

Surface Mount Aluminum Electrolytic Capacitors NACX Series

FEATURES

- CYLINDRICAL V-CHIP CONSTRUCTION
- VERY LOW IMPEDANCE AT 100KHz
- WIDE TEMPERATURE RANGE (-55 +105°C)
- MAXIMUM 5.5mm HEIGHT
- ANTI-SOLVENT (2 MINUTES)
- DESIGNED FOR REFLOW SOLDERING
- **MEETS THE REQUIREMENTS OF AEC-Q200***

*Contact NIC for supporting test data

**RoHS
Compliant**
includes all homogeneous materials

*See Part Number System for Details



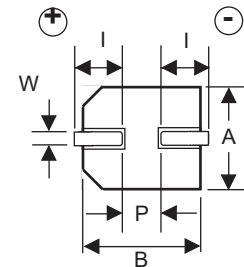
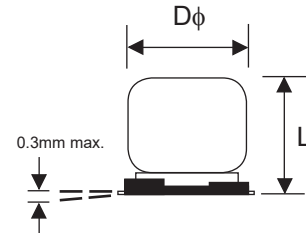
CHARACTERISTICS

| | | | | | | | | |
|---|--------------------|---------------------------------------|------|------|------|------|------|------|
| Rated Voltage Range | | 6.3 ~ 63V | | | | | | |
| Rated Capacitance Range | | 1.0 ~ 150μF | | | | | | |
| Operating Temperature Range | | -55 ~ +105°C | | | | | | |
| Capacitance Tolerance | | ±20% (M), ±10% (K)* | | | | | | |
| Max. Leakage Current After 2 Minutes at 20°C | | 0.01CV or 3μA whichever is greater | | | | | | |
| Surge Voltage and Max. Tan δ | W.V. (Vdc) | 6.3 | 10 | 16 | 25 | 35 | 50 | 63 |
| | S.V.(Vdc) | 8 | 13 | 20 | 32 | 44 | 63 | 79 |
| | Tan δ | 0.24 | 0.20 | 0.16 | 0.14 | 0.12 | 0.12 | 0.12 |
| Low Temperature Stability (Impedance Ratio @ 120Hz) | Z-25°C/Z+20°C | 3 | 2 | 2 | 2 | 2 | 2 | 2 |
| | Z-55°C/Z+20°C | 5 | 4 | 4 | 3 | 3 | 3 | 3 |
| High Temperature Load Life at 105°C and Rated Working Voltage 1,000 hours | Capacitance Change | Within ±25% of initial measured value | | | | | | |
| | Tan δ | Less than 200% of specified value | | | | | | |
| | Leakage Current | Less than the specified value | | | | | | |

* Optional ± 10% (K) Tolerance available on most values. Contact factory for availability.

STANDARD PRODUCT AND SIZE DφxL (mm)

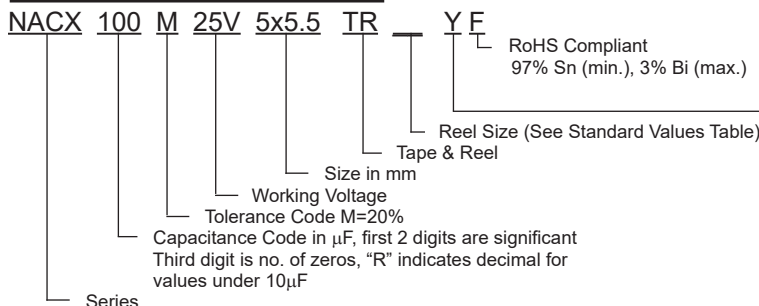
| Cap. (μF) | Code | Working Voltage (Vdc) | | | | | | |
|-----------|------|-----------------------|---------|---------|---------|---------|---------|---------|
| | | 6.3 | 10 | 16 | 25 | 35 | 50 | 63 |
| 1.0 | 1R0 | - | - | - | - | 4x5.5 | 4x5.5 | 4x5.5 |
| 2.2 | 2R2 | - | - | - | - | 4x5.5 | 4x5.5 | 4x5.5 |
| 3.3 | 3R3 | - | - | - | - | 4x5.5 | 4x5.5 | 5x5.5 |
| 4.7 | 4R7 | - | - | - | 4x5.5 | 4x5.5 | 5x5.5 | 5x5.5 |
| 10 | 100 | - | - | 4x5.5 | 5x5.5 | 5x5.5 | 6.3x5.5 | 6.3x5.5 |
| 22 | 220 | 4x5.5 | 5x5.5 | 5x5.5 | 6.3x5.5 | 6.3x5.5 | - | - |
| 33 | 330 | 5x5.5 | 5x5.5 | 6.3x5.5 | 6.3x5.5 | - | - | - |
| 47 | 470 | 5x5.5 | 6.3x5.5 | 6.3x5.5 | 6.3x5.5 | - | - | - |
| 100 | 101 | 6.3x5.5 | 6.3x5.5 | 6.3x5.5 | - | - | - | - |
| 220 | 221 | 6.3x5.5 | - | - | - | - | - | - |



