

# Surface Mount Aluminum Electrolytic Capacitors NACZ Series

## FEATURES

- CYLINDRICAL V-CHIP CONSTRUCTION FOR SURFACE MOUNTING
- VERY LOW IMPEDANCE & HIGH RIPPLE CURRENT AT 100KHZ
- SUITABLE FOR DC-DC CONVERTER, DC-AC INVERTER, ETC.
- NEW EXPANDED CV RANGE, UP TO 6800 $\mu$ F
- NEW HIGH TEMPERATURE REFLOW "M1" VERSION
- DESIGNED FOR AUTOMATIC MOUNTING AND REFLOW SOLDERING

**RoHS Compliant**  
includes all homogeneous materials

\*See Part Number System for Details



## CHARACTERISTICS

|   |   |   |      |      |      |      |      |      |
|---|---|---|------|------|------|------|------|------|
| Rated Voltage Rating  | 6.3 ~ 50Vdc                               |   |      |      |      |      |      |      |
| Rated Capacitance Range   | 4.7 ~ 6800 $\mu$ F                        |   |      |      |      |      |      |      |
| Operating Temp. Range   | -55 ~ +105°C                              |   |      |      |      |      |      |      |
| Capacitance Tolerance   | $\pm$ 20% (M)                             |   |      |      |      |      |      |      |
| Max. Leakage Current After 2 Minutes @ 20°C                                       | 0.01CV Or 3 $\mu$ A, whichever is greater |   |      |      |      |      |      |      |
| Tan $\delta$ @ 120Hz/20°C   | W.V. (Vdc)                                | 6.3   | 10   | 16   | 25   | 35   | 50   |      |
|   | S.V. (Vdc)                                | 8.0   | 13   | 20   | 32   | 44   | 63   |      |
|   | $\phi$ 4 ~ $\phi$ 6.3mm Dia.              | 0.24  | 0.20 | 0.16 | 0.14 | 0.12 | 0.10 |      |
|   | $\phi$ 8 ~ $\phi$ 16mm Dia.               | C $\leq$ 1000 $\mu$ F                               | 0.28 | 0.24 | 0.20 | 0.16 | 0.14 | 0.14 |
|   |   | C = 1500 $\mu$ F                                    | 0.29 | 0.25 | 0.21 | -    | 0.14 | -    |
|   |   | C = 2200 $\mu$ F                                    | 0.30 | 0.26 | -    | 0.18 | -    | -    |
|   |   | C = 3300 $\mu$ F                                    | 0.32 | -    | 0.24 | -    | -    | -    |
| C = 4700 $\mu$ F  | 0.34                                      | 0.30  | -    | -    | -    | -    |      |      |
| C = 6800 $\mu$ F  | 0.38                                      | -   | -    | -    | -    | -    |      |      |
| Low Temperature Stability Impedance Ratio @ 120Hz                                 | W.V. (Vdc)                                | 6.3   | 10   | 16   | 25   | 35   | 50   |      |
|   | Z-40°C/Z+20°C                             | 3   | 2    | 2    | 2    | 2    | 2    |      |
|   | Z-55°C/Z+20°C                             | 5   | 4    | 4    | 3    | 3    | 3    |      |
| Load Life Test @ 105°C<br>4 ~ 6mm Dia. 1,000 hours<br>8 ~ 12.5mm Dia. 2,000 hours | Capacitance Change                        | Within $\pm$ 25% of initial measured value          |      |      |      |      |      |      |
|   | Tan $\delta$                              | Less than $\pm$ 200% of the specified maximum value |      |      |      |      |      |      |
|   | Leakage Current                           | Less than the specified maximum value               |      |      |      |      |      |      |

