

- Endurance: 105°C 2000hours
- Recommended Applications :For high quality , reliability application, high CV product
- Corresponding product to RoHS

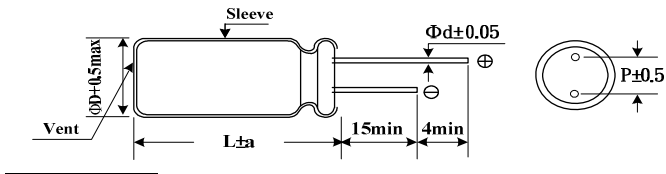
SH
 ↑ High Temperature
 SK



■ SPECIFICATIONS

Item	Characteristics										
	-40~+105°C	-25~+105°C	-25~+105°C								
Category Temperature Range	-40~+105°C	-25~+105°C	-25~+105°C								
Rated Voltage Range	6.3 ~ 100VDC	160 ~ 450VDC	500VDC								
Rated Capacitance Range	1~ 22000 µ F	1 ~ 470 µ F	2.2~82 µ F								
Capacitance Tolerance	± 20 % (120Hz , 20°C)	± 20 % (120Hz , 20°C)	± 20 % (120Hz , 20°C)								
Leakage Current (20°C)	I=0.01CV or 3(µ A)whichever is greater.	I=0.03CV+10(µ A)	I=0.04CV+100(uA)								
	(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	350~450	500
	tan δ	0.26	0.22	0.18	0.16	0.14	0.12	0.10	0.15	0.20	0.25
	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)	WV	6.3	10	16	25	35~100	160~250	350~450	500		
	Z(120Hz)		4	3	2	2	2	4	4	6	
	Z-25°C / Z+20°C		8	6	4	4	3	—	—	—	
	Z-40°C / Z+20°C										
Endurance	After applying rated voltage for 2000 hours at 105°C 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									
	Leakage current	initial specified value or less									
Shelf Life	After leaving capacitors under no load at 105°C for 1000 hours.the capacitors shall meet the same requirement as Endurance.										

■ Dimensions [mm]



φ D	5	6.3	8	10	13	16	18	22
p	2.0	2.5	3.5	5.0		7.5		10.0
φ d	0.5	0.5	0.6	0.6		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	10K~100K
6.3 ~ 100V ≤68 µ F	1.00	1.30	1.57	2.00
6.3 ~ 100V 100 ~ 470 µ F	1.00	1.23	1.34	1.50
6.3 ~ 100V 471 ~ 22000 µ F	1.00	1.10	1.13	1.15
160 ~ 450V all volume(µ F)	1.00	1.25	1.40	1.60
500Vall volume(µ F)	1.00	1.05	1.10	1.15

