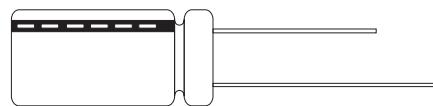


### ■ FEATURES

- 105°C, 2000 hours assured, standard non-polarized series.
- Suitable for use in circuits which have a reversed or unknown polarity.
- Bi-Polar types available (RB) (RBS) (RBL).



### ■ SPECIFICATIONS

| Item   |  | Performance                              |  |  |      |  |      |   |      |                   |      |  |      |         |   |  |  |  |                         |                         |  |  |
|--|--|--|--|--|------|--|------|---|------|-------------------|------|--|------|---------|---|--|--|--|-------------------------|-------------------------|--|--|
| Operating Temperature Range  |  | 40° ~ + 105°C                            |  |  |      |  |      |   |      |                   |      |  |      |         |   |  |  |  |                         |                         |  |  |
| Capacitance Tolerance  |  | ± 20% (120Hz, 20°C)                      |  |  |      |  |      |   |      |                   |      |  |      |         |   |  |  |  |                         |                         |  |  |
| Leakage Current<br>(at 20°C)   |  | Rated Voltage                            |  | ≤ 100V                                     |      | ≥ 100V   |      | Where, C = rated capacitance in μF,<br>V = rated DC working voltage in V. |      |                   |      |  |      |         |   |  |  |  |                         |                         |  |  |
|  |  | Time                                     |  | After 2 minutes                            |      | After 5 minutes  |      |   |      |                   |      |  |      |         |   |  |  |  |                         |                         |  |  |
|  |  | Leakage Current                          |  | I=0.03CV or 4 (μA)<br>whichever is greater |      | CV 1000  |      | CV 1000   |      | I=0.03CV +15 (μA) |      | I=0.02CV +25 (μA)                                      |      |         |   |  |  |  |                         |                         |  |  |
| Dissipation Factor<br>Tan δ at 120 Hz, 20°C  |  | Rated Voltage                            |  | 6.3  | 10   | 16   | 25   | 35  | 50   | 63                | 100  | 160  | 200  | 250     |   |  |  |  |                         |                         |  |  |
|  |  | Tan δ (max)                              |  | 0.25                                       | 0.22 | 0.18   | 0.16 | 0.14  | 0.12 | 0.10              | 0.09 | 0.15   | 0.15 | 0.20    |   |  |  |  |                         |                         |  |  |
| When the capacitance exceeds 1000 μF, 0.02 shall be added every 1000 μF  |  |  |  |  |      |  |      |   |      |                   |      |  |      |         |   |  |  |  |                         |                         |  |  |
| Low Temperature<br>Characteristics (at 120Hz)  |  | Rated Voltage                            |  | 6.3  | 10   | 16   | 25   | 35  | 50   | 63                | 100  | 160  | 200  | 250     |   |  |  |  |                         |                         |  |  |
|  |  | Impedance Ratio                          |  | Z(-25°C) / Z(+20°C)                        | 4    | 3  | 3    | 2   | 2    | 2                 | 2    | 2  | 2    | 3       |   |  |  |  |                         |                         |  |  |
|  |  | Z(-40°C) / Z(+20°C)                      |  | 8  | 6    | 6  | 4    | 4   | 3    | 3                 | 3    | 3  | 4    | 4       | 6   |  |  |  |                         |                         |  |  |
| Load Life Test (after<br>application of the rated<br>voltage at 105°C, the polarity<br>inverted every 250 hours) |  | Test Time                                |  | 2000 Hrs                                   |      | Shelf Life Test<br>(at 20°C after rated<br>voltage applied for<br>500 hours at 105°C<br>without voltage applied) |      | Test Time   |      | 500 Hrs           |      | Capacitance Change<br>Less than 200% of specific value |      | ≤ ± 20% |   | Dissipation Factor<br>Less than 200% of specific value |  | Leakage Current<br>Within specified values |                         | Within specified values |  |  |
|  |  | Capacitance Change                       |  | ≤ ± 20%                                    |      |  |      | Capacitance Change  |      | ≤ ± 20%           |      |  |      |         | Leakage Current<br>Less than 200% of specific value |  | Leakage Current<br>Within specified values |  | Within specified values |                         |  |  |
| Standards  |  | Satisfies Characteristic W of JIS C 5141 |  |  |      |  |      |   |      |                   |      |  |      |         |   |  |  |  |                         |                         |  |  |

