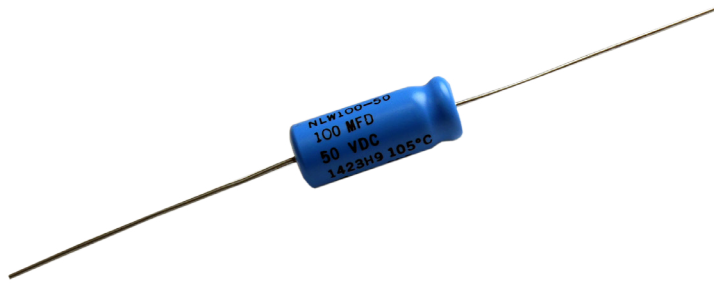


# Type NLW 105 °C, Miniature Computer Grade, Axial Leaded

## 105 °C Computer Grade



Type NLW Combines low DCL and ESR to provide superior performance. Designed for industrial applications requiring resistance to vibration and extended operating temperatures.

### Highlights

- Low DCL and ESR
- Extended temperature
- Subminiature, high capacitance, low cost
- Extended Life

### RoHS Compliant

### Specifications

|                                     |                                         |
|-------------------------------------|-----------------------------------------|
| <b>Capacitance Range:</b>           | 1.0 to 400 $\mu$ F                      |
| <b>Voltage Range:</b>               | 6.3 to 150 Vdc                          |
| <b>Capacitance Tolerance:</b>       | -10 +75%                                |
| <b>Operating Temperature Range:</b> | -40 °C to +105 °C                       |
| <b>Leakage Current:</b>             | <25 Vdc $0.1 \sqrt{CV} + 2 \mu$ A       |
|                                     | $\geq 25$ Vdc $0.2 \sqrt{CV} + 2 \mu$ A |

### Ripple Current Multipliers:

#### Ambient Temperature

| 45 °C | 55 °C | 65 °C | 75 °C | 85 °C | 95 °C | 105 °C |
|-------|-------|-------|-------|-------|-------|--------|
| 1.61  | 1.48  | 1.34  | 1.18  | 1.00  | 0.77  | 0.45   |

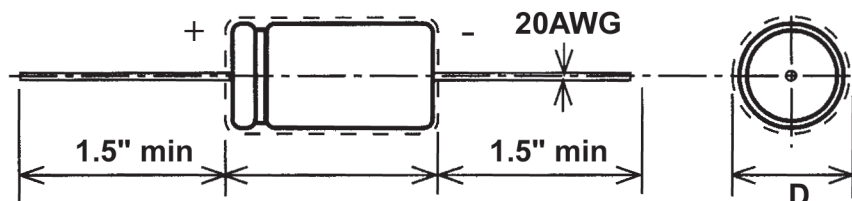
| Frequency    | 50 Hz | 60 Hz | 120 Hz | 360 Hz | 1 kHz | 5 kHz | 10 kHz+ |
|--------------|-------|-------|--------|--------|-------|-------|---------|
| 0 - 60 Vdc   | 0.85  | 1.00  | 1.10   | 1.15   | 1.15  | 1.15  | 1.15    |
| 61 - 150 Vdc | 0.83  | 1.00  | 1.15   | 1.20   | 1.20  | 1.20  | 1.20    |

**Load Life:** 1,000 h @ +105 °C  
 $\Delta$  Capacitance  $\pm 20\%$   
 $\Delta$  ESR 200% of limit  
 $\Delta$  DCL 200% of limit

**Shelf Life:** 1,000 h @ +105 °C  
 $\Delta$  Capacitance  $\pm 20\%$   
 $\Delta$  ESR 200% of limit  
 $\Delta$  DCL 200% of limit

**Vibration:** 10 to 55 Hz; 0.06" and 10 g max, 2 h in each plane

### Outline Drawing



# Type NLW 105 °C, Miniature Computer Grade, Axial Leaded

## Part Numbering System

NLW  
|  
Type  
|  
NLW

200  
|  
Capacitance  
|  
1 = 1 µF  
10 = 10 µF  
200 = 200 µF

6  
|  
Voltage  
|  
6 = 6.3 Vdc  
16 = 16 Vdc  
100 = 100 Vdc

E  
|  
Options  
|  
E = Epoxy end seal  
Blank = No epoxy

For epoxy add the following to length

|                |                 |
|----------------|-----------------|
| Can Dia Inches | + Length Inches |
| 0.197 - 0.315  | + 0.0512        |
| 0.394 - 0.512  | + 0.0630        |
| 0.630 - 0.709  | + 0.0709        |

