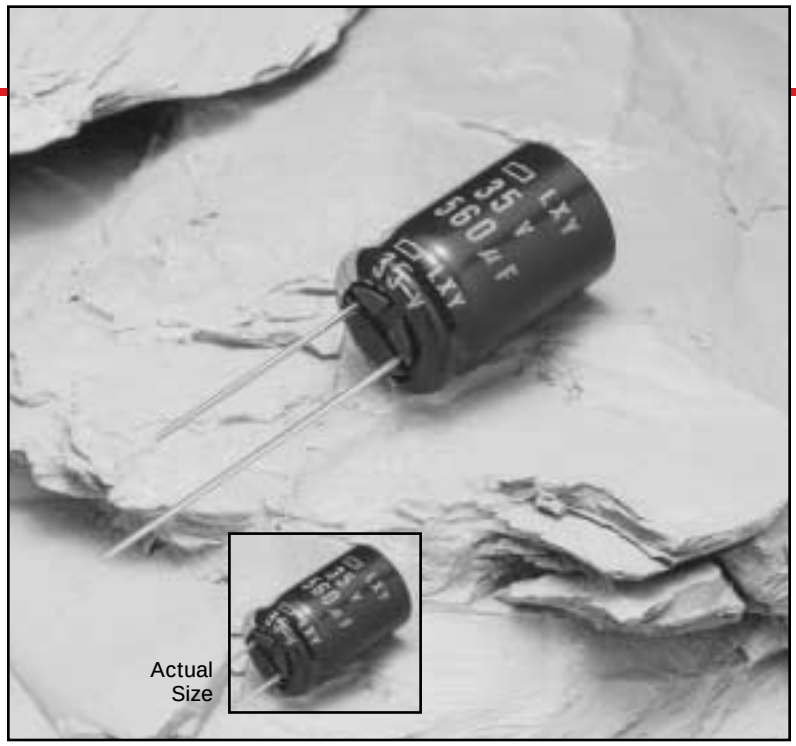
LXY Series

UNITED CHEMI-CON

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



The new LXY series capacitors have a low impedance and are designed for use in situations at high frequencies. The LXY capacitors are ideal for use in switching power supplies, as their characteristics include a wide temperature range, long life, and low impedance.

The LXY series capacitors are solvent proof. Refer to the Mini-Glossary for cleaning guidelines and recommended cleaning agents that are compatible with United Chemi-Con products.

Summary of Specifications

- **Radial lead terminals.**
- **Capacitance range: 10 to 8,200µF.**
- **Voltage range: 10 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 16×40mm.**
- **Rated lifetime: 2,000 to 8,000 hours at +105°C with the rated ripple current applied, depending on case size.**

