay back to 20 °C temperature measurement, the capacitors shall meet the following requirements.	
	Capacitance change	Within ± 20% of initial value
	D.F. (tan δ)	Not more than 200% of specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 85°C without voltage applied.	

■ Dimensions [mm]



ΦD	5	6.3	8	10	13	16	18	22
P	2.0	2.5	3.5	5.0	7.5	10.0	10.0	10.0
Φd	0.5	0.5	0.6	0.6	0.8	0.8	0.8	0.8
a	1.5	1.5	1.5	1.5	2.0	2.0	2.0	2.0

■ Multiplier for Ripple Current

Freq. (Hz)	120	300	1K	10~100K
6.3 ~ 100V ≤68 µ F	1.00	1.20	1.30	1.50
6.3 ~ 100V 100 ~ 680 µ F	1.00	1.10	1.15	1.20
6.3 ~ 100V 1000 ~ 22000 µ F	1.00	1.05	1.10	1.15
160 ~ 450V ≤220 µ F	1.00	1.25	1.40	1.40
160 ~ 450V >220 µ F	1.00	1.10	1.13	1.13
500V all volume(µ F)	1.00	1.05	1.10	1.10

■ STANDARD RATINGS

Rated Voltage (Surge Voltage) (V)	Cap (μ F)	Case size Φ DxL(mm)	$\tan \delta$	Ripple current (mA/rms85°C) (120Hz)	Rated Voltage (Surge Voltage) (V)	Cap (μ F)	Case size Φ DxL(mm)	$\tan \delta$	Ripple current (mA/rms85°C) (120Hz)	
6.3 (8)	22	5x11	0.24	35	25 (32)	220	8x11	0.14	290	
	33	5x11	0.24	55		330	8x11	0.14	315	
	47	5x11	0.24	75		470	8x15	0.14	420	
	100	5x11	0.24	130			10x12.5	0.14	460	
	220	5x11	0.24	200		680	10x15	0.14	550	
		6.3x11	0.24	240			10x20	0.14	760	
	330	6.3x11	0.24	260		1000	13x16	0.14	760	
	470	6.3x11	0.24	330			13x25	0.16	1300	
	680	8x11	0.24	410		3300	16x25	0.18	1660	
		8x11	0.24	460			16x32	0.20	1950	
	1000	10x12.5	0.24	580		4700	18x36	0.24	2550	
		10x20	0.26	840			22x40	0.32	2800	
	3300	10x20	0.28	1000		15000	22x40	0.42	3200	
	4700	13x20	0.30	1300			35 (44)	10	5x11	0.12
	6800	13x25	0.34	1550		22		5x11	0.12	95
	10000	16x25	0.42	1900		33		5x11	0.12	120
16x36		0.52	2500	47	5x11			0.12	120	
22000	18x40	0.66	3650	100	6.3x11	0.12		185		
	10	5x11	0.20		35	220		8x11	0.12	290
10 (13)	22	5x11	0.20	55	330	10x12.5		0.12	420	
	33	5x11	0.20	80		470		10x15	0.12	430
	47	5x11	0.20	95	680			10x20	0.12	550
	100	5x11	0.20	180		1000		13x20	0.12	950
	220	6.3x11	0.20	250	2200			16x25	0.14	1600
		330	6.3x11	0.20		265		3300	16x36	0.16
	470	6.3x11	0.20	320	4700	18x32			0.16	2050
		680	8x11	0.20		410		6800	18x36	0.18
	1000	10x12.5	0.20	580	22000	22x40			0.22	2600
		2200	10x20	0.22		880		50 (63)	10	5x11
	3300	13x20	0.24	1250	22	5x11	0.10		100	
		4700	13x25	0.26		1500	33		5x11	0.10
	6800	16x25	0.30	1900	47	6.3x11			0.10	140
		10000	16x36	0.38		2225	100		8x11	0.10
	18x32		0.38	2225	220	10x12.5			0.10	380
	15000	18x36	0.48	2950		330	10x15		0.10	490
22000		22x40	0.62	3700	470		10x20		0.10	610
	10	5x11	0.16	40		1000	13x25		0.10	1100
16 (20)	22	5x11	0.16	75	2200		16x36		0.12	1850
	33	5x11	0.16	110		3300	18x32		0.12	1850
	47	5x11	0.16	130	4700		18x36		0.14	2170
	68	5x11	0.16	150		22000	22x40		0.16	2500
	100	5x11	0.16	165	63 (79)		10		5x11	0.10
		150	6.3x11	0.16		205	22		5x11	0.10
	220	6.3x11	0.16	260		33			6.3x11	0.10
		330	6.3x11	0.16			290	47	6.3x11	0.10
	470	8x11	0.16	360		100	6.3x11		0.10	190
		680	10x12.5	0.16			510	220	10x12.5	0.10
	1000	10x15	0.16	630		330	10x15		0.10	410
		2200	13x20	0.18			1100	470	10x20	0.10
	3300	13x25	0.20	1400		680	13x20		0.10	540
		4700	16x25	0.22			1800	1000	13x25	0.10
	6800		16x32	0.26		1980	2200		16x25	0.10
		10000	18x36	0.34		2700		3300	18x36	0.12
15000	22x40		0.44	3150		22000	22x40		0.14	2500
	22000	22x40	0.58	3800			100 (125)	10	5x11	0.10
25 (32)	10	5x11	0.14	50		22		6.3x11	0.10	75
	22	5x11	0.14	90				33	6.3x11	0.10
	33	5x11	0.14	115	47	8x11			0.10	130
	47	5x11	0.14	135		68		8x11	0.10	140
	68	5x11	0.14	145	100			10x12.5	0.10	190
	100	6.3x11	0.14	160		10x15	0.10	280		

