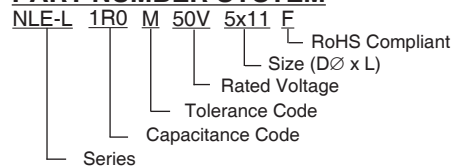


### STANDARD PRODUCT, SPECIFICATIONS AND CASE SIZES D $\phi$ x L (mm)

| Part Number          | Cap. (μF) | W.V. (Vdc) | Dissipation Factor +20°C/120Hz | Ripple Current Rating (mA) +85°C/120Hz | Max. ESR (Ω) +20°C/120Hz | Load Life Hours @ +85°C |
|----------------------|-----------|------------|--------------------------------|----------------------------------------|--------------------------|-------------------------|
| NLE-L470M10V5x11F    | 47        | 10         | 0.16                           | 110                                    | 5.29                     | 2,000                   |
| NLE-L101M10V6.3x11F  | 100       |            | 0.16                           | 180                                    | 2.49                     | 2,000                   |
| NLE-L221M10V8x11.5F  | 220       |            | 0.16                           | 300                                    | 1.13                     | 2,000                   |
| NLE-L331M10V10x12.5F | 330       |            | 0.16                           | 400                                    | 0.76                     | 2,000                   |
| NLE-L471M10V10x16F   | 470       |            | 0.16                           | 500                                    | 0.53                     | 2,000                   |
| NLE-L102M10V12.5x20F | 1000      |            | 0.16                           | 800                                    | 0.25                     | 4,000                   |
| NLE-L222M10V16x25F   | 2200      |            | 0.16                           | 1200                                   | 0.12                     | 4,000                   |
| NLE-L100M16V5x11F    | 10        | 16         | 0.13                           | 65                                     | 19.9                     | 2,000                   |
| NLE-L220M16V5x11F    | 22        |            | 0.13                           | 95                                     | 9.05                     | 2,000                   |
| NLE-L330M16V5x11F    | 33        |            | 0.13                           | 100                                    | 6.03                     | 2,000                   |
| NLE-L100M16V6.3x11F  | 47        |            | 0.13                           | 140                                    | 4.23                     | 2,000                   |
| NLE-L101M16V8x11.5F  | 100       |            | 0.13                           | 230                                    | 1.99                     | 2,000                   |
| NLE-L221M16V10x12.5F | 220       |            | 0.13                           | 350                                    | 0.91                     | 2,000                   |
| NLE-L331M16V10x16F   | 330       |            | 0.13                           | 450                                    | 0.61                     | 2,000                   |
| NLE-L471M16V10x16F   | 470       |            | 0.13                           | 550                                    | 0.43                     | 2,000                   |
| NLE-L102M16V12.5x20F | 1000      |            | 0.13                           | 900                                    | 0.20                     | 4,000                   |
| NLE-L222M16V16x25F   | 2200      |            | 0.13                           | 1300                                   | 0.09                     | 4,000                   |
| NLE-L4R7M25V5x11F    | 4.7       | 25         | 0.12                           | 45                                     | 26.2                     | 2,000                   |
| NLE-L100M25V5x11F    | 10        |            | 0.12                           | 65                                     | 13.3                     | 2,000                   |
| NLE-L220M25V5x11F    | 22        |            | 0.12                           | 100                                    | 6.03                     | 2,000                   |
| NLE-L330M25V6.3x11F  | 33        |            | 0.12                           | 140                                    | 4.02                     | 2,000                   |
| NLE-L470M25V6.3x11F  | 47        |            | 0.12                           | 170                                    | 2.82                     | 2,000                   |
| NLE-L101M25V8x11.5F  | 100       |            | 0.12                           | 280                                    | 1.33                     | 2,000                   |
