

Aluminum Capacitors Power High Ripple Current Screw Terminals

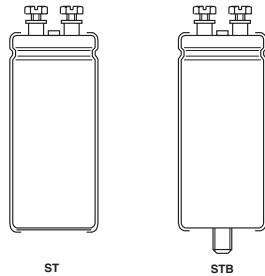


Fig.1 Component outline

FEATURES

- Polarized aluminum electrolytic capacitors, non-solid electrolyte
- Large types, cylindrical aluminum case, insulated with a blue sleeve
- Pressure relief in the sealing
- Long useful life



RoHS
COMPLIANT

APPLICATIONS

- Computer, telecommunications and industrial systems
- Smoothing and filtering
- Standard and switched mode power supplies

MARKING

The capacitors are marked with the following information:

- Rated capacitance (in μF)
- Tolerance on rated capacitance, code letter in accordance with IEC 60062 (M for $\pm 20\%$)
- Rated voltage (in V)
- Date code (YYMM)
- Name of manufacturer
- Code for factory of origin
- '-' sign to identify the negative terminal, visible from the top and side of the capacitor
- Code number
- Climatic category in accordance with IEC 60068

| QUICK REFERENCE DATA | | |
|---|--|--------------|
| DESCRIPTION | VALUE | |
| | 101 | 102 |
| Nominal case size ($\varnothing D \times L$ in mm) | 35 x 60 to 76 x 146 | |
| Rated capacitance range (E6 series), C_R | 220 to 330000 μF | |
| Tolerance on C_R | $\pm 20\%$ | |
| Rated voltage range, U_R | 25 to 100 V | 200 to 450 V |
| Category temperature range | - 40 to + 85 °C | |
| Endurance test at 85 °C | 2000 hours | |
| Useful life at 85 °C | 10000 hours ($D \leq 50$ mm) 15000 hours ($D \geq 65$ mm) | 10000 hours |
| Useful life at 40 °C, 1.4 x I_R applied | 400000 hours ($D \leq 50$ mm) 600000 hours ($D \geq 65$ mm) | 400000 hours |
| Shelf life at 0 V, 85 °C | 500 hours | |
| Based on sectional specification | IEC 60 384-4/EN130300 | |
| Climatic category IEC 60068 | 40/085/56 | |

| SELECTION CHART FOR C_R , U_R AND RELEVANT NOMINAL CASE SIZES ($\varnothing D \times L$ in mm) | | | | | | | | | | |
|---|-----------|----|---------|---------|----------|----------|----------|----------|----------|----------|
| C_R (μF) | U_R (V) | | | | | | | | | |
| | 25 | 40 | 63 | 100 | 200 | 250 | 350 | 385 | 400 | 450 |
| 220 | - | - | - | - | - | - | - | 35 x 60 | 35 x 60 | 35 x 60 |
| 330 | - | - | - | - | - | - | 35 x 60 | - | 35 x 60 | - |
| 470 | - | - | - | - | - | - | - | 35 x 80 | 35 x 80 | 35 x 80 |
| | - | - | - | - | - | 35 x 60 | - | 35 x 80 | 35 x 80 | - |
| 680 | - | - | - | - | - | - | 35 x 80 | - | 35 x 105 | 35 x 105 |
| | - | - | - | - | 35 x 60 | 35 x 80 | - | 35 x 105 | 35 x 105 | - |
| 1000 | - | - | - | - | - | - | 35 x 105 | - | 50 x 80 | 50 x 80 |
| | - | - | - | - | 35 x 80 | 35 x 80 | - | 50 x 80 | 50 x 80 | 50 x 80 |
| 1500 | - | - | - | - | - | - | 50 x 80 | - | 50 x 105 | 50 x 105 |
| | - | - | - | - | 35 x 105 | 35 x 105 | - | - | - | 50 x 105 |
| 2200 | - | - | - | - | - | - | 50 x 105 | - | 50 x 105 | 50 x 105 |
| | - | - | - | 35 x 60 | 50 x 80 | 50 x 80 | 50 x 105 | - | - | 65 x 105 |
| 3300 | - | - | - | - | - | - | 50 x 105 | 65 x 105 | 65 x 105 | 65 x 105 |
| | - | - | - | 35 x 60 | 50 x 80 | 50 x 105 | - | - | 65 x 105 | 76 x 105 |
| 4700 | - | - | - | - | - | - | 65 x 105 | 65 x 105 | 76 x 105 | 76 x 105 |
| | - | - | 35 x 60 | 35 x 80 | - | 65 x 105 | 76 x 105 | 76 x 105 | 76 x 105 | 76 x 146 |
| 5600 | - | - | - | - | - | - | 76 x 105 | 76 x 105 | 76 x 146 | 76 x 146 |
| | - | - | - | - | - | - | - | - | 76 x 146 | 76 x 146 |