■ STANDARD RATINGS

Rated Voltage (SurageVoltage) (V)	Cap (μ F)	Case size Φ DxL(mm)	$\tan \delta$	Ripple current (mA/rms85°C) (120Hz)	Rated Voltage (SurageVoltage) (V)	Cap (μ F)	Case size Φ DxL(mm)	$\tan \delta$	Ripple current (mA/rms85°C) (120Hz)
100 (125)	100	10x20	0.10	400	250 (300)	33	13x20	0.20	140
	150	13x20	0.10	500		47	13x25	0.20	210
	220	13x25	0.10	710		100	16x25	0.20	250
	330	13x25	0.10	720		150	16x32	0.20	330
	470	16x25	0.10	1100		220	18x36	0.20	540
	680	16x36	0.10	1260		350 (400)	1.0	6.3x11	0.24
	1000	18x40	0.10	1350	2.2		8x11	0.24	33
160 (200)	1	5x11	0.20	17	3.3		8x11	0.24	33
		6.3x11	0.20	17	4.7		10x12.5	0.24	39
	2.2	6.3x11	0.20	26	10		10x15	0.24	70
	3.3	6.3x11	0.20	30	22		13x20	0.24	130
	4.7	6.3x11	0.20	32	33		13x25	0.24	170
	10	8x11	0.20	50	47		16x25	0.24	220
	22	10x15	0.20	110	100		16x36	0.24	320
	33	10x15	0.20	135			18x32	0.24	300
		10x20	0.20	150	400 (450)	1.0	6.3x11	0.24	16
	47	10x20	0.20	160			8x11	0.24	19
	68	13x20	0.20	200		2.2	6.3x11	0.24	20
	100	13x25	0.20	250			8x11	0.24	26
	150	16x25	0.20	330		3.3	8x11	0.24	35
	220	16x32	0.20	450		4.7	8x11	0.24	38
	330	18x36	0.20	540			10x12.5	0.24	42
	470	18x40	0.20	750		6.8	8x15	0.24	42
200 (250)	1	5x11	0.20	19			10x12.5	0.24	45
	2.2	6.3x11	0.20	22		10	10x15	0.24	50
	3.3	6.3x11	0.20	30		22	13x20	0.24	100
	4.7	6.3x11	0.20	35		33	13x25	0.24	140
	6.8	8x11	0.20	40		47	16x25	0.24	180
	10	8x11	0.20	45		68	16x32	0.24	250
	22	10x15	0.20	120			18x25	0.24	220
	33	10x20	0.20	160		100	18x32	0.24	320
	47	10x20	0.20	170	150	18x40	0.24	420	
		13x20	0.20	200	450 (500)	1.0	8x11	0.24	19
	68	13x25	0.20	230		2.2	10x12.5	0.24	33
	100	16x25	0.20	330		3.3	10x12.5	0.24	40
	220	16x32	0.20	505		4.7	10x12.5	0.24	45
		18x25	0.20	485		6.8	10x15	0.24	50
	330	16x40	0.20	710		10	10x20	0.24	58
		18x32	0.20	685			13x20	0.24	60
470	18x40	0.20	750	22		13x25	0.24	98	
250 (300)	1	5x11	0.20	17		33	16x25	0.24	145
		6.3x11	0.20	19		500(550)	2.2	10x12.5	1.24
	2.2	6.3x11	0.20	24	3.3		10x15	2.24	43
	8x11	0.2	30	6.8	10x20		3.24	70	
		0.20	30	10	13x20		4.24	93	
	4.7	8x11	0.20	36	22		16x25	5.24	105
	6.8	8x11	0.20	40	33		16x25	6.24	200
	10	10x12.5	0.20	65	47		18x32	7.24	185
	22	10x20	0.20	130					