

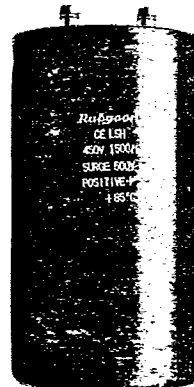
REB L88-07(LSR LSH LSX)

LARGE CAN TYPE ALUMINUM ELECTROLYTIC CAPACITORS

LSR, LSH, LSX SERIES [Computer Grade Large Capacitance]

Rubycon's "Screw Terminal Electrolytic Capacitors" are the high reliability products for the long life operation under a high ripple current, for which a new electrolyte and high stability electrode foils have been employed to accommodate the trend for higher performance and higher reliability of electronics equipment. Three series have been made available to meet the diversified applications that include electronic computers, inverters, high power audio amplifiers, etc.

- LSR Series... General Purpose Screw Terminal Electrolytic Capacitors made more compact.
- LSH Series... High Ripple Current Withstanding Capacitors
- LSX Series... High Temperature(+105°C) Long Life Capacitors



SPECIFICATION TABLE

1	SERIES	LSR SERIES		LSH SERIES		LSX SERIES																																																													
2	OPERATING TEMPERATURE RANGE(°C)	-40~+85	-25~+85	-40~+85	-25~+85	-40~+105	-25~+105																																																												
3	RATED VOLTAGE RANGE(V)	6.3~250	315~450	6.3~250	315~450	6.3~250	315~350																																																												
4	CAPACITANCE TOLERANCE (120Hz)	-10%~+50% (20°C)																																																																	
5	DISSIPATION FACTOR (max) (tan δ)	<table><tr><td>WV \ φD</td><td>35.8</td><td>51.6</td><td>64.3</td><td>77.0</td></tr><tr><td>6.3</td><td>1.0</td><td>1.3</td><td>1.5</td><td>2.0</td></tr><tr><td>10</td><td>0.75</td><td>1.0</td><td>1.3</td><td>1.5</td></tr><tr><td>16</td><td>0.6</td><td>0.7</td><td>0.8</td><td>1.0</td></tr><tr><td>25</td><td>0.4</td><td>0.5</td><td>0.7</td><td>0.8</td></tr><tr><td>35</td><td>0.3</td><td>0.5</td><td>0.6</td><td>0.7</td></tr><tr><td>50</td><td>0.25</td><td>0.3</td><td>0.5</td><td>0.6</td></tr><tr><td>63</td><td>0.2</td><td>0.25</td><td>0.3</td><td>0.4</td></tr><tr><td>80</td><td>0.2</td><td>0.2</td><td>0.25</td><td>0.3</td></tr><tr><td>100</td><td>0.15</td><td>0.2</td><td>0.25</td><td>0.25</td></tr><tr><td>160~250</td><td>0.15</td><td>0.15</td><td>0.2</td><td>0.2</td></tr><tr><td>315~450</td><td>0.2</td><td>0.2</td><td>0.25</td><td>0.25</td></tr></table> (20°C, 120Hz)						WV \ φD	35.8	51.6	64.3	77.0	6.3	1.0	1.3	1.5	2.0	10	0.75	1.0	1.3	1.5	16	0.6	0.7	0.8	1.0	25	0.4	0.5	0.7	0.8	35	0.3	0.5	0.6	0.7	50	0.25	0.3	0.5	0.6	63	0.2	0.25	0.3	0.4	80	0.2	0.2	0.25	0.3	100	0.15	0.2	0.25	0.25	160~250	0.15	0.15	0.2	0.2	315~450	0.2	0.2	0.25	0.25
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6	LEAKAGE CURRENT(μA max) (After applied rated voltage for 5 minutes)	I =0.02CV or 5mA, whichever is smaller I =LEAKAGE CURRENT(μA) C =NOMINAL CAPACITANCE(μF) V =RATED VOLTAGE																																																																	