| SELECTION CHART FOR C_R, U_R AND RELEVANT NOMINAL CASE SIZES (∅ D × L in mm) | | | | | | | | | | |
|---|--------------------|----------|----------|----------|----------|----------|----------|----------|----------|-----|
| C _R (μF) | U _R (V) | | | | | | | | | |
| | 25 | 40 | 63 | 100 | 200 | 250 | 350 | 385 | 400 | 450 |
| 6800 | - | - | 35 x 60 | 35 x 105 | 65 x 105 | 76 x 105 | - | - | - | - |
| | - | - | 35 x 80 | 50 x 80 | 76 x 105 | 76 x 146 | 76 x 146 | 76 x 146 | 76 x 146 | - |
| 10000 | - | 35 x 60 | 35 x 80 | 50 x 80 | 76 x 105 | 76 x 105 | - | - | - | - |
| | - | - | 35 x 105 | 50 x 105 | 76 x 146 | 76 x 146 | - | - | - | - |
| 15000 | 35 x 60 | 35 x 60 | 35 x 105 | 50 x 105 | 76 x 146 | - | - | - | - | - |
| | - | 35 x 80 | 50 x 80 | - | - | - | - | - | - | - |
| 22000 | 35 x 60 | 35 x 80 | 50 x 80 | 65 x 105 | - | - | - | - | - | - |
| | - | 50 x 80 | 50 x 105 | 76 x 105 | - | - | - | - | - | - |
| 33000 | 35 x 80 | 35 x 105 | 50 x 105 | 76 x 105 | - | - | - | - | - | - |
| | 50 x 80 | 50 x 80 | 65 x 105 | 76 x 146 | - | - | - | - | - | - |
| 47000 | 35 x 105 | 50 x 80 | 65 x 105 | - | - | - | - | - | - | - |
| | 50 x 80 | 50 x 105 | 76 x 105 | 76 x 146 | - | - | - | - | - | - |
| 68000 | 50 x 80 | 50 x 105 | 65 x 105 | - | - | - | - | - | - | - |
| | 50 x 105 | 65 x 105 | 76 x 146 | - | - | - | - | - | - | - |
| 100000 | 50 x 105 | 65 x 105 | - | - | - | - | - | - | - | - |
| | 65 x 105 | 76 x 105 | 76 x 146 | - | - | - | - | - | - | - |
| 150000 | 65 x 105 | 76 x 105 | - | - | - | - | - | - | - | - |
| | 76 x 105 | 76 x 146 | - | - | - | - | - | - | - | - |
| 220000 | 65 x 105 | - | - | - | - | - | - | - | - | - |
| | 76 x 105 | 76 x 146 | - | - | - | - | - | - | - | - |
| 330000 | 76 x 146 | - | - | - | - | - | - | - | - | - |

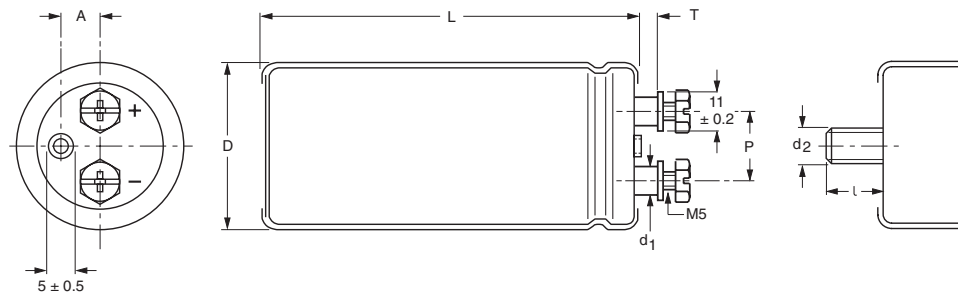
DIMENSIONS in millimeters AND AVAILABLE FORMS


Fig.2 Screw terminal (ST); screw terminal bolt (STB)

Maximum permissible torque which may be applied to the termination screws: 2 Nm.
 For accessories refer to datasheet "Mounting Accessories".
 The capacitors are delivered with screws and washers.

Table 1

| DIMENSIONS in millimeters, MASS AND PACKAGING QUANTITIES | | | | | | | | | | |
|---|--------------------|------------------|---------|---------|----------------------|---------|--------------------|----------|--------------------------------|------------------------------------|
| NOMINAL CASE SIZE ∅ D × L | ∅ D _{max} | L _{max} | P ± 0.3 | A ± 0.5 | d ₁ ± 0.2 | T ± 0.5 | d ₂ × l | MASS (g) | PACKAGING QUANTITIES (per box) | CARDBOARD BOX DIMENSIONS L × W × H |
| 35 × 60 | 36 | 63 | 13 | 8 | 8 | 5.9 | M8 × 12 | 75 | 25 | 196 × 192 × 110 |
| 35 × 80 | 36 | 81 | 13 | 8 | 8 | 5.9 | M8 × 12 | 95 | 25 | 196 × 192 × 115 |
| 35 × 105 | 36 | 105 | 13 | 8 | 8 | 5.9 | M8 × 12 | 130 | 25 | 196 × 192 × 140 |
| 50 × 80 | 51.5 | 83 | 22 | 12 | 8 | 5.9 | M12 × 16 | 200 | 25 | 293 × 273 × 115 |
| 50 × 105 | 51.5 | 105 | 22 | 12 | 8 | 5.9 | M12 × 16 | 300 | 25 | 293 × 273 × 140 |
| 65 × 105 | 66 | 105 | 28.5 | 16 | 8* | 5.9* | M12 × 16 | 480 | 10 | 368 × 151 × 140 |
| 76 × 105 | 77 | 106 | 32 | 19 | 8* | 5.9* | M12 × 16 | 700 | 10 | 418 × 173 × 140 |
| 76 × 146 | 77 | 146 | 32 | 19 | 8* | 5.9* | M12 × 16 | 1000 | 10 | 418 × 173 × 180 |

