

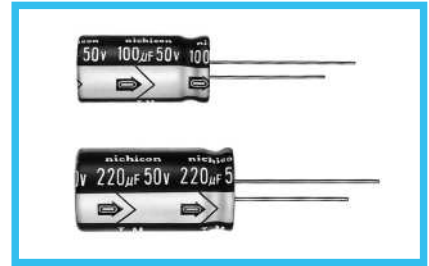
TM series

Timer Circuit Use



- Ideally suited for timer circuits.
- Excellent leakage current stability, even subjected to load or no load at high temperature for a long time.
- Compliant to the RoHS directive (2002/95/EC).

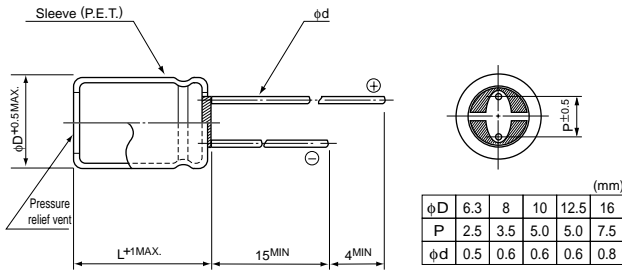
Products which are scheduled to be discontinued.
Not recommended for new designs



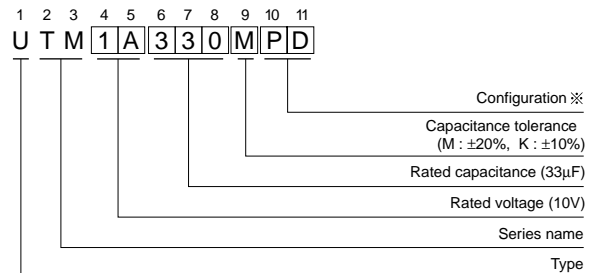
Specifications

| Item | Performance Characteristics | | | | | |
|-------------------------------|--|---|------|------|------|-----|
| Category Temperature Range | -40 to +85°C | | | | | |
| Rated Voltage Range | 10 to 50V | | | | | |
| Rated Capacitance Range | 1 to 470µF | | | | | |
| Capacitance Tolerance | ±20% (M) (±10% (K) semi-standard) at 120Hz, 20°C | | | | | |
| Leakage Current | After 2 minutes' application of rated voltage, leakage current is 0.001CV+1 (µA) or less. | | | | | |
| Tangent of loss angle (tan δ) | Measurement frequency : 120Hz at 20°C | | | | | |
| | Rated voltage (V) | 10 | 16 | 25 | 50 | |
| | tan δ (MAX.) | 0.17 | 0.13 | 0.10 | 0.08 | |
| Stability at Low Temperature | Measurement frequency : 120Hz | | | | | |
| | Rated voltage (V) | 10 | 16 | 25 | 50 | |
| | Impedance ratio ZT / Z20 (MAX.) | Z-25°C / Z+20°C | 2 | 2 | 1.5 | 1.5 |
| | | Z-40°C / Z+20°C | 4 | 3 | 2 | 2 |
| Endurance | The specifications listed at right shall be met when the capacitors are restored to 20°C after the rated voltage is applied for 2000 hours at 85°C. | | | | | |
| | Capacitance change | Within ±10% of the initial capacitance value | | | | |
| | tan δ | 150% 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 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. | | | | | |
| Marking | Printed with white color letter on black sleeve. | | | | | |

Radial Lead Type



Type numbering system (Example : 10V 33µF)



※Configuration

| φ D | Pb-free leadwire Pb-free PET sleeve |
|-----------|--|
| 6.3 | ED |
| 8 · 10 | PD |
| 12.5 · 16 | HD |

Dimensions

| | | φ D × L (mm) | | | |
|-----------|------|--------------|-----------|-----------|-----------|
| V | | 10 | 16 | 25 | 50 |
| Cap. (µF) | Code | 1A | 1C | 1E | 1H |
| 1 | 010 | | | | 6.3 × 11 |
| 2.2 | 2R2 | | | | 6.3 × 11 |
| 3.3 | 3R3 | | | 6.3 × 11 | 6.3 × 11 |
| 4.7 | 4R7 | | | 6.3 × 11 | 8 × 11.5 |
| 10 | 100 | | 6.3 × 11 | 8 × 11.5 | 10 × 12.5 |
| 22 | 220 | 6.3 × 11 | 8 × 11.5 | 10 × 12.5 | 10 × 16 |
| 33 | 330 | 8 × 11.5 | 10 × 12.5 | 10 × 16 | 10 × 20 |
| 47 | 470 | 8 × 11.5 | 10 × 12.5 | 10 × 16 | 12.5 × 20 |
| 100 | 101 | 10 × 16 | 10 × 20 | 12.5 × 20 | 12.5 × 25 |
| 220 | 221 | 10 × 20 | 12.5 × 25 | 16 × 25 | 16 × 31.5 |
| 330 | 331 | 12.5 × 25 | 16 × 25 | 16 × 25 | |
| 470 | 471 | 12.5 × 25 | 16 × 25 | 16 × 31.5 | |

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