**LOW IMPEDANCE AT HIGH FREQUENCY**  
INDUSTRY STANDARD  
STYLE FOR SWITCHERS AND CONVERTERS

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

## STANDARD PRODUCT AND CASE SIZE TABLE D $\phi$ x L (mm)

| Cap ( $\mu$ F) | Code | Working Voltage (Vdc) |         |          |          |          |          |
|----------------|------|-----------------------|---------|----------|----------|----------|----------|
|                |      | 6.3                   | 10      | 16       | 25       | 35       | 50       |
| 4.7            | 4R7  | -                     | -       | -        | -        | 4x6.3    | 4x6.3    |
| 10             | 100  | -                     | -       | -        | 4x6.3*   | 5x6.3*   | 6.3x6.3* |
| 15             | 150  | -                     | -       | 4x6.3    | 6x6.3    | 5x6.3*   | -        |
| 22             | 220  | -                     | 4x6.3   | 5x6.3*   | 5x6.3    | 5x6.3*   | 6.3x6.3* |
| 27             | 270  | 4x6.3*                | -       | -        | -        | -        | -        |
| 33             | 330  | -                     | 5x6.3   | -        | 6.3x6.3  | 6.3x6.3* | 6.3x8*   |
| 47             | 470  | 5x6.3                 | -       | 6.3x6.3  | 6.3x6.3  | 6.3x6.3* | 6.3x8*   |
| 56             | 560  | 5x6.3*                | -       | -        | 6.3x6.3  | -        | -        |
| 68             | 680  | -                     | 6.3x6.3 | 6.3x6.3* | 6.3x6.3  | 6.3x8*   | 8x10.5*  |
| 100            | 101  | 6.3x6.3*              | -       | 6.3x6.3* | 6.3x8*   | 8x10.5   | 8x10.5*  |
| 120            | 121  | -                     | 6.3x6.3 | -        | -        | -        | -        |
| 150            | 151  | 6.3x6.3               | 6.3x6.3 | 6.3x8*   | 8x10.5*  | 8x10.5*  | 10x10.5* |
|                |      |                       |         |          |          | 10x8     |          |
| 220            | 221  | 6.3x6.3               | 6.3x8   | 6.3x8*   | 8x10.5*  | 8x10.5   | 10x10.5  |
|                |      |                       |         |          | 10x8     |          |          |
| 330            | 331  | 6.3x8*                | 8x10.5  | 8x10.5*  | 8x10.5   | 10x10.5  | 12.5x14  |
|                |      |                       |         | 10x8     |          |          |          |
| 390            | 391  | -                     | -       | -        | -        | -        | 12.5x14  |
| 470            | 471  | 8x10.5                | 8x10.5  | 8x10.5   | 10x10.5* | 12.5x14  | 16x17    |
|                |      |                       | 10x8    |          |          |          |          |
| 680            | 681  | 8x10.5                | -       | 10x10.5  | -        | 12.5x14  | -        |
|                |      | 10x8*                 |         |          |          |          |          |
| 1000           | 102  | 8x10.5*               | 10x10.5 | -        | 12.5x14  | -        | 16x17    |
| 1500           | 152  | 10x10.5*              | -       | 12.5x14  | -        | 16x17    | -        |
| 2200           | 222  | -                     | 12.5x14 | -        | 16x17    | -        | -        |
| 3300           | 332  | 12.5x14               | -       | 16x17    | -        | -        | -        |
| 4700           | 472  | -                     | 16x17   | -        | -        | -        | -        |
| 6800           | 682  | 16x17                 | -       | -        | -        | -        | -        |