* Terminals also available in High Current version. Contact manufacturer for mechanical dimensions.

| ELECTRICAL DATA | |
|-----------------|---|
| SYMBOL | DESCRIPTION |
| C_R | rated capacitance at 100 Hz, tolerance $\pm 20\%$ |
| I_R | rated RMS ripple current at 100 Hz, 85 °C |
| I_{L5} | max. leakage current after 5 minutes at U_R |
| ESR | max. equivalent series resistance at 100 Hz |
| Z | max. impedance at 20 kHz |

ORDERING EXAMPLE

Electrolytic capacitor 101 series

10000 $\mu\text{F}/40\text{ V}$; $\pm 20\%$

Nominal case size: $\varnothing 35 \times 60\text{ mm}$;
ST version, high post M5 disc

Catalog number: 2222 101 17103.

Note

- Unless otherwise specified, all electrical values in Tables 2 and 3 apply at $T_{\text{amb}} = 20\text{ °C}$, $P = 86\text{ to }106\text{ kPa}$, $\text{RH} = 45\text{ to }75\%$.

Table 2

| ELECTRICAL DATA AND ORDERING INFORMATION FOR 101 SERIES | | | | | | | | |
|---|--------------------------------------|--|---------------------------------|---------------------------|------------------------------------|--------------------------------------|--|---|
| U_R (V) | C_R 100 Hz (μF) | NOMINAL CASE SIZE $\varnothing D \times L$ (mm) | I_R 100 Hz 85 °C (A) | I_{L5} 5 min (mA) | ESR max 100 Hz (m Ω) | Z MAX. 20 kHz (m Ω) | HIGH POST M5 DISC | |
| | | | | | | | CATALOG NUMBER ST 2222 101 | CATALOG NUMBER STB 2222 101 |
| 25 | 15000 | 35 x 60 | 7.7 | 0.75 | 29 | 22 | 16153 | 56153 |
| | 22000 | 35 x 60 | 8.3 | 1.10 | 27 | 22 | 16223 | 56223 |
| | 33000 | 35 x 80 | 9.0 | 1.65 | 19 | 17 | 16333 | 56333 |
| | 33000 | 50 x 80 | 10.0 | 1.65 | 17 | 14 | 26333 | 66333 |
| | 47000 | 35 x 105 | 12.1 | 2.35 | 15 | 13 | 16473 | 56473 |
| | 47000 | 50 x 80 | 14.8 | 2.35 | 12 | 10 | 26473 | 66473 |
| | 68000 | 50 x 80 | 12.8 | 3.40 | 15 | 13 | 16683 | 56683 |
| | 68000 | 50 x 105 | 17.1 | 3.40 | 9 | 8 | 26683 | 66683 |
| | 100000 | 50 x 105 | 14.7 | 5.00 | 12 | 11 | 16104 | 56104 |
| | 100000 | 65 x 105 | 19.6 | 5.00 | 7 | 6 | 26104 | 66104 |
| | 150000 | 65 x 105 | 17.6 | 7.50 | 8 | 7 | 16154 | 56154 |
| | 150000 | 76 x 105 | 21.4 | 7.50 | 6 | 5 | 26154 | 66154 |
| | 220000 | 65 x 105 | 20.2 | 11.00 | 6 | 5 | 16224 | 56224 |
| | 220000 | 76 x 105 | 22.5 | 11.00 | 6 | 5 | 26224 | 66224 |
| | 330000 | 76 x 146 | 25.8 | 16.50 | 4 | 4 | 26334 | 66334 |
| 40 | 10000 | 35 x 60 | 7.1 | 0.80 | 31 | 23 | 17103 | 57103 |
| | 15000 | 35 x 60 | 7.8 | 1.20 | 28 | 22 | 17153 | 57153 |
| | 15000 | 35 x 80 | 8.7 | 1.20 | 22 | 17 | 27153 | 67153 |
| | 22000 | 35 x 80 | 9.4 | 1.76 | 20 | 17 | 17223 | 57223 |
| | 22000 | 50 x 80 | 11.2 | 1.76 | 19 | 15 | 27223 | 67223 |
| | 33000 | 35 x 105 | 11.0 | 2.64 | 15 | 13 | 17333 | 57333 |
| | 33000 | 50 x 80 | 13.7 | 2.64 | 13 | 10 | 27333 | 67333 |
| | 47000 | 50 x 80 | 14.6 | 3.76 | 12 | 10 | 17473 | 57473 |
| | 47000 | 50 x 105 | 15.9 | 3.76 | 10 | 8 | 27473 | 67473 |
| | 68000 | 50 x 105 | 16.9 | 5.44 | 9 | 8 | 17683 | 57683 |
| | 68000 | 65 x 105 | 18.1 | 5.44 | 7 | 6 | 27683 | 67683 |
| | 100000 | 65 x 105 | 19.2 | 8.00 | 7 | 6 | 17104 | 57104 |
| | 100000 | 76 x 105 | 21.3 | 8.00 | 7 | 6 | 27104 | 67104 |
| | 150000 | 76 x 105 | 20.5 | 12.00 | 7 | 6 | 17154 | 57154 |
| | 150000 | 76 x 146 | 24.0 | 12.00 | 5 | 5 | 27154 | 67154 |
| | 220000 | 76 x 146 | 24.5 | 17.60 | 5 | 5 | 27224 | 67224 |