DIMENSIONS (mm)

| Case Size | Dφ±0.5 | L max. | A/B±0.2 | l ± 0.2 | W | P±0.2 |
|-----------|--------|--------|---------|---------|-----------|-------|
| 4x5.5 | 4.0 | 5.5 | 4.3 | 1.8 | 0.5 ~ 0.8 | 1.0 |
| 5x5.5 | 5.0 | 5.5 | 5.3 | 2.1 | 0.5 ~ 0.8 | 1.4 |
| 6.3x5.5 | 6.3 | 5.5 | 6.6 | 2.5 | 0.5 ~ 0.8 | 2.2 |

PART NUMBER SYSTEM



Optional: Suitable for automotive equipment, sourced to special production and inspection at IATF-16949 certified production site



Surface Mount Aluminum Electrolytic Capacitors NACX 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. Z (Ω) +20°C/100kHz | Load Life Hours @ +105°C |
|--------------------------|-----------|------------|----------------------------|--|-------------------------|--------------------------|
| NACX220M6.3V4x5.5TR_F | 22 | 6.3 | 0.24 | 68 | 2.3 | 1,000 |
| NACX330M6.3V5x5.5TR13F | 33 | | 0.24 | 105 | 1.1 | 1,000 |
| NACX470M6.3V5x5.5TR13F | 47 | | 0.24 | 105 | 1.1 | 1,000 |
| NACX101M6.3V6.3x5.5TR13F | 100 | | 0.24 | 155 | 0.6 | 1,000 |
| NACX221M6.3V6.3x5.5TR13F | 220 | | 0.24 | 155 | 0.6 | 1,000 |
| NACX220M10V5x5.5TR13F | 22 | 10 | 0.20 | 105 | 1.1 | 1,000 |
| NACX330M10V5x5.5TR13F | 33 | | 0.20 | 105 | 1.1 | 1,000 |
| NACX470M10V6.3x5.5TR13F | 47 | | 0.20 | 155 | 0.6 | 1,000 |
| NACX101M10V6.3x5.5TR13F | 100 | | 0.20 | 155 | 0.6 | 1,000 |
| NACX100M16V4x5.5TR_F | 10 | 16 | 0.16 | 68 | 2.3 | 1,000 |
| NACX220M16V5x5.5TR13F | 22 | | 0.16 | 105 | 1.1 | 1,000 |
| NACX330M16V6.3x5.5TR13F | 33 | | 0.16 | 155 | 0.6 | 1,000 |
| NACX470M16V6.3x5.5TR13F | 47 | | 0.16 | 155 | 0.6 | 1,000 |
| NACX101M16V6.3x5.5TR13F | 100 | | 0.16 | 155 | 0.6 | 1,000 |
| NACX4R7M25V4x5.5TR_F | 4.7 | 25 | 0.14 | 68 | 2.3 | 1,000 |
| NACX100M25V5x5.5TR13F | 10 | | 0.14 | 105 | 1.1 | 1,000 |
| NACX220M25V6.3x5.5TR13F | 22 | | 0.14 | 155 | 0.6 | 1,000 |
| NACX330M25V6.3x5.5TR13F | 33 | | 0.14 | 155 | 0.6 | 1,000 |
| NACX470M25V6.3x5.5TR13F | 47 | | 0.14 | 155 | 0.6 | 1,000 |
| NACX1R0M35V4x5.5TR_F | 1.0 | 35 | 0.12 | 68 | 3.1 | 1,000 |
| NACX2R2M35V4x5.5TR_F | 2.2 | | 0.12 | 68 | 2.9 | 1,000 |
| NACX3R3M35V4x5.5TR_F | 3.3 | | 0.12 | 68 | 2.7 | 1,000 |
| NACX4R7M35V4x5.5TR_F | 4.7 | | 0.12 | 68 | 2.3 | 1,000 |
| NACX100M35V5x5.5TR13F | 10 | | 0.12 | 105 | 1.1 | 1,000 |
| NACX220M35V6.3x5.5TR13F | 22 | 50 | 0.12 | 155 | 0.6 | 1,000 |
| NACX1R0M50V4x5.5TR13F | 1.0 | | 0.12 | 37 | 7.4 | 1,000 |
| NACX2R2M50V4x5.5TR_F | 2.2 | | 0.12 | 45 | 6.6 | 1,000 |
| NACX3R3M50V4x5.5TR_F | 3.3 | | 0.12 | 52 | 5.4 | 1,000 |
| NACX4R7M50V5x5.5TR13F | 4.7 | | 0.12 | 75 | 2.9 | 1,000 |
| NACX100M50V6.3x5.5TR13F | 10 | 0.12 | 120 | 1.3 | 1,000 | |
| NACX1R0M63V4x5.5TR_F | 1.0 | 63 | 0.12 | 20 | 8.0 | 1,000 |
| NACX2R2M63V4x5.5TR_F | 2.2 | | 0.12 | 24 | 8.0 | 1,000 |
| NACX3R3M63V5x5.5TR13F | 3.3 | | 0.12 | 40 | 3.5 | 1,000 |
| NACX4R7M63V5x5.5TR13F | 4.7 | | 0.12 | 40 | 3.5 | 1,000 |
| NACX100M63V6.3x5.5TR13F | 10 | | 0.12 | 65 | 1.6 | 1,000 |

