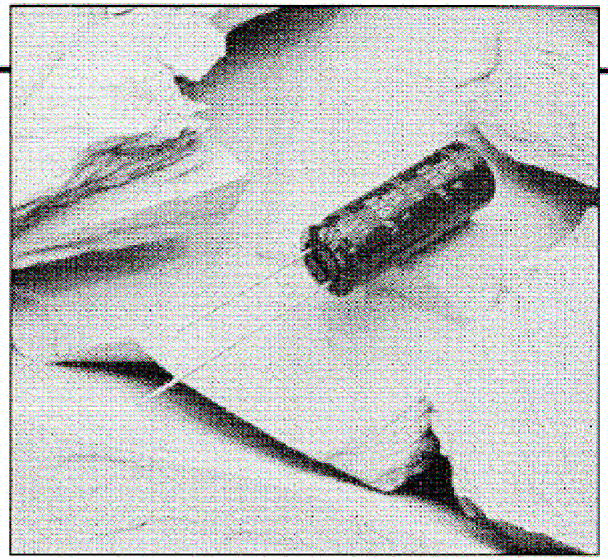
LXF Series

UNITED CHEMI-CON

- Miniature
- Solvent Proof
- Low Impedance
- Long Life
- Large Capacitance
- +105°C Maximum Temperature



The LXF series capacitors are designed to keep pace with the progressive miniaturization of electronic devices. LXF capacitors are ideal for use in compact DC-DC converters, switching power supplies and other high frequency applications. Important features include large capacitance, low impedance, a wide operating temperature range of −55°C to +105°C, and long life.

The LXF series capacitors were developed to withstand HCFC cleaning agents for five minutes by ultrasonic, vapor or immersion. This solvent proof design allows all circuit board components to be cleaned together, at the same time, without resorting to more expensive epoxy end-sealed capacitors. Refer to the Mini-Glossary for recommended cleaning conditions.

Summary of Specifications

- Radial lead terminals.
- Capacitance range: 10 to 15,000µF.
- Voltage range: 6.3 to 63VDC.
- Operating temperature range: −55°C to +105°C.
- Leakage current: 0.01CV or 3µA, whichever is greater, after 2 minutes at +20°C.
- Standard capacitance tolerance: ±20%
- Nominal case size (D×L): 5×11.5mm to 18×40mm.
- Rated lifetime: 3,000 to 15,000 hours at +105°C with the rated ripple current applied, depending on case size.

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LXF Specifications

Item	Characteristics
Operating Temperature Range	−55 to +105°C
Rated Voltage Range	6.3 to 63VDC
Capacitance Range	10 to 15,000µF
Capacitance Tolerance	±20% (M) at +20°C, 120Hz
Leakage Current	I = 0.01CV or 3µA, whichever is greater, after 2 minutes at +20°C. Where I = Leakage current (µA), C = Nominal capacitance (µF) and V = Rated voltage (V)
Dissipation Factor (Tan δ)	At +20°C, 120Hz Rated Voltage (V): 6.3 / 10 / 16 / 25 / 35 / 50 / 63 Tan δ (DF): 0.22 / 0.19 / 0.16 / 0.14 / 0.12 / 0.10 / 0.10 When nominal capacitance exceeds 1,000µF, add 0.02 to the values above for each 1,000µF increase.
Low Temperature Characteristics	At 120Hz, capacitance change and impedance (Z) ratio between the −55°C value and +20°C value are given in the table below. Rated Voltage (V): 6.3-63 Capacitance change: ΔC(−55°C)/C(+20°C): ≤ 30% Impedance ratio: Z(−55°C)/Z(+20°C): 3 max.
Ripple Current Multipliers	Refer to the following page for Ripple Current Multipliers.
Load Life	The following specifications shall be satisfied when the capacitors are restored to +20°C after subjecting them to the DC rated voltage for the specified test time at +105°C with the rated ripple current applied. The sum of DC voltage and peak AC voltage must not exceed the full rated voltage of the capacitors. Case Size D×L (mm) / Test Time (Hours): 5×11.5: 3,000 5×15: 4,000 6.3×11.5: 3,000 6.3×15: 5,000 8×12: 3,500 8×15: 5,000 8×20: 5,000 10×5: 4,000 10×7: 6,000 10×11.5: 6,000 10×15: 7,000 10×5: 7,000 12.5×15: 5,000 12.5×20: 7,000 12.5×25: 8,000 12.5×30: 8,000 12.5×35: 10,000 12.5×40: 10,000 16×15: 6,000 16×20: 7,000 16×25: 10,000 16×30: 10,000 16×35: 13,000 16×40: 15,000 18×15: 6,000 18×20: 7,000 18×25: 10,000 18×30: 10,000 18×35: 13,000 18×40: 15,000 Capacitance change: ≤ ±30% of the initial value Tan δ (DF): ≤ 300% of the initial specified value Leakage current: ≤ the initial specified value
Shelf Life	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. Capacitance change: ≤ ±20% of initial measured value Tan δ (DF): ≤ 200% of initial specified value Leakage current: ≤ initial specified value
Others	Satisfies characteristic W of JIS C5141

