

SC Low ESR and high frequency Series

- Endurance : 105°C 3000 hours
- Applicable for switching regulator of computer , especially for high frequency
- Low impedance and ESR , high permissible ripple current at high frequency and high operation temperature (-40 ~ +105°C)
- For detail specifications , please refer to Engineering Bulletin No. 2063

SM P61
 ↑ Low ESR
SC
 ↑ Low ESR
 SX P47



Specifications

Item	Characteristics																	
Category Temperature Range	-40 ~ +105°C																	
Rated Voltage Range	6.3 ~ 100V																	
Rated Capacitance Range	4.7 ~ 15000 μF																	
Capacitance Tolerance	± 20 % at 120Hz , 25°C																	
Leakage Current (MAX)	I=0.01CV or 3 μA ,whichever is greater. (After 2 minutes application of rated voltage at 25°C)																	
Dissipation Factor (MAX)	Measurement frequency : 120Hz , Temperature : 25°C																	
	<table border="1"> <tr> <td>Rated voltage (V)</td> <td>6.3</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> <td>63</td> <td>100</td> </tr> <tr> <td>D.F (%)</td> <td>15</td> <td>14</td> <td>12</td> <td>10</td> <td>10</td> <td>8</td> <td>7</td> <td>7</td> </tr> </table> <p>For capacitor whose capacitance exceeds 1000 μF. The value of D.F(%) is increased by 2% for ever addition of 1000μF.</p>	Rated voltage (V)	6.3	10	16	25	35	50	63	100	D.F (%)	15	14	12	10	10	8	7
Rated voltage (V)	6.3	10	16	25	35	50	63	100										
D.F (%)	15	14	12	10	10	8	7	7										
Low Temperature Stability Impedance Ratio (MAX)	Measurement frequency : 120Hz																	
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Rated voltage (V)	6.3	10	16	25	35	50	63	100										
Z-40°C / Z+20°C	10	8	5	4	4	4	4	4										
Endurance	After applying rated ripple current for 3000hrs at 105°C , the capacitors shall meet the following requirements.																	
	<table border="1"> <tr> <td>Capacitance Change</td> <td>Within ±20 % of initial value</td> </tr> <tr> <td>Dissipation Factor</td> <td>Not more than 200% of specified value</td> </tr> <tr> <td>Leakage Current</td> <td>Not more than the specified value</td> </tr> </table>	Capacitance Change	Within ±20 % of initial value	Dissipation Factor	Not more than 200% of specified value	Leakage Current	Not more than the specified value											
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<table border="1"> <tr> <td>Case Dia</td> <td>5 x 11 ~ 10 x 12</td> <td>10 x 15 higher</td> </tr> <tr> <td>Life</td> <td>2000</td> <td>3000</td> </tr> </table>	Case Dia	5 x 11 ~ 10 x 12	10 x 15 higher	Life	2000	3000												
Case Dia	5 x 11 ~ 10 x 12	10 x 15 higher																
Life	2000	3000																
Shelf Life	After 1000 hrs at 105°C without applying rated voltage .																	
Marking	<table border="1"> <tr> <td>Capacitance Change</td> <td>Within ± 20 % of initial value</td> </tr> <tr> <td>Dissipation Factor</td> <td>Not more than 200% of specified value</td> </tr> <tr> <td>Leakage Current</td> <td>Not more than 200% of specified value</td> </tr> </table>	Capacitance Change	Within ± 20 % of initial value	Dissipation Factor	Not more than 200% of specified value	Leakage Current	Not more than 200% of specified value											
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Leakage Current	Not more than 200% of specified value																	
Marking	Printed with gold color letter on green sleeve.																	

