

Type BLC Polypropylene Board Mount DC Link Capacitors

PCB Mount Power Film Capacitors



Type BLC series uses the most advanced metallized film technology for long life and high reliability in DC Link applications. This series combines high capacitance and very high ripple current capability needed for today's inverter designs for medium power wind, solar, fuel cells, UPS systems and more.

Highlights

- High capacitance
- High ripple current
- Self-healing

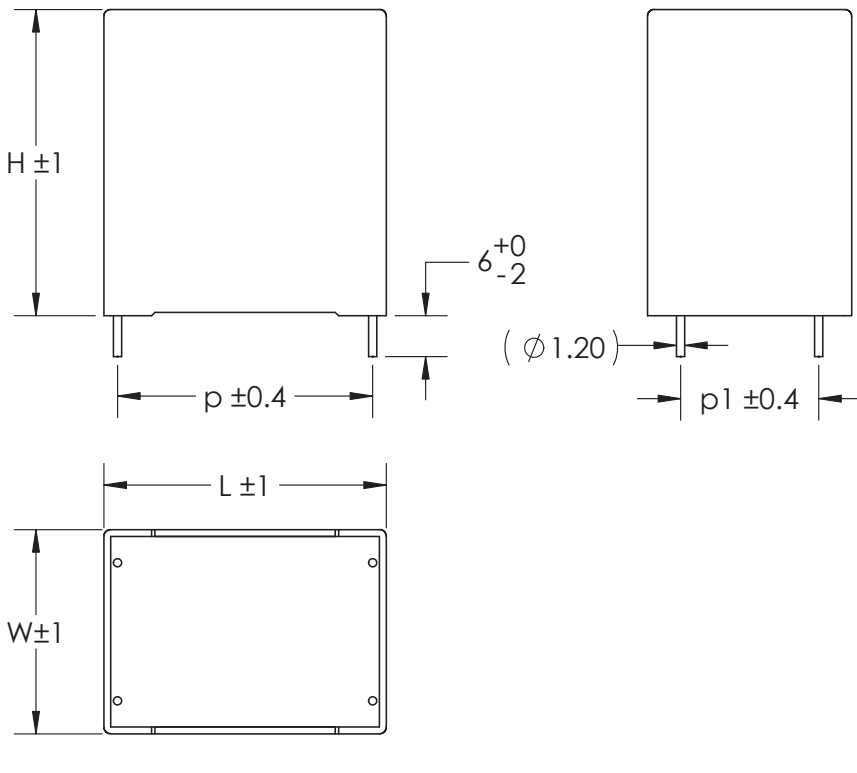
Specifications

| | |
|---|---|
| Capacitance Range | 8 to 55 μF |
| Capacitance Tolerance | $\pm 5\%$ standard |
| Rated Voltage | 700 to 1100 Vdc |
| Operating Temperature Range | -45 °C to 85 °C (ambient) |
| Maximum rms Current | see data tables |
| Maximum rms Voltage | 230 Vac |
| Test Voltage between Terminals @ 25 °C | 150% rated DC voltage for 10 s |
| Test Voltage between Terminals and Case @ 25 °C | 2 kVac @ 50/60 Hz for 10 s |
| Insulation Resistance | $\geq 30,000 \text{ M}\Omega \times \mu\text{F}$ @ 100 Vdc 25 °C after 1 minute |
| Life Test | 5000 h @ 85 °C, rated voltage |
| Reference Standards | IEC 61071 |

Regulatory Information

Dimensions

| Construction Details | |
|----------------------|-------------------|
| Case Material | Plastic UL94V-0 |
| Resin Material | Dry Resin UL94V-0 |
| Terminal Material | Tin Plated Copper |



