

Aluminum Electrolytic Capacitors



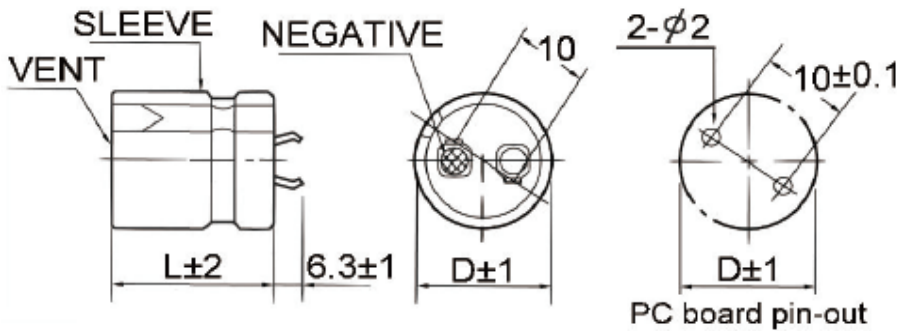
SL Series

- Endurance with ripple current: 105°C 4000 hours
- Non solvent-proof type
- Rohs compliance.



◆ SPECIFICATIONS

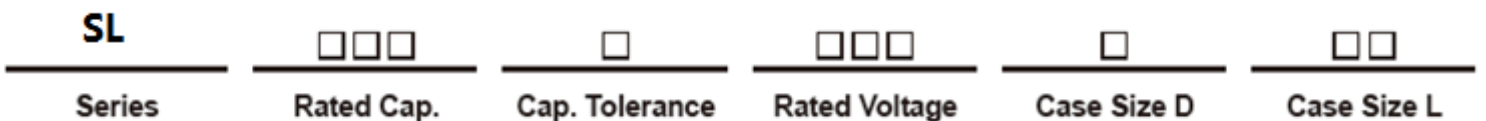
| Item | Characteristics | | | | | | | | | | | | |
|--|--|-------------|----|----|----|-------------|-------------|----|-----|---------|---------|-----------------|--|
| Category Temperature Range | -25~+105°C | | | | | | | | | | | | |
| Voltage Range | 160 ~ 450V.DC | | | | | | | | | | | | |
| Capacitance Tolerance | ±20%(M) | | | | | | 20°C, 120Hz | | | | | | |
| Leakage Current | $I \leq 3 \sqrt{CV}$ I: Leakage Current (µA) C: Nominal Capacitance (µF) V: Rated Voltage (V) (at 20°C after 5min.) | | | | | | | | | | | | |
| Dissipation Factor(tan δ) (at 120Hz,20°C) | Rated Voltage(V) | 10 | 16 | 25 | 35 | 50 | 63 | 80 | 100 | 160-250 | 400-450 | (at 120Hz,20°C) | |
| | tan δ (max.) | 20 | 16 | 14 | 12 | 10 | 8 | 8 | 8 | 15 | 12 | | |
| When nominal capacitance is over 1000µF, tan δ shall be added 0.02 to the listed value with increase of every 1000 µF. | | | | | | | | | | | | | |
| Low Temp. Impedance Stability at 120Hz | Rated voltage(V.DC) | 160 to 400V | | | | 420V & 450V | | | | | | | |
| | Z - 25°C / Z + 20°C | 4 | | | | 8 | | | | | | | |
| High Temp. Load Test | The following specifications shall be satisfied when the capacitors are restored to 20°C after subjected to Dc voltage with the rated ripple current is applied for 4000 hours at 105°C Capacitance change ≙ ±20% of the initial measured value tan δ ≙ 200% of the initial specified value Leakage Current ≙ the initial specified value | | | | | | | | | | | | |
| High Temp. Non-Load Test | The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1000 hours at 105°C without voltage applied. Capacitance Change ≙ ±15% of the initial measured value tan δ ≙ 150% of the initial specified value Leakage Current ≙ the initial specified value | | | | | | | | | | | | |



