

# NAZK Series

## Surface Mount Aluminum Electrolytic Capacitors



### FEATURES

- CYLINDRICAL V-CHIP CONSTRUCTION FOR SURFACE MOUNTING
- SUIT FOR HIGH TEMPERATURE REFLOW SOLDERING (UP TO 260°C)
- LOW IMPEDANCE AND HIGH RIPPLE CURRENT
- 2,000 HOUR LOAD LIFE @ +105°C
- DESIGNED FOR AUTOMATIC MOUNTING AND REFLOW SOLDERING

See **NAZT** for  
New Designs



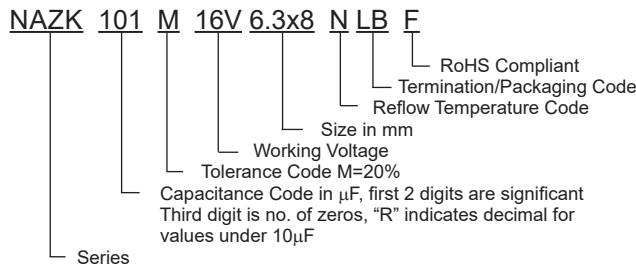
### CHARACTERISTICS

|  |                                    |  |      |      |      |      |
|--|------------------------------------|--|------|------|------|------|
| Rated Voltage Rating                                   | 6.3 ~ 35Vdc                        |  |      |      |      |      |
| Rated Capacitance Range                                | 4.7 ~ 1,000µF                      |  |      |      |      |      |
| Operating Temp. Range                                  | -55 ~ +105°C                       |  |      |      |      |      |
| Capacitance Tolerance                                  | ±20% (M)                           |  |      |      |      |      |
| Max. Leakage Current After 2 Minutes @ 20°C            | 0.01CV or 3µA whichever is greater |  |      |      |      |      |
| Tan δ @ 120Hz/20°C                                     | W.V. (Vdc)                         | 6.3  | 10   | 16   | 25   | 35   |
|  | S.V. (Vdc)                         | 8.0  | 13   | 20   | 32   | 44   |
|  | Tan δ                              | 0.26   | 0.19 | 0.16 | 0.14 | 0.12 |
| Low Temperature Stability Impedance Ratio @ 120Hz      | W.V. (Vdc)                         | 6.3  | 10   | 16   | 25   | 35   |
|  | Z-40°C/Z+20°C                      | 3  | 3    | 3    | 3    | 3    |
|  | Z-55°C/Z+20°C                      | 4  | 4    | 4    | 3    | 3    |
| Load Life Test @ 105°C<br>All Case Sizes = 2,000 hours | Capacitance Change                 | Within ±30% of initial measured value          |      |      |      |      |
|  | Tan δ                              | Less than ±200% of the specified maximum value |      |      |      |      |
|  | Leakage Current                    | Less than the specified maximum value          |      |      |      |      |

SAC Alloy Compatible  
230°C ~ 260°C

**LOW ESR COMPONENT**  
LIQUID ELECTROLYTE  
For Performance Data  
see [www.LowESR.com](http://www.LowESR.com)

### PART NUMBER SYSTEM



### DIMENSIONS (mm) AND REEL QUANTITIES

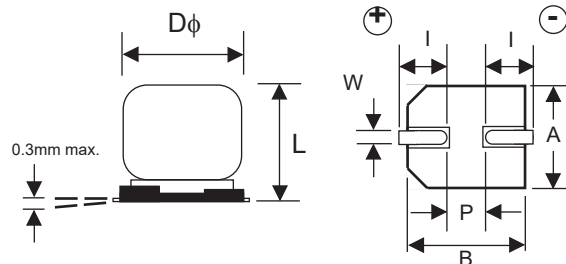
| Case Size | φD±0.5 | L max. | A±0.2 | B±0.2 | I±0.3 | W       | P±0.3 |
|-----------|--------|--------|-------|-------|-------|---------|-------|
| 4x6.1     | 4      | 6.1    | 4.3   | 4.3   | 1.8   | 0.5~0.8 | 1.0   |
| 5x6.1     | 5      | 6.1    | 5.3   | 5.3   | 2.2   | 0.5~0.8 | 1.3   |
| 6.3x6.1   | 6.3    | 6.1    | 6.6   | 6.6   | 2.7   | 0.5~0.8 | 1.8   |
| 6.3x8     | 6.3    | 8.0    | 6.6   | 6.6   | 2.5   | 0.5~0.8 | 2.2   |
| 8x10.5    | 8.0    | 10.5   | 8.3   | 8.3   | 2.9   | 0.7~1.1 | 3.2   |
| 10x10.5   | 10.0   | 10.5   | 10.3  | 10.3  | 3.2   | 0.7~1.4 | 4.6   |

