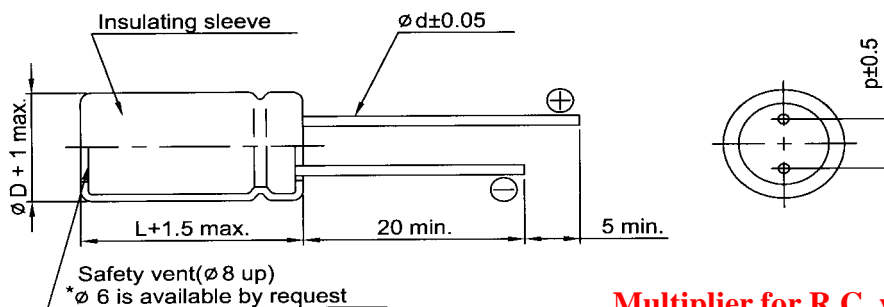


- EXR series capacitors are ideal for use in switching power supplies.
- Other High Frequency Applications.
- **Low Impedance** and long life.

**Characteristics**

<b>Voltage Range</b>	6.3 to 100 VDC				160 to 450 VDC				
<b>Capacitance Range</b>	0.47 to 10000uF				0.47 to 470uF				
<b>Temperature Range</b>	-40 to +105°C				-25 to +105°C				
<b>Leakage Current</b>	I ≤ 0.01CV or 2uA, whichever is greater 3 minutes after Rated Voltage applied				I ≤ 0.03CV or 3uA, whichever is greater 3 minutes after Rated Voltage applied				
<b>Capacitance Tolerance</b>	±20% at 120Hz, 20°C								
<b>Dissipation Factor</b>	Working Voltage (V)	6.3	10	16	25	35	50	63	100
	tan δ (%) max	22	19	16	14	12	10	9	8
	Working Voltage (V)	160	200	250	350	400	450		
	tan δ (%) max	12	12	12	15	15	17		
For capacitance > 1000uF, add 0.02 for every 1000uF.(at 20°C, 120Hz)									
<b>Low temperature Characteristics (120Hz)</b>	Working Voltage (V)	6.3	10	16	25	35	50	63	100
	Z-25°C/Z 20°C	4	3	3	3	3	3	2	2
	Z-40°C/Z 20°C	8	6	4	3	3	3	3	3
	Working Voltage (V)	160	200	250	350	400	450		
	Z-25°C/Z 20°C	2	2	3	5	5	6		
Z-40°C/Z 20°C	3	6	6	6	6	-			
For capacitance > 1000uF, add 0.5 every 1000uF for -25°C/+20°C add 1.0 every 1000uF for -40°C/+20°C									
<b>Load life :</b>		After the rated voltage with ripple current has been applied for at 105°C  (160V~450V : 2000HRS)		Capacitance change		Within ±20% of initial value			
<b>D φ</b>	<b>Life Hours</b>			D.F. tanδ		200% or less of initial specified value			
5 - 6.3 φ	2000			Leakage current		Less than initial specified value			
8 φ	3000								
≥ 10 φ	5000								
<b>Shelf life (at 105°C)</b>		After 1000 hrs no load: test the leakage current, capacitance and tan δ are same as load life value.							



**Multiplier for R.C. vs Temperature**

Temp.(°C)	45	60	70	85	95	105
Multiplier	2.10	1.90	1.65	1.40	1.25	1.00

**Drawing**

Dφ	5	6.3	8	10	13	16	18
p	2.0	2.5	3.5	5.0	5.0	7.5	7.5
dφ	0.5	0.5	0.5	0.6	0.6	0.8	0.8

**Ripple Current Coefficients**

Frequency (Hz)	60	120	400	1K	10K	50K - 100K
Cap.(uF) / Hz	Multiplier					
Cap. ≤ 10	0.47	0.59	0.76	0.85	0.97	1
10 < Cap. ≤ 100	0.52	0.62	0.80	0.89	0.97	1
100 < Cap. ≤ 1000	0.58	0.72	0.84	0.90	0.98	1
1000 < Cap.	0.63	0.78	0.87	0.91	0.98	1