Multiplier for Ripple Current

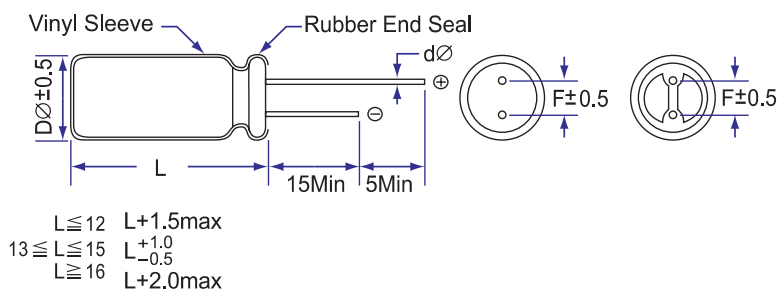
(1) Frequency coefficient

Frequency (Hz)	50	120	300	1K	10K	100K
~ 4.7 μF	0.30	0.40	0.50	0.70	0.80	1.00
5.6 ~ 33 μF	0.40	0.50	0.60	0.80	0.90	1.00
34 ~ 330 μF	0.60	0.70	0.80	0.90	0.95	1.00
331 ~ 1000 μF	0.65	0.90	0.90	0.98	1.00	1.00
1200 μF Above	0.85	0.90	0.95	0.98	1.00	1.00

(2) Temperature coefficient

Temperature(°C)	65	85	105
Factor	1.80	1.50	1.00

Diagram of Dimensions



D∅	4.0	5.0	6.0	8.0	10.0
F	1.5	2.0	2.5	3.5	5.0
d∅	0.45		0.5		0.6

D∅	12.0	13.0	16.0	18.0	22.0
F		5.0		7.5	10.0
d∅		0.6		0.8	0.8

■ Dimensions, Rated Ripple Current

Capacitance (μ F)	RATED (SURAGE) VOLTAGE											
	6.3V (8)			10V (13)			16V (20)			25V (32)		
	SIZE	Ripple	ESR	SIZE	Ripple	ESR	SIZE	Ripple	ESR	SIZE	Ripple	ESR
4.7												
6.8												
10										*4x7	40	2.000
										5x11	50	0.550
22												
33												
47												
56							5x11	100	0.630	5x11	150	0.420
68							5x11	150	0.420	6x11	200	0.370
100				5x11	150	0.420	5x11	200	0.370	6x11	250	0.220
120				5x11	200	0.370	6x11	250	0.320	8x11	300	0.200
150	5x11	200	0.420	6x11	250	0.320	6x11	300	0.220	8x11	550	0.140
220	6x11	250	0.320	6x11	300	0.220	8x11	550	0.140	*8x11	620	0.120
										8x15	750	0.100
270	*6x11	300	0.220									
330	*6x11	320	0.230	8x11	550	0.140	*8x11	620	0.120	*8x15	660	0.100
	8x11	400	0.180				8x15	750	0.100	8x20	800	0.069
							10x12	688	0.080	10x15	900	0.086
470	*6x11	440	0.180	*8x11	620	0.120	*8x15	730	0.093	*8x20	1000	0.067
	8x11	550	0.140	8x15	750	0.100	10x12	800	0.085	*10x12	900	0.086
										10x15	1050	0.064
680	*8x11	580	0.120	*8x11	640	0.110	10x15	1050	0.064	10x19	1100	0.039
	8x15	700	0.100	10x12	800	0.085						
820	8x20	750	0.085	10x15	1050	0.064	10x19	1100	0.044	10x19	1250	0.039
1000	*8x11	580	0.150	8x20	1080	0.065	*10x15	1140	0.043	*10x19	1160	0.047
	*8x15	670	0.085	10x12	930	0.075	10x19	1250	0.039	*10x25	1310	0.042
	8x20	800	0.069	10x15	990	0.085				13x20	1450	0.038
	10x12	690	0.080	10x19	1100	0.050						
1200	10x15	1000	0.064	10x19	1250	0.044	*10x25	1310	0.042	13x25	1600	
							13x20	1450	0.038			
1500	*8x15	980	0.085	10x19	1450	0.039	*10x19	1200	0.045	*12x30	1750	0.032
	*8x20	1070	0.051				13x20	1600	0.034	16x25	2000	0.028
	*10x15	1070	0.055									
	10x19	1250	0.044									
2200	*10x19	1220	0.051	*10x19	1330	0.047	*10x30	1780	0.032	*13x30	1810	0.029
	*10x25	1310	0.048	*10x25	1450	0.025	*13x20	1720	0.033	*16x25	1660	0.032
	13x20	1450	0.043	13x20	1600	0.038	13x25	2000	0.028	16x32	2200	0.024
3300	*10x25	1400	0.043	*10x30	1740	0.032	*13x40	2200	0.026	16x36	2540	0.019
	13x25	1700	0.035	13x25	2000	0.028	16x25	2200	0.024	18x36	2550	0.019
3900	13x25	1750	0.032									
4700	*12x30	1570	0.033	*13x25	1860	0.028	16x36	2550	0.019	18x36	2800	0.019
	*13x25		0.032	16x25	2200	0.024						
	16x25	1800	0.028									
6800	16x32	2000		16x36	2550	0.019	18x36	2800	0.019	18x36	2800	0.019
8200	16x32	2350		18x36	2800	0.019						
10000	16x36	2550										
15000	18x36	3000										