Aluminum Capacitors
Power High Ripple Current Screw Terminals

Vishay BCcomponents

| ELECTRICAL DATA AND ORDERING INFORMATION FOR 101 SERIES | | | | | | | | |
|---|----------------------------------|---|--|----------------------------------|---------------------------|-----------------------------|--|---|
| U _R (V) | C _R 100 Hz (μF) | NOMINAL CASE SIZE ∅ D × L (mm) | I _R 100 Hz 85 °C (A) | I _{L5} 5 min (mA) | ESR max 100 Hz (mΩ) | Z MAX. 20 kHz (mΩ) | HIGH POST M5 DISC | |
| | | | | | | | CATALOG NUMBER ST 2222 101 | CATALOG NUMBER STB 2222 101 |
| 63 | 4700 | 35 x 60 | 5.9 | 0.59 | 42 | 25 | 18472 | 58472 |
| | 6800 | 35 x 60 | 6.6 | 0.86 | 38 | 25 | 18682 | 58682 |
| | 6800 | 35 x 80 | 7.3 | 0.86 | 30 | 19 | 28682 | 68682 |
| | 10000 | 35 x 80 | 8.1 | 1.26 | 27 | 19 | 18103 | 58103 |
| | 10000 | 35 x 105 | 8.8 | 1.26 | 22 | 14 | 28103 | 68103 |
| | 15000 | 35 x 105 | 9.7 | 1.89 | 19 | 14 | 18153 | 58153 |
| | 15000 | 50 x 80 | 12.1 | 1.89 | 16 | 11 | 28153 | 68153 |
| | 22000 | 50 x 80 | 11.1 | 2.77 | 19 | 15 | 18223 | 58223 |
| | 22000 | 50 x 105 | 14.3 | 2.77 | 12 | 9 | 28223 | 68223 |
| | 33000 | 50 x 105 | 12.9 | 4.16 | 14 | 12 | 18333 | 58333 |
| | 33000 | 65 x 105 | 16.5 | 4.16 | 9 | 6 | 28333 | 68333 |
| | 47000 | 65 x 105 | 15.6 | 5.92 | 10 | 8 | 18473 | 58473 |
| | 47000 | 76 x 105 | 18.6 | 5.92 | 8 | 6 | 28473 | 68473 |
| | 68000 | 76 x 105 | 20.0 | 8.57 | 7 | 6 | 18683 | 58683 |
| | 68000 | 76 x 146 | 21.9 | 8.57 | 6 | 5 | 28683 | 68683 |
| | 100000 | 76 x 146 | 23.4 | 12.60 | 5 | 5 | 28104 | 68104 |
| 100 | 2200 | 35 x 60 | 5.2 | 0.44 | 50 | 29 | 19222 | 59222 |
| | 3300 | 35 x 60 | 6.0 | 0.66 | 42 | 27 | 19332 | 59332 |
| | 3300 | 35 x 80 | 6.6 | 0.66 | 35 | 21 | 29332 | 69332 |
| | 4700 | 35 x 80 | 7.3 | 0.94 | 31 | 20 | 19472 | 59472 |
| | 4700 | 35 x 105 | 7.9 | 0.94 | 26 | 16 | 29472 | 69472 |
| | 6800 | 35 x 105 | 8.8 | 1.36 | 23 | 15 | 19682 | 59682 |
| | 6800 | 50 x 80 | 10.9 | 1.36 | 19 | 12 | 29682 | 69682 |
| | 10000 | 50 x 80 | 10.5 | 2.00 | 21 | 15 | 19103 | 59103 |
| | 10000 | 50 x 105 | 13.1 | 2.00 | 14 | 9 | 29103 | 69103 |
| | 15000 | 50 x 105 | 12.3 | 3.00 | 16 | 12 | 19153 | 59153 |
| | 22000 | 65 x 105 | 14.8 | 4.40 | 11 | 8 | 19223 | 59223 |
| | 22000 | 76 x 105 | 17.4 | 4.40 | 9 | 6 | 29223 | 69223 |
| | 33000 | 76 x 105 | 19.0 | 6.60 | 8 | 6 | 19333 | 59333 |
| | 33000 | 76 x 146 | 20.7 | 6.60 | 7 | 5 | 29333 | 69333 |
| | 47000 | 76 x 146 | 22.4 | 9.40 | 6 | 5 | 29473 | 69473 |