| NLE-L221M25V10x16F   | 220       |            | 0.12                           | 400                                    | 0.61                     | 2,000                   |
| NLE-L331M25V10x20F   | 330       |            | 0.12                           | 500                                    | 0.41                     | 2,000                   |
| NLE-L471M25V12.5x20F | 470       |            | 0.12                           | 650                                    | 0.29                     | 4,000                   |
| NLE-L102M25V16x25F   | 1000      |            | 0.12                           | 1000                                   | 0.14                     | 4,000                   |
| NLE-L4R7M35V5x11F    | 4.7       | 35         | 0.10                           | 45                                     | 28.2                     | 2,000                   |
| NLE-L100M35V5x11F    | 10        |            | 0.10                           | 70                                     | 13.3                     | 2,000                   |
| NLE-L220M35V6.3x11F  | 22        |            | 0.10                           | 110                                    | 6.03                     | 2,000                   |
| NLE-L330M35V6.3x11F  | 33        |            | 0.10                           | 140                                    | 4.02                     | 2,000                   |
| NLE-L470M35V8x11.5F  | 47        |            | 0.10                           | 190                                    | 2.82                     | 2,000                   |
| NLE-L101M35V10x12.5F | 100       |            | 0.10                           | 300                                    | 1.33                     | 2,000                   |
| NLE-L221M35V10x20F   | 220       |            | 0.10                           | 450                                    | 0.41                     | 2,000                   |
| NLE-L331M35V12.5x25F | 330       |            | 0.10                           | 550                                    | 0.41                     | 4,000                   |
| NLE-L471M35V12.5x25F | 470       |            | 0.10                           | 700                                    | 0.29                     | 4,000                   |
| NLE-L102M35V16x25F   | 1000      |            | 0.10                           | 1100                                   | 0.14                     | 4,000                   |
| NLE-L1R0M50V5x11F    | 1.0       | 50         | 0.08                           | 11                                     | 133                      | 2,000                   |
| NLE-L2R2M50V5x11F    | 2.2       |            | 0.08                           | 23                                     | 60.3                     | 2,000                   |
| NLE-L3R3M50V5x11F    | 3.3       |            | 0.08                           | 40                                     | 40.2                     | 2,000                   |
| NLE-L4R7M50V5x11F    | 4.7       |            | 0.08                           | 45                                     | 28.2                     | 2,000                   |
| NLE-L100M50V5x11F    | 10        |            | 0.08                           | 70                                     | 13.3                     | 2,000                   |
| NLE-L220M50V6.3x11F  | 22        |            | 0.08                           | 110                                    | 6.03                     | 2,000                   |
| NLE-L330M50V8x11.5F  | 33        |            | 0.08                           | 170                                    | 4.02                     | 2,000                   |
| NLE-L470M50V8x11.5F  | 47        |            | 0.08                           | 200                                    | 2.82                     | 2,000                   |
| NLE-L101M50V10x16F   | 100       |            | 0.08                           | 350                                    | 1.33                     | 2,000                   |
| NLE-L221M50V12.5x20F | 220       |            | 0.08                           | 500                                    | 0.41                     | 4,000                   |
| NLE-L331M50V12.5x25F | 330       |            | 0.08                           | 600                                    | 0.41                     | 4,000                   |
| NLE-L471M50V16x25F   | 470       |            | 0.08                           | 800                                    | 0.29                     | 4,000                   |