7	MAXIMUM R.M.S.RIPPLE CURRENT	The maximum R.M.S. ripple current at 20°C, 120Hz is as per LIST OF STANDARD PRODUCTS. For conversion, following multiplier is to be used on figures in table below. <table><tr><td rowspan="4">TEMPERATURE COEFFICIENT</td><td>Series \ Temperature</td><td>20°C</td><td>30°C</td><td>45°C</td><td>70°C</td><td>85°C</td><td>105°C</td></tr><tr><td>LSR</td><td>1.0</td><td>0.9</td><td>0.8</td><td>0.5</td><td>0.38</td><td>—</td></tr><tr><td>LSH</td><td>1.0</td><td>0.93</td><td>0.84</td><td>0.64</td><td>0.45</td><td>—</td></tr><tr><td>LSX</td><td>1.0</td><td>0.93</td><td>0.84</td><td>0.64</td><td>0.45</td><td>0.24</td></tr><tr><td rowspan="4">FREQUENCY COEFFICIENT</td><td>Series \ Frequency</td><td>60Hz</td><td>120Hz</td><td>400Hz</td><td>1KHz</td><td>10KHz</td><td></td></tr><tr><td>6.3~50</td><td>0.8</td><td>1.0</td><td>1.03</td><td>1.05</td><td>1.08</td><td></td></tr><tr><td>63~100</td><td>0.8</td><td>1.0</td><td>1.05</td><td>1.07</td><td>1.10</td><td></td></tr><tr><td>160~450</td><td>0.8</td><td>1.0</td><td>1.10</td><td>1.13</td><td>1.18</td><td></td></tr></table>						TEMPERATURE COEFFICIENT	Series \ Temperature	20°C	30°C	45°C	70°C	85°C	105°C	LSR	1.0	0.9	0.8	0.5	0.38	—	LSH	1.0	0.93	0.84	0.64	0.45	—	LSX	1.0	0.93	0.84	0.64	0.45	0.24	FREQUENCY COEFFICIENT	Series \ Frequency	60Hz	120Hz	400Hz	1KHz	10KHz		6.3~50	0.8	1.0	1.03	1.05	1.08		63~100	0.8	1.0	1.05	1.07	1.10		160~450	0.8	1.0	1.10	1.13	1.18			
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8	LOAD LIFE TEST	LSR series...After applied rated voltage D.C for 1000 hours at 85°C LSH series...After applied rated voltage D.C for 2000 hours at 85°C LSX series...After applied rated voltage D.C for 1000 hours at 105°C <table><tr><td>CAPACITANCE CHANGE</td><td>Within ± 15% of the initial value</td></tr><tr><td>DF (tan δ)</td><td>Less than 175% of the value given in column 5</td></tr><tr><td>LEAKAGE CURRENT</td><td>Less than the value given in column 6</td></tr></table>						CAPACITANCE CHANGE	Within ± 15% of the initial value	DF (tan δ)	Less than 175% of the value given in column 5	LEAKAGE CURRENT	Less than the value given in column 6																																																						
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9	SHELF LIFE TEST	LSR series...Storage without voltage applied for 500 hours at 85°C. LSH series...Storage without voltage applied for 500 hours at 85°C. LSX series...Storage without voltage applied for 500 hours at 105°C. <table><tr><td>CAPACITANCE CHANGE</td><td>Within ± 15% of the initial value</td></tr><tr><td>DF (tan δ)</td><td>Less than 150% of the value given in column 5</td></tr><tr><td>LEAKAGE CURRENT</td><td>Less than the value given in column 6</td></tr></table> (After voltage treatment of the JIS C-5102)						CAPACITANCE CHANGE	Within ± 15% of the initial value	DF (tan δ)	Less than 150% of the value given in column 5	LEAKAGE CURRENT	Less than the value given in column 6																																																						
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10	OTHERS	Comply with JIS-C-5141 characteristic B																																																																	