**Dimensions, Maximum Permissible Ripple Current & Impedance**

WV (SV)	6.3 (8)			10 (13)			16 (20)			25 (32)			
	Spec. uF	DφxL(mm)	Impedance (Ω)max 20°C	Ripple Current mA(rms) 105°C 100KHz	DφxL(mm)	Impedance (Ω)max 20°C	Ripple Current mA (rms) 105°C 100KHz	DφxL(mm)	Impedance (Ω)max 20°C	Ripple Current mA(rms) 105°C 100KHz	DφxL(mm)	Impedance (Ω)max 20°C	Ripple Current mA(rms) 105°C 100KHz
			100KHZ			100KHZ			100KHZ			100KHZ	
10											5x11	2.56	85
22								5x11	2.60	100	5x11	1.95	125
33								5x11	2.00	114	5x11	1.42	155
47								5x11	1.10	155	5x11	1.10	205
68								5x11	0.69	195	6.3x11	0.65	280
100				5x11	0.80	210	6.3x11	0.50	265	6.3x11	0.35	370	
150				6.3x11	0.61	290	8x12	0.41	370	8x12	0.31	410	
220	6.3x11	0.65	310	6.3x11	0.35	340	8x12	0.25	480	8x12	0.15	555	
330	8x12	0.42	390	8x12	0.27	460	8x12	0.15	590	8x14 10x12.5	0.12 0.114	700 820	
470	8x12	0.25	450	8x12	0.15	555	10x12.5	0.12	750	10x16	0.076	1200	
680	8x14	0.21	520	8x14	0.10	805	10x16	0.080	850	10x21	0.065	1320	
1000	8x12 10x12.5	0.17 0.10	555 750	10x12.5 10x21	0.080 0.076	805 1040	10x21	0.065	1350	13x21	0.045	1650	
1500	8x16 10x16	0.14 0.08	830 940	10x16 10x21	0.070 0.062	1000 1400	13x21	0.045	1630	13x26	0.038	2210	
2200	10x21	0.068	1050	10x21	0.052	1220	13x21	0.039	1900	16x26	0.036	2650	
3300	10x21 13x21	0.052 0.060	1220 1650	13x21	0.035	1900	16x26	0.030	2790	16x31	0.026	3240	
4700	13x21	0.039	1660	13x26	0.031	2000	16x31	0.026	2880	16x36	0.024	3650	
6800	16x26	0.030	2450	16x26	0.028	2290	16x36	0.025	2990	18x41	0.024	3850	
10000	16x31	0.026	2650	16x31	0.024	2770	18x36	0.024	3320				

WV (SV)	35 (44)			50 (63)			63 (79)			100 (125)			
	Spec. uF	DφxL(mm)	Impedance (Ω)max 20°C	Ripple Current mA(rms) 105°C 100KHz	DφxL(mm)	Impedance (Ω)max 20°C	Ripple Current mA(rms) 105°C 100KHz	DφxL(mm)	Impedance (Ω)max 20°C	Ripple Current mA(rms) 105°C 100KHz	DφxL(mm)	Impedance (Ω)max 20°C	Ripple Current mA(rms) 105°C 100KHz
			100KHZ			100KHZ			100KHZ			100KHZ	
0.47				5x11	5.40	25	5x11	5.40	25	5x11	5.90	20	
1.0				5x11	4.00	40	5x11	4.00	33	5x11	4.40	30	
2.2				5x11	2.80	55	5x11	2.80	45	5x11	3.30	42	
3.3				5x11	2.20	60	5x11	2.20	58	5x11	2.80	55	
4.7				5x11	2.00	90	5x11	2.00	65	5x11	2.40	80	
10	5x11	2.37	105	5x11	1.82	120	5x11	1.75	110	6.3x11	1.77	130	
22	5x11	1.50	150	6.3x11	1.25	150	6.3x11	0.80	240	8x12	0.85	220	
33	5x11	1.21	180	6.3x11	0.80	250	6.3x11	0.61	270	10x16	0.48	293	
47	6.3x11	0.80	280	6.3x11	0.65	290	8x12	0.56	300	10x16	0.37	382	
68	6.3x11	0.64	310	8x12	0.33	375	10x12.5	0.21	480	10x21	0.28	501	
100	8x12	0.25	450	10x12.5	0.17	480	10x16	0.14	610	13x21	0.18	714	
150	8x12	0.191	540	10x12.5	0.132	590	10x16	0.11	700	13x21	0.174	780	
220	10x16	0.095	900	10x16	0.096	930	10x21	0.08	1100	16x26	0.10	1282	
330	10x16	0.079	1050	10x21	0.078	960	13x21	0.055	1250	16x31	0.09	1563	
470	10x21	0.065	1200	13x21	0.055	1590	13x26	0.053	1620	18x32	0.076	1907	
680	13x21	0.056	1570	13x26	0.044	1930	16x26	0.043	2252	18x36	0.062	2387	
1000	13x26	0.042	1900	16x26	0.036	2300	16x31	0.034	2350	18x41	0.060	3100	
1500	16x26	0.026	2490	16x31	0.034	2750	18x36	0.031	3100				
2200	16x31	0.022	2550	18x36	0.032	3070	18x41	0.024	3600				
3300	16x36	0.016	2650	18x41	0.025	3100							
4700	18x41	0.010	3000										