## Ratings

| Cap (µF)                     | Catalog Part Number | ESR Max 120 Hz (Ω) | Ripple Current @ 85 °C 120 Hz (A) | Nominal Size D x L (Inches) |
|------------------------------|---------------------|--------------------|-----------------------------------|-----------------------------|
| <b>6.3 Vdc (8 Vdc Surge)</b> |                     |                    |                                   |                             |
| 200                          | NLW200-6            | 2                  | 0.25                              | 0.40 x 0.88                 |
| <b>12 Vdc (14 Vdc Surge)</b> |                     |                    |                                   |                             |
| 15                           | NLW15-12            | 17.7               | 0.056                             | 0.28 x 0.57                 |
| 100                          | NLW100-12           | 3.3                | 0.150                             | 0.32 x 0.81                 |
| 200                          | NLW200-12           | 1.7                | 0.270                             | 0.40 x 0.94                 |
| 250                          | NLW250-12           | 1.3                | 0.290                             | 0.40 x 0.94                 |
| <b>16 Vdc (20 Vdc Surge)</b> |                     |                    |                                   |                             |
| 10                           | NLW10-16            | 26.50              | 0.047                             | 0.28 x 0.57                 |
| 15                           | NLW15-16            | 17.70              | 0.056                             | 0.28 x 0.57                 |
| 20                           | NLW20-16            | 16.60              | 0.062                             | 0.28 x 0.57                 |
| 25                           | NLW25-16            | 13.30              | 0.072                             | 0.28 x 0.69                 |
| 30                           | NLW30-16            | 11.10              | 0.078                             | 0.28 x 0.69                 |
| 50                           | NLW50-16            | 6.70               | 0.108                             | 0.32 x 0.76                 |
| 75                           | NLW75-16            | 4.50               | 0.136                             | 0.34 x 0.81                 |
| 100                          | NLW100-16           | 3.30               | 0.150                             | 0.34 x 0.81                 |
| 150                          | NLW150-16           | 2.20               | 0.225                             | 0.40 x 0.88                 |
| 200                          | NLW200-16           | 1.70               | 0.270                             | 0.40 x 0.94                 |
| 250                          | NLW250-16           | 1.30               | 0.310                             | 0.40 x 1.06                 |
| 300                          | NLW300-16           | 1.10               | 0.370                             | 0.40 x 1.32                 |
| 400                          | NLW400-16           | 0.83               | 0.470                             | 0.40 x 1.57                 |
| <b>25 Vdc (30 Vdc Surge)</b> |                     |                    |                                   |                             |
| 1                            | NLW1-25             | 200.00             | 0.020                             | 0.28 x 0.57                 |
| 2                            | NLW2-25             | 100.00             | 0.026                             | 0.28 x 0.57                 |
| 3                            | NLW3-25             | 67.00              | 0.030                             | 0.28 x 0.57                 |
| 4                            | NLW4-25             | 50.00              | 0.034                             | 0.28 x 0.57                 |
| 5                            | NLW5-25             | 40.00              | 0.037                             | 0.28 x 0.57                 |
| 10                           | NLW10-25            | 26.50              | 0.047                             | 0.28 x 0.57                 |
| 15                           | NLW15-25            | 17.70              | 0.056                             | 0.28 x 0.57                 |
| 20                           | NLW20-25            | 13.30              | 0.063                             | 0.28 x 0.57                 |
| 25                           | NLW25-25            | 10.60              | 0.082                             | 0.32 x 0.69                 |
| 35                           | NLW35-25            | 7.60               | 0.094                             | 0.34 x 0.76                 |
| 40                           | NLW40-25            | 6.70               | 0.098                             | 0.34 x 0.76                 |
| 50                           | NLW50-25            | 5.30               | 0.115                             | 0.34 x 0.81                 |
| 75                           | NLW75-25            | 3.60               | 0.175                             | 0.40 x 0.88                 |

