

# NON-POLAR ALUMINUM ELECTROLYTIC

## SUBMINIATURE NON-POLARIZED (NPR: Radial Leads, NPA: Axial Leads)

The NPR and NPA Series subminiature aluminum electrolytic capacitors are especially designed for use in circuits whose polarity is reversed or unknown or in crossover networks which do not require tough characteristic requirements.

### RATINGS

**Capacitance Range:** 0.47 $\mu$ f to 1000 $\mu$ f

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

**Voltage Range:** 16V to 100V

### PERFORMANCE SPECIFICATIONS

#### Operating Temperature Range:

-40°C to +85°C (-40°F to +185°F)

**Leakage Current:**  $I \leq 0.002CV + 3\mu A$  (measured after 5 minutes of applied voltage)

I = Leakage Current ( $\mu A$ )

C = Nominal Capacitance ( $\mu f$ )

V = Rated Voltage (V)

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

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

Rated Voltage	16	25	50	63	100
0.1 $\mu$ f to 1000 $\mu$ f	0.16	0.12	0.08	0.06	0.06

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

Comparison Z WV	16	25	50	63	100
Z @ -25°C (-13°F)/ Z @ +20°C (+68°F)	2	1.5	1.5	2	2
Z @ -40°C (-40°F)/ Z @ +20°C (+68°F)	3	2	2	4	4

#### Surge Voltage:

DC Rated Voltage	16	25	50	63	100
Surge Voltage	20	32	63	79	125

**Load Life:** 1000  $\pm 12$ Hrs @ +85°C (+185°F),  
at rated voltage

Leakage Current: Within values specified above

Dissipation Factor: Within  $\pm 150\%$  of specified value

Capacitance Change Max:  $\pm 15\%$  of initial value

Rated Voltage	Capacitance Change Max
160V to 450V	Within 30% of the initial value

**Shelf Life:** 1000 Hrs @ +85°C (+185°F),  
no voltage applied

Leakage Current: Within values specified above

Dissipation Factor: Within  $\pm 150\%$  of specified value

Capacitance Change Max: Within  $\pm 15\%$  of initial value

## MECHANICAL SPECIFICATIONS

### Lead Solderability:

Meets the requirements of MIL-STD 202, Method 208

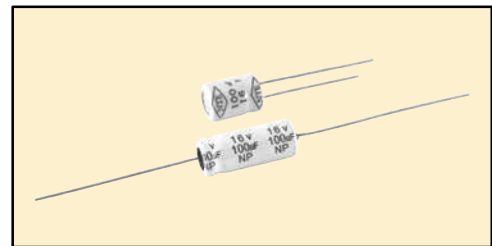
### Marking:

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

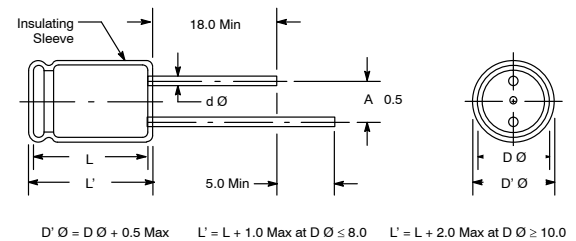
### Recommended Cleaning Solvents:

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.

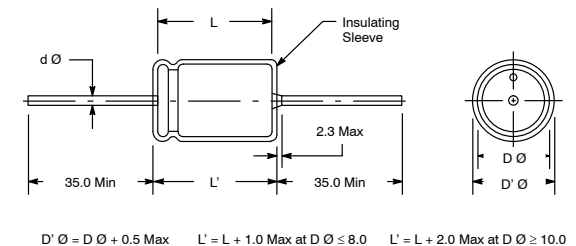
## CASE SIZES AND DIMENSIONS:



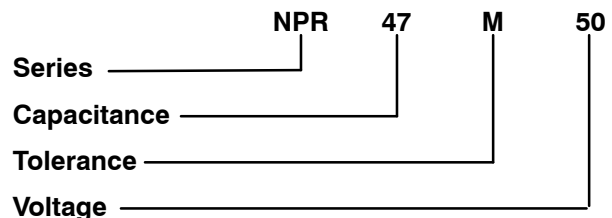
### NPR SERIES



### NPA SERIES



## ORDERING INFORMATION



# NON-POLAR ALUMINUM ELECTROLYTIC

## NPR, NPA (Non-Polarized) SERIES

### NPR Series (Radial Type) Dimensions: Diameter (D Ø) x Length (L): mm

Rated Voltage (WV)	16	25	50	63	100
Surge Voltage (V)	20	32	63	79	125
Cap (µf)					
0.47			5 x 11		5 x 11
1.0			5 x 11	5 x 11	5 x 11
2.2			5 x 11	5 x 11	6 x 11
3.3			5 x 11	6 x 11	6.3 x 11
4.7		5 x 11	6 x 11	6 x 11	8 x 11.5
10	5 x 11	10 x 17	8 x 11.5	8 x 11.5	8.5 x 11
22	6 x 11	6 x 11	10 x 12.5	10 x 12.5	10 x 20
33	6 x 11	8 x 11.5	10 x 16	10 x 16	13 x 20
47	8 x 11.5	10 x 12.5	10 x 20	10 x 20	13 x 21
100	10 x 12.5	8 x 11	13 x 25	13 x 25	16 x 25
220	10 x 20	10 x 12	16 x 25	16 x 30	
330	13 x 20	13 x 25	16 x 30.5		
470	13 x 25	16 x 25			
1000	16 x 25	16 x 30.5			

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

### NPR Series (Radial Type) Mechanical Specifications: mm

Outside Diameter (D Ø)	5	6	8	10	13	16
Lead Spacing (A)	2	2.5	3.5	5	5	7.5
Lead Diameter (d Ø)	0.5	0.6	0.6	0.6	0.6	0.8

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

### NPA Series (Axial Type) Dimensions: Diameter (D Ø) x Length (L): mm

Rated Voltage (WV)	16	25	50	63	100
Surge Voltage (V)	20	32	63	79	125
Cap (µf)					
0.47			6 x 15		6 x 15
1.0			6 x 15	6 x 15	6 x 15
2.2			6 x 15	6 x 15	6 x 15
3.3			6 x 15	6 x 15	6 x 19
4.7			6 x 15	6 x 15	8 x 19
10		6 x 15	6 x 19	8 x 19	10 x 21
22	6 x 15	10 x 19	10 x 21	10 x 21	10 x 25
33	6 x 19	8 x 19	10 x 21	10 x 25	13 x 30
47	8 x 19	8 x 19	10 x 25	10 x 25	13 x 30
100	10 x 21	10 x 25	13 x 30	13 x 30	16 x 30
220	10 x 25	13 x 30	16 x 30	16 x 30	
330	10 x 30	13 x 30	16 x 41		
470	13 x 30	16 x 30			
1000	16 x 30				

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

### NPA Series (Axial Type) Mechanical Specifications: mm

Outside Diameter (D Ø)	6	8	10	13	16
Lead Diameter (d Ø)	0.6	0.6	0.6	0.8	0.8

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