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Part Numbering System

BLC

↓
Type
BLC

300

↓
Capacitance
080 = 8 μ F
150 = 15 μ F
300 = 30 μ F

J

↓
Tolerance
J = \pm 5%

901

↓
Voltage
701 = 700 Vdc
901 = 900 Vdc
112 = 1100 Vdc

B4

↓
Case Type
B4 = Box 4 Lead

E

↓
Case Code

| Case Code | W | H | L | p | p1 | d |
|-----------|----|----|------|------|------|-----|
| A | 20 | 40 | 41.5 | 37.5 | 10.2 | 1.2 |
| B | 28 | 37 | 41.5 | 37.5 | 10.2 | 1.2 |
| C | 24 | 44 | 41.5 | 37.5 | 10.2 | 1.2 |
| D | 30 | 45 | 41.5 | 37.5 | 20.3 | 1.2 |
| E | 30 | 45 | 57.5 | 52.5 | 20.3 | 1.2 |
| F | 35 | 50 | 57.5 | 52.5 | 20.3 | 1.2 |

Ratings

| PartNumber | Cap C (μ F) | Typ | | Current | | | Peak Current I_{pk} (A) | Thermal | | Typical ESL (nH) | Case Area (mm ²) | Typical Weight (g) | Case Code |
|-----------------|------------------------|--------------------------------|---|---|---|-----------------------|------------------------------------|--|--|------------------------|------------------------------------|--------------------------|--------------|
| | | 10 kHz ESR (m Ω) | $T_A=25^\circ\text{C}$ I _{rms} (A) | $T_A=55^\circ\text{C}$ I _{rms} (A) | $T_A=75^\circ\text{C}$ I _{rms} (A) | dV/dt (V/ μ s) | | Resistance Θ_{cc} ($^\circ\text{C}/\text{W}$) | Θ_{ca} ($^\circ\text{C}/\text{W}$) | | | | |
| 700 Vdc | | | | | | | | | | | | | |
| BLC150J701B4A | 15 | 5.2 | 21 | 15 | 8 | 13.5 | 200 | 10.0 | 15.8 | 30 | 6580 | 44 | A |
| BLC200J701B4B | 20 | 3.9 | 25 | 17 | 10 | 13.0 | 260 | 11.4 | 14.0 | 30 | 7467 | 56 | B |
| BLC220J701B4C | 22 | 3.6 | 27 | 19 | 11 | 11.8 | 290 | 10.0 | 13.4 | 30 | 7756 | 57 | C |
| BLC300J701B4D | 30 | 2.6 | 33 | 23 | 13 | 13.0 | 390 | 10.0 | 11.7 | 30 | 8925 | 72 | D |
| BLC450J701B4E | 45 | 3.6 | 31 | 22 | 13 | 8.5 | 390 | 8.0 | 9.3 | 35 | 11325 | 94 | E |
| BLC550J701B4F | 55 | 2.9 | 36 | 25 | 14 | 8.9 | 490 | 8.0 | 8.0 | 35 | 13275 | 123 | F |
| 900 Vdc | | | | | | | | | | | | | |
| BLC120J901B4A | 12 | 5.2 | 21 | 15 | 8 | 15.8 | 190 | 10.0 | 15.8 | 30 | 6580 | 44 | A |
| BLC140J901B4B | 14 | 4.5 | 23 | 16 | 9 | 16.4 | 230 | 11.4 | 14.0 | 30 | 7467 | 56 | B |
| BLC160J901B4C | 16 | 3.9 | 26 | 18 | 10 | 15.6 | 250 | 10.0 | 13.4 | 30 | 7756 | 57 | C |
| BLC200J901B4D | 20 | 3.1 | 30 | 21 | 12 | 16.0 | 320 | 10.0 | 11.7 | 30 | 8925 | 72 | D |
| BLC300J901B4E | 30 | 4.3 | 29 | 20 | 11 | 10.8 | 325 | 8.0 | 9.3 | 35 | 11325 | 94 | E |
| BLC400J901B4F | 40 | 3.2 | 35 | 25 | 14 | 10.7 | 430 | 8.0 | 8.0 | 35 | 13275 | 123 | F |
| 1100 Vdc | | | | | | | | | | | | | |
| BLC080J112B4A | 8 | 6.5 | 19 | 13 | 7 | 20.0 | 160 | 10.0 | 15.8 | 30 | 6580 | 44 | A |
| BLC100J112B4B | 10 | 5.2 | 22 | 15 | 9 | 20.0 | 200 | 11.4 | 14.0 | 30 | 7467 | 56 | B |
| BLC120J112B4D | 12 | 4.3 | 25 | 18 | 10 | 19.2 | 230 | 10.0 | 11.7 | 30 | 8925 | 72 | D |
| BLC200J112B4E | 20 | 5.3 | 26 | 18 | 10 | 13.0 | 260 | 8.0 | 9.3 | 35 | 11325 | 94 | E |
| BLC250J112B4F | 25 | 4.2 | 30 | 21 | 12 | 13.2 | 330 | 8.0 | 8.0 | 35 | 13275 | 123 | F |