LXY Series

LXY Specifications

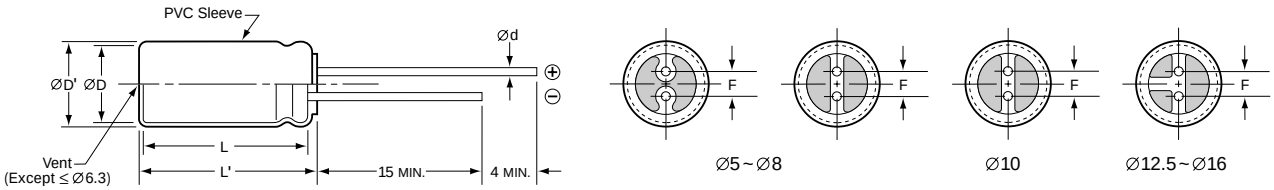
<table>
<tr><th>Item</th><th>Characteristics</th></tr>
<tr><td>Category Temperature Range</td><td>−55 to +105°C</td></tr>
<tr><td>Rated Voltage Range</td><td>10 to 63VDC</td></tr>
<tr><td>Capacitance Range</td><td>10 to 8,200μF</td></tr>
<tr><td>Capacitance Tolerance</td><td>±20% (M) at +20°C, 120Hz</td></tr>
<tr><td>Leakage Current</td><td>I = 0.01CV or 3μA, whichever is greater, after 2 minutes at +20°C.
Where I = Max. leakage current (μA), C = Nominal capacitance (μF) and V = Rated voltage (V)</td></tr>
<tr><td>Dissipation Factor (Tan δ)</td><td>At +20°C, 120Hz
<table>
<tr><td>Rated Voltage (V)</td><td>10</td><td>16</td><td>25</td><td>35</td><td>50</td><td>63</td></tr>
<tr><td>Tan δ (DF)</td><td>0.19</td><td>0.16</td><td>0.14</td><td>0.12</td><td>0.10</td><td>0.10</td></tr>
</table>
When nominal capacitance exceeds 1,000μF, add 0.02 to the values above for each 1,000μF increase.</td></tr>
<tr><td>Impedance at 100kHz</td><td>At 100kHz, maximum impedance at +20°C and −10°C is specified in the Ratings Tables.</td></tr>
<tr><td>Low Temperature Characteristics</td><td>At 120Hz, impedance (Z) ratio between the −55°C value and +20°C value shall not exceed the values given below.
<table>
<tr><td>Rated Voltage (V)</td><td>10 - 50</td><td>63</td></tr>
<tr><td>Z(−55°C) / Z(+20°C)</td><td>3</td><td>6</td></tr>
</table></td></tr>
<tr><td>Rated Ripple Current Multipliers
Refer to Section 4 of the Mini-Glossary for explanation of Rated Ripple Current Multipliers.</td><td>Ambient Temperature (°C)
<table>
<tr><td>≤ +65°C</td><td>+85°C</td><td>+105°C</td></tr>
<tr><td>2.23</td><td>1.73</td><td>1.00</td></tr>
</table>
Frequency (Hz)
<table>
<tr><td>Capacitance (μF)</td><td>120Hz</td><td>1kHz</td><td>10kHz</td><td>100kHz</td></tr>
<tr><td>10 - 180μF</td><td>0.40</td><td>0.75</td><td>0.90</td><td>1.00</td></tr>
<tr><td>220 - 560μF</td><td>0.50</td><td>0.85</td><td>0.94</td><td>1.00</td></tr>
<tr><td>680 - 1,800μF</td><td>0.60</td><td>0.87</td><td>0.95</td><td>1.00</td></tr>
<tr><td>2,200 - 3,900μF</td><td>0.75</td><td>0.90</td><td>0.95</td><td>1.00</td></tr>
<tr><td>4,700 - 8,200μF</td><td>0.85</td><td>0.95</td><td>0.98</td><td>1.00</td></tr>
</table></td></tr>
<tr><td>Endurance
(Load Life)</td><td>The following specifications shall be satisfied when the capacitors are restored to +20°C after subjecting them to DC voltage for the specified test time at +105°C with the rated ripple current applied. The sum of the DC voltage and peak AC voltage must not exceed the full rated voltage of the capacitors.
<table>
<tr><td>Case Diameter</td><td>ø5 & ø6.3mm</td><td>ø8mm</td><td>ø10mm</td><td>ø12.5mm</td><td>ø16 & ø18mm</td></tr>
<tr><td>Test Time</td><td>2,000 Hours</td><td>3,000 Hours</td><td>5,000 Hours</td><td>7,000 Hours</td><td>8,000 Hours</td></tr>
</table>
Capacitance change: ≤ ±20% of initial measured value
Tan δ (DF) : ≤ 200% of initial specified value
Leakage current : ≤ initial specified value</td></tr>
<tr><td>Shelf Life</td><td>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</td></tr>
<tr><td>Others</td><td>Satisfies characteristic W of JIS C5141</td></tr>
</table>

LXY Series

Diagram of Dimensions

VB / Radial Lead

Unit: mm



ØD	ØD' max.	L' max.	Ød	F ± 0.5
5	ØD + 0.5	L + 1.5	0.5	2.0
6.3	ØD + 0.5	L + 1.5	0.5	2.5
8	ØD + 0.5	L + 1.5	0.6	3.5
10, 12.5	ØD + 0.5	L + 1.5	0.6	5.0
16	ØD + 0.5	L + 1.5	0.8	7.5

For optional lead configurations and tape and ammo packaging, refer to the beginning of the Miniature Section.