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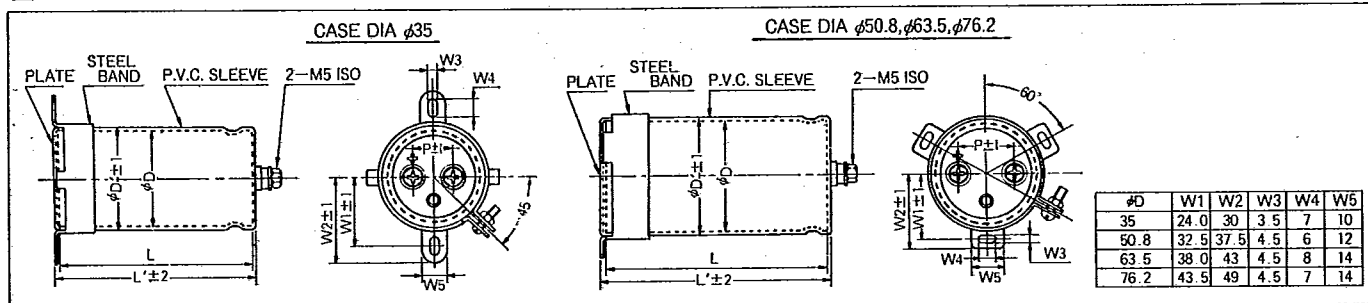
capacitors

REB L88-07(LSR LSH LSX)

LARGE CAN TYPE ALUMINUM ELECTROLYTIC CAPACITORS

DIMENSIONS

UNIT : mm



CASE CODE AND DIMENSIONS

UNIT : mm

Case Code	D	L	D'	L'	P	Case Code	D	L	D'	L'	P	Case Code	D	L	D'	L'	P
A 5	35	49	35.8	50.3	13.5	C 10	50.8	97	51.6	98.3	22	E 12	76.2	120	77.0	121.3	31.8
A 8	35	82	35.8	83.3	13.5	C 12	50.8	117	51.6	118.3	22	E 14	76.2	140	77.0	141.3	31.8
A 10	35	97	35.8	98.3	13.5	D 10	63.5	98	64.3	99.3	28.6	E 15	76.2	150	77.0	151.3	31.8
A 12	35	117	35.8	118.3	13.5	D 12	63.5	118	64.3	119.3	28.6						
C 8	50.8	82	51.6	83.3	22	E 10	76.2	100	77.0	101.3	31.8						

PART NUMBER



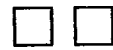
Rated Voltage



Series Number



Nominal Capacitance



Case Code

LIST OF STANDARD PRODUCTS(LSR)

Cap (μF)	6.3	10	16	25	35	50	63	80
2200								A 5 6.4
3300							A 5 6.1	A 5 7.9
4700						A 5 7.3	A 5 7.3	A 8 12.7
6800					A 5 8.0	A 5 8.8	A 8 11.0	A 10 13.8
10000				A 5 9.0	A 5 9.7	A 8 12.8	A 8 13.3	C 8 14.7
15000			A 5 9.7	A 5 11.0	A 8 14.9	A 10 16.1	C 8 18.1	C 10 19.4
22000	A 5 9.5	A 5 11.5	A 5 11.8	A 8 16.7	A 10 19.5	A 12 21.3	C 8 20.0	D 10 22.9
33000	A 5 11.6	A 5 13.7	A 8 18.1	A 10 22.1	A 12 24.1	C 10 24.4	D 10 25.8	D 12 30.3
47000	A 8 17.3	A 8 20.5	A 10 23.3	C 8 25.3	C 10 29.1	D 10 30.4	D 10 30.9	E 12 36.0
68000	A 8 20.8	A 10 25.4	C 8 25.9	C 10 29.3	C 12 33.5	D 12 35.6	E 12 38.2	E 15 44.6
100000	A 10 22.8	A 12 28.7	C 10 30.9	D 10 36.0	D 12 40.9	E 12 43.6	E 15 48.4	
150000	C 8 28.3	C 10 33.4	D 12 38.6	E 10 43.7	E 12 44.6			
220000	C 12 35.6	D 10 38.7	D 12 48.0	E 12 53.2				
330000	D 10 39.6	E 10 45.8	E 12 56.4					
470000	E 10 46.5							

