

# ULTRA MINIATURE ALUMINUM ELECTROLYTIC

## ULM SERIES

### 5mm ULTRA MINIATURE (Radial Lead, 105°C Max)

NTE's ULM series of ultra miniature aluminum electrolytic capacitors are designed for use in general purpose applications. These high temperature, radial lead capacitors are especially suitable for applications that require small-size, extended life, and higher temperature operation.

### RATINGS

**Capacitance Range:** 0.1 $\mu$ f to 470 $\mu$ f

**Tolerance:**  $\pm 20\%$

**Voltage Range:** 6.3V to 50 Volts

### PERFORMANCE SPECIFICATIONS

**Operating Temperature Range:**

6.3V to 50V: -40 °C to +105 °C (-40 °F to +220.9 °F)

**Leakage Current:**

6.3V to 50V:  $\leq 0.01CV$  (+3 $\mu$ A)

**Capacitance Tolerance:**  $\pm 20\%$  (M)  
measured at +20 °C (+68 °F), 120Hz

**Dissipation Factor:** measured at +20 °C (+68 °F), 120Hz

Working Voltage (VDC)	6.3	16	35	50
0.1 $\mu$ f to 470 $\mu$ f	28	20	14	12

**Impedance Ratio at Low Temperature:** 120Hz

Working Voltage (VDC)	6.3	16	35	50
Z @ -25 °C (-13 °F)/ Z @ +20 °C (+68 °F)	4	2	2	2
Z @ -40 °C (-40 °F)/ Z @ +20 °C (+68 °F)	8	4	4	4

**Ripple Current:**

The ripple current multipliers (See Table) adjust the current to make the capacitors operating temperature the same for different ambient temperatures and ripple frequencies.

CAP ( $\mu$ F)/Hz		50 (60)	120	1K	10K
Multiplier	0.1 to 47	0.8	1.0	1.30	1.50
	56 and up	0.8	1.0	1.15	1.20

Temperature	40 °C	65 °C	85 °C	105 °C
Multiplier	2.0	1.6	1.25	1.00

**Load Life:** 1000 Hrs @ +105 °C (+220.9 °F),  
at Rated DC voltage applied

**Shelf Life:** 1000 Hrs @ +105 °C (+220.9 °F),  
no voltage applied

### MECHANICAL SPECIFICATIONS

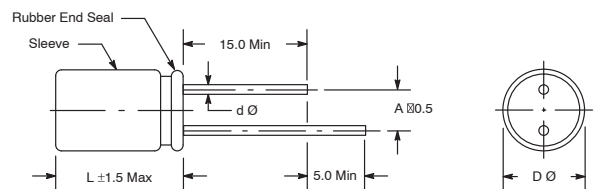
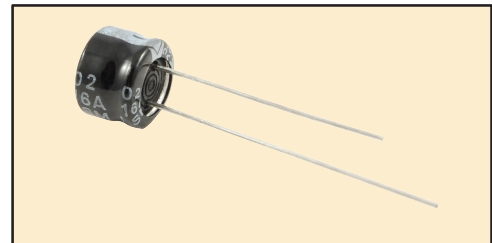
**Marking:**

Consists of series type, nominal capacitance, rated voltage, temperature range, anode and/or cathode identification, vendor identification.

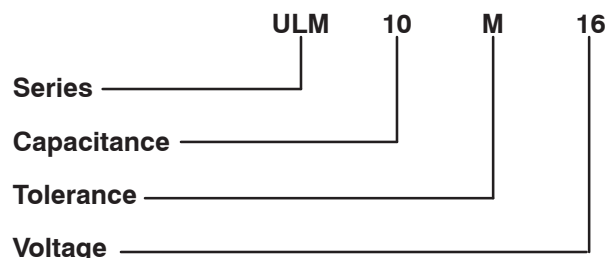
**Recommended Cleaning Solvents:**

Methanol, isopropanol ethanol, isobutanol, petroleum ether, propanol and/or commercial detergents. Halogenated hydrocarbon cleaning agents such as Freon (MF, TF, or TC), trichloroethylene, trichloroethane, or methylchloride are not recommended as they may damage the capacitor.

### CASE SIZE AND DIMENSIONS:



### ORDERING INFORMATION



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### ULM Series Dimensions: Diameter (D Ø) x Length (L): mm

WV Cap (µf)	6.3	16	35	50
0.1				3 x 5
0.22				3 x 5
0.33				3 x 5
0.47				3 x 5
1.0				3 x 5
2.2				3 x 5
3.3				4 x 5
4.7				4 x 5
10		3 x 5	5 x 5	6 x 5
22		4 x 5	6 x 5	6 x 5
33	4 x 5	5 x 5	6 x 5	8 x 5
47	4 x 5	5 x 5	6 x 5	
68	5 x 5	6 x 5		
100	5 x 5	6 x 5		
220	6 x 5	8 x 5		
330	8 x 5			
470	8 x 5			

\* These dimensions are for reference only, please consult the factory for actual size.

### ULM Mechanical Specs: Dimensions (mm)

Outside Diameter	D Ø	3.0	4.0	5.0	6.0	8.0
Lead Spacing	A	1.0 ±0.5	1.5 ±0.5	2.0 ±0.5	2.5 ±0.5	3.5 ±0.5
Lead Wire	d Ø	0.45	0.45	0.45	0.45	0.45

\* These dimensions are for reference only, please consult the factory for actual size.