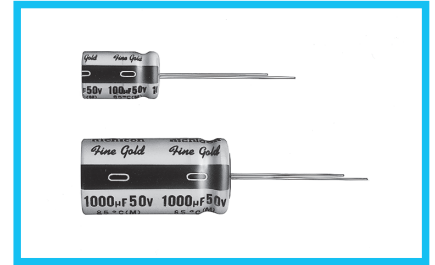


# UFG

High Grade Standard Type, For Audio Equipment



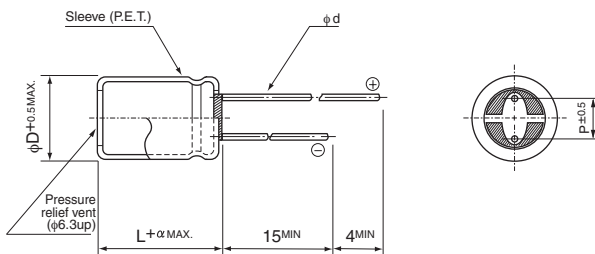
- "Fine Gold" MUSE acoustic series suited for high grade audio equipment, using state of the art etching techniques.
- Rich sound in the bass register and clearer high end, most suited for AV equipment like DVD.
- Compliant to the RoHS directive (2011/65/EU).



## Specifications

| Item                               | Performance Characteristics  |  |      |      |      |      |      |      |      |     |     |              |                                    |                 |      |      |      |      |      |      |      |   |   |                 |   |   |   |   |   |   |   |   |
|------------------------------------|--|--|------|------|------|------|------|------|------|-----|-----|--------------|------------------------------------|-----------------|------|------|------|------|------|------|------|---|---|-----------------|---|---|---|---|---|---|---|---|
| Category Temperature Range         | -40 to +85°C   |  |      |      |      |      |      |      |      |     |     |              |                                    |                 |      |      |      |      |      |      |      |   |   |                 |   |   |   |   |   |   |   |   |
| Rated Voltage Range                | 6.3 to 100V  |  |      |      |      |      |      |      |      |     |     |              |                                    |                 |      |      |      |      |      |      |      |   |   |                 |   |   |   |   |   |   |   |   |
| Rated Capacitance Range            | 1 to 10000µF   |  |      |      |      |      |      |      |      |     |     |              |                                    |                 |      |      |      |      |      |      |      |   |   |                 |   |   |   |   |   |   |   |   |
| 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 0.01CV or 3 (µA), whichever is greater.  |  |      |      |      |      |      |      |      |     |     |              |                                    |                 |      |      |      |      |      |      |      |   |   |                 |   |   |   |   |   |   |   |   |
| Tangent of loss angle (tan δ)      | Measurement frequency : 120Hz at 20°C  |  |      |      |      |      |      |      |      |     |     |              |                                    |                 |      |      |      |      |      |      |      |   |   |                 |   |   |   |   |   |   |   |   |
|                                    | <table border="1"> <thead> <tr> <th>Rated voltage (V)</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> <th>63</th> <th>80</th> <th>100</th> </tr> </thead> <tbody> <tr> <td>tan δ (MAX.)</td> <td>0.22</td> <td>0.19</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.10</td> <td>0.09</td> <td>0.09</td> <td>0.08</td> </tr> </tbody> </table> <p>For capacitance of more than 1000µF add 0.02 for every increase of 1000µF.</p>   | Rated voltage (V)  | 6.3  | 10   | 16   | 25   | 35   | 50   | 63   | 80  | 100 | tan δ (MAX.) | 0.22                               | 0.19            | 0.16 | 0.14 | 0.12 | 0.10 | 0.09 | 0.09 | 0.08 |   |   |                 |   |   |   |   |   |   |   |   |
| Rated voltage (V)                  | 6.3  | 10   | 16   | 25   | 35   | 50   | 63   | 80   | 100  |     |     |              |                                    |                 |      |      |      |      |      |      |      |   |   |                 |   |   |   |   |   |   |   |   |
| tan δ (MAX.)                       | 0.22   | 0.19   | 0.16 | 0.14 | 0.12 | 0.10 | 0.09 | 0.09 | 0.08 |     |     |              |                                    |                 |      |      |      |      |      |      |      |   |   |                 |   |   |   |   |   |   |   |   |
| Stability at Low Temperature       | Measurement frequency : 120Hz  |  |      |      |      |      |      |      |      |     |     |              |                                    |                 |      |      |      |      |      |      |      |   |   |                 |   |   |   |   |   |   |   |   |