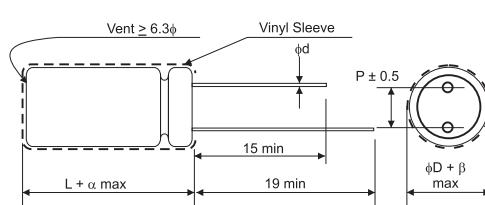
### ■ DIMENSIONS & PERMISSABLE RIPPLE CURRENT

Dimension:  $\phi D \times L$  (mm); Ripple Current: mA/RMS at 120Hz 105°C

| $\mu F$ | VDC<br>Code | 6.3V(0J)   |     | 10V(1A)    |     | 16V(1C)    |      | 25V(1E)    |      | 35V(1V)    |     | 50V(1H)    |     | 63V(1JH)   |     | 100V(2A)   |     | 160V(2C)   |     | 200V(2D)   |     | 250V(2E)  |     |
|---------|-------------|------------|-----|------------|-----|------------|------|------------|------|------------|-----|------------|-----|------------|-----|------------|-----|------------|-----|------------|-----|-----------|-----|
|         |             | $\phi DXL$ | mA  | $\phi DXL$ | mA  | $\phi DXL$ | mA   | $\phi DXL$ | mA   | $\phi DXL$ | mA  | $\phi DXL$ | mA  | $\phi DXL$ | mA  | $\phi DXL$ | mA  | $\phi DXL$ | mA  | $\phi DXL$ | mA  |           |     |
| 0.1     | 0R1         |            |     |            |     |            |      |            |      |            |     | 5 x 11     | 4   | 5 x 11     | 5   | 5 x 11     | 5   |            |     |            |     |           |     |
| 0.22    | R22         |            |     |            |     |            |      |            |      |            |     | 5 x 11     | 5   | 5 x 11     | 6   | 5 x 11     | 6   |            |     |            |     |           |     |
| 0.33    | R33         |            |     |            |     |            |      |            |      |            |     | 5 x 11     | 6   | 5 x 11     | 6   | 5 x 11     | 7   |            |     |            |     |           |     |
| 0.47    | R47         |            |     |            |     |            |      |            |      |            |     | 5 x 11     | 7   | 5 x 11     | 8   | 5 x 11     | 8   | 5 x 11     | 8   | 6.3 x 11   | 9   | 6.3 x 11  | 10  |
| 1       | 010         |            |     |            |     |            |      |            |      |            |     | 5 x 11     | 10  | 5 x 11     | 11  | 5 x 11     | 12  | 6.3 x 11   | 11  | 8 x 11.5   | 12  | 8 x 11.5  | 13  |
| 2.2     | 2R2         |            |     |            |     |            |      |            |      |            |     | 5 x 11     | 15  | 5 x 11     | 16  | 6.3 x 11   | 20  | 8 x 11.5   | 18  | 8 x 11.5   | 22  | 10 x 12.5 | 26  |
| 3.3     | 3R3         |            |     |            |     |            |      |            |      |            |     | 5 x 11     | 18  | 5 x 11     | 20  | 6.3 x 11   | 25  | 8 x 11.5   | 26  | 10 x 12.5  | 30  | 10 x 16   | 37  |
| 4.7     | 4R7         |            |     |            |     |            |      |            |      |            |     | 5 x 11     | 21  | 5 x 11     | 22  | 6.3 x 11   | 24  | 6.3 x 11   | 30  | 10 x 12.5  | 31  | 10 x 16   | 37  |
