

# Surface Mount Aluminum Electrolytic Capacitors NACC Series

## FEATURES

- CYLINDRICAL V-CHIP CONSTRUCTION FOR SURFACE MOUNTING
- HIGH TEMPERATURE, EXTEND LIFE (5000 HOURS @ 105°C)
- 4X6.1mm ~ 10X10.5mm CASE SIZES
- DESIGNED FOR REFLOW SOLDERING

**RoHS  
Compliant**  
includes all homogeneous materials



## CHARACTERISTICS

|                                                |                                       |
|------------------------------------------------|---------------------------------------|
| Rated Voltage Range                            | 6.3 ~ 50Vdc                           |
| Rate Capacitance Range                         | 1.0 ~ 1,000μF                         |
| Operating Temp. Range                          | -40°C ~ +105°C                        |
| Capacitance Tolerance                          | ±20% (M)                              |
| Max. Leakage Current<br>After 2 Minutes @ 20°C | 0.01CV or 3μA<br>whichever is greater |

\*See Part Number System for Details

|                                                                               |                    |                                        |      |      |      |      |      |
|-------------------------------------------------------------------------------|--------------------|----------------------------------------|------|------|------|------|------|
| Tan δ @120Hz/20°C                                                             | W.V. (Vdc)         | 6.3                                    | 10   | 16   | 25   | 35   | 50   |
|                                                                               | S.V.(Vdc)          | 8                                      | 13   | 20   | 32   | 44   | 63   |
|                                                                               | Tan δ              | 0.3*                                   | 0.26 | 0.20 | 0.16 | 0.14 | 0.12 |
| * 1,000μF is 0.5                                                              |                    |                                        |      |      |      |      |      |
| Load Life Test @ 105°C<br>4mm ~ 6mm Dia. 3,000hrs<br>8mm ~ 10mm Dia. 5,000hrs | Capacitance Change | Within ± 30% of initial measured value |      |      |      |      |      |
|                                                                               | Tan δ              | Less than 300% of specified max. value |      |      |      |      |      |
|                                                                               | Leakage Current    | Less than specified max. value         |      |      |      |      |      |

## STANDARD PRODUCTS AND CASE SIZE TABLE D x L (mm)

| Cap<br>(μF) | Code | Working Voltage (Vdc) |        |         |         |         |         |
|-------------|------|-----------------------|--------|---------|---------|---------|---------|
|             |      | 6.3                   | 10     | 16      | 25      | 35      | 50      |
| 1.0         | 1R0  | -                     | -      | -       | -       | -       | 4X6.1   |
| 2.2         | 2R2  | -                     | -      | -       | -       | -       | 4X6.1   |
| 3.3         | 3R3  | -                     | -      | -       | -       | -       | 4X6.1   |
| 4.7         | 4R7  | -                     | -      | -       | -       | 4X6.1   | 5X6.1   |
| 10          | 100  | -                     | -      | 4X6.1   | -       | 5X6.1   | 6.3X6.1 |
| 22          | 220  | 4X6.1                 | -      | 5X6.1   | -       | 6.3X6.1 | 6.3X8   |
| 33          | 330  | -                     | 5X6.1  | -       | 6.3X6.1 | 6.3X8   | 8X10.5  |
| 47          | 470  | 5X6.1                 | -      | 6.3X6.1 | 6.3X8   | -       | 8X10.5  |
| 100         | 101  | 6.3X6.1               | -      | 6.3X8   | 8X10.5  | -       | 10X10.5 |
| 220         | 221  | 6.3X8                 | 8X10.5 | -       | -       | 10X10.5 | -       |
| 330         | 331  | 8X10.5                | -      | -       | 10X10.5 | -       | -       |
| 470         | 471  | -                     | -      | 10X10.5 | -       | -       | -       |
| 1000        | 102  | 10X10.5               | -      | -       | -       | -       | -       |

