

UMF

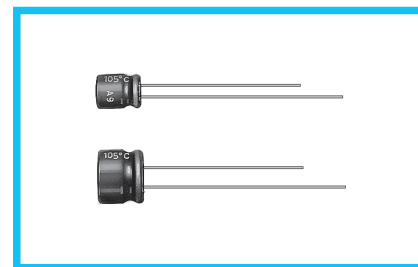
5mmL, Low Impedance



Low Impedance Anti-Solvent Feature

- Low impedance over wide temperature range of  $-55$  to  $+105^{\circ}\text{C}$ , with 5mm height.
- Suited for DC-DC converters where smaller case size and lower impedance are required.
- Compliant to the RoHS directive (2011/65/EU).

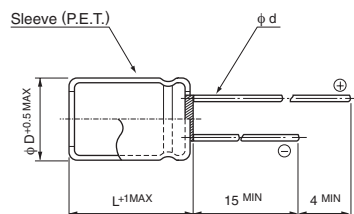
**UMF** Low Impedance **UMT**

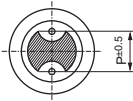


## Specifications

| Item                          | Performance Characteristics                                                                                                                                                                                                            |                 |                                                   |      |      |      |                    |  |                                               |  |  |  |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------------------------------------------|------|------|------|--------------------|--|-----------------------------------------------|--|--|--|
| Category Temperature Range    | −55 to +105°C                                                                                                                                                                                                                          |                 |                                                   |      |      |      |                    |  |                                               |  |  |  |
| Rated Voltage Range           | 6.3 to 35V                                                                                                                                                                                                                             |                 |                                                   |      |      |      |                    |  |                                               |  |  |  |
| Rated Capacitance Range       | 1 to 100μF                                                                                                                                                                                                                             |                 |                                                   |      |      |      |                    |  |                                               |  |  |  |
| Rated Capacitance Tolerance   | ± 20% at 120Hz, 20°C                                                                                                                                                                                                                   |                 |                                                   |      |      |      |                    |  |                                               |  |  |  |
| Leakage Current               | After 2 minutes' 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                                                                                                                                                                                                  |                 |                                                   |      |      |      |                    |  |                                               |  |  |  |
|                               | Rated voltage (V)                                                                                                                                                                                                                      | 6.3             | 10                                                | 16   | 25   | 35   |                    |  |                                               |  |  |  |
|                               | tan δ (MAX.)                                                                                                                                                                                                                           | 0.22            | 0.20                                              | 0.18 | 0.14 | 0.12 |                    |  |                                               |  |  |  |
| Stability at Low Temperature  | Measurement frequency : 120Hz                                                                                                                                                                                                          |                 |                                                   |      |      |      |                    |  |                                               |  |  |  |
|                               | Rated voltage (V)                                                                                                                                                                                                                      |                 | 6.3                                               | 10   | 16   | 25   | 35                 |  |                                               |  |  |  |
|                               | Impedance ratio                                                                                                                                                                                                                        | Z−25°C / Z+20°C | 2                                                 | 2    | 2    | 2    | 2                  |  |                                               |  |  |  |
|                               | ZT / Z20 (MAX.)                                                                                                                                                                                                                        | Z−55°C /Z+20°C  | 4                                                 | 4    | 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 105°C.                                                                                   |                 |                                                   |      |      |      |                    |  |                                               |  |  |  |
|                               |                                                                                                                                                                                                                                        |                 |                                                   |      |      |      | 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 storig 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)                                                                                |      |      |      |
| φ D                                                                                 | 4    | 5    | 6.3  |
| P                                                                                   | 1.5  | 2.0  | 2.5  |
| φ d                                                                                 | 0.45 | 0.45 | 0.45 |