Denotes New Value



# Surface Mount Aluminum Electrolytic Capacitors NACZ Series

## STANDARD VALUES, CASE SIZES AND SPECIFICATIONS

| NIC Part Number*         | Cap. (µF) | W.V. (Vdc) | Dissipation Factor (Tan δ) | Max. Ripple Current (mA) +105°C, 100KHz | Max. Impedance (Ω) +20°C, 100KHz | Load Life Hours @ +105°C |       |
|--------------------------|-----------|------------|----------------------------|---|----------------------------------|--------------------------|-------|
| NACZ270M6.3V4X6.3TR13F   | 27        | 6.3        | 0.24                       | 80                                      | 1.80                             | 1,000                    |       |
| NACZ470M6.3V5X6.3TR13F   | 47        |            | 0.24                       | 150                                     | 0.76                             | 1,000                    |       |
| NACZ560M6.3V5X6.3TR13F   | 56        |            | 0.24                       | 150                                     | 0.76                             | 1,000                    |       |
| NACZ101M6.3V6.3X6.3TR13F | 100       |            | 0.24                       | 230                                     | 0.44                             | 1,000                    |       |
| NACZ151M6.3V6.3X6.3TR13F | 150       |            | 0.24                       | 230                                     | 0.44                             | 1,000                    |       |
| NACZ221M6.3V6.3X6.3TR13F | 220       |            | 0.24                       | 230                                     | 0.44                             | 1,000                    |       |
| NACZ331M6.3V6.3X8TR13F   | 330       |            | 0.24                       | 280                                     | 0.34                             | 1,000                    |       |
| NACZ471M6.3V8X10.5TR13F  | 470       |            | 0.28                       | 450                                     | 0.17                             | 2,000                    |       |
| NACZ681M6.3V8X10.5TR13F  | 680       |            | 0.28                       | 450                                     | 0.17                             | 2,000                    |       |
| NACZ681M6.3V10X8TR13F    |           |            |                            |   |                                  |                          |       |
| NACZ102M6.3V8X10.5TR13F  | 1000      |            | 0.28                       | 450                                     | 0.17                             | 2,000                    |       |
| NACZ152M6.3V10X10.5TR13F | 1500      |            | 0.29                       | 670                                     | 0.09                             | 2,000                    |       |
| NACZ332M6.3V12.5X14TR15F | 3300      |            | 0.32                       | 900                                     | 0.066                            | 2,000                    |       |
| NACZ682M6.3V16X17TR15F   | 6800      |            | 0.38                       | 1250                                    | 0.052                            | 2,000                    |       |
| NACZ220M10V4X6.3TR13F    | 22        | 10         | 0.20                       | 80                                      | 1.80                             | 1,000                    |       |
| NACZ330M10V5X6.3TR13F    | 33        |            | 0.20                       | 150                                     | 0.76                             | 1,000                    |       |
| NACZ680M10V6.3X6.3TR13F  | 68        |            | 0.20                       | 230                                     | 0.44                             | 1,000                    |       |
| NACZ121M10V6.3X6.3TR13F  | 120       |            | 0.20                       | 230                                     | 0.44                             | 1,000                    |       |
| NACZ151M10V6.3X6.3TR13F  | 150       |            | 0.20                       | 230                                     | 0.44                             | 1,000                    |       |
| NACZ221M10V6.3X8TR13F    | 220       |            | 0.20                       | 280                                     | 0.34                             | 1,000                    |       |
| NACZ331M10V8X10.5TR13F   | 330       |            | 0.24                       | 450                                     | 0.17                             | 2,000                    |       |
| NACZ471M10V8X10.5TR13F   | 470       |            | 0.24                       | 450                                     | 0.17                             | 2,000                    |       |
| NACZ471M10V10X8TR13F     |           |            |                            |   |                                  |                          |       |
| NACZ102M10V10X10.5TR13F  | 1000      |            | 0.24                       | 670                                     | 0.09                             | 2,000                    |       |
| NACZ222M10V12.5X14TR15F  | 2200      |            | 0.26                       | 900                                     | 0.066                            | 2,000                    |       |
| NACZ472M10V16X17TR15F    | 4700      |            | 0.30                       | 1250                                    | 0.052                            | 2,000                    |       |
| NACZ150M16V4X6.3TR13F    | 15        |            | 16                         | 0.16                                    | 80                               | 1.80                     | 1,000 |
| NACZ220M16V5X6.3TR13F    | 22        |            |                            | 0.16                                    | 150                              | 0.76                     | 1,000 |
| NACZ470M16V6.3X6.3TR13F  | 47        | 0.16       |                            | 230                                     | 0.44                             | 1,000                    |       |
