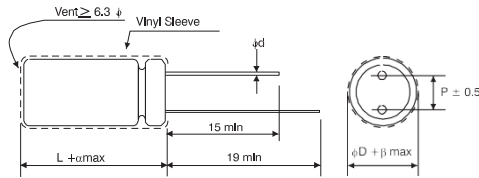


## CAEA SERIES: 130°C, Long Life



## FEATURES

- ◆ 1,000 ~ 3,000 hours assured
- ◆ 130° C
- ◆ For high temperature applications
- ◆ RoHS Compliant

## SPECIFICATIONS

| Items                                      | Performance                                                                                                                                                                                                             |                                                                     |      |      |      |                                |      |      |      |                                  |      |      |      |     |     |     |   |
|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|------|------|------|--------------------------------|------|------|------|----------------------------------|------|------|------|-----|-----|-----|---|
| Operating Temperature Range                | 10 ~ 250V                                                                                                                                                                                                               |                                                                     |      |      |      |                                |      |      |      | 350 ~ 450V                       |      |      |      |     |     |     |   |
|                                            | -40°C ~ +130°C                                                                                                                                                                                                          |                                                                     |      |      |      |                                |      |      |      | -25°C ~ 130°C                    |      |      |      |     |     |     |   |
| Capacitance Tolerance                      | +20% (at 120Hz, 20°C)                                                                                                                                                                                                   |                                                                     |      |      |      |                                |      |      |      |                                  |      |      |      |     |     |     |   |
| Leakage Current (at 20° C)                 | Rated Voltage                                                                                                                                                                                                           | < 100V                                                              |      |      |      | > 100V                         |      |      |      |                                  |      |      |      |     |     |     |   |
|                                            | Time                                                                                                                                                                                                                    | after 2 minutes                                                     |      |      |      | after 1 minutes                |      |      |      |                                  |      |      |      |     |     |     |   |
|                                            | Leakage Current                                                                                                                                                                                                         | I = 0.01CV or 3 (μA) whichever is greater                           |      |      |      | CV ≤ 1000<br>I = 0.1CV+40 (μA) |      |      |      | CV ≥ 1000<br>I = 0.04CV+100 (μA) |      |      |      |     |     |     |   |
|                                            | Where C = rated capacitance in μF. V = rated DC working voltage in V.                                                                                                                                                   |                                                                     |      |      |      |                                |      |      |      |                                  |      |      |      |     |     |     |   |
| Dissipation Factor (Tan δ at 120Hz, 20°C)  | Rated Voltage                                                                                                                                                                                                           | 10                                                                  | 16   | 25   | 35   | 50                             | 63   | 160  | 200  | 250                              | 350  | 400  | 450  |     |     |     |   |
|                                            | Tan (max)                                                                                                                                                                                                               | 0.15                                                                | 0.12 | 0.10 | 0.10 | 0.08                           | 0.08 | 0.20 | 0.20 | 0.20                             | 0.24 | 0.24 | 0.24 |     |     |     |   |
| Low Temperature Characteristics (at 120Hz) | Impedance ratio shall not exceed the values given in the table below.                                                                                                                                                   |                                                                     |      |      |      |                                |      |      |      |                                  |      |      |      |     |     |     |   |
|                                            | Rated Voltage                                                                                                                                                                                                           |                                                                     |      |      | 10   | 16                             | 25   | 35   | 50   | 63                               | 160  | 200  | 250  | 350 | 400 | 450 |   |