Case Code

Ripple Current Arms/120Hz,20°C(1000hours)

Cap(μF)	100	160	200	250	315	350	400	450
220				A 5 3.0	A 5 3.0	A 8 3.5	A 5 2.5	A 8 2.5
330				A 5 3.6	A 8 4.5	A 8 4.5	A 10 4.9	A 12 4.4
470			A 5 3.4	A 5 4.4	A 8 5.5	A 10 5.9	A 12 6.4	C 8 4.9
680		A 5 4.4	A 5 4.4	A 8 5.5	A 10 5.9	A 10 5.9	A 12 6.4	C 8 4.9
1000		A 5 5.3	A 8 6.6	A 10 7.2	C 8 7.4	C 8 7.4	C 8 7.4	C 12 6.4
1500	A 5 6.5	A 8 8.2	A 10 8.0	C 8 8.2	C 10 8.8	D 10 10.1	D 10 10.1	D 10 7.7
2200	A 5 7.9	A 10 9.7	C 8 10.0	C 10 10.3	D 10 10.7	D 10 11.4	D 12 13.4	E 10 9.5
3300	A 8 9.9	A 12 12.2	C 12 12.5	D 10 12.8	D 12 13.1	E 10 13.5	E 12 14.5	
4700	A 8 11.8	C 10 14.0	D 10 14.9	E 10 16.1				
6800	A 10 13.8	D 10 15.5	E 10 19.3					
10000	C 8 14.7	E 10 20.5						
15000	D 10 20.7	E 12 21.9						
22000	D 10 25.0							
33000	E 10 33.0							
47000	E 12 38.9							

REB L88-07(LSR LSH LSX)

LARGE CAN TYPE ALUMINUM ELECTROLYTIC CAPACITORS

LIST OF STANDARD PRODUCTS(LSH)

Cap (μF)	6.3	10	16	25	35	50	63	80
680								A 5 3.8
1000								A 8 5.9
1500						A 5 5.0	A 5 5.7	A 8 7.2
2200						A 5 6.0	A 8 8.7	A 10 9.4
3300					A 5 6.0	A 8 9.2	A 8 9.2	C 8 11.9
4700				A 5 7.2	A 8 9.0	A 8 9.9	A 12 13.0	C 10 15.5
6800			A 5 8.0	A 5 8.7	A 8 10.8	C 8 13.4	C 8 15.0	D 10 17.1
10000		A 5 9.1	A 5 9.7	A 8 12.2	A 10 14.2	C 8 16.2	C 10 17.5	E 10 22.1
15000		A 8 13.9	A 8 14.9	A 10 16.1	C 8 18.2	C 10 19.5	D 10 22.8	E 14 28.3
22000	A 8 12.8	A 8 16.8	A 10 18.3	C 8 20.4	C 10 21.9	D 10 25.1	D 12 27.3	
33000	A 10 16.9	A 12 21.8	C 8 23.3	C 10 26.9	D 10 28.6	E 10 30.4	E 12 33.2	
47000	A 12 22.0	C 8 26.3	C 10 30.0	C 12 32.6	D 12 37.0	E 12 39.7	E 15 43.7	
68000	C 10 27.3	C 10 32.3	D 10 34.3	D 12 37.2	E 12 42.1	E 15 46.4		
100000	C 12 30.1	D 10 38.1	D 12 41.2	E 12 46.2	E 15 53.3			
150000	D 12 39.1	E 10 42.9	E 12 47.9	E 15 57.3				
220000	E 12 50.8	E 14 54.3	E 15 59.0					