## PART NUMBER SYSTEM

**NACC 101 M 16V 8X10.5 TR 15 E**

- NACC**: Series
- 101**: Capacitance Code in mF, first 2 digits are significant  
Third digit is no. of zeros, "R" indicates decimal for values under 10μF
- M**: Tolerance Code M=20%
- 16V**: Working Voltage
- 8X10.5**: Size in mm
- TR**: Tape & Reel
- 15**: Reel Size: 15" Preferred, 13" Optional
- E**: RoHS Compliant  
97% Sn, 3% Bi

## PRECAUTIONS

Please review the notes on correct use, safety and precautions found at  
<https://www.niccomp.com/resource/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)



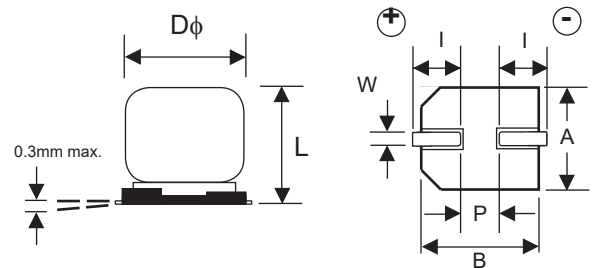
# Surface Mount Aluminum Electrolytic Capacitors NACC Series

| NIC Part Number         | Cap. (μF) | W.V. (Vdc) | Dissipation Factor (Tan δ) | Max. Ripple Current (mA)<br>+105°C/120Hz | Maximum ESR (Ω)<br>+20°C/120Hz | Load Life Hours<br>@ +105°C |
|-------------------------|-----------|------------|----------------------------|------------------------------------------|--------------------------------|-----------------------------|
| NACC220M6.3V4X6.1TR_F   | 22        | 6.3        | 0.30                       | 26                                       | 22.6                           | 3,000                       |
| NACC470M6.3V5X6.1TR_F   | 47        |            | 0.30                       | 46                                       | 10.6                           | 3,000                       |
| NACC101M6.3V6.3X6.1TR_F | 100       |            | 0.30                       | 71                                       | 4.98                           | 3,000                       |
| NACC221M6.3V6.3X8TR_F   | 220       |            | 0.30                       | 101                                      | 2.26                           | 3,000                       |
| NACC331M6.3V8X10.5TR_F  | 330       |            | 0.30                       | 230                                      | 1.51                           | 5,000                       |
| NACC102M6.3V10X10.5TR_F | 1000      |            | 0.50                       | 313                                      | 0.83                           | 5,000                       |
| NACC330M10V5X6.1TR_F    | 33        | 10         | 0.26                       | 43                                       | 13.1                           | 3,000                       |
| NACC221M10V8X10.5TR_F   | 220       |            | 0.26                       | 160                                      | 1.96                           | 5,000                       |
| NACC100M16V4X6.1TR_F    | 10        | 16         | 0.20                       | 28                                       | 33.2                           | 3,000                       |
| NACC220M16V5X6.1TR_F    | 22        |            | 0.20                       | 39                                       | 15.1                           | 3,000                       |
| NACC470M16V6.3X6.1TR_F  | 47        |            | 0.20                       | 70                                       | 7.06                           | 3,000                       |
| NACC101M16V6.3X8TR_F    | 100       |            | 0.20                       | 81                                       | 3.32                           | 3,000                       |
| NACC471M16V10X10.5TR_F  | 470       |            | 0.20                       | 340                                      | 7.06                           | 5,000                       |
| NACC330M25V6.3X6.1TR_F  | 33        | 25         | 0.16                       | 65                                       | 8.04                           | 3,000                       |
| NACC470M25V6.3X8TR_F    | 47        |            | 0.16                       | 65                                       | 5.65                           | 3,000                       |
| NACC101M25V8X10.5TR_F   | 100       |            | 0.16                       | 130                                      | 2.66                           | 5,000                       |
| NACC331M25V10X10.5TR_F  | 330       |            | 0.16                       | 238                                      | 8.04                           | 5,000                       |
| NACC4R7M35V4X6.1TR_F    | 4.7       | 35         | 0.14                       | 15                                       | 49.4                           | 3,000                       |
| NACC100M35V5X6.1TR_F    | 10        |            | 0.14                       | 28                                       | 23.2                           | 3,000                       |
| NACC220M35V6.3X6.1TR_F  | 22        |            | 0.14                       | 55                                       | 10.6                           | 3,000                       |
| NACC330M35V6.3X8TR_F    | 33        |            | 0.14                       | 57                                       | 7.04                           | 3,000                       |
| NACC221M35V10X10.5TR_F  | 220       |            | 0.14                       | 220                                      | 1.06                           | 5,000                       |
| NACC1R0M50V4X6.1TR_F    | 1.0       | 50         | 0.12                       | 10                                       | 199                            | 3,000                       |
| NACC2R2M50V4X6.1TR_F    | 2.2       |            | 0.12                       | 16                                       | 90.4                           | 3,000                       |
| NACC3R3M50V4X6.1TR_F    | 3.3       |            | 0.12                       | 16                                       | 60.3                           | 3,000                       |
| NACC4R7M50V5X6.1TR_F    | 4.7       |            | 0.12                       | 23                                       | 42.3                           | 3,000                       |
| NACC100M50V6.3X6.1TR_F  | 10        |            | 0.12                       | 35                                       | 19.9                           | 3,000                       |
| NACC220M50V6.3X8TR_F    | 22        |            | 0.12                       | 49                                       | 9.04                           | 3,000                       |
| NACC330M50V8X10.5TR_F   | 33        |            | 0.12                       | 91                                       | 6.03                           | 5,000                       |
| NACC470M50V8X10.5TR_F   | 47        |            | 0.12                       | 100                                      | 4.24                           | 5,000                       |
| NACC101M50V10X10.5TR_F  | 100       |            | 0.12                       | 160                                      | 1.99                           | 5,000                       |

