

# ALUMINUM ELECTROLYTIC CAPACITORS

nichicon

**CY** series

Miniature Sized, High Ripple Current, High Reliability



Smaller

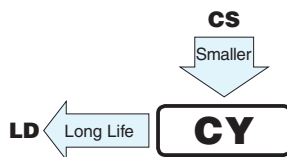


Long Life



High Ripple Current

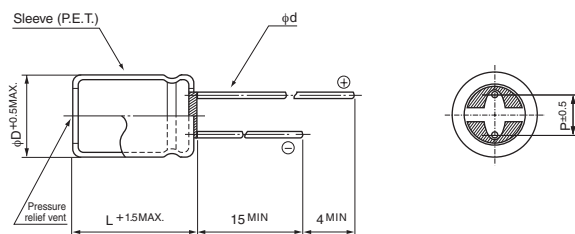
- High ripple current and Long Life product withstanding load life of 10000 to 12000 hours at +105°C.
- Suited for ballast application.
- Compliant to the RoHS directive (2011/65/EU).



## Specifications

| Item                          | Performance Characteristics                                                                                                                                                                                                                                      |      |                 |      |      |                    |      |                                                   |      |     |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----------------|------|------|--------------------|------|---------------------------------------------------|------|-----|
| Category Temperature Range    | −40 to +105°C (160 to 400V), −25 to +105°C (420 to 500V)                                                                                                                                                                                                         |      |                 |      |      |                    |      |                                                   |      |     |
| Rated Voltage Range           | 160 to 500V                                                                                                                                                                                                                                                      |      |                 |      |      |                    |      |                                                   |      |     |
| Rated Capacitance Range       | 6.8 to 680μF                                                                                                                                                                                                                                                     |      |                 |      |      |                    |      |                                                   |      |     |
| Capacitance Tolerance         | ± 20% at 120Hz, 20°C                                                                                                                                                                                                                                             |      |                 |      |      |                    |      |                                                   |      |     |
| Leakage Current               | After 1 minute's application of rated voltage at 20°C, leakage current is not more than 0.04CV+100 (μA)                                                                                                                                                          |      |                 |      |      |                    |      |                                                   |      |     |
| Tangent of loss angle (tan δ) | Measurement frequency : 120Hz at 20°C                                                                                                                                                                                                                            |      |                 |      |      |                    |      |                                                   |      |     |
|                               | Rated voltage (V)                                                                                                                                                                                                                                                | 160  | 200             | 250  | 350  | 400                | 420  | 450                                               | 500  |     |
|                               | tan δ (MAX.)                                                                                                                                                                                                                                                     | 0.20 | 0.20            | 0.20 | 0.24 | 0.24               | 0.24 | 0.24                                              | 0.24 |     |
| Stability at Low Temperature  | Measurement frequency : 120Hz                                                                                                                                                                                                                                    |      |                 |      |      |                    |      |                                                   |      |     |
|                               | Rated voltage (V)                                                                                                                                                                                                                                                |      | 160             | 200  | 250  | 350                | 400  | 420                                               | 450  | 500 |
|                               | Z−25°C / Z+20°C                                                                                                                                                                                                                                                  |      | 3               | 3    | 3    | 5                  | 5    | 6                                                 | 6    | 6   |
|                               | Impedance ratio ZT / Z20 (MAX.)                                                                                                                                                                                                                                  |      | Z−40°C / Z+20°C | 6    | 6    | 6                  | 6    | 6                                                 | −    | −   |
| Endurance                     | The specifications listed at right shall be met when the capacitors are restored to 20°C after D.C. bias plus rated ripple current is applied for 12000 hours (10000 hours for 20L or less, 500V) at 105°C, the peak voltage shall not exceed the rated voltage. |      |                 |      |      | Capacitance change |      | Within ±20% of the initial capacitance value      |      |     |
|                               |                                                                                                                                                                                                                                                                  |      |                 |      |      | tan δ              |      | 200% or less than the initial specified value     |      |     |
|                               |                                                                                                                                                                                                                                                                  |      |                 |      |      | Leakage current    |      | Less than or equal to the initial specified value |      |     |
| Shelf Life                    | After storing the capacitors under no load at 105°C for 1000 hours and then performing voltage treatment based on JIS C 5101-4 clause 4.1 at 20°C, they shall meet the specified values for the endurance characteristics listed above.                          |      |                 |      |      |                    |      |                                                   |      |     |
| Marking                       | Printed with white color letter on dark brown sleeve.                                                                                                                                                                                                            |      |                 |      |      |                    |      |                                                   |      |     |

