

Data Sheet

Customer: _____

Product: Aluminum Electrolytic Capacitors – EXR Series _____

Size : 5x11mm ~ 22x40mm _____

Issued Date: 07-April-2023 _____

Edition: Ver. 3 _____

Record of change

Date	Ver.	Description	Page
25-May-2016	1		
23-Apr-2018	2	Load life 100V:2000hrs	1
07-Apr.-2023	3	Add 160V~450V Impedance	3

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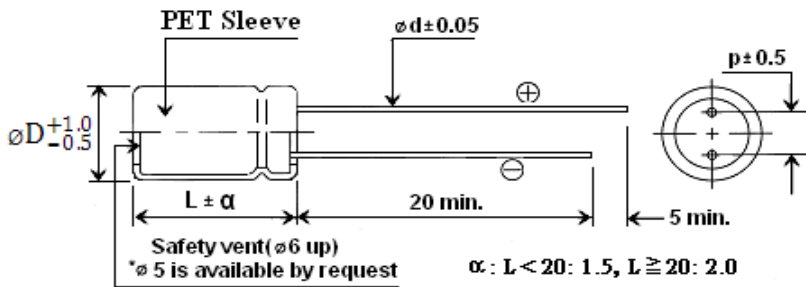
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Prepared by	Checked by	Approved by	Accepted by (customer)
07-April-2023	07-April-2023	07-April-2023	
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- EXR series capacitors are ideal for use in switching power supplies, communication equipments and etc.
- **Low Impedance** and long life.
- Safety vent construction design.
- RoHS Compliant

Characteristics

Voltage Range	6.3 to 100 VDC				160 to 450 VDC				
Capacitance Range	4.7 to 15000uF				1 to 470uF				
Temperature Range	-40 to +105°C				-25 to +105°C				
Leakage Current	$I \leq 0.01CV$ or 2uA, whichever is greater 3 minutes after Rated Voltage applied				$I \leq 0.03CV$ 3 minutes after Rated Voltage applied				
Capacitance Tolerance	±20% at 120Hz, 20°C (10% Tol. is available upon request)								
Dissipation Factor (at 20°C, 120Hz)	Working Voltage (V)	6.3	10	16	25	35	50	63	100
	tanδ(%) max	18	16	14	12	10	9	8	8
	Working Voltage (V)	160	200	250	350	400	450		
	tanδ(%) max	12	12	12	15	15	17		
Low Temperature Characteristics (120Hz)	For capacitance > 1000uF, add 0.02 for every 1000uF								
	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		
Load Life :	After the rated voltage with ripple current has been applied for at 105°C				Capacitance change		Within ±20% of initial value		
	D φ	Life Hours			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								
Shelf life (at 105°C)	After storage for 1000 hours at 105°C with no voltage applied, the capacitor shall meet the specified limit in load life. Pre-treatment for measurement shall be conducted after application of DC working voltage for 30 minutes.								



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)	50(60)	120	400	1K	10K	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

Case size & Maximum Ripple Current (mA rms 105°C 100KHz) & Imp. (Ω 20°C 100KHz)

WV Cap.	35			50			63			100		
	uF	Size	Imp	RC	Size	Imp	RC	Size	Imp	RC	Size	Imp
1				5x11	3.5	40	5x11	3.0	20	5x11	4.4	30
2.2				5x11	3.5	40	5x11	2.8	35	5x11	3.3	42
3.3				5x11	3.5	40	5x11	2.2	50	5x11	2.60	72
4.7				5x11	2.00	90	5x11	2.00	65	5x11	2.60	72
6.8				5x11	1.89	110	5x11	1.82	100	6.3x11	1.77	130
10	5x11	2.2	107	5x11	1.82	120	5x11	1.75	110	6.3x11	1.77	130
22	5x11	1.5	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	10x12.5 10x16	0.70 0.69	293 320
47	6.3x11	0.80	250	6.3x11	0.65	290	8x12	0.56	300	10x12.5 10x16	0.58 0.37	370 382
68	6.3x11	0.64	280	8x12	0.33	375	10x12.5	0.21	480	10x16 10x21	0.35 0.28	470 501
100	8x12	0.25	450	10x12.5	0.17	480	10x16 10x12.5	0.14 0.17	530 535	13x21	0.18	714
120										13x16 13x21	1.08 1.14	90 90
150	8x12	0.191	510	10x12.5	0.132	560	10x16	0.11	600	13x21 16x16	0.174 0.15	780 820
220	10x16 10x12.5	0.114 0.17	750 620	10x16	0.096	630	10x21	0.08	710	13x26 16x26	0.13 0.10	950 1282
270	10x12.5	0.17	620				13x21	0.055	1250	13x30	0.11	1120
330	10x16	0.079	1050	10x21	0.078	960	13x21 13x26	0.055 0.055	1250 1350	16x26 16x31.5	0.10 0.09	1440 1563
470	10x21	0.065	1200	13x21	0.055	1400	13x26	0.053	1620	16x31.5 18x32	0.09 0.076	1650 1907
560				13x21	0.049	1640	13x26	0.049	1680	18x36	0.068	2000
680	13x21	0.056	1570	13x26	0.044	1830	16x26 13x30	0.043 0.045	1950 2160	18x36 16x41	0.08 0.083	1790 1790
820	13x21	0.048	1700	13x30	0.039	2100	16x26	0.038	2150	18x36	0.071	1840
1000	13x26	0.042	1900	16x26	0.036	2300	16x31.5	0.034	2350	18x41	0.066	1930
1200	10x21	0.039	2130	13x26			16x31.5	0.04	2560			
1500	16x26	0.026	2490	16x31.5	0.034	2650	18x36	0.031	2710	22x41	0.022	3720
1800	16x26	0.024	2520				18x41	0.03	3000			
2200	16x31.5	0.022	2550	18x36	0.032	3070	18x41	0.024	3600	25x50	0.046	4680
2700	13x35	0.02	2610									
3300	16x36	0.016	2650	18x41	0.025	3100	22x46	0.024	3950			
4700	18x41	0.010	3000	22x40	0.022	3720						