Table 3

| ELECTRICAL DATA AND ORDERING INFORMATION FOR 102 SERIES | | | | | | | | |
|---|----------------------------------|---|--|----------------------------------|---------------------------|-----------------------------|--|---|
| U _R (V) | C _R 100 Hz (μF) | NOMINAL CASE SIZE ∅ D × L (mm) | I _R 100 Hz 85 °C (A) | I _{L5} 5 min (mA) | ESR max 100 Hz (mΩ) | Z MAX. 20 kHz (mΩ) | HIGH POST M5 DISC | |
| | | | | | | | CATALOG NUMBER ST 2222 102 | CATALOG NUMBER STB 2222 102 |
| 200 | 680 | 35 x 60 | 3.5 | 0.27 | 207 | 136 | 12681 | 52681 |
| | 1000 | 35 x 80 | 4.4 | 0.40 | 144 | 95 | 12102 | 52102 |
| | 1000 | 35 x 105 | 4.7 | 0.40 | 140 | 91 | 22102 | 62102 |
| | 1500 | 35 x 105 | 5.5 | 0.60 | 100 | 67 | 12152 | 52152 |
| | 1500 | 50 x 80 | 6.2 | 0.60 | 106 | 74 | 22152 | 62152 |
| | 2200 | 50 x 80 | 8.0 | 0.88 | 67 | 44 | 12222 | 52222 |
| | 3300 | 50 x 80 | 8.9 | 1.32 | 50 | 35 | 12332 | 52332 |
| | 3300 | 50 x 105 | 9.9 | 1.32 | 46 | 32 | 22332 | 62332 |
| | 4700 | 65 x 105 | 12.5 | 1.88 | 37 | 26 | 22472 | 62472 |
| | 6800 | 65 x 105 | 15.2 | 2.72 | 25 | 18 | 12682 | 52682 |
| | 6800 | 76 x 105 | 16.9 | 2.72 | 25 | 18 | 22682 | 62682 |
| | 10000 | 76 x 105 | 19.9 | 4.00 | 18 | 13 | 12103 | 52103 |
| | 10000 | 76 x 146 | 20.4 | 4.00 | 18 | 13 | 22103 | 62103 |
| | 15000 | 76 x 146 | 24.1 | 6.00 | 12 | 9 | 12153 | 52153 |
| 250 | 470 | 35 x 60 | 3.1 | 0.24 | 250 | 152 | 13471 | 53471 |
| | 680 | 35 x 80 | 3.8 | 0.34 | 175 | 107 | 13681 | 53681 |
| | 1000 | 35 x 80 | 4.4 | 0.50 | 128 | 82 | 13102 | 53102 |
| | 1000 | 35 x 105 | 4.8 | 0.50 | 122 | 76 | 23102 | 63102 |
| | 1500 | 35 x 105 | 5.4 | 0.75 | 90 | 58 | 13152 | 53152 |
| | 1500 | 50 x 80 | 7.0 | 0.75 | 81 | 50 | 23152 | 63152 |
| | 2200 | 50 x 80 | 8.0 | 1.10 | 60 | 39 | 13222 | 53222 |
| | 2200 | 50 x 105 | 8.7 | 1.10 | 57 | 35 | 23222 | 63222 |
| | 3300 | 50 x 105 | 9.8 | 1.65 | 42 | 28 | 13332 | 53332 |
| | 3300 | 65 x 105 | 11.4 | 1.65 | 42 | 28 | 23332 | 63332 |
| | 4700 | 65 x 105 | 13.8 | 2.35 | 29 | 19 | 13472 | 53472 |
| | 4700 | 76 x 105 | 15.3 | 2.35 | 29 | 19 | 23472 | 63472 |
| | 6800 | 76 x 105 | 18.1 | 3.40 | 21 | 14 | 13682 | 53682 |
| | 6800 | 76 x 146 | 18.6 | 3.40 | 21 | 14 | 23682 | 63682 |
| | 10000 | 76 x 105 | 19.3 | 5.00 | 17 | 12 | 13103 | 53103 |
| | 10000 | 76 x 146 | 22.0 | 5.00 | 15 | 10 | 23103 | 63103 |
| 350 | 330 | 35 x 60 | 2.5 | 0.23 | 435 | 305 | 15331 | 55331 |
| | 470 | 35 x 80 | 3.1 | 0.33 | 308 | 216 | 25471 | 65471 |
| | 680 | 35 x 105 | 3.8 | 0.48 | 216 | 152 | 25681 | 65681 |
| | 1000 | 50 x 80 | 5.6 | 0.70 | 145 | 102 | 25102 | 65102 |
| | 1500 | 50 x 80 | 6.5 | 1.05 | 102 | 74 | 15152 | 55152 |
| | 1500 | 50 x 105 | 7.0 | 1.05 | 99 | 70 | 25152 | 65152 |
| | 2200 | 50 x 105 | 8.0 | 1.54 | 72 | 52 | 15222 | 55222 |
| | 2200 | 65 x 105 | 9.3 | 1.54 | 72 | 52 | 25222 | 65222 |
| | 3300 | 65 x 105 | 11.4 | 2.31 | 48 | 35 | 25332 | 65332 |
| | 4700 | 76 x 105 | 15.0 | 3.29 | 34 | 25 | 15472 | 55472 |
| | 4700 | 76 x 146 | 15.4 | 3.29 | 34 | 25 | 25472 | 65472 |
| | 6800 | 76 x 146 | 18.3 | 4.76 | 24 | 18 | 25682 | 65682 |