## Radial Lead Type

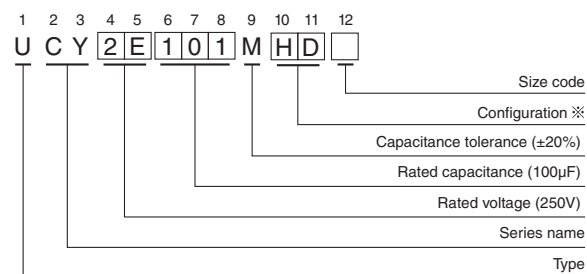


|    | (mm) |      |     |     |
|----|------|------|-----|-----|
| φD | 10   | 12.5 | 16  | 18  |
| P  | 5.0  | 5.0  | 7.5 | 7.5 |
| φd | 0.6  | 0.6* | 0.8 | 0.8 |

\* In case L > 25 for the φ12.5 dia. unit, lead dia. φd = 0.8mm.

- Please refer to page 20 about the end seal configuration.

## Type numbering system (Example : 250V 100µF)



※ Configuration

| φ D        | Pb-free leadwire<br>Pb-free PET sleeve |
|------------|----------------------------------------|
| 10         | PD                                     |
| 12.5 to 18 | HD                                     |

Please refer to page 20, 21, 22 about the formed or taped product spec.  
Please refer to page 4 for the minimum order quantity.

- Dimension table in next page.