#### PART NUMBER SYSTEM

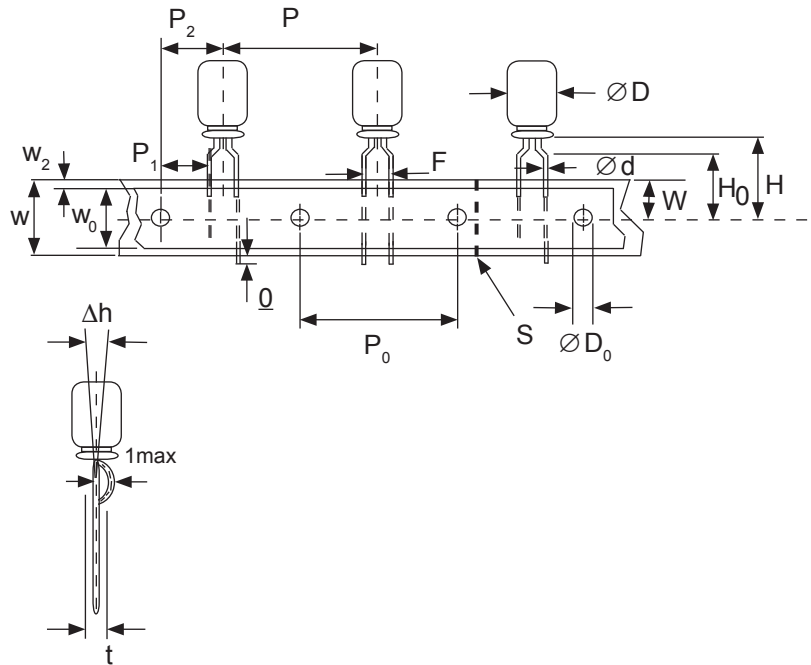


# Miniature Aluminum Electrolytic Capacitors Taping Specifications

## STANDARD RADIAL TAPING (5mm LEAD SPACING, FORMED LEADS) TB

Taping Dimensions (mm)

| Case Dia.<br>(D $\phi$ ) | 4                                  | 5    | 6.3   | 8      |
|--------------------------|------------------------------------|------|-------|--------|
| Case Size                | 4x5                                | 5x5  | 6.3x5 | 8x5    |
| Dim.                     | 4x7                                | 5x7  | 6.3x7 | 8x11.5 |
| d $\phi$ $\pm 0.05$      | 0.45                               | 0.45 | 0.45  | 0.6    |
| H $\pm 0.75$             | 17.5                               | 17.5 | 17.5  | 20.0   |
| F $+0.8 \sim -0.2$       | 5.0 $-0.2 \sim +0.8$               |      |       |        |
| P                        | 12.7 $\pm 1.0$                     |      |       |        |
| P <sub>0</sub>           | 12.7 $\pm 0.2$                     |      |       |        |
| P <sub>1</sub>           | 3.85 $\pm 0.5$ (at end of tape)    |      |       |        |
| P <sub>2</sub>           | 6.35 $\pm 1.0$                     |      |       |        |
| W                        | 18.0 $\pm 0.5$                     |      |       |        |
| W <sub>0</sub>           | 11.5 min.                          |      |       |        |
| W <sub>1</sub>           | 9.0 $\pm 0.5$                      |      |       |        |
| W <sub>2</sub>           | 0 $\sim 2.5$                       |      |       |        |
| H <sub>0</sub>           | 16.0 $\pm 0.5$                     |      |       |        |
| l                        | 1.0 max.                           |      |       |        |
| D <sub>0</sub> $\phi$    | 4.0 $\pm 0.2$                      |      |       |        |
| $\Delta h$               | 0 $\pm 1.0$ (at top of can)        |      |       |        |
| t                        | 0.7 $\pm 0.2$ (not including lead) |      |       |        |