NOTE: 1. Size \varnothing xL(mm) , Ripple Current (mA r.m.s 105°C /100KHz) , ESR (Ω Max25°C /100KHz)
2." * " is down size , Edurance is less 1000 hrs than standard

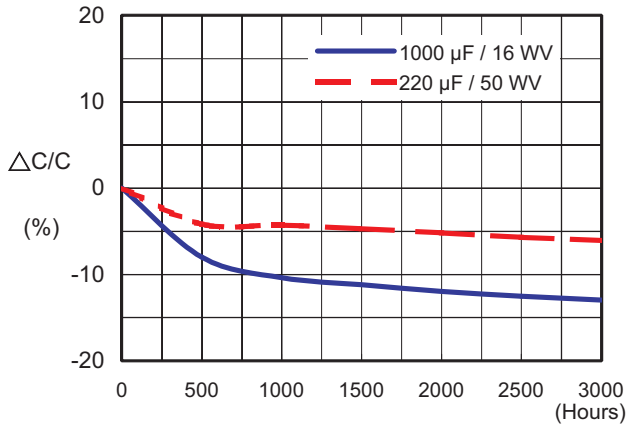
■ Dimensions, Rated Ripple Current

Capacitance (μ F)	RATED (SURAGE) VOLTAGE											
	35V (44)			50V (63)			63V (79)			100V (125)		
	SIZE	Ripple	ESR	SIZE	Ripple	ESR	SIZE	Ripple	ESR	SIZE	Ripple	ESR
4.7	5x11	115	1.200	5x11	115	2.000	5x11	115	2.200	5x11	120	2.000
6.8	5x11	120	1.000	5x11	120	1.850	5x11	120	2.000	5x11	140	1.850
10	5x11	140	0.900	5x11	140	1.700	5x11	140	1.850	6x11	200	1.500
15	5x11	170	0.690	5x11	180	1.200	5x11	200	1.700	6x11	250	1.200
22	5x11	190	0.420	5x11	200	0.700	6x11	250	1.200	8x11	300	0.790
33	5x11	200	0.420	6x11	250	0.600	6x11	300	0.900	8x15	450	0.590
47	6x11	250	0.370	6x11	300	0.520	8x11	450	0.700	10x15	550	0.350
68	6x11	300	0.220	8x11	450	0.350	8x11	550	0.520	10x19	650	0.240
100	*6x11	360	0.180	*8x11	480	0.290	8x20	650	0.350	13x20	800	0.180
	8x11	450	0.140	8x15	550	0.250						
120	8x11	550	0.130	8x20	650	0.210	10x15	800	0.300	13x25	1050	0.150
150	8x15	650	0.100	10x12	800	0.160	10x15	1050	0.200	13x25	1300	0.110
220	*8x15	730	0.075	10x15	1050	0.100	10x19	1300	0.150	16x25	1400	0.071
	10x12	800	0.069	10x25	1050	0.068						
330	*10x15	900	0.052	10x19	1300	0.072	13x20	1400	0.100	16x32	1550	0.049
	10x19	1050	0.044									
470	10x19	1300	0.039	*10x19	1390	0.075	13x20	1550	0.064	18x36	1770	0.038
				13x20	1400	0.060						
680	13x20	1400	0.038	13x25	1550	0.050	13x25	1700	0.052			
820	13x20	1550	0.034	16x25	1700	0.040	16x32	1900	0.048			
1000	13x25	1700	0.029	16x25	1900	0.039	16x32	2100	0.042			
1200	16x25	1900	0.028	16x32	2100	0.025	16x36	2550	0.036			
1500	16x25	2100	0.024	16x36	2550	0.025	18x36	2800	0.033			
2200	*16x32	2300	0.021	18x40	2800	0.025						
	16x36	2550	0.019									
3300	18x36	2880	0.019									
3900												
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6800												
8200												
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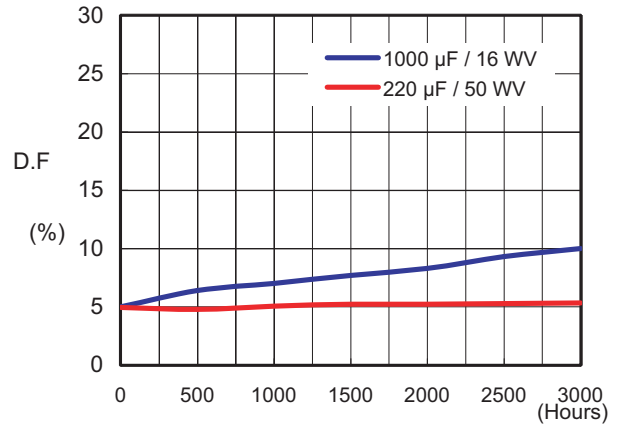
NOTE: 1. Size D \varnothing xL(mm) , Ripple Current (mA r.m.s 105 $^{\circ}$ C /100KHz) , ESR (Ω Max25 $^{\circ}$ C /100KHz)
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Endurance