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Expected Lifetime Predictions

- Capacitance: C (μF)
- Equivalent Series Resistance: ESR ($\text{m}\Omega$)
- Frequency: f (kHz)
- Ripple Current: I (A_{rms})
- Ambient Temperature: T_A ($^{\circ}\text{C}$)
- Core Temperature: T_C ($^{\circ}\text{C}$)
- Total Thermal Resistance: Θ ($^{\circ}\text{C}/\text{W}$)
- Thermal Resistance case-to-ambient: Θ_{CA} ($^{\circ}\text{C}/\text{W}$)
- Thermal Resistance core-to-case: Θ_{CC} ($^{\circ}\text{C}/\text{W}$)
- Airflow Speed: v (m/s)
- Applied Voltage: V_A (V_{DC})
- Rated Voltage: V_R (V_{DC})

Determine ESR at Operating Frequency

Use the 10 kHz ESR from the ratings tables.

For operation below 10 kHz, the ESR will need to be adjusted using the following equation: $\text{ESR} - 31.83/(10C) + 31.83/(fC)$.

Determine Thermal Resistance at Operating Frequency and Air Flow

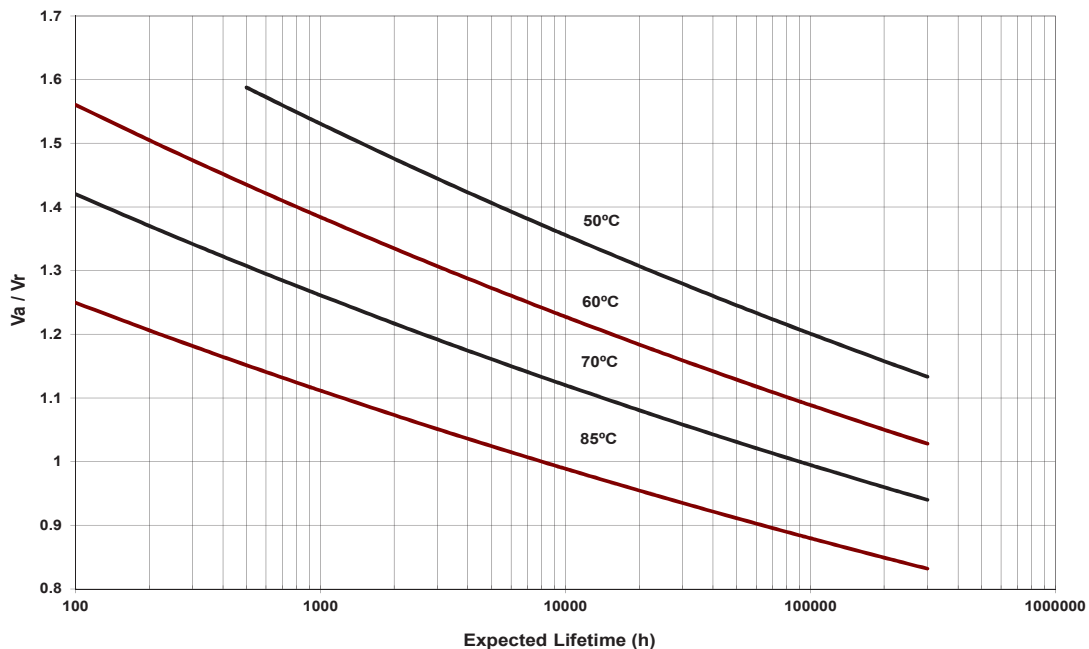
Compute $\Theta = \Theta_{\text{CC}} + \Theta_{\text{CA}}$. In the ratings tables, Θ_{CA} is for still air. For $v = 0$ to 5 m/s, multiply Θ_{CA} by $[(5 + 17.6(0.1^{0.66})) / (5 + 17.6(v + 0.1)^{0.66})]$