| NACZ680M16V6.3X6.3TR13F  | 68        | 0.16       |                            | 230                                     | 0.44                             | 1,000                    |       |
| NACZ101M16V6.3X6.3TR13F  | 100       | 0.16       |                            | 230                                     | 0.44                             | 1,000                    |       |
| NACZ151M16V6.3X8TR13F    | 150       | 0.16       |                            | 280                                     | 0.34                             | 1,000                    |       |
| NACZ221M16V6.3X8TR13F    | 220       | 0.16       |                            | 280                                     | 0.34                             | 1,000                    |       |
| NACZ331M16V8X10.5TR13F   | 330       | 0.20       |                            | 450                                     | 0.17                             | 2,000                    |       |
| NACZ331M16V10X8TR13F     |           |            |                            |   |                                  |                          |       |
| NACZ471M16V8X10.5TR13F   | 470       | 0.20       |                            | 450                                     | 0.17                             | 2,000                    |       |
| NACZ681M16V10X10.5TR13F  | 680       | 0.20       |                            | 670                                     | 0.09                             | 2,000                    |       |
| NACZ152M16V12.5X14TR15F  | 1500      | 0.21       |                            | 900                                     | 0.066                            | 2,000                    |       |
| NACZ332M16V16X17TR15F    | 3300      | 0.24       |                            | 1250                                    | 0.052                            | 2,000                    |       |
| NACZ100M25V4X6.3TR13F    | 10        | 25         |                            | 0.14                                    | 80                               | 1.80                     | 1,000 |
| NACZ150M25V6X6.3TR13F    | 15        |            | 0.14                       | 150                                     | 0.76                             | 1,000                    |       |
| NACZ220M25V5X6.3TR13F    | 22        |            | 0.14                       | 150                                     | 0.76                             | 1,000                    |       |
| NACZ330M25V6.3X6.3TR13F  | 33        |            | 0.14                       | 230                                     | 0.44                             | 1,000                    |       |
| NACZ470M25V6.3X6.3TR13F  | 47        |            | 0.14                       | 230                                     | 0.44                             | 1,000                    |       |
| NACZ560M25V6.3X6.3TR13F  | 56        |            | 0.14                       | 230                                     | 0.44                             | 1,000                    |       |
| NACZ680M25V6.3X6.3TR13F  | 68        |            | 0.14                       | 230                                     | 0.44                             | 1,000                    |       |
| NACZ101M25V6.3X8TR13F    | 100       |            | 0.14                       | 280                                     | 0.34                             | 1,000                    |       |
| NACZ151M25V8X10.5TR13F   | 150       |            | 0.16                       | 450                                     | 0.17                             | 2,000                    |       |
| NACZ221M25V8X10.5TR13F   | 220       |            | 0.16                       | 450                                     | 0.17                             | 2,000                    |       |
| NACZ221M25V10X8TR13F     |           |            |                            |   |                                  |                          |       |
| NACZ331M25V8X10.5TR13F   | 330       |            | 0.16                       | 450                                     | 0.17                             | 2,000                    |       |
| NACZ471M25V10X10.5TR13F  | 470       |            | 0.16                       | 670                                     | 0.09                             | 2,000                    |       |
| NACZ102M25V12.5X14TR15F  | 1000      |            | 0.16                       | 900                                     | 0.066                            | 2,000                    |       |
| NACZ222M25V16X17TR15F    | 2200      | 0.18       | 1250                       | 0.052                                   | 2,000                            |                          |       |
| NACZ4R7M35V4X6.3TR13F    | 4.7       | 35         | 0.12                       | 80                                      | 1.80                             | 1,000                    |       |
| NACZ100M35V5X6.3TR13F    | 10        |            | 0.12                       | 150                                     | 0.76                             | 1,000                    |       |
| NACZ150M35V5X6.3TR13F    | 15        |            | 0.12                       | 150                                     | 0.76                             | 1,000                    |       |
| NACZ220M35V5X6.3TR13F    | 22        |            | 0.12                       | 150                                     | 0.76                             | 1,000                    |       |
| NACZ330M35V6.3X6.3TR13F  | 33        |            | 0.12                       | 230                                     | 0.44                             | 1,000                    |       |
| NACZ470M35V6.3X6.3TR13F  | 47        |            | 0.12                       | 230                                     | 0.44                             | 1,000                    |       |