## STANDARD RADIAL TAPING (5mm LEAD SPACING, STRAIGHT LEADS) TB

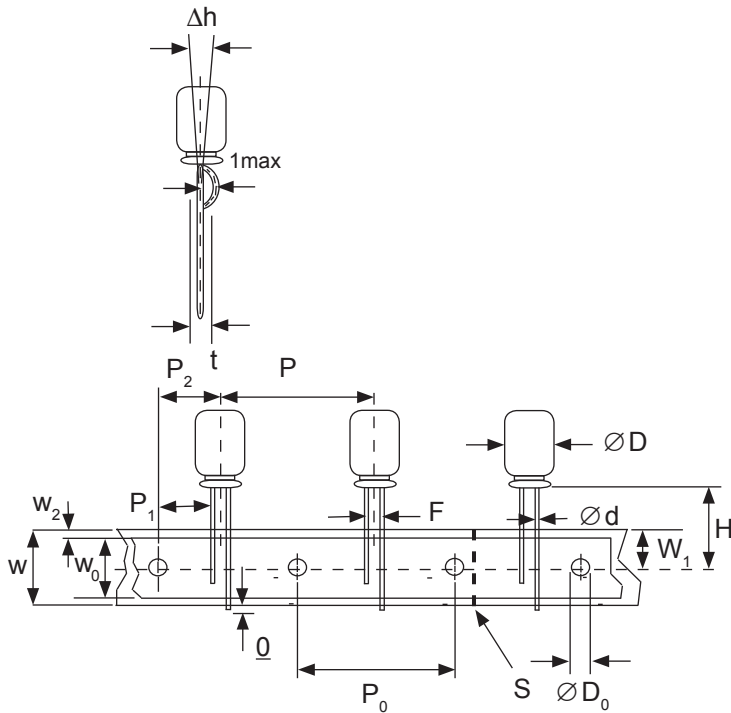
Taping Dimensions (mm)

| Case Dia.<br>(D $\phi$ ) | 10                                 | 12.5 |
|--------------------------|------------------------------------|------|
| Case Size                | All                                | All  |
| Dim.                     | All                                | All  |
| d $\phi$ $\pm 0.05$      | 0.6                                | 0.6  |
| H $\pm 0.75$             | 19.0                               | 19.0 |
| F $+0.8 \sim -0.2$       | 5.0                                | 5.0  |
| P $\pm 1.0$              | 25.4*                              |      |
| P <sub>0</sub>           | 12.7 $\pm 0.2$                     |      |
| P <sub>1</sub>           | 3.85                               |      |
| P <sub>2</sub>           | 6.35 $\pm 1.0$                     |      |
| W                        | 18.0 $\pm 0.5$                     |      |
| W <sub>0</sub>           | 11.5 min                           |      |
| W <sub>1</sub>           | 9.0 $\pm 0.5$                      |      |
| W <sub>2</sub>           | 0 $\sim 2.5$                       |      |
| H <sub>0</sub>           | 16.0 $\pm 0.5$                     |      |
| l                        | 1.0 max.                           |      |
| D <sub>0</sub> $\phi$    | 4.0 $\pm 0.2$                      |      |
| $\Delta h$               | 0 $\pm 1.0$ (at top of can)        |      |
| t                        | 0.7 $\pm 0.2$ (not including lead) |      |

### \*Optional Taping Specifications

10mm diameter available with P dim. = 12.7mm  
(P/N Suf x: TB12.7MMP)

12.5mm diameter available with P dim. = 15mm, P<sub>1</sub> = 5.0mm,  
P<sub>0</sub> = 15.0mm & P<sub>2</sub> = 7.5mm (P/N Suf x: TB15MMP)



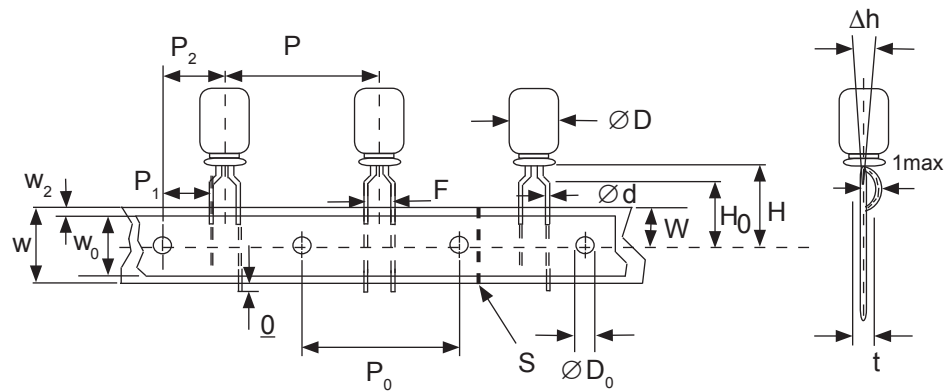
**NOTE:** ANODE (+) LEAD FEEDS OFF FIRST.  
FOR OPTION OF NEGATIVE (-) LEAD FIRST,  
SPECIFY "TBN".



