



## LNP Non-Polarized, 105°C



### Features

- LNP Series for crossover networks of high-pitched, mean and low-pitched sounds in high-fidelity sound systems.
- The series offers excellent frequency characteristics and minimal capacitance deviation with frequency.

### Specifications

| Item                                                                                                                                                 | Performance Characteristics                                                                                                                                                                                                                                                                  |    |    |    |    |    |                |     |     |     |     |
|------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|----|----|----|----------------|-----|-----|-----|-----|
| Operating Temperature Range                                                                                                                          | -40 to +105°C                                                                                                                                                                                                                                                                                |    |    |    |    |    | -25 to +105°C  |     |     |     |     |
| Rated voltage Range                                                                                                                                  | 10 to 100 VDC                                                                                                                                                                                                                                                                                |    |    |    |    |    | 160 to 250 VDC |     |     |     |     |
| Capacitance Range                                                                                                                                    | 0.47 to 1000 μF                                                                                                                                                                                                                                                                              |    |    |    |    |    |                |     |     |     |     |
| Capacitance Tolerance                                                                                                                                | ±20%(120Hz, +20°C)                                                                                                                                                                                                                                                                           |    |    |    |    |    |                |     |     |     |     |
| Leakage Current<br>(+20°C, max.)                                                                                                                     | I≤0.03 CV or 3(μA) After 1minute with rated working voltage applied..                                                                                                                                                                                                                        |    |    |    |    |    |                |     |     |     |     |
| Dissipation Factor (tanδ)                                                                                                                            | Working Voltage (VDC)                                                                                                                                                                                                                                                                        | 10 | 16 | 25 | 35 | 50 | 63             | 100 | 160 | 200 | 250 |
|                                                                                                                                                      | D.F.(%)max                                                                                                                                                                                                                                                                                   | 25 | 20 | 16 | 15 | 14 | 10             | 10  | 20  | 20  | 20  |
|                                                                                                                                                      | ( +20°C, at 120Hz)                                                                                                                                                                                                                                                                           |    |    |    |    |    |                |     |     |     |     |
| Low Temperature<br>Characteristics (at 120Hz)                                                                                                        | Impedance ratio max.                                                                                                                                                                                                                                                                         |    |    |    |    |    |                |     |     |     |     |
|                                                                                                                                                      | Working Voltage (VDC)                                                                                                                                                                                                                                                                        | 10 | 16 | 25 | 35 | 50 | 63             | 100 | 160 | 200 | 250 |
|                                                                                                                                                      | Z (-25°C)/Z(+20°C)                                                                                                                                                                                                                                                                           | 3  | 2  | 2  | 2  | 2  | 2              | 2   | 2   | 2   | 3   |
|                                                                                                                                                      | Z (-40°C)/Z(+20°C)                                                                                                                                                                                                                                                                           | 6  | 6  | 4  | 4  | 3  | 3              | 3   | -   | -   | -   |
| For Capacitance Value 1000μF , add 0.5 per another 1000μF for -25°C/+20°C<br>For Capacitance Value 1000μF , add 1 per another 1000μF for -40°C/+20°C |                                                                                                                                                                                                                                                                                              |    |    |    |    |    |                |     |     |     |     |
| Load Life                                                                                                                                            | Test conditions<br>Duration time : 5φ~6φ 1000Hrs<br>D≥8φ 2000Hrs<br>Ambient temperature:+105°C<br>Applied voltage: Rated DC working voltage<br>After test requirements: at +20%<br>Dissipation Factor: ≤150% of the initial specified value<br>Leakage current: ≤The initial specified value |    |    |    |    |    |                |     |     |     |     |
| Shelf Life                                                                                                                                           | Test conditions<br>Duration time :1000Hrs<br>Ambient temperature:+105°C<br>Applied voltage: None<br>After test requirements at +20°C: Same limits as Load life.<br>Pre-treatment for measurements shall be conducted after application of DC working voltage for 30 minutes.                 |    |    |    |    |    |                |     |     |     |     |

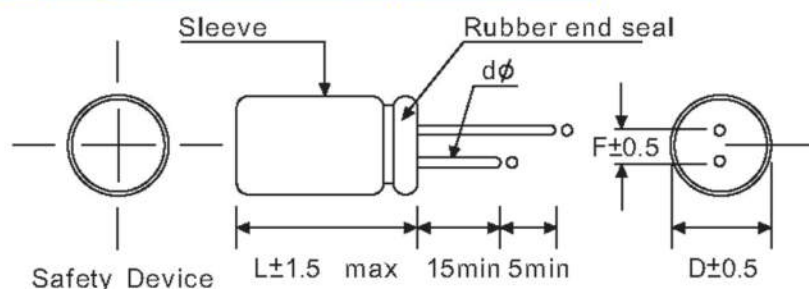
### Multiplier for Ripple Current VS, Frequency

| CAP(μF)/Hz |              | 50(60) | 120 | 400  | 1K   | 10K  | 50K-100K |
|------------|--------------|--------|-----|------|------|------|----------|
| Multiplier | CAP≤10       | 0.8    | 1.0 | 1.30 | 1.45 | 1.65 | 1.70     |
|            | 10<CAP≤100   | 0.8    | 1.0 | 1.23 | 1.36 | 1.48 | 1.53     |
|            | 100<CAP≤1000 | 0.8    | 1.0 | 1.16 | 1.25 | 1.35 | 1.38     |