### PEAK REFLOW TEMPERATURE CODES

| Code | Peak Reflow Temperature |
|------|-------------------------|
| N    | 260°C                   |
| L    | 250°C                   |

### TERMINATION FINISH & PACKAGING OPTIONS CODES

| Code | Finish & Reel Size        |
|------|---------------------------|
| LB   | Sn-Bi Finish & 15" Reel   |
| LS   | 100% Sn Finish & 15" Reel |



### PRECAUTIONS

Please review the notes on correct use, safety and precautions found at <https://www.niccomp.com/wp-content/uploads/files/aluminum/AlumApplInfoCautions.pdf>  
If in doubt or uncertainty, please review your specific application - process details with NIC's technical support personnel: [tpmg@niccomp.com](mailto:tpmg@niccomp.com)

# NAZK Series

## Surface Mount Aluminum Electrolytic Capacitors



### STANDARD VALUES, CASE SIZES AND SPECIFICATIONS

| NIC Part Number         | Cap. (μF) | W.V. (Vdc) | Dissipation Factor (Tan δ) | Max. Impedance (Ω) +20°C/100KHz | Max. Ripple Current (mA) +105°C/100KHz | Load Life Hours @ +105°C |       |
|-------------------------|-----------|------------|----------------------------|---------------------------------|--|--------------------------|-------|
| NAZK220M6.3V4X6.1NLBF   | 22        | 6.3        | 0.26                       | 1.35                            | 90                                     | 2,000                    |       |
| NAZK470M6.3V4X6.1NLBF   | 47        |            | 0.26                       | 1.35                            | 90                                     | 2,000                    |       |
| NAZK470M6.3V5X6.1NLBF   | 47        |            | 0.26                       | 0.70                            | 170                                    | 2,000                    |       |
| NAZK101M6.3V5X6.1NLBF   | 100       |            | 0.26                       | 0.70                            | 170                                    | 2,000                    |       |
| NAZK101M6.3V6.3X6.1NLBF | 100       |            | 0.26                       | 0.36                            | 250                                    | 2,000                    |       |
| NAZK221M6.3V6.3X6.1NLBF | 220       |            | 0.26                       | 0.36                            | 250                                    | 2,000                    |       |
| NAZK221M6.3V6.3X8NLBF   | 220       |            | 0.26                       | 0.34                            | 300                                    | 2,000                    |       |
| NAZK331M6.3V6.3X8NLBF   | 330       |            | 0.26                       | 0.34                            | 300                                    | 2,000                    |       |
| NAZK102M6.3V8X10.5LLBF  | 1000      |            | 0.26                       | 0.16                            | 600                                    | 2,000                    |       |
| NAZK330M10V4X6.1NLBF    | 33        |            | 10                         | 0.19                            | 1.35                                   | 90                       | 2,000 |
| NAZK221M10V6.3X8NLBF    | 220       | 0.19       |                            | 0.34                            | 300                                    | 2,000                    |       |
| NAZK471M10V8X10.5LLBF   | 470       | 0.19       |                            | 0.16                            | 600                                    | 2,000                    |       |
| NAZK681M10V8X10.5LLBF   | 680       | 0.19       |                            | 0.16                            | 600                                    | 2,000                    |       |
| NAZK102M10V10X10.5LLBF  | 1000      | 0.19       |                            | 0.08                            | 850                                    | 2,000                    |       |
| NAZK100M16V4X6.1NLBF    | 10        | 16         |                            | 0.16                            | 1.35                                   | 90                       | 2,000 |
| NAZK220M16V4X6.1NLBF    | 22        |            |                            | 0.16                            | 1.35                                   | 90                       | 2,000 |
| NAZK220M16V5X6.1NLBF    | 22        |            |                            | 0.16                            | 0.70                                   | 170                      | 2,000 |
| NAZK330M16V5X6.1NLBF    | 33        |            |                            | 0.16                            | 0.70                                   | 170                      | 2,000 |
| NAZK470M16V5X6.1NLBF    | 47        |            |                            | 0.16                            | 0.70                                   | 170                      | 2,000 |