Part Numbering System for LXY Series

When ordering, always specify complete catalog number for LXY Series.

LXY 35 VB 561 M 12X20 LL

- LL: Lead Length: LL is Standard.
- 12X20: Case Code: See Case Sizes in Tables.
- M: Capacitance Tolerance: M = ±20%
- 561: Capacitance Value: Expressed in Microfarads. The first two digits are significant figures, and the third digit indicates the number of zeros for capacitance of 100µF or more. R indicates the decimal point for capacitance less than 100µF (e.g. R56 = .56µF; 5R6 = 5.6µF; 56R = 56µF; 561 = 560µF; 562 = 5,600µF; 563 = 56,000µF).
- VB: Lead Configuration: VB = Radial Lead Terminals.
- 35: DC Rated Voltage: Expressed in Volts (e.g. 35 = 35WVDC).
- LXY: Series Name: Indicates Basic Capacitor Design.

Standard Voltage Ratings - VB / Radial Lead

Rated Voltage (WVDC)	Capacitance (µF)	Catalog Part Number	Nominal Case Size* D×L (mm)	Maximum Impedance (Ω) at +20°C, 100kHz	Maximum Impedance (Ω) at −10°C, 100kHz	Rated Ripple Current (mA rms) at +105°C, 100kHz
10 Volts **13 Volts Surge**	82	LXY10VB82RM5X11LL	5 × 11.5	0.75	1.5	163
	180	LXY10VB181M6X11LL	6.3 × 11.5	0.35	0.7	273
	220	LXY10VB221M6X15LL	6.3 × 15	0.25	0.5	390
	330	LXY10VB331M8X12LL	8 × 12	0.17	0.34	445
	390	LXY10VB391M10X12LL	10 × 12.5	0.12	0.24	625
	470	LXY10VB471M8X15LL	8 × 15	0.13	0.26	555
	680	LXY10VB681M8X20LL	8 × 20	0.095	0.19	740
	680	LXY10VB681M10X16LL	10 × 16	0.084	0.17	825
	1,000	LXY10VB102M10X20LL	10 × 20	0.062	0.13	1,040
	1,200	LXY10VB122M10X25LL	10 × 25	0.052	0.11	1,260
	1,500	LXY10VB152M10X30LL	10 × 30	0.044	0.088	1,440
	1,800	LXY10VB182M12X20LL	12.5 × 20	0.046	0.092	1,340