■ STANDARD RATINGS

Rated Voltage (SurageVoltage) (V)	Cap (μ F)	Case size Φ DxL(mm)	$\tan \delta$	Ripple current (mA/rms105°C) (120Hz)	Rated Voltage (SurageVoltage) (V)	Cap (μ F)	Case size Φ DxL(mm)	$\tan \delta$	Ripple current (mA/rms105°C) (120Hz)	
6.3 (8)	100	5x11	0.26	100	25 (32)	470	8x15	0.16	420	
	150	5x11	0.26	120			10x12.5	0.16	440	
	220	6.3x11	0.26	165		680	10x15	0.16	560	
	330	6.3x11	0.26	200		1000	10x20	0.16	740	
	470	6.3x11	0.26	230		1500	13x20	0.16	920	
	680	8x11	0.26	350		2200	13x25	0.18	1230	
	1000	8x15	0.26	445		3300	16x25	0.20	1500	
		10x12.5	0.26	470		4700	16x32	0.22	1800	
	1500	10x15	0.26	600		6800	18x36	0.26	2050	
	2200	10x20	0.28	800		35 (44)	10	5x11	0.14	44
	3300	13x20	0.30	1100			15	5x11	0.14	50
	4700	13x20	0.32	1180			22	5x11	0.14	65
	6800	13x25	0.36	1490			33	5x11	0.14	85
	10000	16x32	0.44	1830			47	5x11	0.14	100
	15000	16x36	0.54	2090			68	6.3x11	0.14	130
22000	18x40	0.68	2350	100	6.3x11		0.14	170		
10 (13)	47	5x11	0.22	75	150		8x11	0.14	220	
	68	5x11	0.22	80	220		10x12.5	0.14	315	
	100	5x11	0.22	110	330		10x12.5	0.14	400	
	150	5x11	0.22	120	470		10x15	0.14	480	
	220	6.3x11	0.22	180	680		10x20	0.14	650	
	330	6.3x11	0.22	235	1000		13x20	0.14	900	
		8x11	0.22	255	1500		13x25	0.14	1050	
	470	6.3x11	0.22	250	2200		16x25	0.16	1370	
		8x11	0.22	305	3300	16x36	0.18	1680		
	680	8x11	0.22	365	4700	18x36	0.20	1920		
		10x12.5	0.22	420	50 (63)	1	5x11	0.12	12	
	1000	8x15	0.22	480		2.2	5x11	0.12	18	
		10x12.5	0.22	540		3.3	5x11	0.12	25	
	1500	10x20	0.22	800		4.7	5x11	0.12	30	
	2200	10x20	0.24	870		6.8	5x11	0.12	30	
3300	13x20	0.26	1100	10		5x11	0.12	50		
4700	13x25	0.28	1380	15		5x11	0.12	50		
6800	16x25	0.22	1700	22		5x11	0.12	75		
10000	16x36	0.40	1950	33		5x11	0.12	95		
15000	18x36	0.50	2180	47		6.3x11	0.12	115		
16 (20)	33	5x11	0.18	70		68	8x11	0.12	159	
	47	5x11	0.18	85		100	8x11	0.12	200	
	68	5x11	0.18	100		150	10x12.5	0.12	289	
	100	5x11	0.18	130		220	10x12.5	0.12	360	
	150	6.3x11	0.18	175			10x15	0.12	415	
	220	6.3x11	0.18	220	330	10x20	0.12	535		
	330	8x11	0.18	280	470	10x20	0.12	630		
	470	8x11	0.18	375		13x20	0.12	730		
	680	8x15	0.18	450	680	13x20	0.12	800		
		10x12.5	0.18	480	1000	13x25	0.12	1060		
	1000	10x15	0.18	640	1500	16x25	0.12	1300		
	1500	10x20	0.18	830	2200	16x36	0.14	1600		
	2200	13x20	0.20	1050	3300	18x36	0.16	1780		
	3300	13x25	0.22	1250	63 (79)	10	5x11	0.1	55	
	4700	16x25	0.24	1650		15	5x11	0.1	65	
6800	16x32	0.28	1900	22		6.3x11	0.1	90		
10000	18x36	0.36	2070	33		6.3x11	0.1	100		
25 (32)	22	5x11	0.16	60		47	8x11	0.1	155	
	33	5x11	0.16	75		68	10x12.5	0.1	198	
	47	5x11	0.16	90		100	10x12.5	0.10	260	
	68	6.3x11	0.16	125		150	10x15	0.10	330	
	100	6.3x11	0.16	145		220	10x20	0.10	465	
	150	8x11	0.16	200		330	13x20	0.10	650	
	220	8x11	0.16	240		470	13x20	0.10	700	
	330	8x11	0.16	300		680	16x25	0.10	1000	
		10x12.5	0.16	355		1000	16x32	0.10	1200	