| NAZK470M16V6.3X6.1NLBF  | 47        |            | 0.16                       | 0.36                            | 250                                    | 2,000                    |       |
| NAZK101M16V6.3X6.1NLBF  | 100       |            | 0.16                       | 0.36                            | 250                                    | 2,000                    |       |
| NAZK101M16V6.3X8NLBF    | 100       |            | 0.16                       | 0.34                            | 300                                    | 2,000                    |       |
| NAZK221M16V6.3X8NLBF    | 220       |            | 0.16                       | 0.34                            | 300                                    | 2,000                    |       |
| NAZK331M16V8X10.5LLBF   | 330       |            | 0.16                       | 0.16                            | 600                                    | 2,000                    |       |
| NAZK471M16V8X10.5LLBF   | 470       |            | 0.16                       | 0.16                            | 600                                    | 2,000                    |       |
| NAZK681M16V10X10.5LLBF  | 680       |            | 0.16                       | 0.08                            | 850                                    | 2,000                    |       |
| NAZK330M25V5X6.1NLBF    | 33        |            | 25                         | 0.14                            | 0.70                                   | 170                      | 2,000 |
| NAZK330M25V6.3X6.1NLBF  | 33        |            |                            | 0.14                            | 0.36                                   | 250                      | 2,000 |
| NAZK470M25V6.3X6.1NLBF  | 47        |            |                            | 0.14                            | 0.36                                   | 250                      | 2,000 |
| NAZK101M25V6.3X8NLBF    | 100       |            |                            | 0.14                            | 0.34                                   | 300                      | 2,000 |
| NAZK221M25V8X10.5LLBF   | 220       | 0.14       |                            | 0.16                            | 600                                    | 2,000                    |       |
| NAZK331M25V8X10.5LLBF   | 330       | 0.14       |                            | 0.16                            | 600                                    | 2,000                    |       |
| NAZK471M25V10X10.5LLBF  | 470       | 0.14       |                            | 0.09                            | 850                                    | 2,000                    |       |
| NAZK4R7M35V4X6.1NLBF    | 4.7       | 35         |                            | 0.12                            | 1.45                                   | 90                       | 2,000 |
| NAZK100M35V4X6.1NLBF    | 10        |            |                            | 0.12                            | 1.45                                   | 90                       | 2,000 |
| NAZK100M35V5X6.1NLBF    | 10        |            |                            | 0.12                            | 0.70                                   | 170                      | 2,000 |
| NAZK220M35V5X6.1NLBF    | 22        |            | 0.12                       | 0.70                            | 170                                    | 2,000                    |       |
| NAZK220M35V6.3X6.1NLBF  | 22        |            | 0.12                       | 0.36                            | 250                                    | 2,000                    |       |
| NAZK330M35V6.3X6.1NLBF  | 33        |            | 0.12                       | 0.36                            | 250                                    | 2,000                    |       |
| NAZK470M35V6.3X6.1NLBF  | 47        |            | 0.12                       | 0.36                            | 250                                    | 2,000                    |       |
| NAZK470M35V6.3X8NLBF    | 47        |            | 0.12                       | 0.34                            | 300                                    | 2,000                    |       |
| NAZK101M35V6.3X8NLBF    | 100       |            | 0.12                       | 0.34                            | 300                                    | 2,000                    |       |
| NAZK101M35V8X10.5LLBF   | 100       |            | 0.12                       | 0.16                            | 600                                    | 2,000                    |       |
| NAZK221M35V8X10.5LLBF   | 220       |            | 0.12                       | 0.16                            | 600                                    | 2,000                    |       |
| NAZK331M35V10X10.5LLBF  | 330       |            | 0.12                       | 0.09                            | 850                                    | 2,000                    |       |