⊙ Frequency Multipliers

| | | | | | | |
|------------|---------|------|------|------|------|------|
| Freq. (Hz) | 60 (50) | 120 | 300 | 1K | 10K | 50K |
| 160~250VDC | 0.81 | 1.00 | 1.17 | 1.32 | 1.45 | 1.50 |
| 315~450VDC | 0.77 | 1.00 | 1.16 | 1.3 | 1.41 | 1.43 |

◆ PART NUMBERING SYSTEM



Aluminum Electrolytic Capacitors



SL series

SL series Case Size Table

| Parameter | 16 | | | | 25 | | | | 35 | | | | 50 | | | | 63 | | | | 80 | | | | 100 | | | | | | | |
|-----------|--------------------|------|----|----|----------------------|------|------|----|--|------|------|----|-----|----|-----|----|-----|----|-----|----|-----|------|------|----|-----|------|------|----|----|------|----|----|
| | 20 | | 32 | | 44 | | 63 | | 79 | | 100 | | 125 | | 150 | | 175 | | 200 | | 250 | | 300 | | 350 | | | | | | | |
| Cap (μF) | 22 | 25 | 30 | 35 | 22 | 25 | 30 | 35 | 22 | 25 | 30 | 35 | 22 | 25 | 30 | 35 | 22 | 25 | 30 | 35 | 22 | 25 | 30 | 35 | 22 | 25 | 30 | 35 | 22 | 25 | 30 | 35 |
| 1000 | Case Size L (mm) → | | | | Dissipation Factor → | | | | Ripple Current (Arms) 120Hz at 105°C → | | | | | | | | 25 | | | | 30 | 25 | | | 30 | 25 | | | 30 | 25 | | |
| 1500 | | | | | | | | | | | | | 25 | | | | 30 | 25 | | | 30 | 25 | | | 35 | (30) | 25 | | 40 | (35) | 25 | |
| 2200 | | | | | | | | | 25 | | | | 30 | 25 | | | 35 | 30 | 25 | | 50 | (40) | (30) | 25 | 50 | (40) | (30) | 25 | 45 | 35 | | |
| 3300 | | | | | 25 | | | | 30 | 25 | | | 35 | 30 | 25 | | 45 | 40 | 30 | 25 | 50 | (40) | 30 | 25 | 50 | (40) | 30 | 25 | 45 | 35 | | |
| 4700 | 25 | | | | 30 | 25 | | | 35 | (30) | 25 | | 45 | 35 | 30 | 25 | 50 | 35 | 30 | 25 | 50 | 35 | 30 | 25 | 50 | 35 | 30 | 25 | 45 | 35 | | |
| 6800 | 35 | 30 | | | 35 | (30) | 25 | | 50 | (40) | (30) | 25 | 50 | 35 | 30 | 25 | 50 | 35 | 30 | 25 | 50 | 35 | 30 | 25 | 55 | 45 | | | 55 | 45 | | |
| 10000 | 45 | (35) | 25 | | 45 | (35) | (30) | 25 | 50 | (35) | 30 | | 50 | 35 | 30 | 25 | 50 | 35 | 30 | 25 | 50 | 35 | 30 | 25 | 55 | 45 | | | 55 | 45 | | |
| 15000 | 45 | (35) | 30 | | 45 | (35) | 30 | | 50 | 40 | | | 50 | 35 | 30 | 25 | 50 | 35 | 30 | 25 | 50 | 35 | 30 | 25 | 55 | 45 | | | 55 | 45 | | |
| 22000 | 45 | 35 | | | 40 | 40 | | | 45 | | | | 45 | | | | 45 | | | | 45 | | | | 45 | | | | 45 | | | |
| 33000 | 40 | 35 | | | 50 | 45 | | | 50 | | | | 50 | | | | 50 | | | | 50 | | | | 50 | | | | 50 | | | |

Case size L in parentheses is not standard. On ordering, please ask us detailed specifications.

