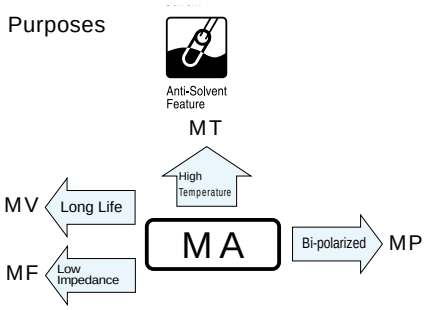
ALUMINUM ELECTROLYTIC CAPACITORS

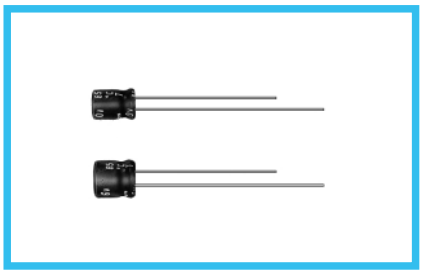
nichicon

MA series

5mmL, Standard, For General Purposes

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

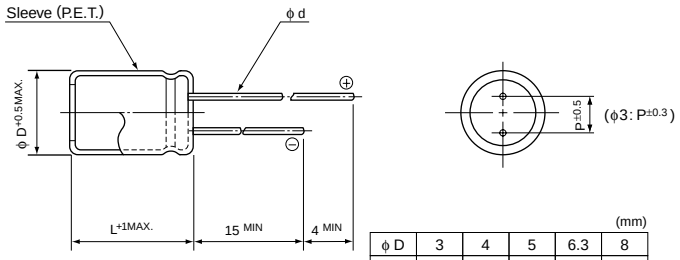




■Specifications

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)	Measurement frequency : 120Hz at 20°C 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) Figures in ( ) are for MR series.
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	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%) 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



(mm)

φ D	3	4	5	6.3	8
P	1.0	1.5	2.0	2.5	2.5
φ d	0.4	0.45	0.45	0.45	0.45

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

Type numbering system (Example : 25V 10µF)

1	2	3	4	5	6	7	8	9	10	11	12
U	M	A	1	E	1	0	0	M	D	D	

※2 Size code

φ D	Code
3	2
4 to 8	——

Configuration ※1
Capacitance tolerance (± 20%)
Rated capacitance (10µF)
Rated voltage (25V)
Series name
Type

※1 Configuration

φ D	Pb-free leadwire Pb-free PET sleeve
3	CD
4 to 8	DD

※ 2 In case at φ3 units, put 2 as size code.

■Dimensions

Cap.(µF) \ V	4		6.3		10		16		25		35		50	
Code	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						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	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								Case size φD×L (mm)	Rated ripple
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 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.