CAT.8100D

## ■ Dimensions

| Cap | Code | V             |      | 160           |      | 200           |      | 250         |      | 350           |      | 400         |     | 420         |     | 450         |     | 500                      |     |
|-----|------|---------------|------|---------------|------|---------------|------|-------------|------|---------------|------|-------------|-----|-------------|-----|-------------|-----|--------------------------|-----|
|     |      | 2C            |      | 2D            |      | 2E            |      | 2V          |      | 2G            |      | W6          |     | 2W          |     | 2H          |     |                          |     |
| 6.8 | 6R8  |               |      |               |      |               |      |             |      |               |      | 10 × 16     | 140 | 10 × 16     | 105 | 10 × 16     | 105 |                          |     |
| 10  | 100  |               |      |               |      |               |      |             |      |               |      | 10 × 16     | 150 | 10 × 20     | 135 | 10 × 20     | 135 | 12.5 × 20                | 160 |
| 12  | 120  |               |      |               |      |               |      | 10 × 16     | 160  | 10 × 20       | 175  | 10 × 20     | 150 | 10 × 20     | 150 |             |     |                          |     |
| 15  | 150  |               |      |               |      |               |      | 10 × 20     | 180  | 10 × 20       | 180  | 10 × 25     | 185 | 10 × 25     | 185 | 12.5 × 25   | 220 | ● 16 × 20                | 220 |
| 18  | 180  |               |      |               |      |               |      | 10 × 20     | 215  | 10 × 25       | 235  | 10 × 31.5   | 215 | 10 × 31.5   | 215 | 12.5 × 31.5 | 240 | ● 16 × 20                | 240 |
|     |      |               |      |               |      |               |      |             |      |               |      |             |     | ▲ 12.5 × 20 | 255 |             |     |                          |     |
| 22  | 220  |               |      | 10 × 16       | 225  | 10 × 16       | 225  | 10 × 25     | 255  | 10 × 31.5     | 275  | 12.5 × 20   | 285 | 12.5 × 25   | 300 | 12.5 × 35.5 | 280 | ▲ 16 × 25                | 280 |
|     |      |               |      |               |      |               |      | ○ 10 × 20   | 215  |               |      |             |     |             |     | ● 18 × 20   | 280 |                          |     |
|     |      |               |      |               |      |               |      | ● 12.5 × 20 | 325  |               |      |             |     |             |     |             |     |                          |     |
| 27  | 270  |               |      | 10 × 16       | 235  | 10 × 20       | 255  | 10 × 31.5   | 305  | 12.5 × 20     | 360  | 12.5 × 25   | 340 | 12.5 × 25   | 340 | 12.5 × 40   | 310 | ▲ 16 × 25                | 310 |
|     |      |               |      |               |      |               |      | ○ 10 × 25   | 255  |               |      |             |     |             |     | ▲ 16 × 25   | 310 |                          |     |
| 33  | 330  | 10 × 16       | 260  | 10 × 20       | 305  | 10 × 20       | 305  | 12.5 × 20   | 380  | 12.5 × 25     | 385  | 12.5 × 31.5 | 400 | 12.5 × 31.5 | 400 | 16 × 31.5   | 350 | ● 18 × 25                | 350 |
|     |      |               |      |               |      | ● 12.5 × 20   | 400  | ● 16 × 20   | 450  | ● 16 × 20     | 450  | ● 16 × 20   | 385 | ● 16 × 20   | 385 | ● 18 × 25   | 350 |                          |     |
| 39  | 390  | 10 × 16       | 295  | 10 × 20       | 325  | 10 × 25       | 345  | 12.5 × 25   | 455  | 12.5 × 31.5   | 465  | 12.5 × 31.5 | 430 | 12.5 × 35.5 | 460 | 16 × 35.5   | 380 |                          |     |
|     |      |               |      |               |      |               |      | ○ 12.5 × 25 | 385  | 16 × 20       | 520  | 12.5 × 35.5 | 505 | 12.5 × 40   | 525 | 16 × 40     | 440 |                          |     |
| 47  | 470  | 10 × 20       | 375  | ● 12.5 × 20   | 490  | ○ 10 × 25     | 345  | ● 16 × 20   | 540  | ▲ 12.5 × 31.5 | 510  | ▲ 16 × 25   | 500 | ▲ 16 × 25   | 500 | ▲ 18 × 31.5 | 440 |                          |     |
|     |      |               |      |               |      | ● 12.5 × 20   | 490  |             |      | ● 18 × 20     | 590  | ● 18 × 20   | 480 |             |     |             |     |                          |     |
| 56  | 560  | 10 × 20       | 380  | 10 × 25       | 415  | 12.5 × 20     | 515  | 12.5 × 31.5 | 590  | 12.5 × 35.5   | 630  | 12.5 × 40   | 570 | 16 × 31.5   | 585 | 18 × 35.5   | 480 |                          |     |
|     |      |               |      |               |      |               |      | ▲ 16 × 20   | 565  | ▲ 16 × 25     | 585  | ● 18 × 20   | 600 | ● 18 × 25   | 560 |             |     |                          |     |
| 68  | 680  | 10 × 25       | 455  | 10 × 31.5     | 485  | 12.5 × 25     | 615  | 12.5 × 35.5 | 695  | 12.5 × 40     | 720  | 16 × 31.5   | 645 | 16 × 35.5   | 660 | 18 × 40     | 525 |                          |     |
|     |      | ● 12.5 × 20   | 590  | ● 12.5 × 20   | 650  | ● 16 × 20     | 650  | ● 16 × 25   | 700  | ○ 16 × 25     | 640  | ● 18 × 25   | 615 |             |     |             |     |                          |     |
|     |      |               |      |               |      | ▲ 18 × 20     | 690  |             |      | ● 18 × 25     | 735  |             |     |             |     |             |     |                          |     |
| 82  | 820  | 10 × 31.5     | 534  | 12.5 × 25     | 645  | 12.5 × 31.5   | 715  | 16 × 31.5   | 740  | 16 × 31.5     | 805  | 16 × 35.5   | 725 | 16 × 40     | 750 |             |     |                          |     |
|     |      | ○ 10 × 25     | 455  | ○ 12.5 × 20   | 645  | ○ 12.5 × 25   | 615  | ▲ 12.5 × 40 | 785  | ▲ 12.5 × 40   | 785  | ● 18 × 25   | 765 | ▲ 18 × 31.5 | 730 | ▲ 18 × 31.5 | 730 |                          |     |
|     |      | ● 12.5 × 20   | 640  | ● 16 × 20     | 690  | ● 16 × 20     | 690  | ○ 16 × 25   | 700  | ● 18 × 25     | 765  |             |     |             |     |             |     |                          |     |
|     |      |               |      |               |      | ● 18 × 25     | 765  |             |      |               |      |             |     |             |     |             |     |                          |     |
| 100 | 101  | 12.5 × 20     | 645  | 12.5 × 25     | 695  | 16 × 20       | 715  | 16 × 31.5   | 825  | 16 × 35.5     | 850  | 16 × 40     | 825 | 18 × 35.5   | 835 |             |     |                          |     |
