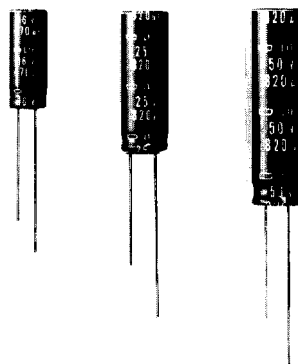


LXF SERIES

LOW Z ; SXE/KMF → **LXF** → SXG
 SIZE ; SXE/**LXF**/SXG → KMF
 LIFE ; SXG/SXE → KMF → **LXF**

- High frequency impedance, lower than SXE.
- Load life 2,000~15,000 hours at 105°C with the rated ripple current applied at 105°C. Life time is specified differently by the size of a capacitor.
- SXF series was unified to LXF series.
- Operating temperature range, -55 to 105°C.
- Solvent proof type, see page 6.

**CHARACTERISTICS**

Item	Characteristics								
Operating temperature range	-55 ~ +105°C								
Capacitance tolerance	±20% (M) (at 20°C, 120Hz)								
Leakage current	0.01CV or 3μA, whichever is greater, after 2 minutes at 20°C								
tan δ	Rated voltage (V)	6.3	10	16	25	35	50	63	
	tan δ	0.22	0.19	0.16	0.14	0.12	0.10	0.10	
	Note: Above tan δ specifications shall be 0.02 added every 1,000μF for capacitor exceeding 1,000μF. (at 20°C, 120Hz)								
Load life with ripple current applied	After the capacitors are subjected to DC voltage with the rated ripple current applied at 105°C over the test time below, the following specifications shall be satisfied when the capacitors are restored to 20°C. The sum of DC voltage and peak AC voltage must not exceed the full rated voltage of the capacitor.								
	Case size DxL (mm)	Test time (hour)	Case size DxL (mm)	Test time (hour)	Case size DxL (mm)	Test time (hour)	Case size DxL (mm)	Test time (hour)	
	4x5	2,000	8x12	3,500	12.5x15	5,000			
	4x7	2,500	8x15	5,000	12.5x20	7,000			
	4x11.5	3,000	8x20	5,000	12.5x25	8,000			
					12.5x30	8,000			
	5x5	2,000	10x12.5	4,000	12.5x35	10,000			
	5x7	2,500	10x16	6,000	12.5x40	10,000			
	5x11.5	3,000	10x20	6,000					
	5x15	4,000	10x25	7,000	16x15	6,000			
			10x30	7,000	16x20	7,000			
	6.3x5	2,000			16x25	10,000			
	6.3x7	2,500			16x30	10,000			
	6.3x11.5	3,000			16x35	13,000			
	6.3x15	5,000			16x40	15,000			
					18x15	6,000			
					18x20	7,000			
					18x25	10,000			
					18x30	10,000			
					18x35	13,000			
					18x40	15,000			
		Capacitance change	≤±30% of the initial measured value						
		tan δ	≤300% of the initial specified value						
		Leakage current	≤ The initial specified value						
		Note: Longer life capacitors are available as TXF series, on a part of LXF series capacitors.							
Shelf life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them at 105°C for 1,000 hours without voltage applied.								
	Capacitance change	≤±20% of the initial measured value							
	tan δ	≤200% of the initial specified value							
	Leakage current	≤ The initial specified value							
Others	Satisfies characteristic W of JIS C 5141.								