Part Number Suffix Where \_\_: Preferred (15" reel) = 15, Legacy (13" reel) = 13 (check with NIC for availability)

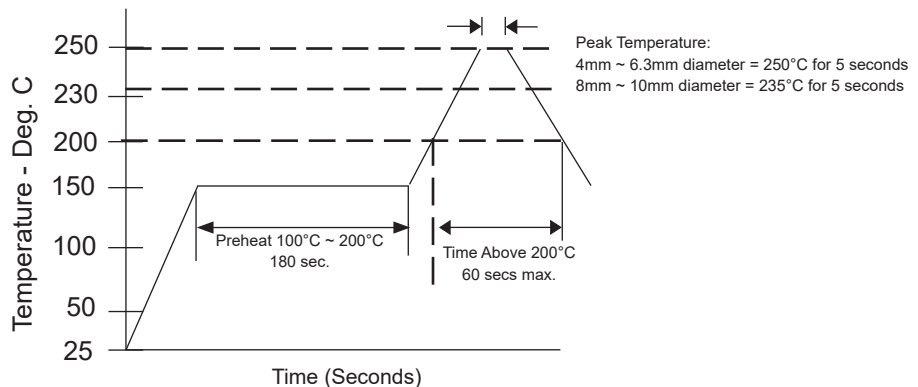
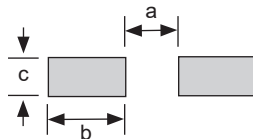
## DIMENSIONS D x L (mm)

| Case Size | φD  | L max. | A ± 0.2 | B ± 0.2 | I ± 0.2 | W         | P ± 0.2 |
|-----------|-----|--------|---------|---------|---------|-----------|---------|
| 4x6.1     | 4.0 | 6.1    | 4.3     | 4.3     | 1.8     | 0.5 ~ 0.8 | 1.0     |
| 5x6.1     | 5.0 | 6.1    | 5.3     | 5.3     | 2.2     | 0.5 ~ 0.8 | 1.5     |
| 6.3x6.1   | 6.3 | 6.1    | 6.6     | 6.6     | 2.6     | 0.5 ~ 0.8 | 1.8     |
| 6.3x8     | 6.3 | 8.0    | 6.6     | 6.6     | 2.6     | 0.5 ~ 0.8 | 1.8     |
| 8x10.5    | 8.0 | 10.5   | 8.3     | 8.3     | 3.4     | 0.7 ~ 1.1 | 3.1     |
| 10x10.5   | 10  | 10.5   | 10.3    | 10.3    | 3.5     | 0.7 ~ 1.4 | 4.6     |