Aluminum Electrolytic Capacitors



SL series

SL series Case Size Table

| Parameter | 160 | | | | | 180 | | | | | 200 | | | | | 250 | | | | |
|-----------|--|------|------|------|----|------|------|------|------|----|------|------|------|------|----|------|------|------|------|----|
| | 200 | | | | | 225 | | | | | 250 | | | | | 300 | | | | |
| | 22 | 25 | 30 | 35 | 40 | 22 | 25 | 30 | 35 | 40 | 22 | 25 | 30 | 35 | 40 | 22 | 25 | 30 | 35 | 40 |
| Cap (μF) | Case | | | | | | | | | | | | | | | | | | | |
| | Ripple Current (Arms) 120Hz at 105°C → | | | | | | | | | | | | | | | | | | | |
| 180 | | | | | | | | | | | | | | | | | | | | |
| 220 | | | | | | | | | | | 25 | | | | | 30 | 25 | | | |
| | | | | | | | | | | | 1.37 | | | | | 1.44 | 1.44 | | | |
| 270 | | | | | | 25 | | | | | 25 | | | | | 35 | 25 | | | |
| | | | | | | 1.4 | | | | | 1.5 | | | | | 1.58 | 1.58 | | | |
| 330 | 25 | | | | | 30 | 25 | | | | 30 | 25 | | | | 35 | 30 | 25 | | |
| | 1.45 | | | | | 1.52 | 1.52 | | | | 1.88 | 1.88 | | | | 1.93 | 1.93 | 1.91 | | |
| 390 | 30 | 25 | | | | 30 | 25 | | | | 35 | 25 | | | | 40 | 35 | 25 | | |
| | 1.65 | 1.65 | | | | 1.72 | 1.72 | | | | 2.13 | 2.13 | | | | 2.2 | 2.2 | 2.2 | | |
| 470 | 30 | 25 | | | | 35 | (30) | 25 | | | 40 | 30 | 25 | | | 50 | 40 | 30 | 25 | |
| | 1.83 | 1.83 | | | | 1.92 | | 1.92 | | | 2.25 | 2.25 | 2.25 | | | 2.39 | 2.39 | 2.35 | 2.35 | |
| 560 | 35 | (30) | 25 | | | 40 | (30) | 25 | | | 45 | 35 | 30 | 25 | | | 45 | 35 | 25 | |
| | 2.03 | | 2.03 | | | 2.23 | | 2.23 | | | 2.57 | 2.57 | 2.64 | 2.64 | | | 2.81 | 2.81 | 2.75 | |
| 680 | 40 | (35) | 25 | | | 45 | (35) | 30 | 25 | | 45 | 40 | 35 | 30 | | | 50 | 35 | 30 | |
| | 2.37 | | 2.37 | | | 2.41 | | 2.41 | 2.41 | | 2.84 | 2.84 | 2.95 | 2.95 | | | 3.22 | 3.22 | 3.22 | |
| 820 | 45 | (40) | (30) | 25 | | 50 | (40) | (30) | 25 | | | 45 | 40 | 30 | | | | 45 | 36 | |
| | 2.75 | | | 2.75 | | 2.86 | | | 2.86 | | | 3.35 | 3.35 | 3.3 | | | | 3.51 | 3.46 | |
| 1000 | | 45 | (35) | 25 | | | 45 | (35) | 30 | | | 50 | 45 | 36 | | | | | 40 | |
| | | 3.22 | | 3.22 | | | 3.35 | | 3.35 | | | 3.79 | 3.85 | 3.8 | | | | | 3.94 | |
| 1200 | | 50 | (35) | 30 | | | 40 | 30 | | | | | | 45 | | | | | 45 | |
| | | 3.41 | | 3.41 | | | 3.55 | 3.45 | | | | | | 4.08 | | | | | 4.45 | |
| 1500 | | | 45 | 36 | | | 50 | 36 | | | | | | | | | | | | |
| | | | 3.96 | 3.96 | | | 4.14 | 4.2 | | | | | | | | | | | | |
| 1800 | | | | 40 | | | | 40 | | | | | | | | | | | | |
| | | | | 4.68 | | | | 4.95 | | | | | | | | | | | | |