STANDARD RATINGS

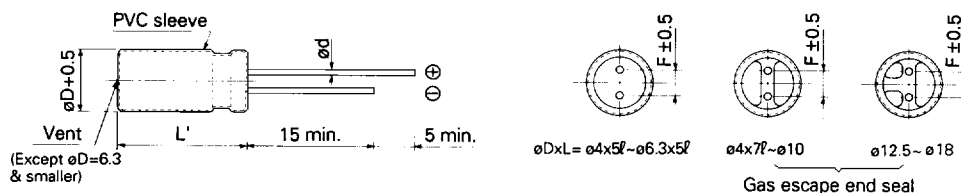
LXF

Case size øDxL(mm)	6.3V				10V				16V			
	Capaci- tance	Impedance (Ω max.)		Ripple current (mA rms)	Capaci- tance	Impedance (Ω max.)		Ripple current (mA rms)	Capaci- tance	Impedance (Ω max.)		Ripple current (mA rms)
	(μF)	20°C 100kHz	-10°C 100kHz	105°C 100kHz	(μF)	20°C 100kHz	-10°C 100kHz	105°C 100kHz	(μF)	20°C 100kHz	-10°C 100kHz	105°C 100kHz
4x5	22	5.2	11	37	15	5.2	11	37	10	5.2	11	37
4x7	27	2.8	5.6	56	22	2.8	5.6	56	15	2.8	5.6	56
4x11.5	68	1.2	2.4	110	47	1.2	2.4	110	33	1.2	2.4	110
5x5	47	2.9	5.8	58	33	2.9	5.8	58	22	2.9	5.8	58
5x7	56	1.7	3.4	85	39	1.7	3.4	85	27	1.7	3.4	85
5x11.5	100	0.75	1.5	163	82	0.75	1.5	163	56	0.75	1.5	163
5x15	150	0.50	1.0	225	100	0.50	1.0	225	82	0.50	1.0	225
6.3x5	100	1.3	2.6	93	68	1.3	2.6	93	47	1.3	2.6	93
6.3x7	120	0.70	1.4	155	82	0.70	1.4	155	56	0.70	1.4	155
6.3x11.5	220	0.35	0.70	273	180	0.35	0.70	273	120	0.35	0.70	273
6.3x15	330	0.25	0.50	390	220	0.25	0.50	390	180	0.25	0.50	390
8x12	470	0.17	0.34	445	330	0.17	0.34	445	270	0.17	0.34	445
8x15	680	0.13	0.26	555	470	0.13	0.26	555	330	0.13	0.26	555
8x20	1,000	0.095	0.19	740	680	0.095	0.19	740	470	0.095	0.19	740
10x12.5	680	0.12	0.24	625	390	0.12	0.24	625	270	0.12	0.24	625
10x16	820	0.084	0.17	825	680	0.084	0.17	825	470	0.084	0.17	825
10x20	1,200	0.062	0.13	1,040	1,000	0.062	0.13	1,040	680	0.062	0.13	1,040
10x25	1,500	0.052	0.11	1,260	1,200	0.052	0.11	1,260	820	0.052	0.11	1,260
10x30	2,200	0.044	0.088	1,440	1,500	0.044	0.088	1,440	1,200	0.044	0.088	1,440
12.5x15	1,200	0.076	0.16	935	1,000	0.076	0.16	935	680	0.076	0.16	935
12.5x20	2,200	0.046	0.092	1,340	1,800	0.046	0.092	1,340	1,200	0.046	0.092	1,340
12.5x25	2,700	0.034	0.068	1,690	2,200	0.034	0.068	1,690	1,500	0.034	0.068	1,690
12.5x30	3,900	0.030	0.060	1,950	2,700	0.030	0.060	1,950	2,200	0.030	0.060	1,950
12.5x35	4,700	0.024	0.048	2,220	3,300	0.024	0.048	2,220	2,700	0.024	0.048	2,200
12.5x40	5,600	0.021	0.042	2,390	3,900	0.021	0.042	2,390	3,300	0.021	0.042	2,390
16x15	2,700	0.054	0.11	1,260	1,500	0.054	0.11	1,260	1,200	0.054	0.11	1,260
16x20	4,700	0.038	0.076	1,630	3,300	0.038	0.076	1,630	2,200	0.038	0.076	1,630
16x25	5,600	0.028	0.056	2,070	3,900	0.028	0.056	2,070	2,700	0.028	0.056	2,070
16x30	6,800	0.025	0.050	2,350	5,600	0.025	0.050	2,350	3,900	0.025	0.050	2,350
16x35	8,200	0.022	0.044	2,550	6,800	0.022	0.044	2,550	4,700	0.022	0.044	2,550
16x40	12,000	0.018	0.036	2,900	8,200	0.018	0.036	2,900	5,600	0.018	0.036	2,900
18x15	3,300	0.054	0.11	1,350	2,200	0.054	0.11	1,350	1,500	0.054	0.11	1,350
18x20	5,600	0.038	0.076	1,750	3,900	0.038	0.076	1,750	3,300	0.038	0.076	1,750
18x25	6,800	0.028	0.056	2,130	4,700	0.028	0.056	2,130	3,900	0.028	0.056	2,130
18x30	10,000	0.025	0.050	2,410	6,800	0.025	0.050	2,410	4,700	0.025	0.050	2,410
18x35	12,000	0.022	0.044	2,660	8,200	0.022	0.044	2,660	6,800	0.022	0.044	2,660
18x40	15,000	0.018	0.036	3,010	10,000	0.018	0.036	3,010	8,200	0.018	0.036	3,010