### RIPPLE CURRENT FREQUENCY CORRECTION FACTORS

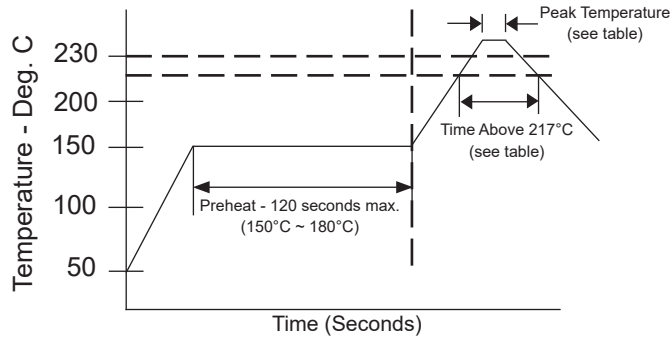
| Frequency    | 120Hz | 1KHz | 10KHz | 100KHz |
|--------------|-------|------|-------|--------|
| 4.7μF        | 0.42  | 0.60 | 0.80  | 1.00   |
| 10 ~ 33μF    | 0.45  | 0.75 | 0.90  | 1.00   |
| 47 ~ 100μF   | 0.50  | 0.80 | 0.95  | 1.00   |
| 220 ~ 1000μF | 0.60  | 0.85 | 0.95  | 1.00   |

Review & Compare Reflow Soldering Heat Limits  
V-chip SMT Aluminum Electrolytic Capacitors  
[www.niccomp.com/RSL](http://www.niccomp.com/RSL)

### PEAK REFLOW TEMPERATURE AND DURATION

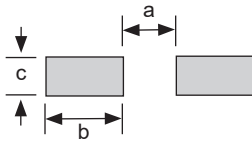
| Diameter        | Time above 217°C | Peak Temperature 5 seconds |
|-----------------|------------------|----------------------------|
| 6.3mm $\phi$    | 60 sec. max.     | 260°C                      |
| 8 ~ 10mm $\phi$ | 60 sec. max.     | 250°C                      |

Capacitors can withstand two times reflow at the above conditions. Second reflow shall be at least one hour after natural cool to room temperature.



### RECOMMENDED LAND PATTERN DIMENSIONS (mm)

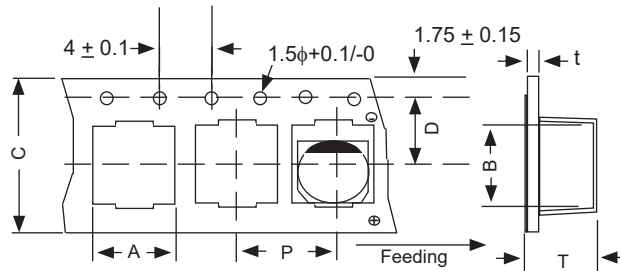
| Case Size | a   | b   | c   |
|-----------|-----|-----|-----|
| 4x6.1     | 1.0 | 2.6 | 1.6 |
| 5x6.1     | 1.4 | 3.0 | 1.6 |
| 6.3x6.1   | 2.1 | 3.5 | 1.6 |
| 6.3x8     | 2.1 | 3.5 | 1.8 |
| 8x10.5    | 2.8 | 4.1 | 2.1 |
| 10x10.5   | 4.3 | 4.4 | 2.5 |



### TAPING SPECIFICATIONS (mm)

- Both Leader and Trailer tape: Minimum 40mm (1.57") empty carrier tape pockets.
- Leader tape: Approximately 20cm of cover tape at leader.
- Connection: Maximum 3 connections (slices) per reel.