|                                    | <table border="1"> <thead> <tr> <th colspan="2">Rated voltage (V)</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> <th>63</th> <th>80</th> <th>100</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Impedance ratio<br/>ZT / Z20 (MAX.)</td> <td>Z-25°C / Z+20°C</td> <td>4</td> <td>3</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> </tr> <tr> <td>Z-40°C / Z+20°C</td> <td>8</td> <td>6</td> <td>4</td> <td>4</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> </tr> </tbody> </table> | Rated voltage (V)  |      | 6.3  | 10   | 16   | 25   | 35   | 50   | 63  | 80  | 100          | Impedance ratio<br>ZT / Z20 (MAX.) | Z-25°C / Z+20°C | 4    | 3    | 2    | 2    | 2    | 2    | 2    | 2 | 2 | Z-40°C / Z+20°C | 8 | 6 | 4 | 4 | 3 | 3 | 3 | 3 |
| Rated voltage (V)                  |  | 6.3  | 10   | 16   | 25   | 35   | 50   | 63   | 80   | 100 |     |              |                                    |                 |      |      |      |      |      |      |      |   |   |                 |   |   |   |   |   |   |   |   |
| Impedance ratio<br>ZT / Z20 (MAX.) | Z-25°C / Z+20°C  | 4  | 3    | 2    | 2    | 2    | 2    | 2    | 2    | 2   |     |              |                                    |                 |      |      |      |      |      |      |      |   |   |                 |   |   |   |   |   |   |   |   |
|                                    | Z-40°C / Z+20°C  | 8  | 6    | 4    | 4    | 3    | 3    | 3    | 3    | 3   |     |              |                                    |                 |      |      |      |      |      |      |      |   |   |                 |   |   |   |   |   |   |   |   |
| Endurance                          | The specifications listed at right shall be met when the capacitors are restored to 20°C after the rated voltage is applied for 1000 hours at 85°C.  |  |      |      |      |      |      |      |      |     |     |              |                                    |                 |      |      |      |      |      |      |      |   |   |                 |   |   |   |   |   |   |   |   |
|                                    | Capacitance change   | Within ±20% of the initial measurement for units of not more than 16V or φ6.3<br>Within ±15% of the initial measurement for units of not less than 25V or above φ6.3 |      |      |      |      |      |      |      |     |     |              |                                    |                 |      |      |      |      |      |      |      |   |   |                 |   |   |   |   |   |   |   |   |
|                                    | tan δ  | 150% or less than the initial specified value  |      |      |      |      |      |      |      |     |     |              |                                    |                 |      |      |      |      |      |      |      |   |   |                 |   |   |   |   |   |   |   |   |
| Shelf Life                         | After storing the capacitors under no load at 85°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.   |  |      |      |      |      |      |      |      |     |     |              |                                    |                 |      |      |      |      |      |      |      |   |   |                 |   |   |   |   |   |   |   |   |
|                                    | Leakage current  | Less than or equal to the initial specified value  |      |      |      |      |      |      |      |     |     |              |                                    |                 |      |      |      |      |      |      |      |   |   |                 |   |   |   |   |   |   |   |   |
| Marking                            | Printed with black color letter on gold sleeve.  |  |      |      |      |      |      |      |      |     |     |              |                                    |                 |      |      |      |      |      |      |      |   |   |                 |   |   |   |   |   |   |   |   |