|                                            | Impedance Ratio                                                                                                                                                                                                         | Z (-25) / Z (+20°C)                                                 |      |      |      | 3                              | 2    | 2    | 2    | 2                                | 2    | 3    | 3    | 3   | 6   | 6   | 6 |
|                                            |                                                                                                                                                                                                                         | Z (-40) / Z (+20°C)                                                 |      |      |      | 6                              | 4    | 4    | 4    | 4                                | 4    | 6    | 6    | 6   | -   | -   | - |
| Load Life Test                             | Test Time                                                                                                                                                                                                               | 2,000 hrs for φD ≤ φ8mm (125°C)<br>3,000 hrs for φD ≥ φ10mm (130°C) |      |      |      |                                |      |      |      |                                  |      |      |      |     |     |     |   |
|                                            | Capacitance Change                                                                                                                                                                                                      | Within + 20% of initial value                                       |      |      |      |                                |      |      |      |                                  |      |      |      |     |     |     |   |
|                                            | Dissipation Factor                                                                                                                                                                                                      | Less than 200% of specified value                                   |      |      |      |                                |      |      |      |                                  |      |      |      |     |     |     |   |
|                                            | Leakage Current                                                                                                                                                                                                         | Within specified value                                              |      |      |      |                                |      |      |      |                                  |      |      |      |     |     |     |   |
|                                            | * The above specifications shall be satisfied when the capacitors are restored to 20°C after applied with rated subjected to DC voltage with the rated ripple current is applied for 2,000 / 3,000 hrs at 125°C / 130°C |                                                                     |      |      |      |                                |      |      |      |                                  |      |      |      |     |     |     |   |
| Shelf Life Test                            | Test Time                                                                                                                                                                                                               | 1,000 hours                                                         |      |      |      |                                |      |      |      |                                  |      |      |      |     |     |     |   |
|                                            | Capacitance Change                                                                                                                                                                                                      | Within + 20% of initial value                                       |      |      |      |                                |      |      |      |                                  |      |      |      |     |     |     |   |
|                                            | Dissipation Factor                                                                                                                                                                                                      | Less than 200% of specified value                                   |      |      |      |                                |      |      |      |                                  |      |      |      |     |     |     |   |
|                                            | Leakage Current                                                                                                                                                                                                         | Less than 500% of specified value                                   |      |      |      |                                |      |      |      |                                  |      |      |      |     |     |     |   |
|                                            | * The above specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hrs at 130°C without voltage applied. (The procedures before testing JIS C 5102 4.4)               |                                                                     |      |      |      |                                |      |      |      |                                  |      |      |      |     |     |     |   |
| Other Standards                            | JIS C 5101-4                                                                                                                                                                                                            |                                                                     |      |      |      |                                |      |      |      |                                  |      |      |      |     |     |     |   |

