

Standards Radial Lead Electrolytic Capacitors–XB Series



FEATURES

- 105°C, 2,000 ~ 5,000 hours assured.
- For SMPS, IP-Board, Adaptor, Automotive equipment
- Low Impedance.
- RoHs compliance.

APPLICATIONS

- Ideally suited for switching power supplies,telecommunication and other electronic products.

PRODUCT IDENTIFICATION



01 Type	
ZXB	Radial Lead Electrolytic Capacitors

02 Rate Voltage	
6R3	6.3V
10	10V
16	16V
25	25V
35	35V
50	50V
63	63V
100	100V

03 Lead Wire and Sleeve type	
VB	

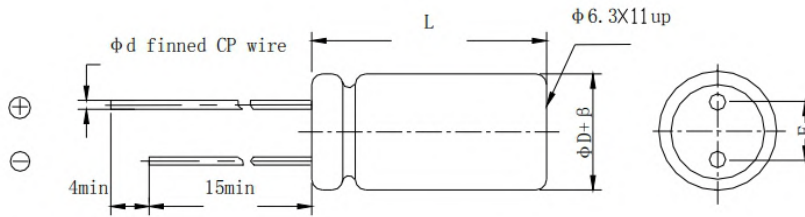
04 Nominal Capacitance	
Example	Nominal value
1R0	1uF
100	10uF
102	1000uF

05 Tolerance	
J	±5%
K	±10%
M	±20%

06 External Dimensions ΦDxL(mm)	
5*11	5x 11
6.3*12	6.3x 12
8*12	8x 12
10*20	10 x 20
12.5*20	12.5 x 20

07 Packing	
2.5TP	Tape & Reel

SHAPE AND DIMENSIONS



β (mm)	± 0.5					± 1.0		
ΦD (mm)	5	6.3	8	10	12.5	16	18	22
$F \pm 0.5$ (mm)	2.	2.5	3.5	5.0		7.5		10.0
$\Phi d \pm 0.1$ (mm)	0.5		0.6			0.8		
L(mm)	11,12		12,16	12,16,	16,20,25	16,20,25,30,35	20,25,30,35,40	25,30,35,40
	$L \pm 2.0$							

MAIN SPECIFICATIONS

Item	Characteristics																				
Rated Voltage Range	6.3 ~ 120 V _{DC}																				
Operating Temperature Range	-40 ~ +105°C																				
Capacitance Tolerance	$\pm 20\%$ (M) (at 20°C, 120Hz)																				
Leakage Current	<p>$I = 0.01CV(\mu A)$ or $3\mu A$, whichever is greater.</p> <p>Where, I:Max. Leakage current(μA), C:Nominal capacitance(μF), V:Rated voltage(V_{DC})</p> <p>(at 20°C, 2 minutes)</p>																				
Dissipation Factor(Tan δ)	<table border="1"> <tr> <td>Rated voltage(V_{DC})</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> <td>120</td> </tr> <tr> <td>Tanδ(Max)</td> <td>0.22</td> <td>0.19</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.10</td> <td>0.09</td> <td>0.08</td> <td>0.08</td> </tr> </table> <p>When the capacitance exceeds 1,000μF, 0.02 shall be added every 1,000μF increase. (at 20°C, 120Hz)</p>	Rated voltage(V _{DC})	6.3	10	16	25	35	50	63	100	120	Tan δ (Max)	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08	0.08
Rated voltage(V _{DC})	6.3	10	16	25	35	50	63	100	120												
Tan δ (Max)	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08	0.08												
Temperature Characteristics (Max. Impedance ratio)	<table border="1"> <tr> <td>Z(-25°C)/Z(20°C)</td> <td>2</td> </tr> <tr> <td>Z(-40°C)/Z(20°C)</td> <td>3</td> </tr> </table> <p>(at 120Hz)</p>	Z(-25°C)/Z(20°C)	2	Z(-40°C)/Z(20°C)	3																
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Z(-40°C)/Z(20°C)	3																				
Load Life	<p>The following specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) at 105°C for the specified period of time.</p> <table border="1"> <tr> <td>ϕD</td> <td>Life Time</td> </tr> <tr> <td>$\phi 5, 6.3$</td> <td>2,000 hours</td> </tr> <tr> <td>$\phi 8$</td> <td>3,000 hours</td> </tr> <tr> <td>$\phi 10$</td> <td>4,000 hours</td> </tr> <tr> <td>$\phi 12.5 \sim$</td> <td>5,000 hours</td> </tr> </table> <p>Capacitance change $\leq \pm 25\%$ of the initial value Tanδ $\leq 200\%$ of the initial specified value Leakage current \leq The initial specified value</p>	ϕD	Life Time	$\phi 5, 6.3$	2,000 hours	$\phi 8$	3,000 hours	$\phi 10$	4,000 hours	$\phi 12.5 \sim$	5,000 hours										
ϕD	Life Time																				
$\phi 5, 6.3$	2,000 hours																				
$\phi 8$	3,000 hours																				
$\phi 10$	4,000 hours																				
$\phi 12.5 \sim$	5,000 hours																				
Shelf Life	<p>The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 105°C without voltage applied. The rated voltage shall be applied to the capacitors for a minimum of 30 minutes, at least 24 hours and not more than 48 hours before the measurements.</p> <p>Capacitance change $\leq \pm 25\%$ of the initial value Tanδ $\leq 200\%$ of the initial specified value Leakage current \leq The initial specified value</p>																				
Others	Satisfied characteristics KS C IEC 60384-4																				