| Cap (µF)                       | Catalog Part Number | ESR Max 120 Hz (Ω) | Ripple Current @ 85 °C 120 Hz (A) | Nominal Size D x L (Inches) |
|--------------------------------|---------------------|--------------------|-----------------------------------|-----------------------------|
| <b>25 Vdc (30 Vdc Surge)</b>   |                     |                    |                                   |                             |
| 100                            | NLW100-25           | 2.70               | 0.195                             | 0.40 x 0.88                 |
| 150                            | NLW150-25           | 1.80               | 0.260                             | 0.40 x 1.06                 |
| 200                            | NLW200-25           | 1.30               | 0.320                             | 0.40 x 1.06                 |
| 250                            | NLW250-25           | 1.06               | 0.400                             | 0.40 x 1.57                 |
| 300                            | NLW300-25           | 0.88               | 0.420                             | 0.40 x 1.57                 |
| <b>50 Vdc (65 Vdc Surge)</b>   |                     |                    |                                   |                             |
| 1                              | NLW1-50             | 200.0              | 0.020                             | 0.28 x 0.57                 |
| 2                              | NLW2-50             | 100.0              | 0.026                             | 0.28 x 0.57                 |
| 3                              | NLW3-50             | 67.0               | 0.030                             | 0.28 x 0.57                 |
| 4                              | NLW4-50             | 50.0               | 0.034                             | 0.28 x 0.57                 |
| 5                              | NLW5-50             | 40.0               | 0.037                             | 0.28 x 0.57                 |
| 6                              | NLW6-50             | 33.0               | 0.039                             | 0.28 x 0.57                 |
| 8                              | NLW8-50             | 25.0               | 0.046                             | 0.28 x 0.69                 |
| 10                             | NLW10-50            | 20.0               | 0.052                             | 0.28 x 0.69                 |
| 15                             | NLW15-50            | 13.5               | 0.068                             | 0.32 x 0.69                 |
| 20                             | NLW20-50            | 10.0               | 0.076                             | 0.32 x 0.76                 |
| 25                             | NLW25-50            | 8.0                | 0.090                             | 0.34 x 0.81                 |
| 30                             | NLW30-50            | 6.6                | 0.115                             | 0.40 x 0.76                 |
| 35                             | NLW35-50            | 5.7                | 0.130                             | 0.40 x 0.88                 |
| 40                             | NLW40-50            | 5.0                | 0.138                             | 0.40 x 0.88                 |
| 50                             | NLW50-50            | 4.0                | 0.160                             | 0.40 x 0.94                 |
| 75                             | NLW75-50            | 2.7                | 0.200                             | 0.40 x 1.06                 |
| 100                            | NLW100-50           | 2.0                | 0.250                             | 0.40 x 1.32                 |
| 125                            | NLW125-50           | 1.6                | 0.310                             | 0.40 x 1.57                 |
| <b>100 Vdc (125 Vdc Surge)</b> |                     |                    |                                   |                             |
| 2                              | NLW2-100            | 100.0              | 0.020                             | 0.28 x 0.57                 |
| 10                             | NLW10-100           | 20.0               | 0.082                             | 0.40 x 0.88                 |
| 15                             | NLW15-100           | 13.5               | 0.104                             | 0.40 x 0.94                 |
| 20                             | NLW20-100           | 10.0               | 0.122                             | 0.40 x 1.06                 |
| 25                             | NLW25-100           | 8.0                | 0.133                             | 0.40 x 1.06                 |
| <b>150 Vdc (180 Vdc Surge)</b> |                     |                    |                                   |                             |
| 1                              | NLW1-150            | 200                | 0.020                             | 0.28 x 0.57                 |
| 2                              | NLW2-150            | 100                | 0.028                             | 0.28 x 0.57                 |
| 3                              | NLW3-150            | 67                 | 0.038                             | 0.32 x 0.76                 |
| 5                              | NLW5-150            | 40                 | 0.049                             | 0.34 x 0.88                 |
| 10                             | NLW10-150           | 20                 | 0.088                             | 0.40 x 0.94                 |
| 12                             | NLW12-150           | 17                 | 0.100                             | 0.40 x 1.06                 |

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