## SPECIAL RADIAL TAPING (2.5mm LEAD SPACING, FORMED LEADS) TBF1

Taping Dimensions (mm)

| Case Dia.<br>(D $\phi$ ) | 4               | 5                  |
|--------------------------|-----------------|--------------------|
| Case Size<br>Dim.        | 4x5<br>4x7      | 5x5<br>5x7<br>5x11 |
| d $\phi \pm 0.05$        | 0.45            | 0.45<br>0.5        |
| H $\pm 0.75$             | 17.5            | 17.5<br>18.5       |
| H <sub>0</sub> $\pm 0.5$ | 16.0            | -<br>-             |
| F                        | 2.5 -0.2 ~ +0.8 |                    |
| P                        | 12.7 $\pm 1.0$  |                    |
| P <sub>0</sub>           | 12.7 $\pm 0.2$  |                    |
| P <sub>1</sub>           | 5.1 $\pm 0.5$   |                    |
| P <sub>2</sub>           | 6.35 $\pm 1.0$  |                    |
| W                        | 18.0 $\pm 0.5$  |                    |
| W <sub>0</sub>           | 11.5 min.       |                    |
| W <sub>1</sub>           | 9.0 $\pm 0.5$   |                    |
| W <sub>2</sub>           | 0 ~ 1.5         |                    |
| l                        | 1.0 max.        |                    |
| D <sub>0</sub> $\phi$    | 4.0 $\pm 0.2$   |                    |
| $\Delta h$               | 0 $\pm 1.0$     |                    |
| t                        | 0.7 $\pm 0.2$   |                    |

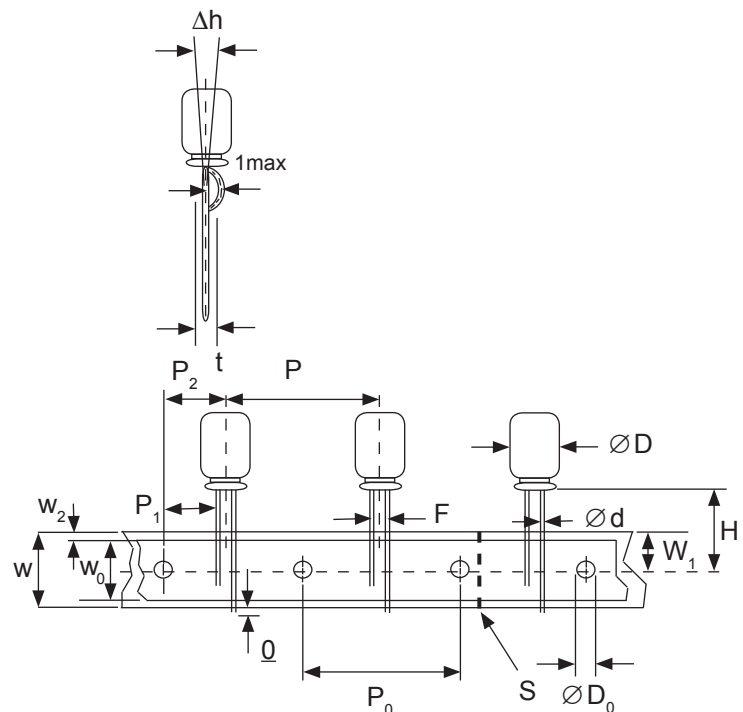


## SPECIAL STRAIGHT LEAD TAPING TBST

Taping Dimensions (mm)