Rating of ZXB

#DxL(mm)	6.3				10				16			
	μF	IMP.		Ripple	μF	IMP.		Ripple	μF	IMP.		Ripple
		20°C	-10°C			20°C	-10°C			20°C	-10°C	
5 × 11	220	0.30	1.0	250	150	0.30	1.00	250	100	0.30	1.0	250
6.3 × 11	470	0.13	0.41	405	330	0.13	0.41	405	100	0.15	0.41	385
									220	0.13	0.36	405
6.3 × 15	560	0.10	0.32	646	470	0.10	0.32	646	330	0.10	0.32	646
					330	0.094	0.28	600	470	0.072	0.22	760
8 × 11.5	820	0.072	0.22	760	680	0.072	0.22	760	470	0.072	0.22	760
8 × 15	1,200	0.060	0.18	818	1,000	0.060	0.18	818	680	0.060	0.18	818
8 × 20	1,500	0.050	0.16	1,260	1,200	0.050	0.16	1,260	1,000	0.050	0.16	1,260
10 × 12	1,200	0.053	0.16	1,360	820	0.053	0.16	1,360	680	0.053	0.16	1,360
					1000	0.053	0.16	1,360				
10 × 12.5	1,200	0.053	0.16	1,360	820	0.053	0.16	1,360	680	0.053	0.16	1,360
					1000	0.053	0.16	1,360				
10 × 16	1,800	0.038	0.12	1,430	1,000	0.038	0.12	1,430	1,000	0.038	0.12	1,430
					1,500	0.038	0.12	1,430				
10 × 20	2,200	0.023	0.069	1,820	1,500	0.023	0.069	1,820	1,500	0.023	0.069	1,820
10 × 25	3,300	0.022	0.066	2,150	2,200	0.022	0.066	2,150	1,800	0.022	0.066	2,150
12.5 × 16	1,800	0.031	0.078	1,452	1,500	0.031	0.078	1,452	1,000	0.031	0.078	1,452
12.5 × 20	3,900	0.021	0.053	2,360	3,300	0.021	0.053	2,360	2,200	0.021	0.053	2,360
12.5 × 25	4,700	0.020	0.050	2,770	3,900	0.020	0.050	2,770	2,700	0.020	0.050	2,770
12.5 × 30	5,600	0.018	0.046	3,290	4,700	0.018	0.046	3,290	3,300	0.018	0.046	3,290
12.5 × 35	6,800	0.017	0.044	3,400	5,600	0.017	0.044	3,400	3,900	0.017	0.044	3,400
16 × 15	2,700	0.040	0.101	1,375	1,800	0.040	0.101	1,375	1,200	0.040	0.101	1,375
16 × 20	5,600	0.021	0.053	3,140	4,700	0.021	0.053	3,140	3,300	0.021	0.053	3,140
16 × 25	6,800	0.019	0.051	3,460	5,600	0.019	0.051	3,460	4,700	0.019	0.051	3,460
16 × 31.5	8,200	0.013	0.035	3,680	6,800	0.013	0.035	3,680	5,600	0.013	0.035	3,680
18 × 20	5,600	0.020	0.052	3,265	4,700	0.020	0.052	3,265	3,300	0.020	0.052	3,265
18 × 25	8,200	0.018	0.049	3,611	5,600	0.018	0.049	3,611	3,900	0.018	0.049	3,611