\*For Automotive Equipment and high temperature reflow version see part number system



# Surface Mount Aluminum Electrolytic Capacitors NACZ Series

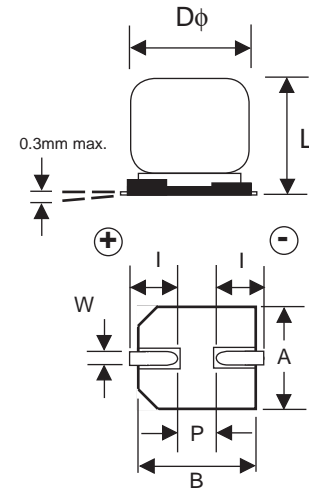
## STANDARD VALUES, CASE SIZES AND SPECIFICATIONS

| NIC Part Number*        | Cap. (μF) | W.V. (Vdc) | Dissipation Factor (Tan δ) | Max. Ripple Current (mA) +105°C, 100KHz | Max. Impedance (Ω) +20°C, 100KHz | Load Life Hours @ +105°C |
|-------------------------|-----------|------------|----------------------------|---|----------------------------------|--------------------------|
| NACZ680M35V6.3X8TR13F   | 68        | 35         | 0.12                       | 280                                     | 0.34                             | 1,000                    |
| NACZ101M35V8X10.5TR13F  | 100       |            | 0.14                       | 450                                     | 0.17                             | 2,000                    |
| NACZ151M35V8X10.5TR13F  | 150       |            | 0.14                       | 450                                     | 0.17                             | 2,000                    |
| NACZ151M35V10X8TR13F    |           |            | 0.14                       | 450                                     | 0.17                             | 2,000                    |
| NACZ221M35V8X10.5TR13F  | 220       |            | 0.14                       | 450                                     | 0.17                             | 2,000                    |
| NACZ331M35V10X10.5TR13F | 330       |            | 0.14                       | 670                                     | 0.09                             | 2,000                    |
| NACZ471M35V12.5X14TR15F | 470       |            | 0.14                       | 900                                     | 0.066                            | 2,000                    |
| NACZ681M35V12.5X14TR15F | 680       |            | 0.14                       | 900                                     | 0.066                            | 2,000                    |
| NACZ152M35V16X17TR15F   | 1500      |            | 0.14                       | 1250                                    | 0.052                            | 2,000                    |
| NACZ4R7M50V4X6.3TR13F   | 4.7       | 50         | 0.10                       | 60                                      | 2.90                             | 1,000                    |
| NACZ100M50V6.3X6.3TR13F | 10        |            | 0.10                       | 165                                     | 0.88                             | 1,000                    |
| NACZ220M50V6.3X6.3TR13F | 22        |            | 0.10                       | 165                                     | 0.88                             | 1,000                    |
| NACZ330M50V6.3X8TR13F   | 33        |            | 0.10                       | 195                                     | 0.75                             | 1,000                    |
| NACZ470M50V6.3X8TR13F   | 47        |            | 0.10                       | 195                                     | 0.75                             | 1,000                    |
| NACZ680M50V8X10.5TR13F  | 68        |            | 0.14                       | 300                                     | 0.40                             | 2,000                    |
| NACZ101M50V8X10.5TR13F  | 100       |            | 0.14                       | 300                                     | 0.40                             | 2,000                    |
| NACZ151M50V10X10.5TR13F | 150       |            | 0.14                       | 450                                     | 0.22                             | 2,000                    |
| NACZ221M50V10X10.5TR13F | 220       |            | 0.14                       | 450                                     | 0.22                             | 2,000                    |
| NACZ331M50V12.5X14TR15F | 330       |            | 0.14                       | 620                                     | 0.14                             | 2,000                    |
| NACZ391M50V12.5X14TR15F | 390       |            | 0.14                       | 620                                     | 0.14                             | 2,000                    |
| NACZ471M50V16X17TR15F   | 470       |            | 0.14                       | 790                                     | 0.078                            | 2,000                    |
| NACZ102M50V16X17TR15F   | 1000      |            | 0.14                       | 790                                     | 0.078                            | 2,000                    |

