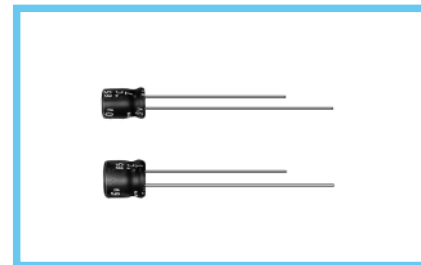
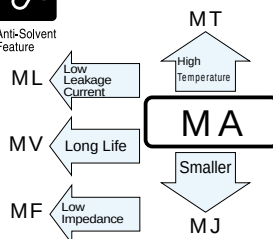


MA series

5mmL, Standard, For General Purposes

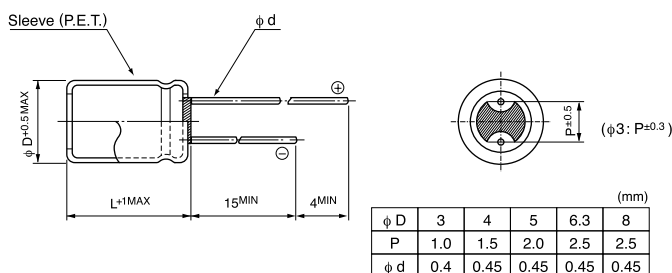
- Standard series with 5mm height.
- Adapted to the RoHS directive (2002/95/EC).

Anti-Solvent
Feature

Specifications

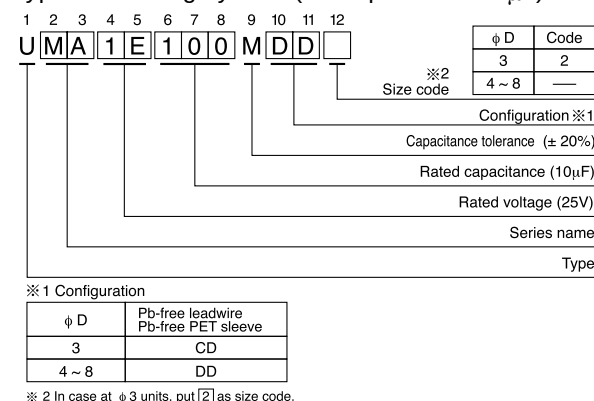
Item	Performance Characteristics								
Category Temperature Range	-40 ~ +85°C								
Rated Voltage Range	4 ~ 50V								
Rated Capacitance Range	0.1 ~ 470μF								
Rated Capacitance Tolerance	±20% at 120Hz, 20°C								
Leakage Current	After 2 minutes' application of rated voltage, leakage current is not more than 0.01CV or 3(μA), whichever is greater.								
tan δ	Measurement frequency : 120Hz, Temperature : 20°C								
	Rated voltage (V)	4	6.3	10	16	25	35	50	Figures in () are for MR series.
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)		
Stability at Low Temperature	Measurement frequency : 120Hz								
	Rated voltage (V)		4	6.3	10	16	25	35	50
	Impedance ratio ZT / Z20 (MAX.)	Z-25°C / Z+20°C	7	4	3	2	2	2	2
		Z-40°C / Z+20°C	15	8	6	4	4	3	3
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 & ϕ 3 product : Within ±25%)		
					tan δ		200% or less of initial specified value		
					Leakage current		Initial specified value or less		
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.								
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

V	4	6.3	10	16	25	35	50
Cap.(μF)	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						• 4×5 13(10)
3.3	3R3						4×5 17
4.7	4R7						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
33	330	4×5 28	5×5 37	5×5 41	○ 6.3×5 49(43)	6.3×5 52	□ 8×5 52(48)
47	470	4×5 33	5×5 45	○ 6.3×5 52(43)	6.3×5 58	□ 8×5 70(62)	8×5 71
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.