

# ALUMINUM ELECTROLYTIC CAPACITORS

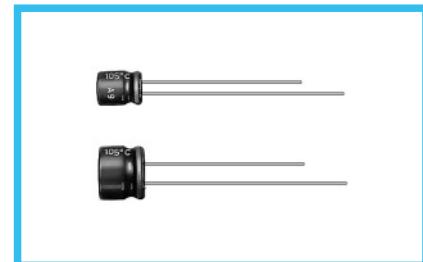
nichicon

**MF** 5mmL, Low Impedance  
series



- 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 (2002/95/EC).

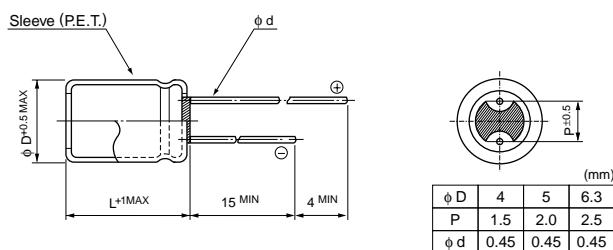
MF Low Impedance MT



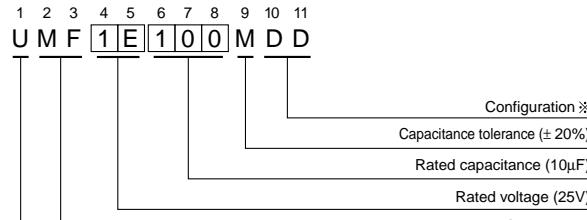
## ■ Specifications

Item	Performance Characteristics																							
Category Temperature Range	$-55$ to $+105^{\circ}\text{C}$																							
Rated Voltage Range	6.3 to 35V																							
Rated Capacitance Range	1 to $100\mu\text{F}$																							
Rated Capacitance Tolerance	$\pm 20\%$ at 120Hz, $20^{\circ}\text{C}$																							
Leakage Current	After 2 minutes' application of rated voltage, leakage current is not more than $0.01\text{CV}$ or $3\text{ }\mu\text{A}$ , whichever is greater.																							
Tangent of loss angle (tan $\delta$ )	<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> </tr> </thead> <tbody> <tr> <td>tan <math>\delta</math> (MAX.)</td> <td>0.22</td> <td>0.20</td> <td>0.18</td> <td>0.14</td> <td>0.12</td> </tr> </tbody> </table>						Rated voltage (V)	6.3	10	16	25	35	tan $\delta$ (MAX.)	0.22	0.20	0.18	0.14	0.12						
Rated voltage (V)	6.3	10	16	25	35																			
tan $\delta$ (MAX.)	0.22	0.20	0.18	0.14	0.12																			
Stability at Low Temperature	<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> </tr> </thead> <tbody> <tr> <td>Impedance ratio</td> <td>Z-<math>25^{\circ}\text{C}</math> / Z+<math>20^{\circ}\text{C}</math></td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> </tr> <tr> <td>ZT / Z20 (MAX.)</td> <td>Z-<math>55^{\circ}\text{C}</math> / Z+<math>20^{\circ}\text{C}</math></td> <td>4</td> <td>4</td> <td>3</td> <td>3</td> </tr> </tbody> </table>						Rated voltage (V)	6.3	10	16	25	35	Impedance ratio	Z- $25^{\circ}\text{C}$ / Z+ $20^{\circ}\text{C}$	2	2	2	2	ZT / Z20 (MAX.)	Z- $55^{\circ}\text{C}$ / Z+ $20^{\circ}\text{C}$	4	4	3	3
Rated voltage (V)	6.3	10	16	25	35																			
Impedance ratio	Z- $25^{\circ}\text{C}$ / Z+ $20^{\circ}\text{C}$	2	2	2	2																			
ZT / Z20 (MAX.)	Z- $55^{\circ}\text{C}$ / Z+ $20^{\circ}\text{C}$	4	4	3	3																			
Endurance	<p>The specifications listed at right shall be met when the capacitors are restored to <math>20^{\circ}\text{C}</math> after the rated voltage is applied for 1000 hours at <math>105^{\circ}\text{C}</math>.</p> <table border="1"> <tr> <td>Capacitance change</td> <td>Within <math>\pm 20\%</math> of the initial capacitance value</td> </tr> <tr> <td>tan <math>\delta</math></td> <td>200% or less than the initial specified value</td> </tr> <tr> <td>Leakage current</td> <td>Less than or equal to the initial specified value</td> </tr> </table>						Capacitance change	Within $\pm 20\%$ of the initial capacitance value	tan $\delta$	200% or less than the initial specified value	Leakage current	Less than or equal to the initial specified value												
Capacitance change	Within $\pm 20\%$ of the initial capacitance value																							
tan $\delta$	200% 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 $105^{\circ}\text{C}$ for 1000 hours and then performing voltage treatment based on JIS C 5101-4 clause 4.1 at $20^{\circ}\text{C}$ , 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



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



※ Configuration

φ D	Pb-free leadwire Pb-free PET sleeve
4 to 6.3	DD

## ■ Dimensions

Cap.( $\mu\text{F}$ )	V	6.3		10		16		25		35	
		Code	0J	1A	1C	1E	1V				
1	010									4x5	5.0
1.5	1R5									4x5	5.0
2.2	2R2									4x5	5.0
3.3	3R3									4x5	5.0
4.7	4R7							4x5	5.0	50	4x5
6.8	6R8							4x5	5.0	50	5x5
10	100					4x5	5.0	50	5x5	2.6	80
15	150					5x5	2.6	80	6.3x5	1.3	115
22	220	4x5	5.0	50	5x5	2.6	80	6.3x5	1.3	115	6.3x5
33	330	5x5	2.6	80	5x5	2.6	80	6.3x5	1.3	115	
47	470	5x5	2.6	80	6.3x5	1.3	115	6.3x5	1.3	115	
68	680	6.3x5	1.3	115							Case size $\phi D \times L$ (mm)
100	101	6.3x5	1.3	115							Impedance Rated ripple

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

## ● 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

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

CAT.8100Y