LXF Series

Ripple Current Multipliers

When capacitors are operated at a temperature and frequency other than +105°C and 100kHz respectively, the ripple current should not exceed the value multiplied by the factor given in the following tables.

Ambient Temperature (°C)

≤ +45°C	+65°C	+75°C	+85°C	+105°C
2.73	2.23	2.00	1.73	1.00

Frequency (Hz) for 6.3~10V

Case Diameter	120Hz	1kHz	10kHz	100kHz
5~8mm	0.63	0.82	0.95	1.00
10 to 12mm	0.70	0.89	0.95	1.00
16~18mm	0.82	0.94	0.99	1.00

Frequency (Hz) for 35~50V

Case Diameter	120Hz	1kHz	10kHz	100kHz
5~8mm	0.40	0.63	0.82	1.00
10 to 12mm	0.50	0.72	0.88	1.00
16~18mm	0.60	0.80	0.93	1.00

Frequency (Hz) for 16~25V

Case Diameter	120Hz	1kHz	10kHz	100kHz
5~8mm	0.53	0.75	0.90	1.00
10 to 12mm	0.61	0.80	0.92	1.00
16~18mm	0.70	0.87	0.95	1.00

Frequency (Hz) for 63V

Case Diameter	120Hz	1kHz	10kHz	100kHz
5~8mm	0.20	0.55	0.80	1.00
10 to 12mm	0.35	0.66	0.85	1.00
16~18mm	0.50	0.74	0.90	1.00

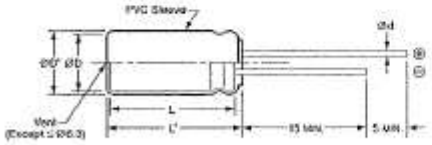
For applications requiring long life, do not apply ripple current higher than the rated ripple current specified at 105°C, even if actual operating temperature is less than the rated maximum operating temperature of 105°C. The temperature multipliers are based on the condition of the same life time as the rated maximum operating temperature.

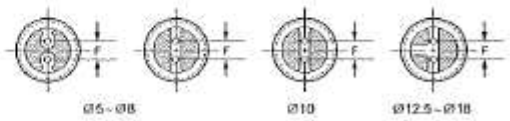
When the temperature multipliers are used, longer life should not be expected even at lower ambient temperatures.

Diagram of Dimensions

VB/Radial Lead

Unit: mm





Gas escape end seal for all case diameters.

For optional lead configurations and tape and reel packaging, refer to the beginning of the Miniature section.

øD	øD' max.	L' max.	ød	F±0.5
5	øD+0.5	L+1.0	0.5	2.0
6.3	øD+0.5	L+1.0	0.5	2.5
8	øD+0.5	L+1.0	0.6	3.5
10, 12.5	øD+0.5	L+1.0	0.6	5.0
16, 18	øD+0.5	L+1.5	0.8	7.5