Aluminum Capacitors
Power High Ripple Current Screw Terminals

| ELECTRICAL DATA AND ORDERING INFORMATION FOR 102 SERIES | | | | | | | | |
|---|----------------------------------|---|--|----------------------------------|---------------------------|-----------------------------|--|---|
| U _R (V) | C _R 100 Hz (µF) | NOMINAL CASE SIZE ∅ D × L (mm) | I _R 100 Hz 85 °C (A) | I _{L5} 5 min (mA) | ESR max 100 Hz (mΩ) | Z MAX. 20 kHz (mΩ) | HIGH POST M5 DISC | |
| | | | | | | | CATALOG NUMBER ST 2222 102 | CATALOG NUMBER STB 2222 102 |
| 385 | 220 | 35 x 60 | 2.1 | 0.17 | 575 | 380 | 18221 | 58221 |
| | 330 | 35 x 80 | 2.7 | 0.26 | 386 | 257 | 18331 | 58331 |
| | 470 | 35 x 80 | 3.1 | 0.37 | 279 | 188 | 18471 | 58471 |
| | 680 | 35 x 105 | 3.9 | 0.53 | 196 | 133 | 18681 | 58681 |
| | 1000 | 50 x 80 | 5.6 | 0.77 | 132 | 89 | 18102 | 58102 |
| | 1500 | 50 x 105 | 7.1 | 1.16 | 90 | 61 | 18152 | 58152 |
| | 2200 | 65 x 105 | 10.0 | 1.70 | 61 | 42 | 18222 | 58222 |
| | 3300 | 76 x 105 | 13.4 | 2.55 | 42 | 29 | 18332 | 58332 |
| | 4700 | 76 x 105 | 15.0 | 3.62 | 31 | 22 | 18472 | 58472 |
| | 4700 | 76 x 146 | 16.3 | 3.62 | 29 | 20 | 28472 | 68472 |
| | 6800 | 76 x 146 | 18.3 | 5.24 | 22 | 16 | 18682 | 58682 |
| 400 | 220 | 35 x 60 | 2.1 | 0.18 | 557 | 363 | 16221 | 56221 |
| | 330 | 35 x 60 | 2.5 | 0.26 | 383 | 254 | 16331 | 56331 |
| | 330 | 35 x 80 | 2.7 | 0.26 | 374 | 245 | 26331 | 66331 |
| | 470 | 35 x 80 | 3.1 | 0.38 | 271 | 180 | 16471 | 56471 |
| | 470 | 35 x 105 | 3.3 | 0.38 | 265 | 175 | 26471 | 66471 |
| | 680 | 35 x 105 | 3.9 | 0.55 | 191 | 128 | 16681 | 56681 |
| | 680 | 50 x 80 | 4.5 | 0.54 | 199 | 136 | 26681 | 66681 |
| | 1000 | 50 x 80 | 5.7 | 0.80 | 128 | 86 | 16102 | 56102 |
| | 1000 | 50 x 105 | 6.0 | 0.80 | 125 | 83 | 26102 | 66102 |
| | 1500 | 50 x 105 | 7.1 | 1.20 | 88 | 59 | 26152 | 66152 |
| | 2200 | 65 x 105 | 10.0 | 1.76 | 60 | 40 | 26222 | 66222 |
| | 3300 | 65 x 105 | 12.1 | 2.64 | 40 | 27 | 16332 | 56332 |
| | 3300 | 76 x 105 | 13.4 | 2.64 | 40 | 27 | 26332 | 66332 |
| | 4700 | 76 x 105 | 15.0 | 3.76 | 31 | 21 | 16472 | 56472 |
| | 4700 | 76 x 146 | 16.4 | 3.76 | 28 | 19 | 26472 | 66472 |
| | 6800 | 76 x 146 | 18.3 | 5.44 | 22 | 15 | 26682 | 66682 |
| | 450 | 220 | 35 x 60 | 2.1 | 0.20 | 503 | 313 | 17221 |
| 330 | | 35 x 80 | 2.7 | 0.30 | 339 | 212 | 27331 | 67331 |
| 470 | | 35 x 105 | 3.4 | 0.42 | 241 | 151 | 27471 | 67471 |
| 680 | | 50 x 80 | 4.9 | 0.61 | 159 | 98 | 27681 | 67681 |
| 1000 | | 50 x 80 | 5.7 | 0.90 | 118 | 75 | 17102 | 57102 |
| 1000 | | 50 x 105 | 6.1 | 0.90 | 114 | 72 | 27102 | 67102 |
| 1500 | | 50 x 105 | 7.1 | 1.35 | 81 | 52 | 17152 | 57152 |
| 1500 | | 65 x 105 | 8.3 | 1.35 | 81 | 52 | 27152 | 67152 |
| 2200 | | 65 x 105 | 10.1 | 1.98 | 55 | 35 | 17222 | 57222 |
| 2200 | | 76 x 105 | 11.2 | 1.98 | 55 | 35 | 27222 | 67222 |
| 3300 | | 76 x 105 | 13.5 | 2.97 | 37 | 24 | 17332 | 57332 |
| 3300 | | 76 x 146 | 13.9 | 2.97 | 37 | 24 | 27332 | 67332 |
| 4700 | | 76 x 146 | 16.4 | 4.23 | 26 | 17 | 17472 | 57472 |
| 5600 | | 76 x 146 | 17.3 | 5.04 | 23 | 15 | 17562 | 57562 |