| 10      | 100         |            |     |            |     | 5 x 11     | 27   | 5 x 11     | 27   | 5 x 11     | 30  | 6 x 11.5   | 37  | 6.3 x 11   | 40  | 8 x 11.5   | 50  | 10 x 16    | 60  | 10 x 20    | 66  | 10 x 20   | 79  |
| 22      | 220         | 5 x 11     | 34  | 5 x 11     | 34  | 5 x 11     | 40   | 6.3 x 11   | 46   | 6.3 x 11.5 | 51  | 8 x 11.5   | 63  | 8 x 11.5   | 68  | 10 x 16    | 97  | 13 x 20    | 117 | 13 x 20    | 117 | 13 x 25   | 138 |
| 33      | 330         | 5 x 11     | 45  | 5 x 11     | 45  | 5 x 11     | 49   | 6.3 x 11   | 56   | 8 x 11.5   | 72  | 8 x 11.5   | 77  | 10 x 12.5  | 98  | 10 x 20    | 140 | 13 x 20    | 143 | 13 x 25    | 158 | 16 x 25   | 169 |
| 47      | 470         | 5 x 11     | 54  | 5 x 11     | 54  | 6.3 x 11   | 67   | 6.3 x 11   | 67   | 8 x 11.5   | 86  | 10 x 12.5  | 105 | 10 x 16    | 130 | 13 x 20    | 170 | 16 x 25    | 188 |            |     |           |     |
| 100     | 101         | 6.3 x 11   | 90  | 6.3 x 11   | 90  | 8 x 11.5   | 110  | 8 x 11.5   | 110  | 10 x 16    | 160 | 10 x 20    | 190 | 13 x 20    | 225 | 16 x 25    | 300 |            |     |            |     |           |     |
| 220     | 221         | 8 x 11.5   | 150 | 8 x 11.5   | 150 | 10 x 12.5  | 195  | 10 x 16    | 215  | 13 x 20    | 390 | 13 x 25    | 340 | 16 x 25    | 405 | 16 x 35.5  | 510 |            |     |            |     |           |     |
| 330     | 331         | 8 x 11.5   | 185 | 10 x 16    | 240 | 10 x 16    | 265  | 13 x 20    | 332  | 13 x 20    | 350 | 16 x 25    | 460 | 16 x 31.5  | 535 |            |     |            |     |            |     |           |     |
| 470     | 471         | 10 x 16    | 260 | 10 x 16    | 290 | 10 x 20    | 345  | 13 x 25    | 380  | 13 x 25    | 465 | 16 x 31.5  | 590 | 18 x 35.5  | 680 |            |     |            |     |            |     |           |     |
| 1000    | 102         | 10 x 20    | 460 | 13 x 20    | 510 | 13 x 25    | 605  | 16 x 25    | 670  | 16 x 35.5  | 805 |            |     |            |     |            |     |            |     |            |     |           |     |
| 2200    | 222         | 13 x 25    | 829 | 16 x 25    | 940 | 16 x 31.5  | 1070 | 18 x 35.5  | 1140 |            |     |            |     |            |     |            |     |            |     |            |     |           |     |

### ■ LEAD SPACING AND DIAMETER

| $\phi D$ | 5   | 6.3 | 8   | 10  | 13  | 16  | 18  |
|----------|-----|-----|-----|-----|-----|-----|-----|
| P        | 2.0 | 2.5 | 3.5 | 5.0 | 5.0 | 7.5 | 7.5 |
| $\phi d$ |     | 0.5 |     | 0.6 |     | 0.8 |     |
| $\alpha$ |     | 1.0 |     | 1.5 |     |     |     |
| $\beta$  |     |     | 0.5 |     |     |     |     |



### ■ PART NUMBER EXAMPLE

RN 010 M 2A BK 050 110