## RECOMMENDED LAND PATTERN DIMENSIONS (mm)

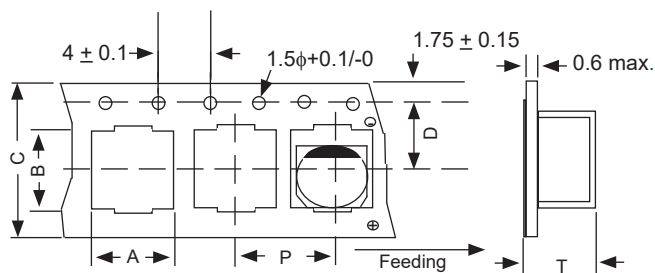
| Case Size | a   | b   | c   |
|-----------|-----|-----|-----|
| 4x6.1     | 1.0 | 2.5 | 1.6 |
| 5x6.1     | 1.5 | 2.8 | 1.6 |
| 6.3x6.1   | 1.8 | 3.2 | 1.6 |
| 6.3x8     |     |     |     |
| 8x10.5    | 3.1 | 4.0 | 2.0 |
| 10x10.5   | 4.6 | 4.1 | 2.0 |



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## CARRIER TAPE

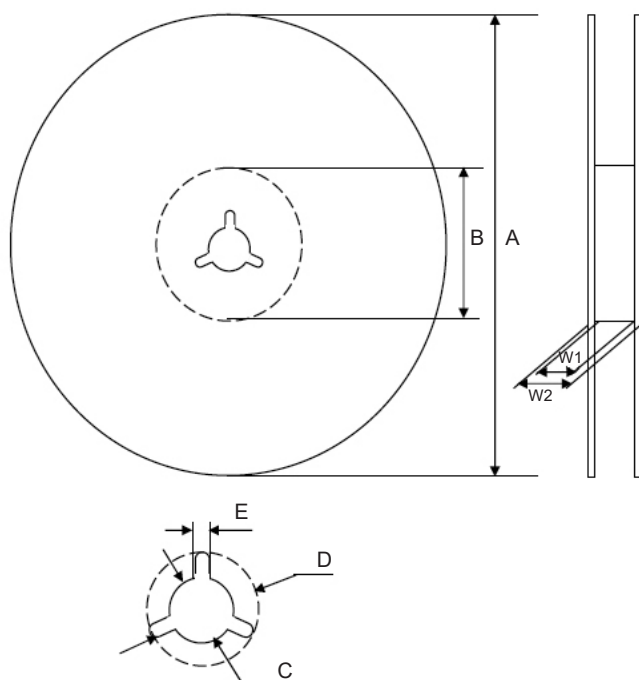
| Case Size | A ±0.2 | B ±0.2 | C ±0.3 | D ±0.1 | P ±0.1 | T ±0.2 |
|-----------|--------|--------|--------|--------|--------|--------|
| 4x6.1     | 4.7    | 4.7    | 12.0   | 5.5    | 8.0    | 6.2    |
| 5x6.1     | 5.7    | 5.7    | 12.0   | 5.5    | 12.0   | 6.4    |
| 6.3x6.1   | 7.0    | 7.0    | 16.0   | 7.5    | 12.0   | 6.4    |
| 6.3x8     | 7.0    | 7.0    | 16.0   | 7.5    | 12.0   | 8.4    |
| 8x10.5    | 8.7    | 8.7    | 24.0   | 11.5   | 16.0   | 11.0   |
| 10x10.5   | 10.7   | 10.7   | 24.0   | 11.5   | 16.0   | 11.0   |