DIMENSIONS

VB/Radial lead

Unit (mm)



øD	4	5	6.3	8	10	12.5	16	18
ød	0.45	*0.5	*0.6	0.6	0.6	0.6	0.8	0.8
F	1.5	2.0	2.5	3.5	5.0	5.0	7.5	7.5
L'	L + 1.0					L + 1.5		

Note: * Lead diameter (ød) for the capacitors of case sizes øDxL = 5x5, 5x7, 6.3x5 and 6.3x7 mm shall be 0.45 mm.

STANDARD RATINGS

LXF

Case size øDxL(mm)	25V				35V				50V			
	Capaci- tance	Impedance (Ω max.)		Ripple current (mA rms)	Capaci- tance	Impedance (Ω max.)		Ripple current (mA rms)	Capaci- tance	Impedance (Ω max.)		Ripple current (mA rms)
	(μF)	20°C 100kHz	-10°C 100kHz	105°C 100kHz	(μF)	20°C 100kHz	-10°C 100kHz	105°C 100kHz	(μF)	20°C 100kHz	-10°C 100kHz	105°C 100kHz
4x5	6.8	5.2	11	37	4.7	5.2	11	37	3.3	6.6	14	33
4x7	10	2.8	5.6	56	6.8	2.8	5.6	56	4.7	4.0	8.0	47
4x11.5	22	1.2	2.4	110	15	1.2	2.4	110	10	2.0	4.0	86
5x5	10	2.9	5.8	58	10	2.9	5.8	58	4.7	3.7	7.4	52
5x7	22	1.7	3.4	85	12	1.7	3.4	85	8.2	2.5	5.0	70
5x11.5	39	0.75	1.5	163	27	0.75	1.5	163	18	1.2	2.4	129
5x15	56	0.50	1.0	225	39	0.50	1.0	225	27	0.80	1.6	180
6.3x5	33	1.3	2.6	93	22	1.3	2.6	93	10	1.7	3.4	82
6.3x7	39	0.70	1.4	155	27	0.70	1.4	155	18	1.0	2.0	132
6.3x11.5	82	0.35	0.70	273	56	0.35	0.70	273	39	0.54	1.1	219
6.3x15	120	0.25	0.50	390	82	0.25	0.50	390	56	0.34	0.68	310
8x12	150	0.17	0.34	445	120	0.17	0.34	445	68	0.30	0.60	340
8x15	220	0.13	0.26	555	180	0.13	0.26	555	82	0.20	0.40	470
8x20	330	0.095	0.19	740	220	0.095	0.19	740	120	0.14	0.28	610
10x12.5	180	0.12	0.24	625	120	0.12	0.24	625	82	0.20	0.40	480
10x16	330	0.084	0.17	825	220	0.084	0.17	825	120	0.10	0.20	755
10x20	470	0.062	0.13	1,040	330	0.062	0.13	1,040	180	0.075	0.15	945
10x25	560	0.052	0.11	1,260	390	0.052	0.11	1,260	220	0.063	0.13	1,150
10x30	820	0.044	0.088	1,440	560	0.044	0.088	1,440	330	0.054	0.11	1,260
12.5x15	470	0.076	0.16	935	330	0.076	0.16	935	180	0.11	0.22	775
12.5x20	820	0.046	0.092	1,340	560	0.046	0.092	1,340	330	0.059	0.12	1,190
12.5x25	1,000	0.034	0.068	1,690	680	0.034	0.068	1,690	470	0.044	0.088	1,490
12.5x30	1,500	0.030	0.060	1,950	1,000	0.030	0.060	1,950	560	0.039	0.078	1,720
12.5x35	1,800	0.024	0.048	2,220	1,200	0.024	0.048	2,220	680	0.033	0.066	1,890