Case size & Maximum Ripple Current (mA rms 105°C 100KHz) & Imp. (Ω 20°C 100KHz)

WV Cap	160			200			250			350			
	uF	Size	Imp	RC	Size	Imp	RC	Size	Imp	RC	Size	Imp	RC
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 6.3x11	4.12	72	8x12 10x12.5	5.3 4.02	75 86
3.3	8x12		4.31	70	8x12	4.25	71	8x12	3.85	75	10x12.5	3.8	90
4.7	8x12		4.16	72	8x12 10x12.5	5.0 4.12	78 85	8x12 10x12.5	3.50 2.95	85 100	10x21 10x12.5	6.70	130
10	10x12.5 10x16		3.00 2.69	126 140	8x12 10x16	3.75 2.95	115 132	10x12.5 10x16	3.10	160	10x21 13x21	4.65	200
22	10x16 10x21		1.30 2.10	185 205	10x16 10x21	1.80 1.51	186 205	10x16 10x21	1.52	185	13x21	2.60	220
33	13x21		1.30	260	10x21 13x21	1.30 0.80	280 330	13x21	1.45	310	13x26	1.78	290
47	10x21 13x21		1.65 1.38	276 320	13x21 13x26	1.275 1.10	360 400	13x21 13x26 10x26	1.20	405	16x26 16x31.5	1.51	430
68	13x26		0.62	450	13x26 16x26 16x21	0.60	540	13x26 16x26	0.38	490	16x31.5	1.10	475
100	16x26		0.47	540	16x26 16x31.5	0.435	820	16x26 16x31.5	0.315	675	18x36	0.70	513
150	16x31.5		0.43	710	16x36	0.23	860	16x36	0.24	750	18x45	0.50	590
220	16x36		0.256	820	18x36 18x41	0.525 0.19	1050 1090	18x41	0.28	910			
330	18x41		0.195	1180									

WV Cap	400			450			
	uF	Size	Imp	RC	Size	Imp	RC
1	8x12		16.5	36	8x12	17.35	45
2.2	8x12 10x12.5		13.0 13.0	65 76	10x12.5 10x16	10.25	65
3.3	8x12 10x12.5		12.0 21.2	86 105	10x12.5 10x16	18.2	89
4.7	10x12.5 10x21		11.0 10.0	105 120	10x16 13x21	6.85	110
10	10x21 13x21		6.30 5.45	218 235	13x21 13x26	5.60 6.30	180 189
22	13x21 13x26		3.15 2.65	268 295	13x26	2.8	320
33	13x26 16x26		1.60 2.90	399 440	16x26	2.2	460
47	16x26 16x31.5		1.60 1.56	539 580	16x36	1.35	650
68	18x25 18x32		0.99 1.10	774 800	18x36	1.08	760
100	18x36 18x41		0.70 0.72	854 900	18x36 18x41	1.10 1.05	825 880
150	22x40		0.44	1180	22x40	0.48	998
180					25x40	0.4	1120
220	25x40		0.4	1340			

Part Numbering System

EXR	101	M	25	A	-	T1
SERIES	CAPACITANCE	TOL.	W.V.	PACKAGE	SIZE	LEAD SPACE
	IN 3DIGITS	M= ± 20%	0J= 6.3V	B= Bulk	Omit if only	Omit if Bulk
	010= 1.0uF		10= 10V	C5= Cut 5mm	one size	T1= L/S 2.5mm Taped
	4R7= 4.7 uF		16= 16V	AC5= Smaller Size cut 5mm	A= Smaller Size	TA= Lead forming space 5mm Taped
	101= 100uF		25= 25V			
	102= 1000uF		35= 35V	A= Ammo Pack		T35= L/S 3.5mm Taped
			50= 50V	R= Tape&Reel		T2=L/S 5mm Taped
			63= 63V	F5= Lead formed & cut 5mm		T3= L/S 7.5mm Taped
			2A= 100V			
			2C= 160V			
			2D= 200V			
			2E= 250V			
			2V= 350V			
			2G= 400V			
			2W= 450V			