

RoHS  
Compliant



## Performance Characteristics

Item	Performance Characteristics	Testing Method																																																		
Appearance	Correct Marking, Clear, No pinhole, No burr, No damage	Visual examination																																																		
DC Leakage Current	$I_0 \leq 0.02C_R V_R$ or $1\mu A$ (Whichever is greater) $I_0 \leq 0.01C_R V_R$ or $0.5\mu A$ (Whichever is greater, Special order)	DC leakage current is the current that, after a five minutes charging period, flows through a capacitor when voltage is measured at 25°C with rated DC voltage applied to the capacitor through a 1000Ω resistor in series with the capacitor.																																																		
Capacitance Tolerance	K(±10%); M(±20%)	Testing frequency: 100Hz Testing voltage: 0.3±0.02V																																																		
Dissipation Factor	CAP ≤ 1μf    tgδ ≤ 4% 1.5-6.8μf    tgδ ≤ 6% 10-68μf    tgδ ≤ 8% CAP ≥ 100μf    tgδ ≤ 10%	Testing frequency: 100Hz Testing voltage: 0.3±0.02V																																																		
Solderability	The dipped portion of the termination is at least 95% covered by a new solder coating.	Solder temperature: 235±5°C Immersion times: 2±0.5s																																																		
Characteristics at high and low temperature	<table border="1"> <thead> <tr> <th rowspan="2">Capacitance (μF)</th> <th colspan="3">ΔC/C (%)</th> <th colspan="4">tgδ (%) (max.)</th> <th colspan="2">I0 (μA) (max.)</th> </tr> <tr> <th>-55°C</th> <th>+85°C</th> <th>+125°C</th> <th>-55°C</th> <th>+25°C</th> <th>+85°C</th> <th>+125°C</th> <th>+85°C</th> <th>+125°C</th> </tr> </thead> <tbody> <tr> <td>≤1.0</td> <td rowspan="4">±10</td> <td rowspan="4">±15</td> <td rowspan="4">±25</td> <td>6</td> <td>4</td> <td>6</td> <td>6</td> <td>10I<sub>0</sub></td> <td>12.5I<sub>0</sub></td> </tr> <tr> <td>1.5-6.8</td> <td>8</td> <td>6</td> <td>8</td> <td>8</td> <td></td> <td></td> </tr> <tr> <td>10-68</td> <td>10</td> <td>8</td> <td>10</td> <td>10</td> <td></td> <td></td> </tr> <tr> <td>≥100</td> <td>12</td> <td>10</td> <td>12</td> <td>12</td> <td></td> <td></td> </tr> </tbody> </table>		Capacitance (μF)	ΔC/C (%)			tgδ (%) (max.)				I0 (μA) (max.)		-55°C	+85°C	+125°C	-55°C	+25°C	+85°C	+125°C	+85°C	+125°C	≤1.0	±10	±15	±25	6	4	6	6	10I <sub>0</sub>	12.5I <sub>0</sub>	1.5-6.8	8	6	8	8			10-68	10	8	10	10			≥100	12	10	12	12		
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## Use of Tantalum Capacitors

### Ripple Voltage

The ripple voltage that may be applied is limited by following criteria:

- (1) The sum of DC voltage and peak value of the ripple voltage must not exceed the rated voltage.
- (2) The negative peak value of the ripple voltage must not exceed the permissible reverse voltage value specified in the following section, Reverse Voltage.

### Reverse Voltage

Because the solid tantalum capacitor is of polar type, do not apply a reverse voltage to it. If reverse voltage cannot be avoided, it must be applied for a short time and must not exceed the following values:

25°C - 10% max. of rated voltage or 1V DC, whichever is smaller.

85°C - 5% max. of rated voltage or 0.5V DC, whichever is smaller.

125°C - 1% max. of rated voltage or 0.1V DC, whichever is smaller.

The capacitors should not be operated continuously in reverse mode, even within these limits.