■ STANDARD RATINGS

Rated Voltage (Surge Voltage) (V)	Cap (μF)	Case size ΦDxL(mm)	tan δ	Ripple current (mA/rms105°C) (120Hz)	Rated Voltage (Surge Voltage) (V)	Cap (μF)	Case size ΦDxL(mm)	tan δ	Ripple current (mA/rms105°C) (120Hz)
63 (79)	1500	16x36	0.10	1450	350 (400)	3.3	8x11	0.20	35
	2200	18x36	0.12	1650		4.7	8x11	0.20	45
100 (125)	10	6.3x11	0.10	65		10	10x15	0.20	80
	15	6.3x11	0.10	75		22	13x20	0.20	150
	22	8x11	0.10	115		33	13x25	0.20	200
	33	8x11	0.10	140		47	16x25	0.20	260
	47	10x12.5	0.10	185	100	18x32	0.20	400	
	68	10x15	0.10	240	400 (450)	1	6.3x11	0.20	17
	100	10x20	0.10	305		2.2	8x11	0.20	31
	150	13x20	0.10	370		3.3	8x11	0.20	35
	220	13x25	0.10	520		4.7	8x11	0.20	45
	330	16x25	0.10	720			10x12.5	0.20	55
470	16x32	0.10	875	6.8		8x15	0.20	60	
680	16x36	0.10	1200			10x12.5	0.20	65	
160 (200)	1	5x11	0.15	17		10	10x15	0.2	80
	2.2	6.3x11	0.15	25		15	10x20	0.2	100
	3.3	6.3x11	0.15	36		22	13x20	0.2	150
	4.7	6.3x11	0.15	43		33	13x25	0.2	200
	6.8	8x11	0.15	54		47	16x25	0.2	265
	10	8x11	0.15	70		68	16x32	0.2	410
	15	10x12.5	0.15	90			18x25	0.2	390
	22	10x15	0.15	115		100	18x32	0.2	500
	33	10x20	0.15	160	120	18x32	0.2	520	
	47	10x20	0.15	195		18x36	0.2	550	
	68	13x20	0.15	255	150	18x40	0.2	620	
	100	13x25	0.15	350	420 (470)	1	6.3x11	0.2	17
	150	16x25	0.15	435		2.2	8x11	0.2	29
	220	16x32	0.15	550		3.3	8x11	0.2	34
330	18x36	0.15	800	4.7		10x12.5	0.2	55	
470	18x40	0.15	900	6.8		10x15	0.2	68	
200 (250)	1	6.3x11	0.15	17		10	10x20	0.20	98
	2.2	6.3x11	0.15	25		15	13x20	0.20	130
	3.3	6.3x11	0.15	36		22	13x25	0.20	155
	4.7	8x11	0.15	50		33	16x25	0.20	205
	6.8	8x11	0.15	60		47	16x25	0.20	235
	10	10x12.5	0.15	80		68	16x32	0.20	400
	15	10x15	0.15	110	18x25		0.20	380	
	22	10x20	0.15	140	100	18x36	0.20	490	
	33	13x20	0.15	200	120	18x40	0.20	530	
	47	13x20	0.15	220	150	18x45	0.20	570	
	68	13x25	0.15	280	450 (500)	1.0	6.3x11	0.20	18
	100	16x25	0.15	350			8x11	0.20	22
	150	16x32	0.15	480		2.2	8x11	0.20	30
	220	16x36	0.15	675			10x12.5	0.20	37
18x32		0.15	685	3.3		8x15	0.20	42	
330	18x36	0.15	750			10x12.5	0.20	40	
250 (300)	1	6.3x11	0.15	17		4.7	10x12.5	0.20	52
	2.2	6.3x11	0.15	29		6.8	10x15	0.20	62
	3.3	8x11	0.15	42		10	10x20	0.20	85
	4.7	8x11	0.15	52		15	13x20	0.20	120
	6.8	8x11	0.15	62	22	13x25	0.20	150	
	10	10x12.5	0.15	80	33	16x25	0.20	210	
	15	10x15	0.15	110	47	16x25	0.20	260	
	22	10x20	0.15	140	68	18x32	0.20	370	
	33	13x20	0.15	200	100	18x36	0.20	495	
	47	13x25	0.15	240	120	18x40	0.20	565	
	68	13x25	0.15	290	150	18x45	0.20	650	
	100	16x25	0.15	380	500 (550)	2.2	8x11	0.25	25
	150	16x32	0.15	420		3.3	8x16	0.25	30
220	18x36	0.15	680	4.7		8x16	0.25	34	
	1	6.3x11	0.20			16	10x12.5	0.25	38
350 (400)	2.2	8x11	0.20	31	6.8	10x16	0.25	50	

SH

Standard Series

■ STANDARD RATINGS

Rated Voltage (SurageVoltage) (V)	Cap (μ F)	Case size Φ D \times L(mm)	tan δ	Ripple current (mA/rms105°C) (120Hz)
500 (550)	8.2	10x20	0.25	65
	10	10x20	0.25	70
		13x20	0.25	85
	15	13x25	0.25	100
	22	13x25	0.25	115
		16x25	0.25	130

Rated Voltage (SurageVoltage) (V)	Cap (μ F)	Case size Φ D \times L(mm)	tan δ	Ripple current (mA/rms105°C) (120Hz)
500 (550)	33	18x25	0.25	180
	47	16x32	0.25	180
		18x30	0.25	230
	68	18x32	0.25	250
		18x36	0.25	290
	82	18x40	0.25	335