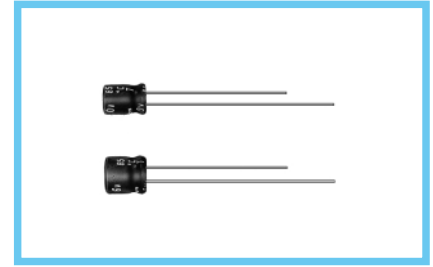
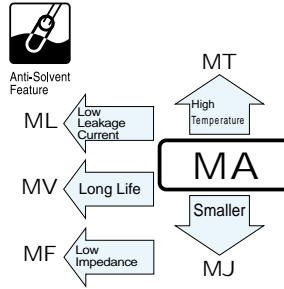


ALUMINUM ELECTROLYTIC CAPACITORS

MA series 5mmL, Standard, For General Purposes

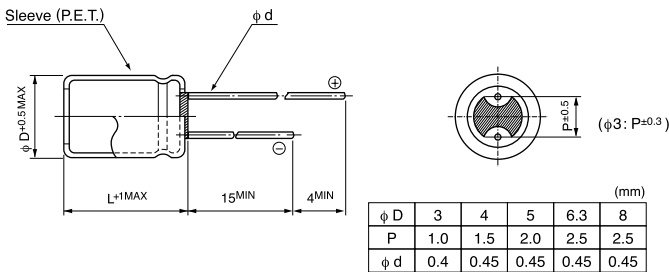
- Standard series with 5mm height.
- Adapted to the RoHS directive (2002/95/EC).



Specifications

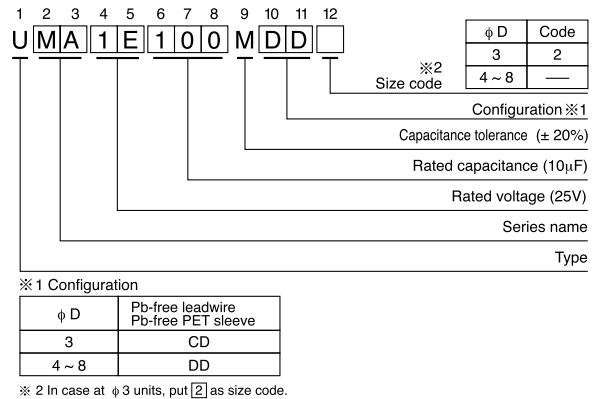
Item	Performance Characteristics									
Category Temperature Range	-40 ~ +85°C									
Rated Voltage Range	4 ~ 50V									
Rated Capacitance Range	0.1 ~ 470μF									
Rated Capacitance Tolerance	±20% at 120Hz, 20°C									
Leakage Current	After 2 minutes' application of rated voltage, leakage current is not more than 0.01CV or 3(μA), whichever is greater.									
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	After 2000 hours' application of rated voltage at 85°C, capacitors meet the characteristic requirements listed at right.		Capacitance change		Within ±20% of initial value (MR series & φ3 product : Within ±25%)					
			tan δ		200% or less of initial specified value					
Shelf Life	After storing the capacitors under no load at 85°C for 1000 hours, and after performing voltage treatment based on JIS C 5101-4 clause 4.1 at 20°C, they will meet the specified value for endurance characteristics listed above.		Leakage current		Initial specified value or less					
Marking	Printed with white color letter on black sleeve.									

Radial Lead Type



• Please refer to page 21 about the end seal configuration.

Type numbering system (Example : 25V 10μF)



Dimensions

Cap.(μF)	V	4		6.3		10		16		25		35		50	
		Code	0G	0J	1A	1C	1E	1V	1H						
0.1	OR1													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											• 4×5	15(10)	4×5	17
4.7	4R7											• 4×5	16(12)	4×5	20
10	100			3×5	15			3×5	10	• 4×5	23(18)	5×5	27	5×5	29
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												

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 (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 ~
Coefficient	0.70	1.00	1.17	1.36	1.50

Please refer to page 21, 22, 23 about the formed or taped product spec.
Please refer to page 3 for the minimum order quantity.