

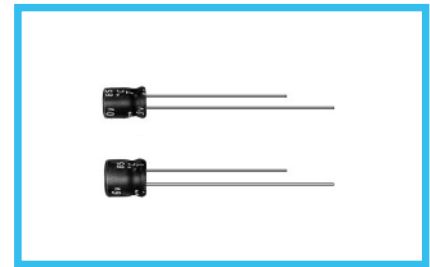
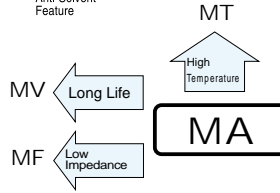
ALUMINUM ELECTROLYTIC CAPACITORS

MA series 5mmL, Standard, For General Purposes



Anti-Solvent Feature

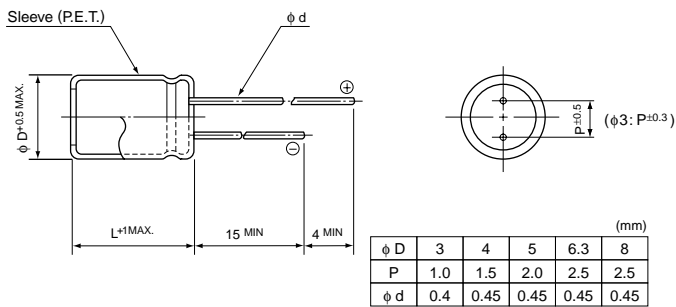
- Standard series with 5mm height.
- Compliant to the RoHS directive (2002/95/EC).



Specifications

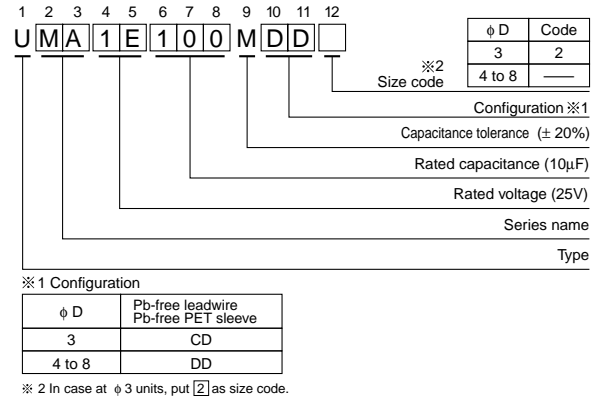
Item	Performance Characteristics										
Category Temperature Range	-40 to +85°C										
Rated Voltage Range	4 to 50V										
Rated Capacitance Range	0.1 to 470μF										
Rated Capacitance Tolerance	±20% at 120Hz, 20°C										
Leakage Current	After 2 minutes' application of rated voltage, leakage current is not more than 0.01CV or 3(μA), whichever is greater.										
Tangent of loss angle (tan δ)	Measurement frequency : 120Hz, Temperature : 20°C								Figures in () are for MR series.		
	Rated voltage (V)	4	6.3	10	16	25	35	50			
Stability at Low Temperature	Measurement frequency : 120Hz										
	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			
Endurance	ZT / Z20 (MAX.)		15	8	6	4	4	3	3		
	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 & φ3 product : Within ±25%)									
Shelf Life	tan δ		200% or less than the initial specified value								
	Leakage current		Less than or equal to the initial specified value								
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

Cap. (μF)	Code	4		6.3		10		16		25		35		50		
		0G		0J		1A		1C		1E		1V		1H		
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										● 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	33	● 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	○ 6.3×5	49(43)	6.3×5	52	□ 8×5	62(52)	8×5	71	
47	470	4×5	33	5×5	45	○ 6.3×5	52(43)	6.3×5	58	□ 8×5	70(62)	8×5	80			
100	101	5×5	56	○ 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 φD×L (mm)	Rated ripple

Size φ3×5 is available for capacitors marked. "●"/ Size φ5×5 is available for capacitors marked. "○"
 Size φ6.3×5 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 (mArms) at 85°C 120Hz
 () = φ3 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.