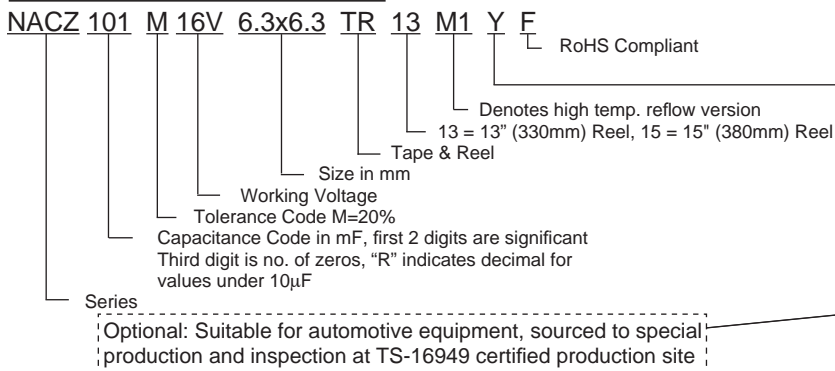
\*For Automotive Equipment and high temperature reflow version see part number system

## DIMENSIONS (mm)

| Case Size | φD±0.5 | L max. | A±0.2 | B±0.2 | I±0.3 | W       | P±0.3 |
|-----------|--------|--------|-------|-------|-------|---------|-------|
| 4x6.3     | 4.0    | 6.3    | 4.3   | 4.3   | 1.8   | 0.5~0.8 | 1.0   |
| 5x6.3     | 5.0    | 6.3    | 5.3   | 5.3   | 2.2   | 0.5~0.8 | 1.4   |
| 6.3x6.3   | 6.3    | 6.3    | 6.6   | 6.6   | 2.5   | 0.5~0.8 | 2.2   |
| 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   | 0.7~1.0 | 3.2   |
| 10X8      | 10.0   | 8.0    | 10.3  | 10.3  | 3.2   | 1.1~1.4 | 4.6   |
| 10X10.5   | 10.0   | 10.5   | 10.3  | 10.3  | 3.2   | 1.1~1.4 | 4.6   |
| 12.5x14   | 12.5   | 14.0   | 12.8  | 12.8  | 4.5   | 1.1~1.4 | 4.6   |
| 16x17     | 16.0   | 17.0   | 16.3  | 16.3  | 5.0   | 1.8~2.1 | 7.0   |



## PART NUMBER SYSTEM



| Case Diameter | Termination Material |
|---------------|----------------------|
| 4 ~ 12.5mm φ  | 97% Sn, 3% Bi        |
| 16mm          | 100% Sn              |