12.5x40	2,200	0.021	0.042	2,390	1,500	0.021	0.042	2,390	820	0.029	0.058	2,030
16x15	820	0.054	0.11	1,260	560	0.054	0.11	1,260	330	0.087	0.18	990
16x20	1,500	0.038	0.076	1,630	1,000	0.038	0.076	1,630	680	0.050	0.10	1,420
16x25	1,800	0.028	0.056	2,070	1,200	0.028	0.056	2,070	820	0.034	0.068	1,880
16x30	2,700	0.025	0.050	2,350	1,800	0.025	0.050	2,350	1,000	0.030	0.060	2,150
16x35	3,300	0.022	0.044	2,550	2,200	0.022	0.044	2,550	1,200	0.027	0.054	2,320
16x40	3,900	0.018	0.036	2,900	2,700	0.018	0.036	2,900	1,500	0.024	0.048	2,540
18x15	1,200	0.054	0.11	1,350	820	0.054	0.11	1,350	470	0.087	0.18	1,060
18x20	2,200	0.038	0.076	1,750	1,500	0.038	0.076	1,750	820	0.050	0.10	1,520
18x25	2,700	0.028	0.056	2,130	1,800	0.028	0.056	2,130	1,000	0.034	0.068	1,930
18x30	3,300	0.025	0.050	2,410	2,200	0.025	0.050	2,410	1,500	0.030	0.060	2,200
18x35	3,900	0.022	0.044	2,660	2,700	0.022	0.044	2,660	1,800	0.027	0.054	2,400
18x40	4,700	0.018	0.036	3,010	3,300	0.018	0.036	3,010	2,200	0.024	0.048	2,610

STANDARD RATINGS

LXF

Case size øDxL(mm)	63V			
	Capaci- tance	Impedance (Ω max.)		Ripple current (mA rms)
	(μF)	20°C 100kHz	-10°C 100kHz	105°C 100kHz
4x5	—	—	—	—
4x7	3.3	7.7	20	34
4x11.5	6.8	3.3	8.3	67
5x5	—	—	—	—
5x7	5.6	4.0	10	56
5x11.5	10	1.9	4.8	103
5x15	15	1.3	3.3	142
6.3x5	—	—	—	—
6.3x7	12	1.8	4.5	99
6.3x11.5	18	1.0	2.5	161
6.3x15	33	0.61	1.6	233
8x12	47	0.47	1.2	274
8x15	68	0.34	0.85	360
8x20	82	0.21	0.53	500
10x12.5	56	0.27	0.68	418
10x16	68	0.21	0.53	523
10x20	120	0.16	0.40	650
10x25	150	0.13	0.33	783
10x30	180	0.10	0.25	957
12.5x15	120	0.18	0.45	608
12.5x20	220	0.11	0.28	869
12.5x25	270	0.074	0.19	1,150
12.5x30	390	0.068	0.17	1,280
12.5x35	470	0.063	0.16	1,390
12.5x40	560	0.051	0.13	1,530
16x15	180	0.12	0.30	844
16x20	330	0.085	0.22	1,100
16x25	470	0.055	0.14	1,480
16x30	680	0.046	0.12	1,720
16x35	820	0.040	0.10	1,910
16x40	1,000	0.036	0.090	2,070
18x15	330	0.12	0.30	904
18x20	560	0.085	0.22	1,170
18x25	680	0.055	0.14	1,520
18x30	820	0.046	0.12	1,770
18x35	1,000	0.040	0.10	1,970
18x40	1,200	0.036	0.090	2,130