Determine Expected Lifetime

Look up Expected Lifetime on the graph using V_A/V_R and $T_C = T_A + I^2 (\text{ESR}/1000) \Theta$

The maximum allowed temperature rise is 40°C and the maximum allowed core temperature is 95°C .

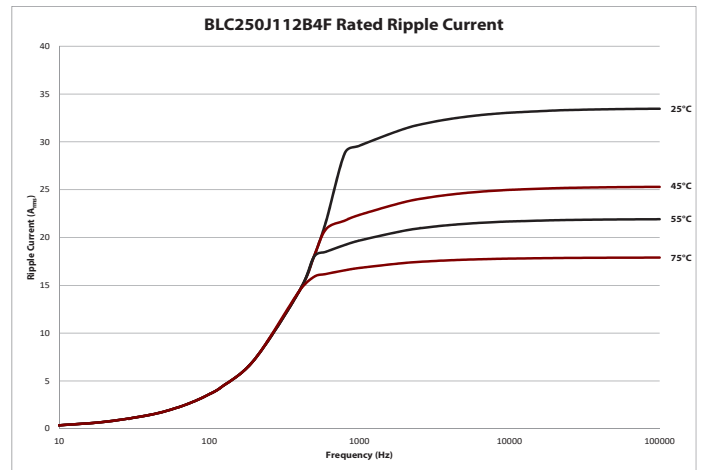
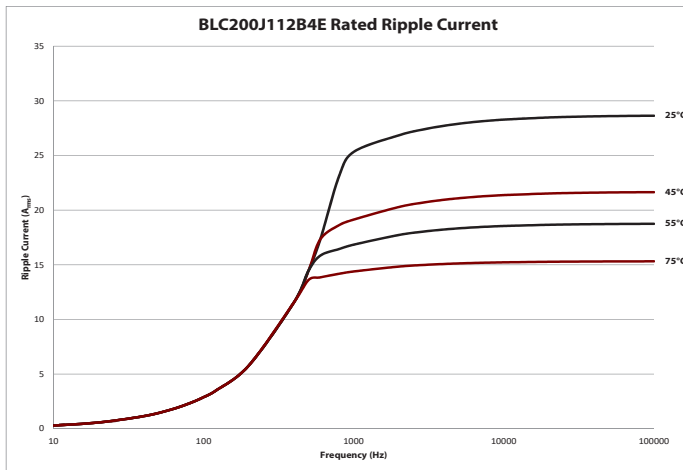
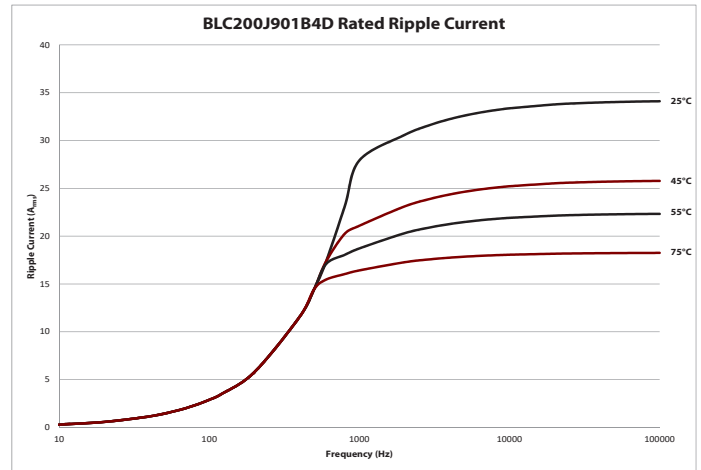