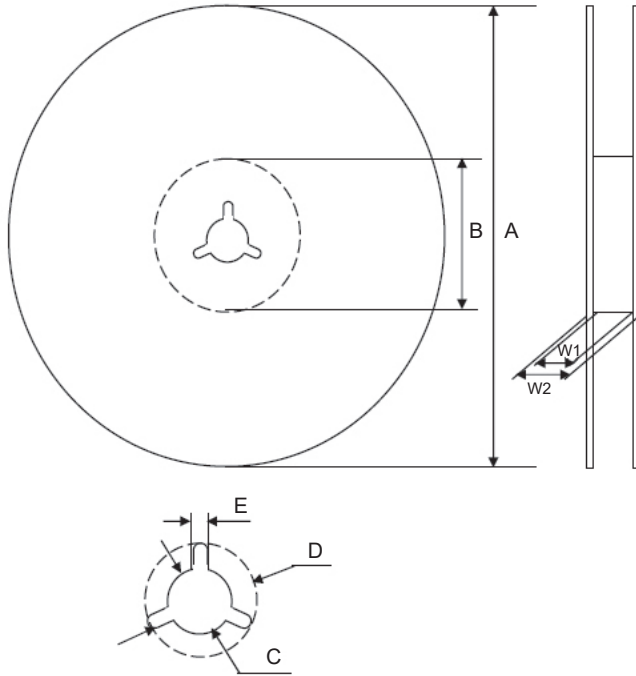
| Case Size | A    | B    | C    | D    | P    | T    | t    |
|-----------|------|------|------|------|------|------|------|
| 4x6.1     | ±0.5 | ±0.5 | ±0.3 | ±0.1 | ±0.1 | ±0.2 | ±0.1 |
| 5x6.1     | 4.7  | 4.7  | 12.0 | 5.5  | 8.0  | 6.4  | 0.4  |
| 6.3x6.1   | 5.7  | 5.7  | 12.0 | 5.5  | 12.0 | 6.4  | 0.4  |
| 6.3x8     | 7.0  | 7.0  | 16.0 | 7.5  | 12.0 | 6.4  | 0.4  |
| 8x10.5    | 7.0  | 7.0  | 16.0 | 7.5  | 12.0 | 8.2  | 0.4  |
| 10x10.5   | 8.7  | 8.7  | 24.0 | 11.5 | 16.0 | 11.0 | 0.4  |



# NAZK Series

## Surface Mount Aluminum Electrolytic Capacitors

### V-Chip 15" (380mm) Reels (LB suffix)



#### Dimensions (mm)

| Case Size       | Tape Width | W1          | W2          |
|-----------------|------------|-------------|-------------|
| 4x6.1, 5x6.1    | 12.0       | 12.5 ~ 14.0 | 15.5 ~ 20.0 |
| 6.3x6.1, 6.3x8  | 16.0       | 16.5 ~ 18.0 | 19.5 ~ 24.0 |
| 8x10.5, 10x10.5 | 24.0       | 24.5 ~ 26.0 | 27.5 ~ 32.0 |

| Case Size       | Tape Width | A                     | B                  | C                      | D                      | E                |
|-----------------|------------|-----------------------|--------------------|------------------------|------------------------|------------------|
| 4x6.1, 5x6.1    | 12.0       | $\phi 380$<br>$\pm 2$ | $\phi 80 \sim 105$ | $\phi 13$<br>$\pm 0.5$ | $\phi 21$<br>$\pm 1.0$ | 2.0<br>$\pm 0.5$ |
| 6.3x6.1, 6.3x8  | 16.0       |                       |                    |                        |                        |                  |
| 8x10.5, 10x10.5 | 24.0       |                       |                    |                        |                        |                  |

| Case Size | Quantity per Reel |
|-----------|-------------------|
|           | 15" (380mm)       |
| 4x6.1     | 2,000             |
| 5x6.1     | 1,000             |
| 6.3x6.1   | 1,000             |
| 6.3x8     | 900               |
| 8x10.5    | 500               |
| 10x10.5   | 500               |