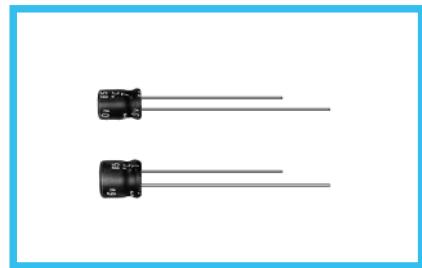
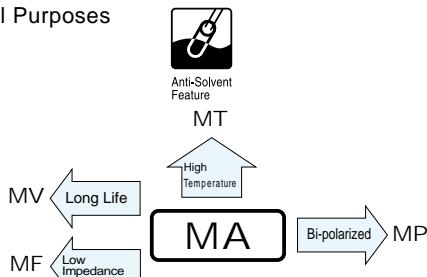


ALUMINUM ELECTROLYTIC CAPACITORS

nichicon

MA 5mmL, Standard, For General Purposes
series

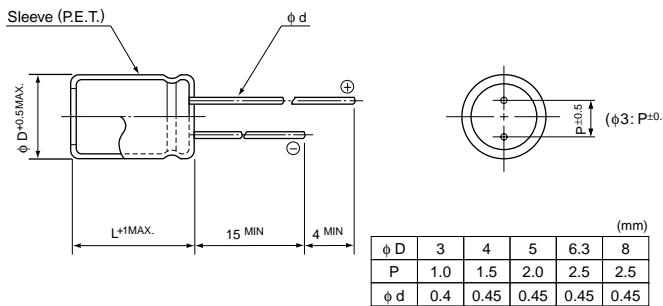
- Standard series with 5mm height.
- Compliant to the RoHS directive (2011/65/EU).



■ Specifications

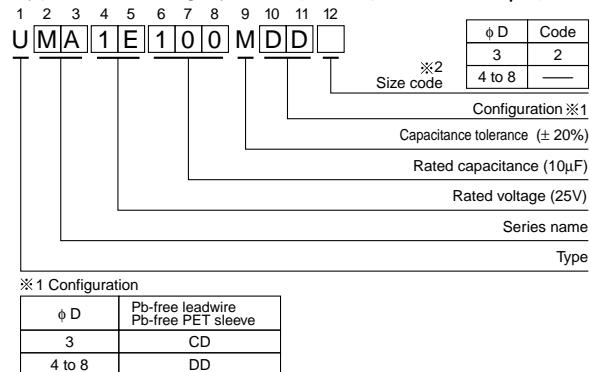
Item	Performance Characteristics																															
Category Temperature Range	-40 to +85°C																															
Rated Voltage Range	4 to 50V																															
Rated Capacitance Range	0.1 to 470μF																															
Rated Capacitance Tolerance	±20% at 120Hz, 20°C																															
Leakage Current	After 2 minutes' application of rated voltage, leakage current is not more than 0.01CV or 3(μA), whichever is greater.																															
Tangent of loss angle (tan δ)	<table border="1"> <thead> <tr> <th>Rated voltage (V)</th> <th>4</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> </tr> </thead> <tbody> <tr> <td>tan δ (MAX.)</td> <td>0.35</td> <td>0.24 (0.30)</td> <td>0.20 (0.24)</td> <td>0.16 (0.20)</td> <td>0.14 (0.18)</td> <td>0.12 (0.16)</td> <td>0.10 (0.13)</td> </tr> </tbody> </table>								Rated voltage (V)	4	6.3	10	16	25	35	50	tan δ (MAX.)	0.35	0.24 (0.30)	0.20 (0.24)	0.16 (0.20)	0.14 (0.18)	0.12 (0.16)	0.10 (0.13)								
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Stability at Low Temperature	<table border="1"> <thead> <tr> <th>Rated voltage (V)</th> <th>4</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> </tr> </thead> <tbody> <tr> <td>Impedance ratio Z-25°C / Z+20°C</td> <td>7</td> <td>4</td> <td>3</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> </tr> <tr> <td>ZT / Z20 (MAX.) Z-40°C / Z+20°C</td> <td>15</td> <td>8</td> <td>6</td> <td>4</td> <td>4</td> <td>3</td> <td>3</td> </tr> </tbody> </table>								Rated voltage (V)	4	6.3	10	16	25	35	50	Impedance ratio Z-25°C / Z+20°C	7	4	3	2	2	2	2	ZT / Z20 (MAX.) Z-40°C / Z+20°C	15	8	6	4	4	3	3
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ZT / Z20 (MAX.) Z-40°C / Z+20°C	15	8	6	4	4	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 2000 hours at 85°C.				Capacitance change	Within ±20% of the initial capacitance value (MR series & φ 3 product : Within ±25%)																										
					tan δ	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 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



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

Type numbering system (Example : 25V 10μF)



■ Dimensions

V	4	6.3	10	16	25	35	50
Cap.(μF)	Code	0G	0J	1A	1C	1E	1V
0.1	0R1						4×5(3×5) 1.0(1.0)
0.22	R22						4×5(3×5) 2.0(2.0)
0.33	R33						4×5(3×5) 2.8(2.8)
0.47	R47						4×5(3×5) 4.0(4.0)
1	010						4×5(3×5) 8.4(8.0)
2.2	2R2					3×5	8.4 • 4×5 13(10)
3.3	3R3					3×5	10 • 4×5 15(10) 4×5 17
4.7	4R7				3×5	10 • 4×5 16(12) 4×5 18 5×5 20	
10	100	3×5	15	• 4×5 23(18)	5×5	27 5×5 29 6.3×5 33	
22	220	3×5	19	• 4×5 28(21)	5×5	37 6.3×5 42 6.3×5 46 □ 8×5 52(48)	
33	330	4×5	28	5×5	37 5×5	41 o 6.3×5 49(43) 6.3×5 52 □ 8×5 62(52) 8×5 71	
47	470	4×5	33	5×5	45 o 6.3×5 52(43) 6.3×5	58 □ 8×5 70(62) 8×5 80	
100	101	5×5	56	o 6.3×5 70(68)	□ 8×5 80(76)	□ 8×5 92(86) 8×5 110	
220	221	6.3×5	96	□ 8×5 110(90)	8×5	135	
330	331	8×5	145	8×5	170		
470	471	8×5	185				Case size φ D×L (mm) Rated ripple

Size φ 3×5 is available for capacitors marked. "•" / Size φ 5×5 is available for capacitors marked. "o"

Size φ 6.3×5 is available for capacitors marked. "□" In such a case, **M|R** will be put at 2nd and 3rd digit of type numbering system.

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

() = φ 3 units and MR series.

● Frequency coefficient of rated ripple current

Frequency	50 Hz	120 Hz	300 Hz	1 kHz	10 kHz or more
Coefficient	0.70	1.00	1.17	1.36	1.50

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