## 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.

## Standard V-Chip 15" (380mm) Reels (TR15F suffix)



## Dimensions (mm)

| Case Size       | Tape Width | W1          | W2          |
|-----------------|------------|-------------|-------------|
| 4x6.1, 5x6.1    | 12.0       | 12.4 ~ 14.4 | 15.5 ~ 20.0 |
| 6.3x6.1, 6.3x8  | 16.0       | 16.4 ~ 18.4 | 19.5 ~ 24.0 |
| 8x10.5, 10x10.5 | 24.0       | 24.4 ~ 26.4 | 27.5 ~ 32.0 |

| Case Size       | Tape Width | A            | B       | C           | D           | E           |
|-----------------|------------|--------------|---------|-------------|-------------|-------------|
| 4x6.1, 5x6.1    | 12.0       | φ330<br>±2.0 | φ50~105 | φ13<br>±0.5 | φ21<br>±1.0 | 2.0<br>±0.5 |
| 6.3x6.1, 6.3x8  | 16.0       |              |         |             |             |             |
| 8x10.5, 10x10.5 | 24.0       |              |         |             |             |             |

| Color         |
|---------------|
| Black or Blue |

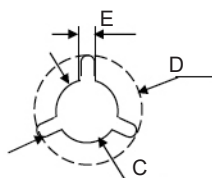
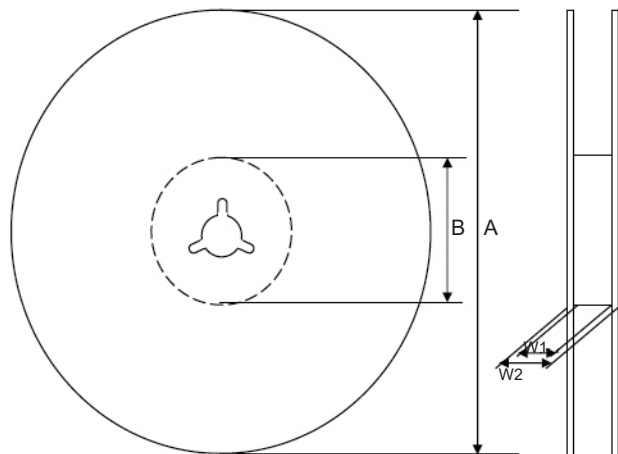
| Case Size | Quantity Per Reel<br>15" (380mm) Reel |
|-----------|---------------------------------------|
| 4x6.1     | 2,000 pcs                             |
| 5x6.1     | 2,000 pcs                             |
| 6.3x6.1   | 1,000 pcs                             |
| 6.3x8     | 900 pcs         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



# Surface Mount Aluminum Electrolytic Capacitors NACC Series

Optional V-Chip 330mm Reels (TR13F suffix)

## Dimensions (mm)



| Case Size                         | Tape Width | W1          | W2          |
|-----------------------------------|------------|-------------|-------------|
| 4x5.5, 4x6.3, 5x5.5               | 12.0       | 12.4 ~ 14.4 | 15.5 ~ 20.0 |
| 6.3x5.5, 6.3x6.3,<br>6.3x8, 8x6.5 | 16.0       | 16.4 ~ 18.4 | 19.5 ~ 24.0 |
| 8x10.5, 10x8,<br>10x10.5          | 24.0       | 24.4 ~ 26.4 | 27.5 ~ 32.0 |

| Case Size                         | Tape Width | A                     | B                  | C                      | D                      | E                |
|-----------------------------------|------------|-----------------------|--------------------|------------------------|------------------------|------------------|
| 4x5.5, 4x6.3, 5x5.5               | 12.0       | $\phi 330$<br>$\pm 2$ | $\phi 50 \sim 105$ | $\phi 13$<br>$\pm 0.5$ | $\phi 21$<br>$\pm 1.0$ | 2.0<br>$\pm 0.5$ |
| 6.3x5.5, 6.3x6.3,<br>6.3x8, 8x6.5 | 16.0       |                       |                    |                        |                        |                  |
| 8x10.5, 10x8,<br>10x10.5          | 24.0       |                       |                    |                        |                        |                  |

| Color         |
|---------------|
| Black or Blue |

| Case Size | Quantity Per Reel<br>13" (330mm) Reel |
|-----------|---------------------------------------|
| 4x6.1     | 1,200 pcs                             |
| 5x6.1     | 800 pcs                               |
| 6.3x6.1   | 800 pcs                               |
| 6.3x8     | 500 pcs                               |
| 8x10.5    | 300 pcs                               |
| 10x10.5   | 300 pcs                               |