## Radial Lead Type

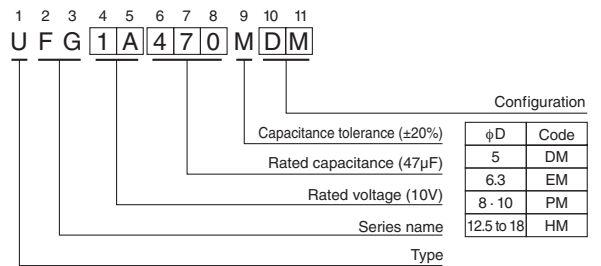


|    | (mm) |     |     |     |      |     |     |
|----|------|-----|-----|-----|------|-----|-----|
| φD | 5    | 6.3 | 8   | 10  | 12.5 | 16  | 18  |
| P  | 2.0  | 2.5 | 3.5 | 5.0 | 5.0  | 7.5 | 7.5 |
| φd | 0.6  | 0.6 | 0.6 | 0.6 | 0.8  | 0.8 | 0.8 |

|   |          |     |
|---|----------|-----|
| α | (L < 20) | 1.5 |
|   | (L ≥ 20) | 2.0 |

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

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



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.

## UFG

### ■ Dimensions

| Cap.(μF) | Code | V         |      | 6.3       |           | 10        |           | 16        |          | 25        |           | 35        |           | 50       |     |
|----------|------|-----------|------|-----------|-----------|-----------|-----------|-----------|----------|-----------|-----------|-----------|-----------|----------|-----|
|          |      | Code      |      | 0J        |           | 1A        |           | 1C        |          | 1E        |           | 1V        |           | 1H       |     |
| 1        | 010  |           |      |           |           |           |           |           |          |           |           |           |           | 5 × 11   | 9.0 |
| 2.2      | 2R2  |           |      |           |           |           |           |           |          |           |           |           |           | 5 × 11   | 18  |
| 3.3      | 3R3  |           |      |           |           |           |           |           |          |           |           |           |           | 5 × 11   | 22  |
| 4.7      | 4R7  |           |      |           |           |           |           |           |          |           |           |           |           | 5 × 11   | 27  |
| 10       | 100  |           |      |           |           |           |           |           |          |           |           |           |           | 5 × 11   | 39  |
| 22       | 220  |           |      |           |           |           |           |           |          | 5 × 11    | 50        | 6.3 × 11  | 60        | 6.3 × 11 | 65  |
| 33       | 330  |           |      |           |           |           |           | 5 × 11    | 57       | 6.3 × 11  | 70        | 6.3 × 11  | 75        | 8 × 11.5 | 93  |
| 47       | 470  |           |      |           | 5 × 11    | 60        | 6.3 × 11  | 74        | 6.3 × 11 | 85        | 8 × 11.5  | 101       | 8 × 11.5  | 111      |     |
| 100      | 101  |           |      |           | 6.3 × 11  | 99        | 8 × 11.5  | 128       | 8 × 11.5 | 140       | 10 × 12.5 | 176       | 10 × 16   | 215      |     |
| 220      | 221  |           |      |           | 8 × 11.5  | 170       | 10 × 12.5 | 226       | 10 × 16  | 260       | 10 × 20   | 320       | 12.5 × 20 | 390      |     |
| 330      | 331  |           |      |           | 10 × 12.5 | 247       | 10 × 16   | 309       | 10 × 20  | 351       | 12.5 × 20 | 446       | 12.5 × 20 | 488      |     |
| 470      | 471  | 10 × 12.5 | 270  | 10 × 16   | 330       | 10 × 20   | 406       | 12.5 × 20 | 476      | 12.5 × 25 | 590       | 16 × 25   | 650       |          |     |
| 1000     | 102  | 10 × 20   | 485  | 12.5 × 20 | 601       | 12.5 × 25 | 723       | 16 × 25   | 854      | 16 × 25   | 1060      | 16 × 31.5 | 1143      |          |     |
| 2200     | 222  | 12.5 × 25 | 867  | 16 × 25   | 1047      | 16 × 25   | 1290      | 16 × 35.5 | 1570     | 18 × 35.5 | 1840      |           |           |          |     |
| 3300     | 332  | 16 × 25   | 1135 | 16 × 31.5 | 1520      | 16 × 35.5 | 1720      | 18 × 40   | 1794     |           |           |           |           |          |     |
| 4700     | 472  | 16 × 31.5 | 1431 | 16 × 35.5 | 1840      | 18 × 35.5 | 2140      |           |          |           |           |           |           |          |     |
| 6800     | 682  | 18 × 35.5 | 1810 | 18 × 40   | 2049      |           |           |           |          |           |           |           |           |          |     |
| 10000    | 103  | 18 × 40   | 2100 |           |           |           |           |           |          |           |           |           |           |          |     |

| Cap.(μF) | Code | V         |      | 63        |     | 80                    |              | 100    |    |
|----------|------|-----------|------|-----------|-----|-----------------------|--------------|--------|----|
|          |      | Code      |      | 1J        |     | 1K                    |              | 2A     |    |
| 1        | 010  |           |      |           |     |                       |              | 5 × 11 | 15 |
| 2.2      | 2R2  |           |      |           |     |                       |              | 5 × 11 | 22 |
| 3.3      | 3R3  |           |      |           |     |                       |              | 5 × 11 | 27 |
| 4.7      | 4R7  |           |      |           |     |                       |              | 5 × 11 | 36 |
| 10       | 100  | 6.3 × 11  | 50   | 6.3 × 11  | 55  | 8 × 11.5              | 65           |        |    |
| 22       | 220  | 8 × 11.5  | 85   | 8 × 11.5  | 100 | 10 × 12.5             | 110          |        |    |
| 33       | 330  | 8 × 11.5  | 105  | 10 × 12.5 | 130 | 10 × 16               | 150          |        |    |
| 47       | 470  | 10 × 12.5 | 140  | 10 × 16   | 170 | 10 × 20               | 190          |        |    |
| 100      | 101  | 10 × 20   | 255  | 12.5 × 20 | 270 | 12.5 × 20             | 300          |        |    |
| 220      | 221  | 12.5 × 20 | 420  | 12.5 × 25 | 490 | 16 × 25               | 549          |        |    |
| 330      | 331  | 12.5 × 25 | 541  | 16 × 31.5 | 650 | 16 × 31.5             | 734          |        |    |
| 470      | 471  | 16 × 25   | 840  | 16 × 35.5 | 920 | 18 × 35.5             | 980          |        |    |
| 1000     | 102  | 18 × 35.5 | 1400 |           |     | Case size φD × L (mm) | Rated ripple |        |    |

Rated ripple current (mA rms) at 85°C 120Hz

### ● Frequency coefficient of rated ripple current

| Cap.(μF)      | Frequency | 50Hz | 120Hz | 300Hz | 1kHz | 10kHz or more |
|---------------|-----------|------|-------|-------|------|---------------|
| 1 to 47       |           | 0.75 | 1.00  | 1.35  | 1.57 | 2.00          |
| 100 to 470    |           | 0.80 | 1.00  | 1.23  | 1.34 | 1.50          |
| 1000 to 10000 |           | 0.85 | 1.00  | 1.10  | 1.13 | 1.15          |