|     |      |               |      | ● 16 × 20     | 710  | ▲ 12.5 × 35.5 | 785  | ● 18 × 25   | 790  | ▲ 18 × 31.5   | 875  | ▲ 18 × 35.5 | 835 |             |     |             |     |                          |     |
| 120 | 121  | 12.5 × 25     | 760  | 16 × 20       | 775  | 16 × 25       | 845  | 16 × 35.5   | 925  | 18 × 31.5     | 940  | 18 × 40     | 930 | 18 × 40     | 930 |             |     |                          |     |
|     |      |               |      | ▲ 12.5 × 31.5 | 810  | ○ 12.5 × 35.5 | 785  | ▲ 18 × 31.5 | 940  | ▲ 16 × 40     | 950  | ▲ 18 × 46   | 945 |             |     |             |     |                          |     |
|     |      |               |      |               |      | ● 12.5 × 40   | 890  | ● 18 × 35.5 | 960  | ● 18 × 35.5   | 960  |             |     |             |     |             |     |                          |     |
|     |      |               |      |               |      | ▲ 18 × 20     | 815  |             |      |               |      |             |     |             |     |             |     |                          |     |
| 150 | 151  | 12.5 × 31.5   | 905  | 12.5 × 35.5   | 965  | 18 × 25       | 970  | 18 × 35.5   | 1080 | 18 × 40       | 1030 |             |     |             |     |             |     |                          |     |
|     |      | ○ 12.5 × 25   | 760  | ● 16 × 25     | 945  | ▲ 12.5 × 40   | 990  | ▲ 16 × 40   | 1000 |               |      |             |     |             |     |             |     |                          |     |
|     |      | ● 16 × 20     | 945  | ▲ 18 × 20     | 910  |               |      |             |      |               |      |             |     |             |     |             |     |                          |     |
| 180 | 181  | 16 × 20       | 1000 | 12.5 × 40     | 1090 | 16 × 31.5     | 1110 | 18 × 40     | 1205 | 18 × 46       | 1110 |             |     |             |     |             |     |                          |     |
|     |      | ○ 12.5 × 31.5 | 905  | ▲ 16 × 25     | 1035 | ▲ 18 × 25     | 1050 |             |      |               |      |             |     |             |     |             |     |                          |     |
|     |      | ▲ 12.5 × 35.5 | 1050 | ● 18 × 20     | 910  |               |      |             |      |               |      |             |     |             |     |             |     |                          |     |
| 220 | 221  | 12.5 × 40     | 1200 | 16 × 31.5     | 1230 | 16 × 40       | 1295 | 18 × 46     | 1300 |               |      |             |     |             |     |             |     |                          |     |
|     |      | ○ 12.5 × 35.5 | 1050 | ▲ 12.5 × 40   | 1090 | ○ 16 × 35.5   | 1220 |             |      |               |      |             |     |             |     |             |     |                          |     |
|     |      | ● 16 × 25     | 1185 | ● 18 × 25     | 1185 | ● 18 × 31.5   | 1160 |             |      |               |      |             |     |             |     |             |     |                          |     |
|     |      | ▲ 18 × 20     | 1105 |               |      |               |      |             |      |               |      |             |     |             |     |             |     |                          |     |
| 270 | 271  | 18 × 25       | 1235 | 16 × 35.5     | 1400 | 18 × 35.5     | 1450 |             |      |               |      |             |     |             |     |             |     |                          |     |
|     |      | ▲ 12.5 × 40   | 1300 | ▲ 18 × 31.5   | 1410 | ▲ 16 × 40     | 1350 |             |      |               |      |             |     |             |     |             |     |                          |     |
| 330 | 331  | 16 × 31.5     | 1510 | 16 × 40       | 1595 | 18 × 46       | 1600 |             |      |               |      |             |     |             |     |             |     |                          |     |
|     |      | ▲ 18 × 25     | 1445 | ▲ 18 × 31.5   | 1560 | ○ 18 × 40     | 1530 |             |      |               |      |             |     |             |     |             |     |                          |     |
| 390 | 391  | 16 × 40       | 1730 | 18 × 40       | 1780 |               |      |             |      |               |      |             |     |             |     |             |     |                          |     |
|     |      | ○ 16 × 35.5   | 1510 | ○ 18 × 35.5   | 1690 |               |      |             |      |               |      |             |     |             |     |             |     |                          |     |
|     |      | ▲ 18 × 31.5   | 1695 |               |      |               |      |             |      |               |      |             |     |             |     |             |     |                          |     |
| 470 | 471  | 18 × 35.5     | 1920 | 18 × 40       | 1850 |               |      |             |      |               |      |             |     |             |     |             |     |                          |     |
|     |      | ▲ 16 × 40     | 1730 | ▲ 18 × 46     | 1900 |               |      |             |      |               |      |             |     |             |     |             |     |                          |     |
| 560 | 561  | 18 × 40       | 2130 |               |      |               |      |             |      |               |      |             |     |             |     |             |     |                          |     |
| 680 | 681  | 18 × 46       | 2300 |               |      |               |      |             |      |               |      |             |     |             |     |             |     |                          |     |
|     |      |               |      |               |      |               |      |             |      |               |      |             |     |             |     |             |     | Case size<br>φD × L (mm) | ※   |

## ● Frequency coefficient of rated ripple current

| Frequency   | 50Hz | 120Hz | 1kHz | 10kHz | 100kHz or more |
|-------------|------|-------|------|-------|----------------|
| Coefficient | 0.80 | 1.00  | 1.60 | 1.80  | 2.00           |

※ : Rated ripple current (mA<sub>rms</sub>) at 105°C 120Hz

▲ : In this case, [6] will be put at 12th digit of type numbering system.

● : In this case, [3] will be put at 12th digit of type numbering system.

○ : In this case, [9] will be put at 12th digit of type numbering system.