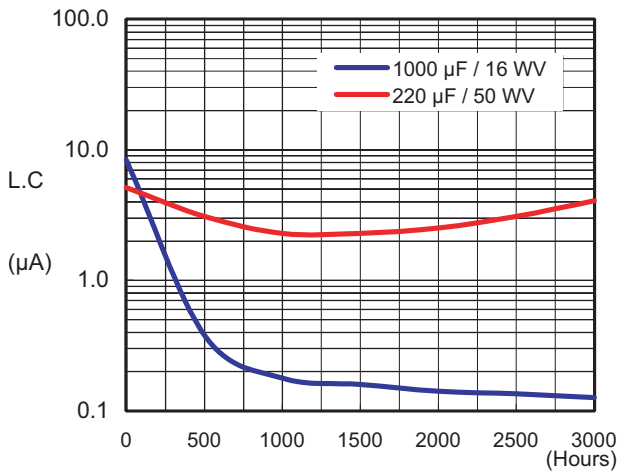
Capacitance Change



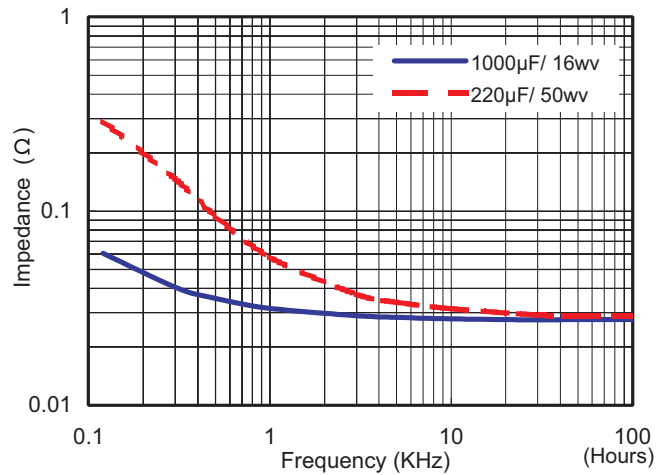
Dissipation Factor Change



Leakage Current Change

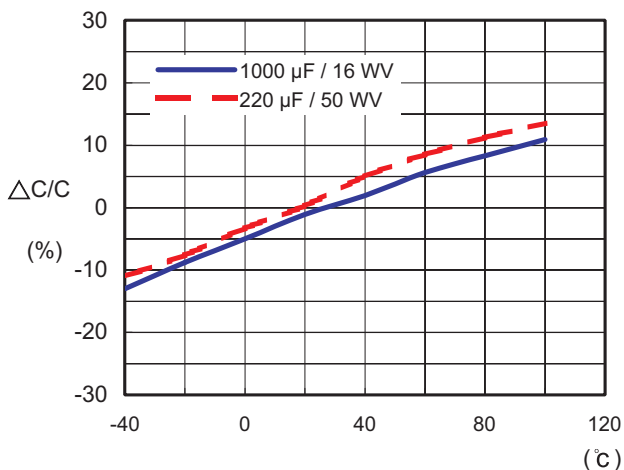


FREQUENCY CHARACTERISTIC



Temperature Characteristics

Capacitance Change



Dissipation Factor Change