***The case sizes in table are with no sleeve, refer to diagram for case sizes with sleeve.**

LXY Series

Standard Voltage Ratings - VB / Radial Lead

Rated Voltage (WVDC)	Capacitance (µF)	Catalog Part Number	Nominal Case Size* D×L (mm)	Maximum Impedance (Ω) at +20°C, 100kHz	Maximum Impedance (Ω) at −10°C, 100kHz	Rated Ripple Current (mA rms) at +105°C, 100kHz
10 Volts **13 Volts Surge**	2,200	LXY10VB222M12X25LL	12.5 × 25	0.034	0.068	1,690
	2,700	LXY10VB272M12X30LL	12.5 × 30	0.03	0.06	1,950
	3,300	LXY10VB332M12X35LL	12.5 × 35	0.024	0.048	2,200
	3,300	LXY10VB332M16X20LL	16 × 20	0.038	0.076	1,630
	3,900	LXY10VB392M12X40LL	12.5 × 40	0.022	0.044	2,390
	3,900	LXY10VB392M16X25LL	16 × 25	0.028	0.056	2,070
	5,600	LXY10VB562M16X30LL	16 × 30	0.025	0.05	2,350
	6,800	LXY10VB682M16X35LL	16 × 35	0.022	0.044	2,550
	8,200	LXY10VB822M16X40LL	16 × 40	0.018	0.036	2,900
16 Volts **20 Volts Surge**	56	LXY16VB56RM5X11LL	5 × 11.5	0.75	1.5	163
	120	LXY16VB121M6X11LL	6.3 × 11.5	0.35	0.7	273
	180	LXY16VB181M6X15LL	6.3 × 15	0.25	0.5	390
	270	LXY16VB271M8X12LL	8 × 12	0.17	0.34	445
	270	LXY16VB271M10X12LL	10 × 12.5	0.12	0.24	625
	330	LXY16VB331M8X15LL	8 × 15	0.13	0.26	555
	470	LXY16VB471M8X20LL	8 × 20	0.095	0.19	740
	470	LXY16VB471M10X16LL	10 × 16	0.084	0.17	825
	680	LXY16VB681M10X20LL	10 × 20	0.062	0.13	1,040
	820	LXY16VB821M10X25LL	10 × 25	0.052	0.11	1,260
	1,200	LXY16VB122M10X30LL	10 × 30	0.044	0.088	1,440
	1,200	LXY16VB122M12X20LL	12.5 × 20	0.046	0.092	1,340
	1,500	LXY16VB152M12X25LL	12.5 × 25	0.034	0.068	1,690
	2,200	LXY16VB222M12X30LL	12.5 × 30	0.03	0.06	1,950
	2,200	LXY16VB222M16X20LL	16 × 20	0.038	0.076	1,630
	2,700	LXY16VB272M12X35LL	12.5 × 35	0.024	0.048	2,200
	2,700	LXY16VB272M16X25LL	16 × 25	0.028	0.056	2,070
	3,300	LXY16VB332M12X40LL	12.5 × 40	0.022	0.044	2,390
	3,900	LXY16VB392M16X30LL	16 × 30	0.025	0.05	2,350
	4,700	LXY16VB472M16X35LL	16 × 35	0.022	0.044	2,550
	5,600	LXY16VB562M16X40LL	16 × 40	0.018	0.036	2,900
25 Volts **32 Volts Surge**	39	LXY25VB39RM5X11LL	5 × 11.5	0.75	1.5	163
	82	LXY25VB82RM6X11LL	6.3 × 11.5	0.35	0.7	273
	120	LXY25VB121M6X15LL	6.3 × 15	0.25	0.5	390
	150	LXY25VB151M8X12LL	8 × 12	0.17	0.34	445
	180	LXY25VB181M10X12LL	10 × 12.5	0.12	0.24	625
	220	LXY25VB221M8X15LL	8 × 15	0.13	0.26	555
	330	LXY25VB331M8X20LL	8 × 20	0.095	0.19	740
	330	LXY25VB331M10X16LL	10 × 16	0.084	0.17	825
	470	LXY25VB471M10X20LL	10 × 20	0.062	0.13	1,040
	560	LXY25VB561M10X25LL	10 × 25	0.052	0.11	1,260
	820	LXY25VB821M10X30LL	10 × 30	0.044	0.088	1,440
	820	LXY25VB821M12X20LL	12.5 × 20	0.046	0.092	1,340
	1,000	LXY25VB102M12X25LL	12.5 × 25	0.034	0.068	1,690
	1,500	LXY25VB152M12X30LL	12.5 × 30	0.03	0.06	1,950
	1,500	LXY25VB152M16X20LL	16 × 20	0.038	0.076	1,630
	1,800	LXY25VB182M12X35LL	12.5 × 35	0.024	0.048	2,200
	1,800	LXY25VB182M16X25LL	16 × 25	0.028	0.056	2,070
	2,200	LXY25VB222M12X40LL	12.5 × 40	0.022	0.044	2,390
	2,700	LXY25VB272M16X30LL	16 × 30	0.025	0.05	2,350
	3,300	LXY25VB332M16X35LL	16 × 35	0.022	0.044	2,550
	3,900	LXY25VB392M16X40LL	16 × 40	0.018	0.036	2,900
35 Volts **44 Volts Surge**	27	LXY35VB27RM5X11LL	5 × 11.5	0.75	1.5	163
	56	LXY35VB56RM6X11LL	6.3 × 11.5	0.35	0.7	273
	82	LXY35VB82RM6X15LL	6.3 × 15	0.25	0.5	390
	120	LXY35VB121M8X12LL	8 × 12	0.17	0.34	445
	120	LXY35VB121M10X12LL	10 × 12.5	0.12	0.24	625
	180	LXY35VB181M8X15LL	8 × 15	0.13	0.26	555