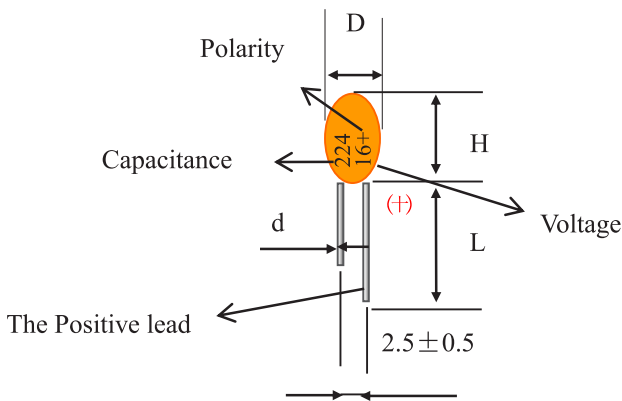
### Applied Voltage

- (1) For general application, apply 70% or less of the rated voltage to the capacitor.
  - (2) When the capacitor is used in a power line or a low-impedance circuit, keep the applied voltage within 30% of the rated voltage to avoid the adverse influence of inrush current.
  - (3) Derated voltage at 85°C or more.
  - (4) When using a tantalum capacitor at a temperature of 85°C or higher, calculate reduced voltage UT from the following expression. Note, however, that the ambient temperature must not exceed 125°C
- $$UT = V_0(UR - UC)(T - 85) / 40$$

Where:

- UR: rated voltage (V)
- UC: derated voltage at 125°C
- T: ambient temperature (°C)

### Diagram



Capacitance	Capacitance Tolerance	Voltage Rating	Case Size				Part Number
			D Max.	H Max.	L (±1)	d (±0.05)	
1µF	10%	25V DC	4.5	7	14	0.5	MCTAR25V105KA
0.1µF	10%	35V DC					MCTAR35V104KA
1µF	10%	35V DC					MCTAR35V105KA
0.1µF	10%	50V DC					MCTAR50V104KA
10µF	10%	10V DC	5	8			MCTAR10V106KB
10µF	10%	16V DC	5.5	9.5			MCTAR16V106KC
2.2µF	10%	35V DC	5	8			MCTAR35V225KB
1µF	10%	50V DC					MCTAR50V105KB
10µF	10%	25V DC					MCTAR25V106KC
10µF	20%	25V DC	5.5	9.5			MCTAR25V106MC
22µF	20%	25V DC	6.5	11			MCTAR25V226MD
10µF	10%	35V DC	8.5	12.5			MCTAR35V106KE

Dimensions : Millimetres

## Part Number Table

Description	Part Number
Tantalum Capacitor, 1 $\mu$ F, 2 V, $\pm$ 10%, Lead Spacing: 2.5mm	MCTAR25V105KA
Tantalum Capacitor, 0.1 $\mu$ F, 35V, $\pm$ 10%, Lead Spacing: 2.5mm	MCTAR35V104KA
Tantalum Capacitor, 1 $\mu$ F, 35V, $\pm$ 10%, Lead Spacing: 5mm	MCTAR35V105KA
Tantalum Capacitor, 0.1 $\mu$ F, 50V, $\pm$ 10%, Lead Spacing: 2.5mm	MCTAR50V104KA
Tantalum Capacitor, 10 $\mu$ F, 10V, $\pm$ 10%, Lead Spacing: 5mm	MCTAR10V106KB
Tantalum Capacitor, 10 $\mu$ F, 16V, $\pm$ 10%, Lead Spacing: 5mm	MCTAR16V106KC
Tantalum Capacitor, 2.2 $\mu$ F, 35V, $\pm$ 10%, Lead Spacing: 5mm	MCTAR35V225KB
Tantalum Capacitor, 1 $\mu$ F, 50V, $\pm$ 10%, Lead Spacing: 5mm	MCTAR50V105KB
Tantalum Capacitor, 10 $\mu$ F, 25V, $\pm$ 10%, Lead Spacing: 5mm	MCTAR25V106KC
Tantalum Capacitor, 10 $\mu$ F, 25V, $\pm$ 20%, Lead Spacing: 2.5mm	MCTAR25V106MC
Tantalum Capacitor, 22 $\mu$ F, 25V, $\pm$ 20%, Lead Spacing: 2.5mm	MCTAR25V226MD
Tantalum Capacitor, 10 $\mu$ F, 35V, $\pm$ 10%, Lead Spacing: 2.5mm	MCTAR35V106KE

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