## Type numbering system (Example : 25V $10\mu\text{F}$ )

|                                       |   |   |   |   |   |   |   |   |    |    |
|---------------------------------------|---|---|---|---|---|---|---|---|----|----|
| 1                                     | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| U                                     | M | F | 1 | E | 1 | 0 | 0 | M | D  | D  |
| Configuration ※                       |   |   |   |   |   |   |   |   |    |    |
| Capacitance tolerance ( $\pm 20\%$ )  |   |   |   |   |   |   |   |   |    |    |
| Rated capacitance ( $10\mu\text{F}$ ) |   |   |   |   |   |   |   |   |    |    |
| Rated voltage (25V)                   |   |   |   |   |   |   |   |   |    |    |
| Series name                           |   |   |   |   |   |   |   |   |    |    |
| Type                                  |   |   |   |   |   |   |   |   |    |    |

※ Configuration

|          |                                        |
|----------|----------------------------------------|
| φ D      | Pb-free leadwire<br>Pb-free PET sleeve |
| 4 to 6.3 | DD                                     |

## Dimensions

| V                      |      | 6.3     |     |     | 10      |     |     | 16      |     |     | 25      |     |     | 35                       |           |              |
|------------------------|------|---------|-----|-----|---------|-----|-----|---------|-----|-----|---------|-----|-----|--------------------------|-----------|--------------|
| Cap. ( $\mu\text{F}$ ) | Code | 0J      |     |     | 1A      |     |     | 1C      |     |     | 1E      |     |     | 1V                       |           |              |
| 1                      | 010  |         |     |     |         |     |     |         |     |     |         |     |     | 4 × 5                    | 5.0       | 50           |
| 1.5                    | 1R5  |         |     |     |         |     |     |         |     |     |         |     |     | 4 × 5                    | 5.0       | 50           |
| 2.2                    | 2R2  |         |     |     |         |     |     |         |     |     |         |     |     | 4 × 5                    | 5.0       | 50           |
| 3.3                    | 3R3  |         |     |     |         |     |     |         |     |     |         |     |     | 4 × 5                    | 5.0       | 50           |
| 4.7                    | 4R7  |         |     |     |         |     |     |         |     |     | 4 × 5   | 5.0 | 50  | 4 × 5                    | 5.0       | 50           |
| 6.8                    | 6R8  |         |     |     |         |     |     |         |     |     | 4 × 5   | 5.0 | 50  | 5 × 5                    | 2.6       | 80           |
| 10                     | 100  |         |     |     |         |     |     | 4 × 5   | 5.0 | 50  | 5 × 5   | 2.6 | 80  | 5 × 5                    | 2.6       | 80           |
| 15                     | 150  |         |     |     |         |     |     | 5 × 5   | 2.6 | 80  | 6.3 × 5 | 1.3 | 115 | 6.3 × 5                  | 1.3       | 115          |
| 22                     | 220  | 4 × 5   | 5.0 | 50  | 5 × 5   | 2.6 | 80  | 5 × 5   | 2.6 | 80  | 6.3 × 5 | 1.3 | 115 | 6.3 × 5                  | 1.3       | 115          |
| 33                     | 330  | 5 × 5   | 2.6 | 80  | 5 × 5   | 2.6 | 80  | 6.3 × 5 | 1.3 | 115 | 6.3 × 5 | 1.3 | 115 |                          |           |              |
| 47                     | 470  | 5 × 5   | 2.6 | 80  | 6.3 × 5 | 1.3 | 115 | 6.3 × 5 | 1.3 | 115 |         |     |     |                          |           |              |
| 68                     | 680  | 6.3 × 5 | 1.3 | 115 |         |     |     |         |     |     |         |     |     |                          |           |              |
| 100                    | 101  | 6.3 × 5 | 1.3 | 115 |         |     |     |         |     |     |         |     |     |                          |           |              |
|                        |      |         |     |     |         |     |     |         |     |     |         |     |     | Case size<br>φD × L (mm) | Impedance | Rated ripple |

## Frequency coefficient of rated ripple current

|             |       |        |        |       |                |
|-------------|-------|--------|--------|-------|----------------|
| Frequency   | 50 Hz | 120 Hz | 300 Hz | 1 kHz | 10 kHz or more |
| Coefficient | 0.35  | 0.50   | 0.64   | 0.83  | 1.00           |

Max. Impedance ( $\Omega$ ) at  $20^{\circ}\text{C}$  100kHz  
Rated ripple current (mA rms) at  $105^{\circ}\text{C}$  100kHz

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