| Case Dia.<br>(D $\phi$ ) | 4                                  | 5                  | 6.3                      | 8      |
|--------------------------|------------------------------------|--------------------|--------------------------|--------|
| Case Size<br>Dim.        | 4x5<br>4x7                         | 5x5<br>5x7<br>5x11 | 6.3x5<br>6.3x7<br>6.3x11 | 8x11.5 |
| d $\phi \pm 0.05$        | 0.45                               | 0.45<br>0.5        | 0.45<br>0.5              | 0.6    |
| H $\pm 0.75$             | 17.5                               | 17.5<br>18.5       | 17.5<br>18.5             | 20.0   |
| F +0.8 ~ -0.2            | 2.0*                               | 2.0                | 2.5                      | 3.5    |
| P $\pm 1.0$              | 12.7 $\pm 0.2$                     |                    |                          |        |
| P <sub>0</sub>           | 12.7 $\pm 0.2$                     |                    |                          |        |
| P <sub>1</sub>           | 5.1                                | 5.1                | 5.1                      | 4.6    |
| P <sub>2</sub>           | 6.35 $\pm 1.0$                     |                    |                          |        |
| W                        | 18.0 $\pm 0.5$                     |                    |                          |        |
| W <sub>0</sub>           | 11.5 min.                          |                    |                          |        |
| W <sub>1</sub>           | 9.0 $\pm 0.5$                      |                    |                          |        |
| W <sub>2</sub>           | 0 ~ 2.5                            |                    |                          |        |
| H <sub>0</sub>           | 16.0 $\pm 0.5$                     |                    |                          |        |
| l                        | 1.0 max.                           |                    |                          |        |
| D <sub>0</sub> $\phi$    | 4.0 $\pm 0.2$                      |                    |                          |        |
| $\Delta h$               | 0 $\pm 1.0$ (at top of can)        |                    |                          |        |
| t                        | 0.7 $\pm 0.2$ (not including lead) |                    |                          |        |

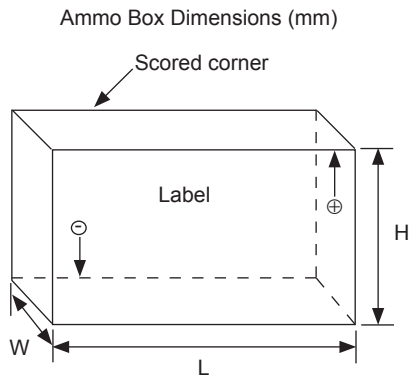
\* Parts with 4mm diameter are taped with a slight are in the lead and a 2.0mm lead-space.



RADIAL TAPED PACKAGING

Ammo Box (Tape & Box) TB, TBF1, TBST

Size of box and component quantity



| Case Dia (Dφ)<br>or Case Size | Q'ty per<br>Box<br>(pcs) | Dim. L | Dim. H | Dim.<br>W |
|-------------------------------|--------------------------|--------|--------|-----------|
| 4x5, 4x7                      | 2,000                    | 331    | 175    | 43        |
| 5x5, 5x7                      | 2,000                    | 331    | 220    | 43        |
| 5x11                          | 2,000                    | 340    | 255    | 55        |
| 6.3x5, 6.3x7                  | 2,000                    | 331    | 280    | 43        |
| 6.3x11                        | 2,000                    | 331    | 280    | 48        |
| 8x11.5, 8x12.5                | 1,000                    | 335    | 235    | 53        |
| 10x12.5*                      | 500                      | 335    | 190    | 53        |
| 10x16*                        | 500                      | 335    | 300    | 53        |
| 10x20*                        | 500                      | 335    | 300    | 55        |
| 12.x20*                       | 500                      | 335    | 300    | 55        |
| 12.5x25*                      | 500                      | 335    | 300    | 61        |

\*Special Taping Consult Factory For Availability