#DxL(mm)	25				35				50							
	μF	IMP.		Ripple	μF	IMP.		Ripple	μF	IMP.		Ripple				
		20°C	-10°C			20°C	-10°C			20°C	-10°C					
5 × 11	68	0.30	1.0	250	47	0.30	1.0	250	1	2.50	8.68	53				
									2.2	2.50	8.68	56				
									4.7	1.50	5.21	82				
									10	1.0	3.47	250				
									22	0.30	1.04	250				
									27	0.30	1.04	250				
6.3 × 11	150	0.13	0.41	405	100	0.13	0.41	405	47	0.14	0.50	350				
									56	0.14	0.50	385				
									100	0.10	0.32	646				
6.3 × 15	220	0.10	0.32	646	150	0.10	0.32	646	100	0.10	0.32	646				
8 × 11.5	220	0.072	0.22	760	150	0.072	0.22	760	100	0.072	0.21	724				
8 × 15	390	0.060	0.18	818	270	0.060	0.18	818	120	0.060	0.24	818				
8 × 20	560	0.050	0.16	1,260	390	0.050	0.16	1,260	180	0.050	0.18	1,260				
10 × 12	330	0.053	0.16	1,360	220	0.053	0.16	1,360	150	0.061	0.18	979				
													470	0.053	0.16	1,360
10 × 12.5	330	0.053	0.16	1,360	220	0.053	0.16	1,360	150	0.061	0.18	979				
													470	0.053	0.16	1,360
10 × 16	470	0.038	0.12	1,430	470	0.038	0.12	1,430	220	0.042	0.12	1,370				
													680	0.038	0.12	1,430
10 × 20	680	0.023	0.069	1,820	560	0.023	0.069	1,820	330	0.030	0.090	1,580				
													820	0.023	0.069	2,000
													1,000	0.025	0.075	1,900
10 × 25	1,000	0.022	0.066	2,150	680	0.022	0.066	2,150	470	0.028	0.085	1,870				
12.5 × 16	680	0.031	0.078	1,452	470	0.031	0.078	1,452	270	0.042	0.078	1,071				
12.5 × 20	1,500	0.021	0.053	2,360	1,000	0.021	0.053	2,360	470	0.027	0.068	2,050				
12.5 × 25	1,800	0.020	0.050	2,770	1,000	0.020	0.050	2,770	560	0.023	0.059	2,410				
													2,200	0.020	0.050	3,000
12.5 × 30	2,200	0.018	0.046	3,290	1,500	0.018	0.046	3,290	680	0.021	0.052	2,860				
12.5 × 35	2,700	0.017	0.044	3,400	1,800	0.017	0.044	3,400	820	0.019	0.051	2,960				
16 × 15	820	0.040	0.101	1,375	560	0.040	0.101	1,375	390	0.046	0.114	1,196				
16 × 20	2,200	0.021	0.053	3,140	1,500	0.021	0.053	3,140	820	0.023	0.059	2,730				
					1,800	0.019	0.051	3,460								
16 × 25	3,300	0.019	0.051	3,460	2,200	0.019	0.051	3,460	1,000	0.021	0.056	3,010				
					2,200	0.019	0.051	3,460								
16 × 31.5	3,300	0.013	0.035	3,680	2,200	0.013	0.035	3,680	1,500	0.014	0.037	3,201				
18 × 20	2,200	0.020	0.052	3,265	1,500	0.020	0.052	3,265	1,000	0.022	0.059	2,850				
18 × 25	2,700	0.018	0.049	3,611	1,800	0.018	0.049	3,611	1,200	0.020	0.053	3,140				