***The case sizes in table are with no sleeve, refer to diagram for case sizes with sleeve.**

LXY Series

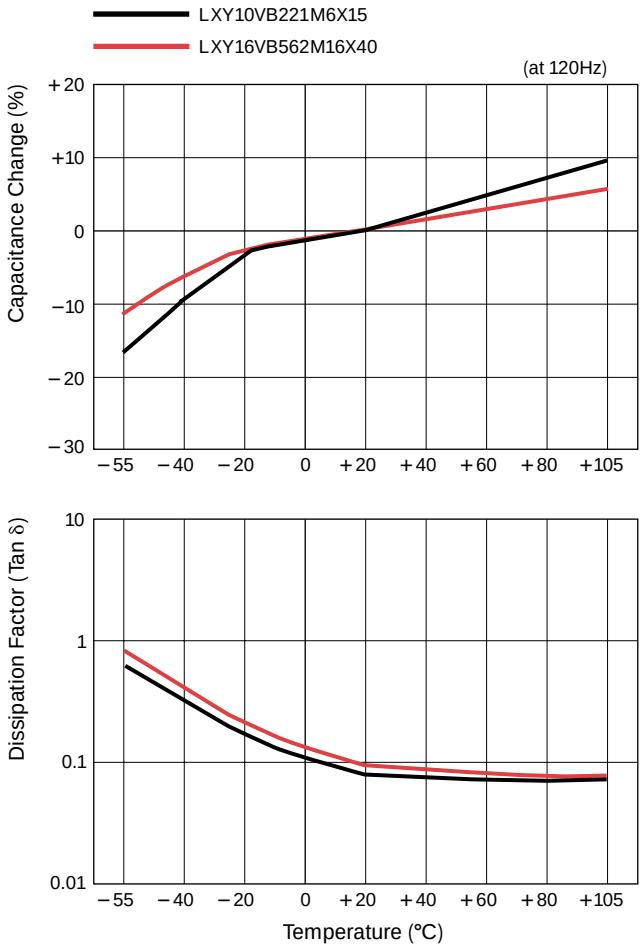
Standard Voltage Ratings - VB / Radial Lead

