

## ALUMINUM ELECTROLYTIC CAPACITORS

nichicon



ES

Bi-Polarized, For Audio Equipment

series



For Audio Use



Bi-polarized



Anti-Solvent Feature

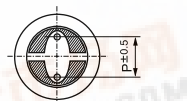
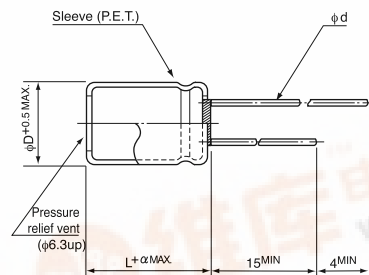
- Bi-polarized "nichicon MUSE" acoustic series.
- Suited for audio signal circuits.
- Adapted to the RoHS directive (2002/95/EC).



## Specifications

| Item                         | Performance Characteristics                                                                                                                                                                                                        |                 |      |                    |      |                                         |      |    |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|------|--------------------|------|-----------------------------------------|------|----|
| Category Temperature Range   | -40 ~ +85°C                                                                                                                                                                                                                        |                 |      |                    |      |                                         |      |    |
| Rated Voltage Range          | 6.3 ~ 50V                                                                                                                                                                                                                          |                 |      |                    |      |                                         |      |    |
| Rated Capacitance Range      | 0.47 ~ 1000μF                                                                                                                                                                                                                      |                 |      |                    |      |                                         |      |    |
| Capacitance Tolerance        | ±20% at 120Hz, 20°C                                                                                                                                                                                                                |                 |      |                    |      |                                         |      |    |
| Leakage Current              | After 1 minute's application of rated voltage, leakage current is not more than 0.03CV or 3 (μA), whichever is greater.                                                                                                            |                 |      |                    |      |                                         |      |    |
| tan δ                        | Measurement frequency : 120Hz, Temperature : 20°C                                                                                                                                                                                  |                 |      |                    |      |                                         |      |    |
|                              | Rated voltage (V)                                                                                                                                                                                                                  | 6.3             | 10   | 16                 | 25   | 35                                      | 50   |    |
|                              | tan δ (MAX.)                                                                                                                                                                                                                       | 0.24            | 0.20 | 0.16               | 0.16 | 0.14                                    | 0.12 |    |
| Stability at Low Temperature | Measurement frequency : 120Hz                                                                                                                                                                                                      |                 |      |                    |      |                                         |      |    |
|                              | Rated voltage (V)                                                                                                                                                                                                                  |                 | 6.3  | 10                 | 16   | 25                                      | 35   | 50 |
|                              | Impedance ratio<br>ZT / Z20 (MAX.)                                                                                                                                                                                                 | Z-25°C / Z+20°C | 4    | 3                  | 2    | 2                                       | 2    | 2  |
|                              |                                                                                                                                                                                                                                    | Z-40°C / Z+20°C | 8    | 6                  | 4    | 4                                       | 4    | 4  |
| Endurance                    | After 1000 hours' application of rated voltage at 85°C with the polarity inverted every 250 hours, capacitors meet the characteristics requirement listed at right.                                                                |                 |      | Capacitance change |      | Within ±20% of initial value            |      |    |
|                              |                                                                                                                                                                                                                                    |                 |      | tan δ              |      | 150% or less of initial specified value |      |    |
|                              |                                                                                                                                                                                                                                    |                 |      | Leakage current    |      | Initial specified value or less         |      |    |
| Shelf Life                   | After storing the capacitors under no load at 85°C for 1000 hours, and after performing voltage treatment based on JIS C 5101-4 clause 4.1 at 20°C, they will meet the specified value for endurance characteristics listed above. |                 |      |                    |      |                                         |      |    |
| Marking                      | Printed with black color letter on clear green sleeve.                                                                                                                                                                             |                 |      |                    |      |                                         |      |    |

## Radial Lead Type



|    | 5   | 6.3 | 8   | 10  | 12.5 | 16  |
|----|-----|-----|-----|-----|------|-----|
| φD | 2.0 | 2.5 | 3.5 | 5.0 | 5.0  | 7.5 |
| P  | 0.6 | 0.6 | 0.6 | 0.6 | 0.8  | 0.8 |
| φd | 0.6 | 0.6 | 0.6 | 0.6 | 0.8  | 0.8 |

|   |               |
|---|---------------|
| α | (φD < 10) 1.0 |
|   | (φD ≥ 10) 1.5 |

## Type numbering system (Example : 10V 47μF)

1 2 3 4 5 6 7 8 9 10 11  
U E S 1 A 4 7 0 M E M

| Configuration |      |
|---------------|------|
| φD            | Code |
| 5             | DM   |
| 6.3           | EM   |
| 8 · 10        | PM   |
| 12.5 · 16     | HM   |

Capacitance tolerance (±20%)

Rated Capacitance (47μF)

Rated voltage (10V)

Series name

Type

- Please refer to page 21 about the end seal configuration.

## Dimensions

φD × L (mm)

| V        | 6.3  | 10        | 16        | 25        | 35        | 50        |
|----------|------|-----------|-----------|-----------|-----------|-----------|
| Cap.(μF) | Code | 0J        | 1A        | 1C        | 1E        | 1V        |
| 0.47     | R47  |           |           |           |           | 5 × 11    |
| 1        | 010  |           |           |           |           | 5 × 11    |
| 2.2      | 2R2  |           |           |           |           | 5 × 11    |
| 3.3      | 3R3  |           |           |           |           | 5 × 11    |
| 4.7      | 4R7  |           |           |           |           | 6.3 × 11  |
| 10       | 100  |           |           | 5 × 11    | 5 × 11    | 8 × 11.5  |
| 22       | 220  |           | 5 × 11    | 6.3 × 11  | 6.3 × 11  | 10 × 12.5 |
| 33       | 330  | 5 × 11    | 6.3 × 11  | 6.3 × 11  | 8 × 11.5  | 10 × 16   |
| 47       | 470  | 6.3 × 11  | 6.3 × 11  | 8 × 11.5  | 10 × 12.5 | 10 × 20   |
| 100      | 101  | 8 × 11.5  | 10 × 12.5 | 10 × 12.5 | 10 × 16   | 12.5 × 25 |
| 220      | 221  | 10 × 12.5 | 10 × 16   | 10 × 20   | 12.5 × 25 | 16 × 25   |
| 330      | 331  | 10 × 16   | 10 × 20   | 12.5 × 20 | 12.5 × 25 | 16 × 31.5 |
| 470      | 471  | 10 × 20   | 12.5 × 20 | 12.5 × 25 | 16 × 25   |           |
| 1000     | 102  | 12.5 × 25 | 16 × 25   | 16 × 25   | 16 × 31.5 |           |