# Surface Mount Aluminum Electrolytic Capacitors NACZ Series

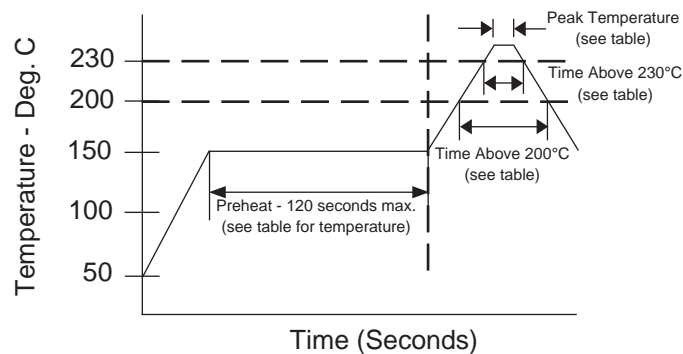
## PEAK REFLOW SOLDERING TEMPERATURES AND DURATIONS (STANDARD VERSION)

| Case Size | Preheat:<br>150°C ~ 180°C | Max. Soldering<br>Temperature | Max. Exposure Time at Max.<br>Soldering Temperature | Max. Exposure Time<br>Above +200°C | Multiple Reflow<br>Exposure |
|-----------|---------------------------|-------------------------------|---|------------------------------------|-----------------------------|
| 4x6.3     | 120 seconds max.          | +250°C                        | 5 seconds   | 70 seconds                         | 2 times max.                |
| 5x6.3     | 120 seconds max.          | +250°C                        | 5 seconds   | 70 seconds                         | 2 times max.                |
| 6.3x6.3   | 120 seconds max.          | +250°C                        | 5 seconds   | 70 seconds                         | 2 times max.                |
| 6.3x8     | 120 seconds max.          | +250°C                        | 5 seconds   | 70 seconds                         | 2 times max.                |
| 8x10.5    | 120 seconds max.          | +245°C                        | 5 seconds   | 60 seconds                         | 2 times max.                |
| 10x8      | 120 seconds max.          | +240°C                        | 5 seconds   | 50 seconds                         | 2 times max.                |
| 10x10.5   | 120 seconds max.          | +240°C                        | 5 seconds   | 50 seconds                         | 2 times max.                |
| 12.5x14   | 120 seconds max.          | +240°C                        | 5 seconds   | 50 seconds                         | 2 times max.                |
| 16x17     | 120 seconds max.          | +230°C                        | 5 seconds   | 30 seconds                         | 2 times max.                |

## PEAK REFLOW SOLDERING TEMPERATURES AND DURATIONS (M1 VERSION)

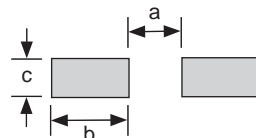
| Case Size | Preheat:<br>150°C ~ 180°C | Max. Soldering<br>Temperature | Max. Exposure Time at Max.<br>Soldering Temperature | Max. Exposure Time<br>Above +200°C | Max. Exposure Time<br>Above +230°C | Multiple Reflow<br>Exposure |
|-----------|---------------------------|-------------------------------|---|------------------------------------|------------------------------------|-----------------------------|
| 4x6.3     | 120 seconds max.          | +255°C                        | 5 seconds   | 60 seconds                         | 30 seconds                         | 2 times max.                |
| 5x6.3     | 120 seconds max.          | +255°C                        | 5 seconds   | 60 seconds                         | 30 seconds                         | 2 times max.                |
| 6.3x6.3   | 120 seconds max.          | +255°C                        | 5 seconds   | 60 seconds                         | 30 seconds                         | 2 times max.                |
| 6.3x8     | 120 seconds max.          | +255°C                        | 5 seconds   | 60 seconds                         | 30 seconds                         | 2 times max.                |
| 8x10.5    | 120 seconds max.          | +250°C                        | 5 seconds   | 60 seconds                         | 30 seconds                         | 2 times max.                |
| 10x8      | 120 seconds max.          | +250°C                        | 5 seconds   | 60 seconds                         | 30 seconds                         | 2 times max.                |
| 10x10.5   | 120 seconds max.          | +250°C                        | 5 seconds   | 60 seconds                         | 30 seconds                         | 2 times max.                |