RIPPLE CURRENT MULTIPLIERS

When the ambient temperature and frequency are different from 105°C and 100kHz respectively, the ripple current shall not exceed the value multiplied by the factor given in the following tables.

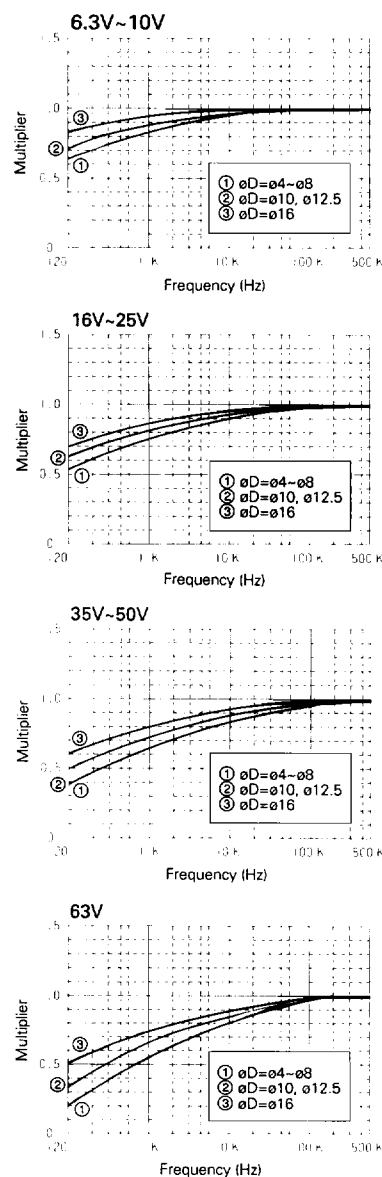
Temperature multipliers

Ambient temperature	65°C	85°C	105°C
Multiplier	2.23	1.73	1.00

Note: For long life applications, do not apply ripple current exceeding the rated ripple current specified at 105°C, even if actual operating temperature is less than the rated max. operating temperature (105°C). The temperature multipliers are set up on the condition of the same life time at the rated max. operating temperature.

When the temperature multipliers are used, life extension cannot be expected any more even at actually low ambient temperature.