WV (SV)	160 (200)			200 (250)			250 (300)			350 (400)			
	Spec. uF	DφxL(mm)	Impedance (Ω)max 20°C	Ripple Current mA(rms) 105°C 100KHz	DφxL(mm)	Impedance (Ω)max 20°C	Ripple Current mA(rms) 105°C 100KHz	DφxL(mm)	Impedance (Ω)max 20°C	Ripple Current mA(rms) 105°C 100KHz	DφxL(mm)	Impedance (Ω)max 20°C	Ripple Current mA(rms) 105°C 100KHz
			100KHZ			100KHZ			100KHZ			100KHZ	
1	6.3x11	7.85	45	6.3x11	7.76	45	6.3x11	6.54	50	8x12	6.35	58	
2.2	6.3x11	5.21	55	6.3x11	5.18	55	8x12	4.12	72	10x12.5	4.02	86	
3.3	8x12	4.31	70	8x12	4.25	71	8x12	3.85	75	10x16	3.52	100	
4.7	8x12	4.16	72	10x12.5	4.12	85	10x12.5	2.95	100	10x21	2.77	130	
10	10x16	2.69	120	10x16	2.02	132	10x16	1.40	160	13x21	1.35	200	
22	10x21	1.30	205	10x21	1.20	205	10x21	1.30	185	13x21	1.22	220	
33	13x21	1.10	260	13x21	0.62	330	13x21	0.90	260	13x26	0.86	290	
47	13x21	0.91	320	13x26	0.51	400	13x26	0.45	405	16x31	0.62	430	
68	13x26	0.56	410	16x26	0.35	540	16x26	0.38	490	16x36	0.56	475	
100	16x26	0.47	500	16x31	0.17	820	16x31	0.25	675	18x36	0.55	513	
220	16x36	0.19	820	18x41	0.14	1080	18x41	0.20	910				
330	18x41	0.16	1000										

WV (SV)	400 (450)			450 (500)			
	Spec. uF	DφxL(mm)	Impedance (Ω) max 20°C 100KHZ	Ripple Current mA(rms) 105°C 100KHz	DφxL(mm)	Impedance (Ω) max 20°C 100KHZ	Ripple Current mA(rms) 105°C 100KHz
<b>1</b>		8x12	16.5	36	10x12.5	17.35	41
<b>2.2</b>		10x12.5	8.58	56	10x16	10.25	60
<b>3.3</b>		10x16	5.01	86	10x21	5.65	89
<b>4.7</b>		10x21	4.82	120	13x21	5.01	130
<b>10</b>		13x21	3.32	245	13x26	3.78	165
<b>22</b>		13x26	2.65	305	13x26	2.80	255
<b>33</b>		16x26	1.21	335	16x26	2.20	360
<b>47</b>		16x31	0.92	560	16x36	1.02	550
<b>68</b>		18x32	0.75	750	18x36	0.78	700
<b>100</b>		18x41	0.52	950			