## PART NUMBER EXAMPLE

CAEA 106 M 1H B 080 115

| Code | Lead Forming Type             |
|------|-------------------------------|
| O    | Bulk                          |
| T    | 5mm Chip tape                 |
| A    | (Φ4~Φ6.3)2.5mm tape           |
| F    | (Φ4~Φ8)5mm tape               |
| P    | Φ≥Φ8mm original(vertical)tape |
| M    | 5mm Lead forming              |
| C    | C Lead forming                |
| B    | B Lead forming                |
| D    | (Φ4~Φ8)2.5mm Lead forming     |

## LEAD SPACING AND DIAMETER

Unit: mm

| φD | 8   | 10  | 12.5 | 16  |
|----|-----|-----|------|-----|
| P  | 3.5 | 5.0 | 5.0  | 7.5 |
| φd | 0.6 |     |      | 0.8 |
| α  | 1.0 | 1.5 |      |     |
| P  | 0.5 |     |      |     |

CAEA SERIES: 130°C, Long Life



DIMENSIONS AND PERMISSABLE RIPPLE CURRENT

Dimension: ΦD×L(mm)                      Ripple Current: mA/RMS at 120Hz 130°C

| V.DC  |          | 10V (1A)  |     | 16V (1C)  |     | 25V (1E)  |     | 35V (1V)  |     |
|-------|----------|-----------|-----|-----------|-----|-----------|-----|-----------|-----|
| μF    | Contents | φDx L     | mA  | φD x L    | mA  | φDx L     | mA  | φDx L     | mA  |
| 22    | 226      |           |     |           |     |           |     | 8 x 11.5  | 75  |
| 33    | 336      |           |     |           |     | 8 x 11.5  | 92  | 10 x 13   | 108 |
| 47    | 476      |           |     | 8 x 11.5  | 100 | 10 x 12.5 | 129 | 10 x 16   | 142 |
| 100   | 107      | 10 x 12.5 | 154 | 10 x 16   | 190 | 10 x 16   | 208 | 10 x 20   | 225 |
| 220   | 227      | 10 x 16   | 252 | 10 x 20   | 305 | 12.5 x 20 | 371 | 12.5 x 25 | 403 |
| 330   | 337      | 10 x 16   | 308 | 12.5 x 20 | 414 | 12.5 x 25 | 493 | 16 x 20   | 503 |
| 470   | 477      | 10 x 20   | 399 | 12.5 x 25 | 537 | 16 x 20   | 601 |           |     |
| 1,000 | 108      | 16 x 20   | 715 |           |     |           |     |           |     |

| V.DC |          | 50V (1H)  |     | 63V (1J)  |     | 160V (2C) |     | 200V (2D) |     |
|------|----------|-----------|-----|-----------|-----|-----------|-----|-----------|-----|
| μF   | Contents | φDx L     | mA  | φDx L     | MA  | φDx L     | mA  | φDx L     | mA  |
| 0.47 | 474      | 8 x 11.5  | 12  | 8 x 11.5  | 12  |           |     |           |     |
| 1    | 105      | 8 x 11.5  | 17  | 8 x 11.5  | 17  |           |     |           |     |
| 2.2  | 225      | 8 x 11.5  | 26  | 8 x 11.5  | 26  |           |     |           |     |
| 3.3  | 335      | 8 x 11.5  | 32  | 8 x 11.5  | 32  |           |     |           |     |
| 4.7  | 475      | 8 x 11.5  | 38  | 8 x 11.5  | 38  |           |     |           |     |
| 10   | 106      | 8 x 11.5  | 56  | 8 x 11.5  | 56  |           |     | 10 x 20   | 78  |
| 22   | 226      | 10 x 12.5 | 99  | 10 x 12.5 | 99  | 10 x 20   | 115 | 10 x 25   | 126 |
| 33   | 330      | 10 x 16   | 133 | 10 x 16   | 133 | 10 x 25   | 154 | 12.5 x 20 | 157 |
| 47   | 476      | 10 x 16   | 159 | 10 x 20   | 173 | 12.5 x 20 | 187 | 12.5 x 25 | 204 |
| 68   | 686      |           |     |           |     | 12.5 x 25 | 245 | 16 x 20   | 250 |
| 100  | 107      | 12.5 x 20 | 279 | 12.5 x 20 | 279 | 16 x 25   | 329 | 16 x 25   | 329 |
| 150  | 157      |           |     |           |     | 16 x 31.5 | 434 |           |     |
| 220  | 227      | 16 x 20   | 459 |           |     |           |     |           |     |

| V.DC |          | 250V (2E) |     | 350V (2V) |     | 400V (2G) |     | 450V (2W) |     |
|------|----------|-----------|-----|-----------|-----|-----------|-----|-----------|-----|
| μF   | Contents | φDx L     | mA  | φDx L     | mA  | φDx L     | MA  | φDx L     | mA  |
| 4.7  | 475      |           |     | 10 x 20   | 53  | 10 x 20   | 53  | 10 x 25   | 58  |
| 10   | 106      | 10 x 20   | 78  | 10 x 25   | 85  | 10 x 25   | 86  | 12.5 x 20 | 86  |
| 22   | 226      | 13 x 20   | 128 | 12.5 x 25 | 139 | 12.5 x 25 | 142 | 16 x 25   | 154 |
| 33   | 336      | 13 x 25   | 171 | 16 x 25   | 189 | 16 x 25   | 189 | 16 x 31.5 | 203 |
| 47   | 476      | 16 x 25   | 225 | 16 x 31.5 | 243 | 16 x 31.5 | 243 |           |     |
| 68   | 686      | 16 x 31.5 | 292 |           |     |           |     |           |     |