Rating of ZXB

V _{DC} #D x L (mm)	63			
	μF	IMP.		Ripple
		20°C	-10°C	
5 × 11	10	0.45	1.8	165
6.3 × 11	33	0.30	1.2	265
6.3 × 15	47	0.25	1.0	420
8 × 11.5	47	0.20	0.80	500
	68	0.20	0.80	500
10 × 12	68	0.16	0.64	600
10 × 12.5	68	0.16	0.64	600
10 × 16	100	0.10	0.40	945
10 × 20	150	0.080	0.32	1,100
10 × 25	220	0.070	0.28	1,300
12.5 × 20	330	0.040	0.16	1,495
16 × 20	470	0.035	0.14	1,990
16 × 25	680	0.030	0.12	2,780
16 × 31.5	1,000	0.020	0.080	2,835

V _{DC} #D x L (mm)	100				120			
	μF	IMP.		Ripple	μF	IMP.		Ripple
		20°C	-10°C			20°C	-10°C	
5 × 11	3.3	2.0	8.0	125				
5 × 11	4.7	2.0	8.0	125				
6.3 × 11	10	0.50	2.0	205				
6.3 × 15	22	0.40	1.6	300				
8 × 11.5	22	0.30	1.2	355	22	0.30	1.2	472
10 × 12	33	0.25	1.0	450	33	0.25	1.0	599
10 × 12.5	33	0.25	1.0	450	33	0.25	1.0	599
10 × 16	47	0.20	0.80	580	47	0.20	0.80	771
12.5 × 20	100	0.10	0.40	1,045	100	0.10	0.40	1,400
12.5 × 25	150	0.070	0.28	1,195	120	0.070	0.28	1,589
16 × 25	220	0.060	0.24	1,600	220	0.060	0.24	2,128
16 × 31.5	330	0.040	0.16	1,750	270	0.040	0.16	2,328
	470	0.040	0.16	1,750				
18 × 40	820	0.030	0.12	2,060	560	0.036	0.144	2,740

Rated Ripple Current (mArms/105°C, 100kHz)
 Impedance (Ω max./100kHz)
 Nominal Capacitance(μF)

RIPPLE CURRENT MULTIPLIERS

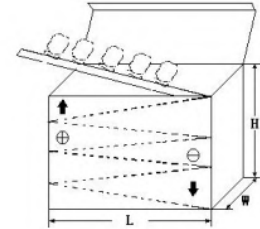
Frequency Multipliers

Cap.(μF)	Freq.(Hz)	120	1k	10k	50k	100k
1 ~ 180		0.40	0.75	0.90	0.95	1.00
220 ~ 560		0.50	0.85	0.94	0.96	1.00
680 ~ 1,800		0.60	0.87	0.95	0.97	1.00
2,200 ~ 3,900		0.75	0.90	0.95	0.97	1.00
4,700 ~ 8,200		0.85	0.95	0.98	0.99	1.00

PACKAGING STYLE

● Taped Packaging Quantity

直径 ΦD(mm)	数量(只) Qty. (Pcs)	L(电容高度)≤22mm	L(电容高度)=25±2mm
		L×W×H(mm)	L×W×H(mm)
Φ5	2000	328×235×50	328×235×57
Φ6.3	1500		
Φ8	1000		
Φ10	600		
Φ12.5	400		
Φ16	250		
Φ18	200		



● Bulk Packaging Quantity

ΦD(mm)Diameter	L(mm)Length	Quantity (pcs/bag)	bag/box	PCS/INNERBOX	PCS/OUTERBOX
Φ4	7-8	1000	15	4	60,000
Φ5	5-7	1000	12	4	48,000
Φ5	11	1000	10	4	40,000
Φ6.3	5-7	1000	10	4	40,000
Φ6.3	8-15	1000	8	4	32,000
Φ6.3	15-20	1000	6	4	24,000
Φ8	5-12	500	8	4	16,000
Φ8	14-16	500	8	4	16,000
Φ8	20	500	6	4	12,000
Φ10	9-13	500	6	4	12,000
Φ10	14-16	250	8	4	12,000
Φ10	17-20	250	8	4	8,000
Φ10	25-30	200	8	4	6,400
Φ10	31-45	200	8	4	4,800
Φ12.5	16-28	200	6	4	4,800
Φ12.5	30-40	100	8	4	3,200
Φ12.5	45-50	100	6	4	2,400
Φ16	15-20	100	6	4	3,200
Φ16	21-30	100	6	4	2,400
Φ16	31-40	50	10	4	2,000
Φ18	15-20	100	6	4	1,200
Φ18	25-30	50	8	4	800
Φ18	35-40	50	6	4	600
Φ18	41-50	25	10	4	500