| ADDITIONAL ELECTRICAL DATA | | |
|------------------------------------|--------------------------------------|------------------------------------|
| PARAMETER | CONDITIONS | VALUE |
| Voltage | | |
| Surge voltage | ≤ 250 V versions | $U_s = 1.15 \times U_R$ |
| | ≥ 350 V versions | $U_s = 1.1 \times U_R$ |
| Reverse voltage | | $U_{rev} \leq 1 \text{ V}$ |
| Current | | |
| Leakage current in μA | after 1 minute at U_R | $I_{L1} \leq 0.006 C_R \times U_R$ |
| | after 5 minutes at U_R | $I_{L5} \leq 0.002 C_R \times U_R$ |
| Inductance | | |
| Equivalent series inductance (ESL) | case $\varnothing D = 35 \text{ mm}$ | typ. 13 nH |
| | case $\varnothing D = 50 \text{ mm}$ | typ. 16 nH |
| | case $\varnothing D = 65 \text{ mm}$ | typ. 19 nH |
| | case $\varnothing D = 76 \text{ mm}$ | typ. 20 nH |

RIPPLE CURRENT AND USEFUL LIFE

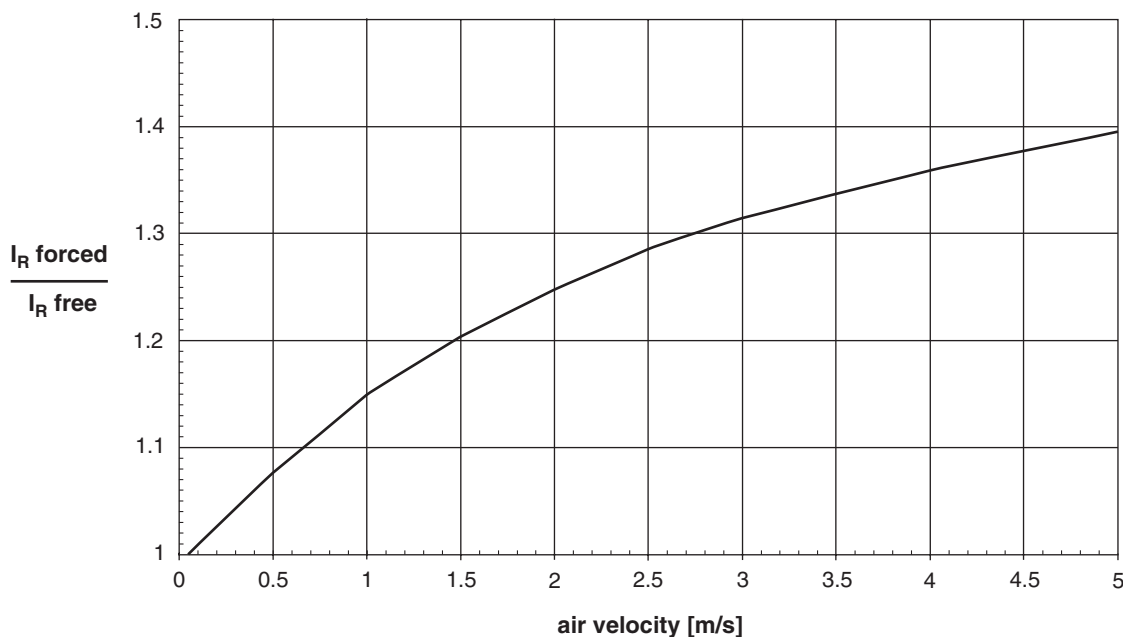


Fig.3 Multiplier of ripple current (I_r) as a function of air flow

| MAXIMUM RIPPLE CURRENT | | | |
|-----------------------------------|-----------|-----------------------------------|-------|
| PARAMETER | CONDITION | MAXIMUM RIPPLE CURRENT MULTIPLIER | VALUE |
| Ambient temperature (T_{amb}) | 70 °C | from nomogram; see fig. 4 | 1.6 |
| Operating frequency (f) | 400 Hz | from frequency ; table 4 | 1.3 |
| Air flow | 2 m/s | from air-flow; see fig. 3 | 1.25 |