Rated Voltage (WVDC)	Capacitance (µF)	Catalog Part Number	Nominal Case Size* D×L (mm)	Maximum Impedance (Ω) at +20°C, 100kHz	Maximum Impedance (Ω) at −10°C, 100kHz	Rated Ripple Current (mA rms) at +105°C, 100kHz
35 Volts 44 Volts Surge	220	LXY35VB221M8X20LL	8 × 20	0.095	0.19	740
	220	LXY35VB221M10X16LL	10 × 16	0.084	0.17	825
	330	LXY35VB331M10X20LL	10 × 20	0.062	0.13	1,040
	390	LXY35VB391M10X25LL	10 × 25	0.052	0.11	1,260
	560	LXY35VB561M10X30LL	10 × 30	0.044	0.088	1,440
	560	LXY35VB561M12X20LL	12.5 × 20	0.046	0.092	1,340
	680	LXY35VB681M12X25LL	12.5 × 25	0.034	0.068	1,690
	1,000	LXY35VB102M12X30LL	12.5 × 30	0.030	0.060	1,950
	1,000	LXY35VB102M16X20LL	16 × 20	0.038	0.076	1,630
	1,200	LXY35VB122M12X35LL	12.5 × 35	0.024	0.048	2,200
	1,200	LXY35VB122M16X25LL	16 × 25	0.028	0.056	2,070
	1,500	LXY35VB152M12X40LL	12.5 × 40	0.022	0.044	2,390
	1,800	LXY35VB182M16X30LL	16 × 30	0.025	0.05	2,350
	2,200	LXY35VB222M16X35LL	16 × 35	0.022	0.044	2,550
	2,700	LXY35VB272M16X40LL	16 × 40	0.018	0.036	2,900
50 Volts 63 Volts Surge	18	LXY50VB18RM5X11LL	5 × 11.5	1.2	2.4	129
	39	LXY50VB39RM6X11LL	6.3 × 11.5	0.54	1.1	219
	56	LXY50VB56RM6X15LL	6.3 × 15	0.34	0.68	310
	68	LXY50VB68RM8X12LL	8 × 12	0.3	0.6	340
	82	LXY50VB82RM8X15LL	8 × 15	0.2	0.4	470
	82	LXY50VB82RM10X12LL	10 × 12.5	0.2	0.4	480
	120	LXY50VB121M8X20LL	8 × 20	0.14	0.28	610
	120	LXY50VB121M10X16LL	10 × 16	0.13	0.26	755
	180	LXY50VB181M10X20LL	10 × 20	0.088	0.18	945
	220	LXY50VB221M10X25LL	10 × 25	0.073	0.15	1,150
	330	LXY50VB331M10X30LL	10 × 30	0.054	0.11	1,260
	330	LXY50VB331M12X20LL	12.5 × 20	0.059	0.12	1,190
	470	LXY50VB471M12X25LL	12.5 × 25	0.044	0.088	1,490
	560	LXY50VB561M12X30LL	12.5 × 30	0.039	0.078	1,720
	680	LXY50VB681M12X35LL	12.5 × 35	0.033	0.066	1,890
	680	LXY50VB681M16X20LL	16 × 20	0.05	0.10	1,420
	820	LXY50VB821M12X40LL	12.5 × 40	0.029	0.058	2,030
	820	LXY50VB821M16X25LL	16 × 25	0.034	0.068	1,880
	1,000	LXY50VB102M16X30LL	16 × 30	0.03	0.06	2,150
	1,200	LXY50VB122M16X35LL	16 × 35	0.027	0.054	2,320
	1,500	LXY50VB152M16X40LL	16 × 40	0.024	0.048	2,540
63 Volts 79 Volts Surge	10	LXY63VB10RM5X11LL	5 × 11.5	1.9	4.8	103
	18	LXY63VB18RM6X11LL	6.3 × 11.5	1.0	2.5	161
	33	LXY63VB33RM6X15LL	6.3 × 15	0.61	1.6	233
	47	LXY63VB47RM8X12LL	8 × 12	0.47	1.2	274
	56	LXY63VB56RM10X12LL	10 × 12.5	0.27	0.68	418
	68	LXY63VB68RM8X15LL	8 × 15	0.34	0.85	360
	68	LXY63VB68RM10X16LL	10 × 16	0.21	0.53	523
	82	LXY63VB82RM8X20LL	8 × 20	0.21	0.53	500
	120	LXY63VB121M10X20LL	10 × 20	0.16	0.40	650
	150	LXY63VB151M10X25LL	10 × 25	0.13	0.33	783
	180	LXY63VB181M10X30LL	10 × 30	0.10	0.25	957
	220	LXY63VB221M12X20LL	12.5 × 20	0.11	0.28	869
	270	LXY63VB271M12X25LL	12.5 × 25	0.074	0.19	1,150
	330	LXY63VB331M16X20LL	16 × 20	0.085	0.22	1,100
	390	LXY63VB391M12X30LL	12.5 × 30	0.068	0.17	1,280
	470	LXY63VB471M12X35LL	12.5 × 35	0.063	0.16	1,390
	470	LXY63VB471M16X25LL	16 × 25	0.055	0.14	1,480
	560	LXY63VB561M12X40LL	12.5 × 40	0.051	0.13	1,530
	680	LXY63VB681M16X30LL	16 × 30	0.046	0.12	1,720
	820	LXY63VB821M16X35LL	16 × 35	0.04	0.10	1,910
	1,000	LXY63VB102M16X40LL	16 × 40	0.036	0.09	2,070