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SL series

SL series Case Size Table

| Parameter Cap (μF) | 350 | | | | | 400 | | | | | 450 | | | | |
|-----------------------|--|------|------|------|----|------|------|------|------|----|------|------|------|------|----|
| | 400 | | | | | 450 | | | | | 500 | | | | |
| | 22 | 25 | 30 | 35 | 40 | 22 | 25 | 30 | 35 | 40 | 22 | 25 | 30 | 35 | 40 |
| 47 | Case Size L (mm) → | | | | | | | | | | 25 | | | | |
| | Ripple Current (Arms) 120Hz at 105°C → | | | | | | | | | | 0.42 | | | | |
| 68 | | | | | | 25 | | | | | 30 | 25 | 25 | | |
| | | | | | | 0.52 | | | | | 0.55 | 0.54 | 0.71 | | |
| 82 | 25 | | | | | 30 | 25 | | | | 35 | 30 | 30 | 25 | |
| | 0.55 | | | | | 0.6 | 0.6 | | | | 0.64 | 0.64 | 0.82 | 0.82 | |
| 100 | 30 | 25 | | | | 30 | 25 | | | | 40 | 35 | 35 | 30 | |
| | 0.77 | 0.72 | | | | 1.05 | 1.05 | | | | 1.1 | 1.1 | 1.25 | 1.25 | |
| 120 | 30 | 25 | | | | 35 | 30 | 25 | | | 45 | 35 | 35 | 30 | |
| | 0.93 | 0.93 | | | | 1.15 | 1.15 | 1.15 | | | 1.21 | 1.21 | 1.35 | 1.35 | |
| 150 | 35 | (30) | 25 | | | 40 | 35 | 30 | | | | 45 | 40 | 36 | |
| | 1.16 | | 1.16 | | | 1.25 | 1.25 | 1.25 | | | | 1.44 | 1.48 | 1.44 | |
| 180 | 40 | (35) | 30 | | | 45 | 40 | 30 | 25 | | | 50 | 50 | 40 | |
| | 1.3 | | 1.3 | | | 1.45 | 1.45 | 1.43 | 1.43 | | | 1.56 | 1.56 | 1.56 | |
| 220 | 50 | (40) | (30) | 25 | | | 45 | 35 | 30 | | | | | 45 | |
| | 1.47 | | | 1.47 | | | 1.76 | 1.74 | 1.74 | | | | | 1.77 | |
| 270 | | 45 | (35) | 30 | | | 50 | 40 | 30 | | | | | | |
| | | 1.72 | | 1.72 | | | 2.03 | 2.03 | 2 | | | | | | |
| 330 | | 50 | (40) | 30 | | | | 45 | 36 | | | | | | |
| | | 1.99 | | 1.99 | | | | 2.3 | 2.3 | | | | | | |
| 390 | | | 45 | 36 | | | | | 40 | | | | | | |
| | | | 2.12 | 2.12 | | | | | 2.53 | | | | | | |
| 470 | | | | 40 | | | | | 45 | | | | | | |
| | | | | 2.44 | | | | | 2.82 | | | | | | |
| 560 | | | | 45 | | | | | | | | | | | |
| | | | | 3.29 | | | | | | | | | | | |

Case size L in parentheses is not standard. On ordering, please ask us detailed specifications.

⊙ Frequency Multipliers

| Freq.(Hz) Cap.(μF) | 60(50) | 120 | 500 | 1k | 10k |
|-----------------------|--------|-----|------|------|------|
| 47~470 | 0.70 | 1.0 | 1.10 | 1.15 | 1.20 |
| 560~1000 | 0.75 | 1.0 | 1.20 | 1.25 | 1.35 |
| 1200~4700 | 0.80 | 1.0 | 1.25 | 1.35 | 1.40 |
| 6800 ~ | 0.85 | 1.0 | 1.30 | 1.4 | 1.45 |

Temperature Coefficient

| Temp.(°C) | 40 | 60 | 70 | 85 | 105 |
|-------------|-----|-----|------|------|-----|
| Coefficient | 2.4 | 2.1 | 1.78 | 1.65 | 1 |