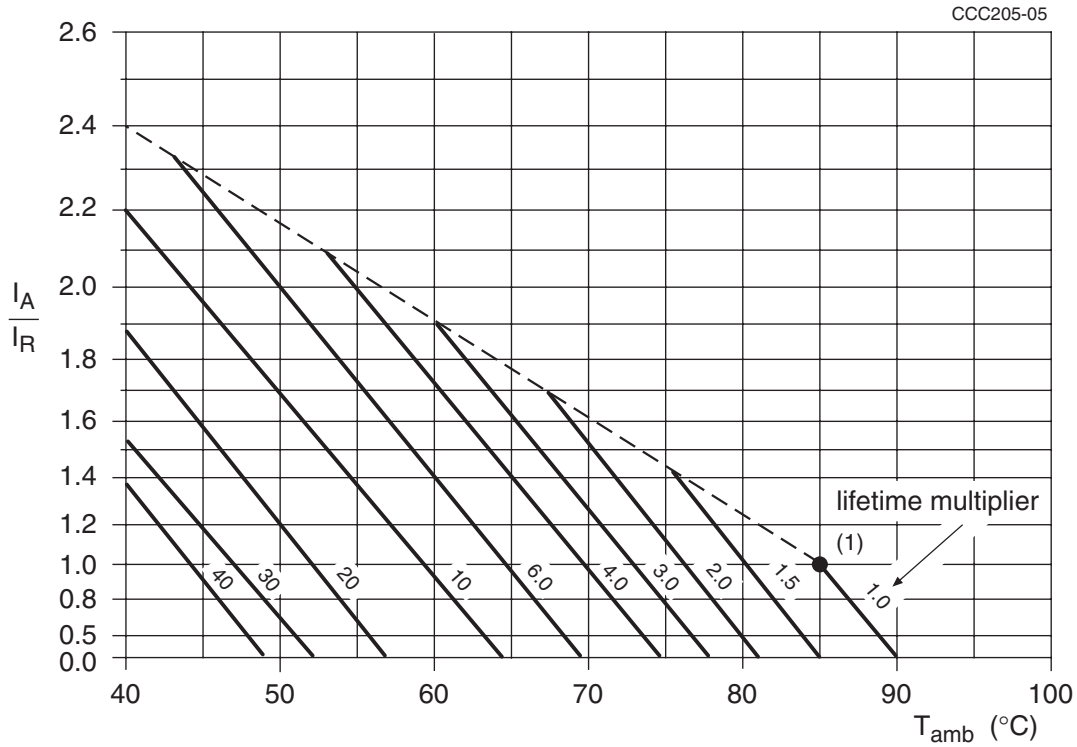
Note

Calculation example for 102 series. Maximum ripple current multiplier = 1.6 x 1.3 x 1.25 = 2.6



Aluminum Capacitors
Power High Ripple Current Screw Terminals

Vishay BCcomponents



I_A = actual ripple current at 100 Hz
 I_R = rated ripple current at 100 Hz and 85 °C

- (1) Useful life at 85 °C and I_R applied:
101 series: case $\varnothing D \leq 50$: 10000 hours
case $\varnothing D \geq 65$: 15000 hours
102 series: 10000 hours

Fig.4 Multiplier of useful life as a function of ambient temperature and ripple current load

Table 4

| MULTIPLIER OF RIPPLE CURRENT (I_R) AS A FUNCTION OF FREQUENCY | | |
|---|------------------|------|
| FREQUENCY (Hz) | I_R MULTIPLIER | |
| | 101 | 102 |
| 50 | 0.85 | 0.90 |
| 100 | 1.00 | 1.00 |
| 200 | 1.10 | 1.20 |
| 400 | 1.15 | 1.30 |
| 1000 | 1.20 | 1.40 |
| 10000 | 1.30 | 1.50 |

Table 5

| TEST PROCEDURES AND REQUIREMENTS | | | |
|--|--|--|---|
| TEST | | PROCEDURE (quick reference) | REQUIREMENTS |
| NAME OF TEST | REFERENCE | | |
| Endurance | IEC 60384-4/ EN130300 subclause 4.13 | $T_{amb} = 85\text{ }^{\circ}\text{C}$; U_R applied; 2000 hours | $U_R \leq 100\text{ V}$; $\Delta C/C: \pm 15\%$ $U_R > 100\text{ V}$; $\Delta C/C: \pm 10\%$ $\tan \delta \leq 1.3 \times \text{spec. limit}$ $Z \leq 2 \times \text{spec. limit}$ $I_{L5} \leq \text{spec. limit}$ |
| Useful life | CECC 30301 subclause 1.8.1 | $T_{amb} = 85\text{ }^{\circ}\text{C}$; U_R and I_R applied; 101 series: case $\varnothing D \leq 50$:10000 hours case $\varnothing D \geq 65$:15000 hours 102 series: 10000 hours | $U_R \leq 100\text{ V}$; $\Delta C/C: \pm 45\%$ $U_R > 100\text{ V}$; $\Delta C/C: \pm 30\%$ $\tan \delta \leq 3 \times \text{spec. limit}$ $Z \leq 3 \times \text{spec. limit}$ $I_{L5} \leq \text{spec. limit}$ no short or open circuit, no visible damage total failure percentage: $U_R \leq 100\text{ V}: \leq 1\%$; $U_R > 100\text{ V}: \leq 3\%$ |
| Shelf life (storage at high temperature) | IEC 60384-4/ EN130300 subclause 4.17 | $T_{amb} = 85\text{ }^{\circ}\text{C}$; no voltage applied; 500 hours after test: U_R to be applied for 30 minutes, 24 to 48 hours before measurement | $\Delta C/C: \pm 10\%$ $\tan \delta \leq 1.2 \times \text{spec. limit}$ $I_{L5} \leq 2 \times \text{spec. limit}$ |



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