### Multiplier for Ripple Current VS, Temperature

| Temperature (°C) | 45   | 60   | 70   | 85   | 95   | 105  |
|------------------|------|------|------|------|------|------|
| Multiplier       | 2.10 | 1.90 | 1.65 | 1.40 | 1.25 | 1.00 |

### Diagram of Dimensions: (Unit: mm)



|    |     |     |     |     |     |     |
|----|-----|-----|-----|-----|-----|-----|
| Dφ | 5   | 6.3 | 8   | 10  | 13  | 16  |
| F  | 2.0 | 2.5 | 3.5 | 5.0 | 5.0 | 7.5 |
| dφ | 0.5 | 0.5 | 0.5 | 0.6 | 0.6 | 0.8 |



## LNP Non-Polarized, 105°C

### Case Size

φD x L (mm)

| μF   | W.V.<br>{S.V.} | 10<br>{13} |        | 16<br>{20}     |            | 25<br>{32} |        | 35<br>{44} |        |
|------|----------------|------------|--------|----------------|------------|------------|--------|------------|--------|
|      |                | Size       | Ripple | Size           | Ripple     | Size       | Ripple | Size       | Ripple |
| 10   |                | -          | -      | -              | -          | 5x11       | 34     | 5x11       | 38     |
| 22   |                | -          | -      | 5x11           | 53         | 6.3x11     | 55     | 6.3x11     | 65     |
| 33   |                | 5x11       | 59     | 6.3x11         | 62         | 6.3x11     | 72     | 8x11       | 75     |
| 47   |                | 5x11       | 65     | 6.3x11         | 85         | 6.3x11     | 96     | 8x11       | 107    |
| 100  |                | 6.3x11     | 110    | 6.3x11<br>8x11 | 140<br>146 | 8x11       | 152    | 10x12      | 198    |
| 220  |                | 8x11       | 185    | 10x12          | 235        | 10x12      | 260    | 10x20      | 350    |
| 330  |                | 10x12      | 295    | 10x12          | 320        | 10x17      | 380    | 13x21      | 430    |
| 470  |                | 10x12      | 350    | 10x15          | 415        | 13x21      | 460    | 13x26      | 560    |
| 1000 |                | 10x20      | 610    | 13x21          | 712        | -          | -      | -          | -      |

Ripple Current (mA, rms) at 105°C 120Hz

| μF   | W.V.<br>{S.V.} | 50<br>{63}     |          | 63<br>{79}     |           | 100<br>{125}   |          | 160<br>{200} |        |
|------|----------------|----------------|----------|----------------|-----------|----------------|----------|--------------|--------|
|      |                | Size           | Ripple   | Size           | Ripple    | Size           | Ripple   | Size         | Ripple |
| 0.47 |                | 5x11           | 5        | 5x11           | 5         | 5x11           | 10       | 5x11         | 12     |
| 1    |                | 5x11           | 10       | 5x11           | 14        | 5x11           | 15       | 6.3x11       | 18     |
| 2.2  |                | 5x11           | 17       | 5x11           | 18        | 5x11           | 20       | 8x11         | 28     |
| 3.3  |                | 5x11           | 23       | 6.3x11         | 25        | 6.3x11         | 28       | 8x11         | 37     |
| 4.7  |                | 5x11           | 28       | 5x11<br>6.3x11 | 29<br>30  | 6.3x11<br>8x11 | 33<br>36 | 10x12        | 45     |
| 10   |                | 6.3x11<br>8x11 | 50<br>55 | 6.3x11         | 52        | 8x11           | 60       | 10x15        | 79     |
| 22   |                | 6.3x11<br>8x11 | 65<br>85 | 8x11           | 88        | 10x15          | 120      | 13x21        | 140    |
| 33   |                | 8x11           | 89       | 8x11<br>10x12  | 95<br>115 | 13x21          | 175      | 13x21        | 200    |
| 47   |                | 10x12          | 123      | 10x15          | 155       | 13x21          | 187      | 13x26        | 215    |
| 100  |                | 10x20          | 225      | 13x21          | 275       | 13x26          | 365      | -            | -      |
| 220  |                | 13x26          | 410      | 13x26          | 490       | -              | -        | -            | -      |
| 330  |                | 16x26          | 550      | -              | -         | -              | -        | -            | -      |

•Ripple Current (mA, rms) at 105°C 120Hz

| μF   | W.V.<br>{S.V.} | 200<br>{250} |        | 250<br>{300} |        |
|------|----------------|--------------|--------|--------------|--------|
|      |                | Size         | Ripple | Size         | Ripple |
| 0.47 |                | 6.3x11       | 17     | 6.3x11       | 20     |
| 1    |                | 8x11         | 21     | 8x11         | 25     |
| 2.2  |                | 8x11         | 32     | 10x12        | 39     |
| 3.3  |                | 10x12        | 40     | 10x15        | 43     |
| 4.7  |                | 10x15        | 52     | 10x20        | 65     |
| 10   |                | 10x20        | 86     | 10x20        | 109    |
| 22   |                | 13x21        | 160    | 13x26        | 189    |
| 33   |                | 13x21        | 213    | 16x26        | 250    |
| 47   |                | 13x26        | 238    | -            | -      |

•Ripple Current (mA, rms) at 105°C 120Hz