Case Code

Ripple Current Arms/120Hz,20°C(2000hours)

Cap (μF)	100	160	200	250	315	350	400	450
220		A 5 2.5	A 5 2.7	A 8 3.3	A 8 3.1	A 8 3.3	A 10 3.6	C 8 3.1
330		A 8 3.2	A 8 3.8	A 8 4.1	A 10 4.2	A 10 4.4	C 8 4.6	C 10 4.1
470		A 8 4.5	A 8 4.9	A 10 5.3	C 10 5.5	C 10 5.8	C 10 6.0	C 10 4.9
680	A 5 4.7	A 10 6.4	A 12 7.0	C 10 7.2	C 10 6.8	C 10 7.2	D 10 7.6	D 10 6.2
1000	A 8 7.2	C 8 8.1	C 10 8.7	C 10 8.7	D 10 9.0	D 10 9.3	E 10 10.0	E 10 9.1
1500	A 10 9.5	C 10 10.0	D 10 10.8	D 10 11.3	E 10 11.5	E 10 12.2	E 12 13.2	E 14 12.9
2200	C 8 11.0	D 10 12.5	E 10 12.9	E 10 13.5	E 12 16.0	E 14 17.1	E 15 17.7	
3300	C 10 14.5	E 10 14.8	E 12 15.8	E 14 17.1	E 14 21.0	E 15 21.6		
4700	D 10 16.4	E 14 20.5	E 15 21.1					
6800	E 10 21.3	E 15 23.1						
10000	E 14 25.8							

LIST OF STANDARD PRODUCTS(LSX)

Cap (μF)	6.3	10	16	25	35	50	63	80
2200							A 5 7.0	A 5 7.0
3300						A 5 7.4	A 8 9.2	A 8 9.4
4700						A 8 9.9	A 8 11.0	A 8 12.8
6800					A 5 8.7	A 8 11.9	A 10 14.3	A 12 15.6
10000				A 5 9.7	A 8 13.2	A 10 15.6	A 12 17.0	C 10 19.3
15000			A 5 11.2	A 8 14.9	A 10 17.4	A 12 19.0	C 10 21.2	C 12 23.0
22000	A 5 10.2	A 8 16.9	A 8 16.9	A 10 19.5	A 12 23.0	C 10 23.4	D 10 25.1	D 10 27.5
33000	A 8 15.7	A 8 19.5	A 10 22.4	A 12 26.1	C 10 26.6	D 10 28.4	D 12 31.4	E 12 39.3
47000	A 8 18.7	A 10 25.2	A 12 29.1	C 12 29.7	D 10 34.0	D 12 36.8	E 12 39.7	E 14 45.8
68000	A 10 24.3	C 8 29.7	C 10 31.9	D 10 34.2	D 12 39.1	E 12 42.1		
100000	C 8 25.4	C 10 32.7	C 12 38.4	D 12 42.8	E 12 48.4			
150000	C 12 36.4	D 10 40.1	D 10 41.1	E 12 52.0				
220000	D 10 38.1	D 12 47.1	E 12 53.5					
330000	E 10 40.7	E 12 56.8						
470000	E 14 56.1							

Case Code

Ripple Current Arms/120Hz,20°C(1000hours)

Cap (μF)	100	160	200	250	315	350
220				A 5 2.5	A 5 2.7	A 5 2.7
330			A 5 3.3	A 8 3.5	A 8 3.7	A 8 4.1
470		A 5 3.9	A 8 4.5	A 8 4.5	A 10 5.0	A 10 5.3
680		A 8 5.9	A 8 5.9	A 10 6.4	A 12 6.5	C 8 6.7
1000	A 5 5.7	A 8 6.6	A 12 6.8	C 8 7.4	C 10 7.7	C 10 7.9
1500	A 5 7.0	A 8 8.0	C 8 9.1	C 10 9.7	C 12 10.0	D 10 10.4
2200	A 8 9.5	A 12 9.8	C 10 10.1	C 12 10.5	D 10 10.7	D 12 14.9
3300	A 10 11.8	C 10 12.8	D 10 13.8	D 12 14.9	E 12 15.8	E 12 16.0
4700	A 12 15.0	C 12 16.6	E 10 17.7	E 12 19.1		
6800	C 10 18.4	D 12 21.4	E 14 24.6			
10000	C 12 21.0	E 12 27.9				
15000	D 10 25.4					
22000	E 12 32.1					