### RECOMMENDED REFLOW SOLDERING PROFILE



### RECOMMENDED LAND PATTERN DIMENSIONS (mm)

| Case Size | a   | b   | c   |
|-----------|-----|-----|-----|
| 4 φ       | 1.0 | 2.6 | 1.8 |
| 5 φ       | 1.4 | 3.0 | 1.8 |
| 6.3 φ     | 2.1 | 3.5 | 1.8 |
| 8 φ       | 2.8 | 4.1 | 2.1 |
| 10 φ      | 4.3 | 4.4 | 2.5 |
| 12.5 φ    | 4.3 | 5.8 | 2.5 |
| 16 φ      | 6.6 | 6.5 | 5.0 |



### PRECAUTIONS

Please review the notes on correct use, safety and precautions found on pages T10 & T11 of NIC's Electrolytic Capacitor catalog.  
Also found at [www.nicomp.com/precautions](http://www.nicomp.com/precautions)  
If in doubt or uncertainty, please review your specific application - process details with NIC's technical support personnel: [tpmg@nicomp.com](mailto:tpmg@nicomp.com)

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



# Surface Mount Aluminum Electrolytic Capacitors NACZ Series

## CARRIER TAPE

| Case Size | A ±0.5 | B ±0.2 | C ±0.3 | D ±0.1 | P ±0.1 | T ±0.2 |
|-----------|--------|--------|--------|--------|--------|--------|
| 4 x 6.3   | 4.7    | 4.7    | 12.0   | 5.5    | 8.0    | 6.6    |
| 5 x 6.3   | 5.7    | 5.7    | 12.0   | 5.5    | 12.0   | 6.6    |
| 6.3 x 6.3 | 7.0    | 7.0    | 16.0   | 7.5    | 12.0   | 6.6    |
| 6.3 x 8   | 7.0    | 7.0    | 16.0   | 7.5    | 12.0   | 8.3    |
| 8 X 10.5  | 8.7    | 8.7    | 24.0   | 11.5   | 16.0   | 11.1   |
| 10 x 8    | 10.7   | 10.7   | 24.0   | 11.5   | 16.0   | 8.3    |
| 10 x 10.5 | 10.7   | 10.7   | 24.0   | 11.5   | 16.0   | 11.2   |
| 12.5 x 14 | 13.2   | 13.2   | 32.0   | 14.2   | 24.0   | 14.2   |
| 16 x 17   | 17.5   | 17.5   | 44.0   | 20.2   | 28.0   | 17.5   |

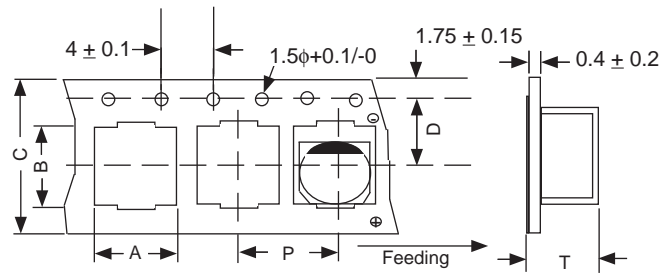
## TR13 330mm (13") REEL TR15 380mm (15") REEL

| Case Size | W ±1.0 | Quantity Per Reel |           |
|-----------|--------|-------------------|-----------|
|           |        | 13" Reel          | 15" Reel  |
| 4 x 6.3   | 14.0   | 1,200 pcs         | 2,000 pcs |
| 5 x 6.3   | 14.0   | 800 pcs           | 1,000 pcs |
| 6.3 x 6.3 | 18.0   | 800 pcs           | 1,000 pcs |
| 6.3 x 8   | 18.0   | 500 pcs           | 900 pcs   |
| 8 X 10.5  | 26.0   | 300 pcs           | 500 pcs   |
| 10 x 8    | 26.0   | 400 pcs           | 500 pcs   |
| 10 x 10.5 | 26.0   | 300 pcs           | 500 pcs   |
| 12.5 x 14 | 34.0   | N/A               | 250 pcs   |
| 16 x 17   | 46.0   | N/A               | 200 pcs   |

## 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.

### CARRIER



### REEL