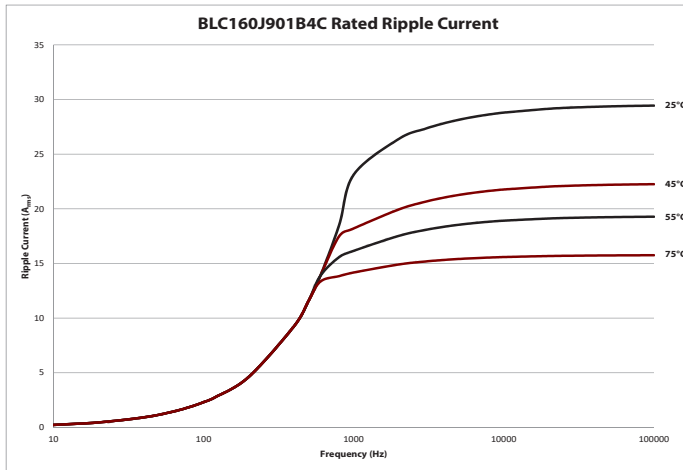
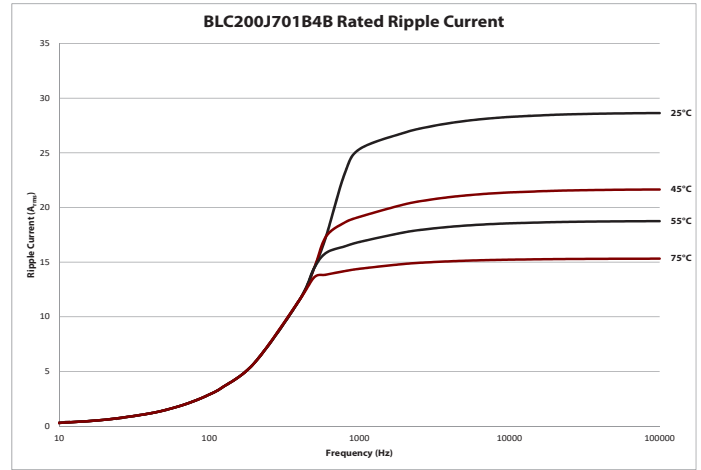
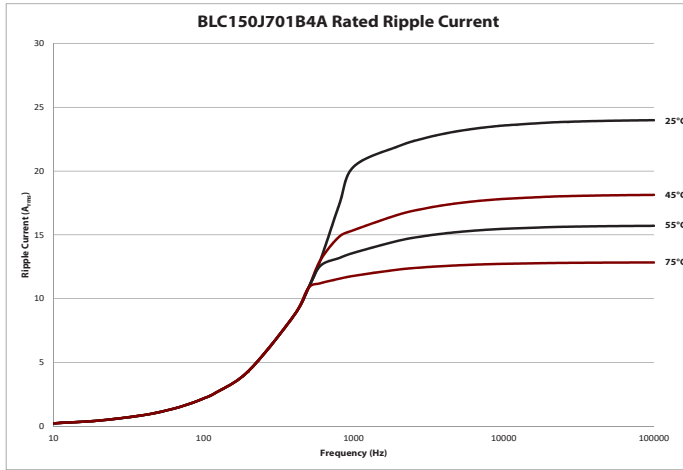
Expected Lifetime vs Core Temperature and Applied DC Voltage



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Typical Performance Curves



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