A-05-11-03

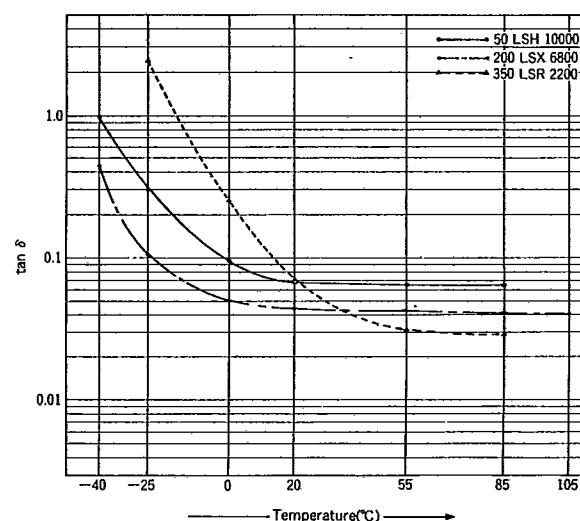
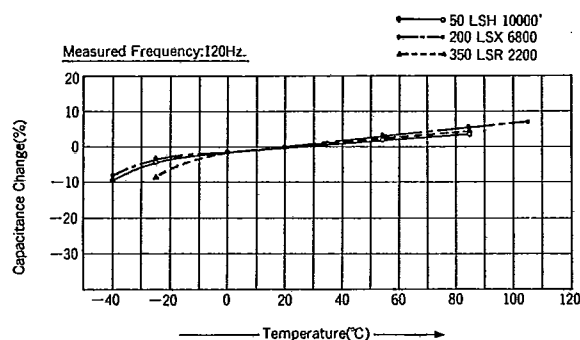


capacitors

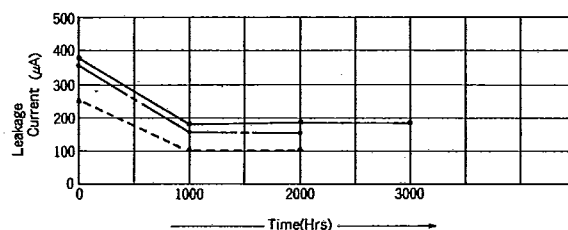
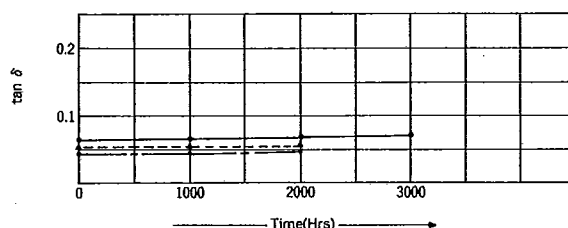
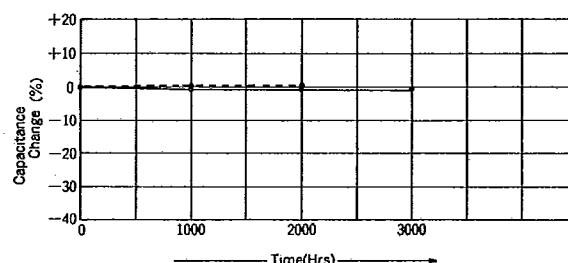
REB L88-07(LSR LSH LSX)

LARGE CAN TYPE ALUMINUM ELECTROLYTIC CAPACITORS

Temperature characteristic



Load Life



Frequency Characteristics