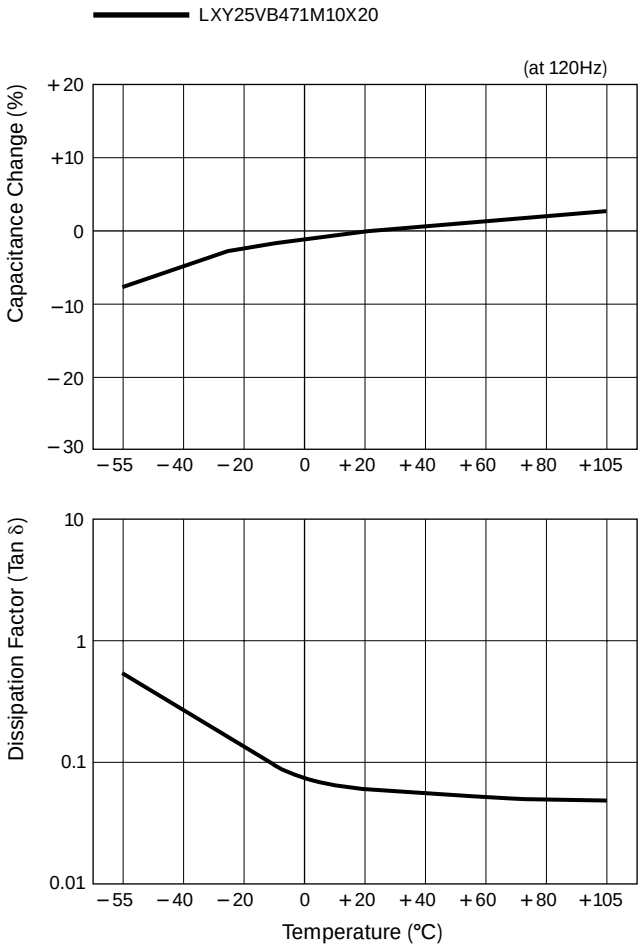
***The case sizes in table are with no sleeve, refer to diagram for case sizes with sleeve.**

LXY Series

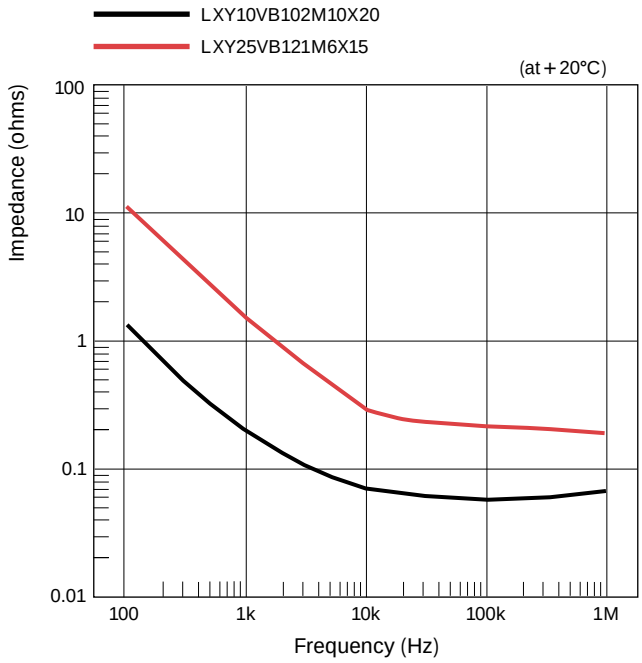
Temperature Characteristics



Temperature Characteristics



Impedance – Frequency Characteristics



Impedance – Frequency Characteristics