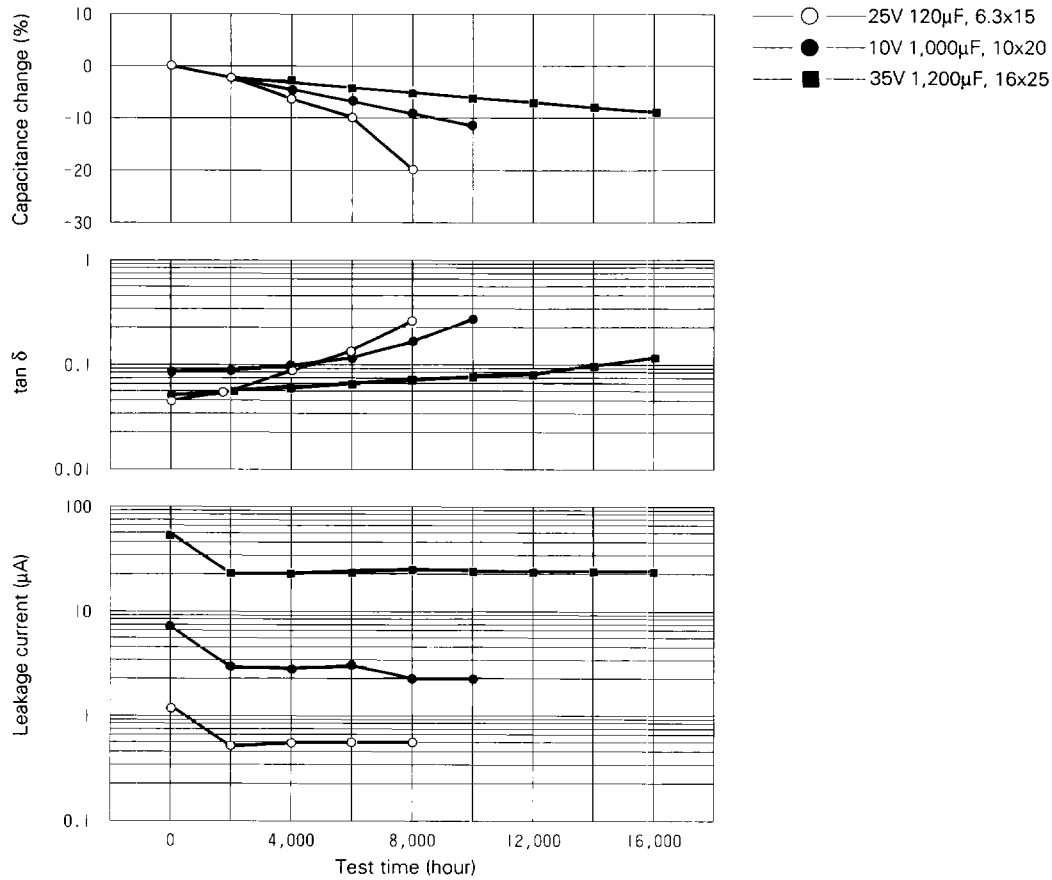
Frequency multipliers



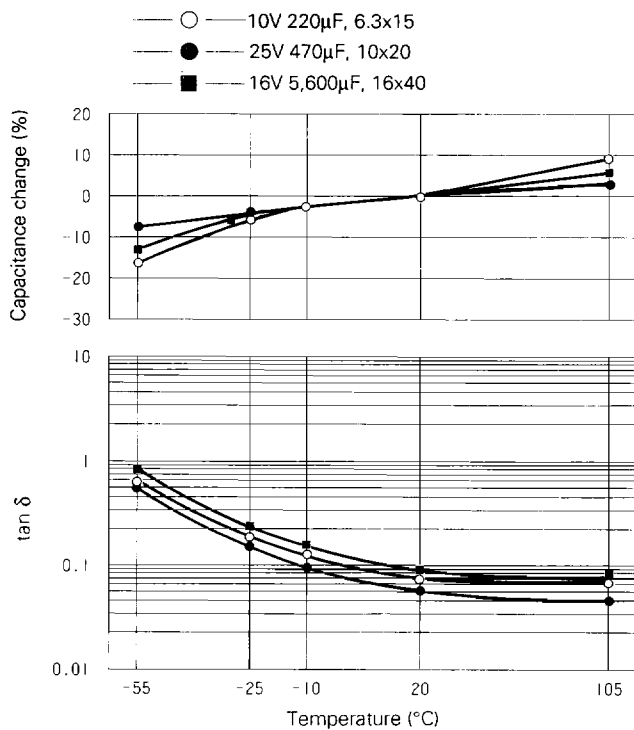
LXF

TEST DATA

● **105°C Load Life Test**



● **Temperature characteristics**



● **Impedance vs. frequency**