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

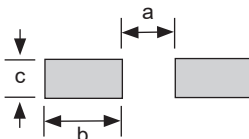
For Automotive Equipment, see part number system

RIPPLE CURRENT FREQUENCY CORRECTION FACTORS

| Capacitance (μF) | Frequency | | | |
|------------------|------------------|------------------|--------------------|------------|
| | 100Hz ≤ F < 1KHz | 1KHz ≤ F < 10KHz | 10KHz ≤ F < 100KHz | 100KHz ≤ F |
| C ≤ 1.0 | 0.70 | 0.55 | 0.85 | 1.00 |
| 1 < C ≤ 4.7 | 0.25 | 0.60 | 0.90 | 1.00 |
| 4.7 < C ≤ 47 | 0.45 | 0.75 | 0.92 | 1.00 |
| 47 < C | 0.60 | 0.85 | 0.92 | 1.00 |

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 |



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

Review & Compare Reflow Soldering Heat Limits
V-chip SMT Aluminum Electrolytic Capacitors
www.niccomp.com/RSL



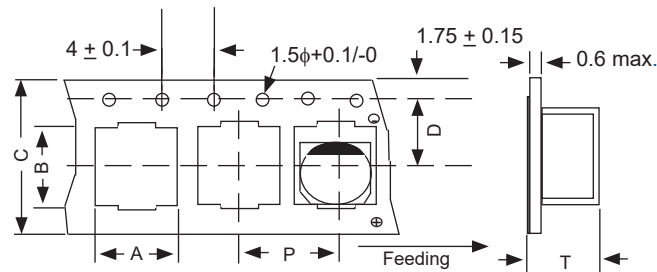
CARRIER TAPE

| Case Size | A ±0.2 | B ±0.2 | C ±0.3 | D ±0.1 | P ±0.1 | T ±0.2 |
|-----------|--------|--------|--------|--------|--------|--------|
| 4 x 5.5 | 4.7 | 4.7 | 12.0 | 5.5 | 8.0 | 5.8 |
| 5 x 5.5 | 5.7 | 5.7 | 12.0 | 5.5 | 12.0 | 5.8 |
| 6.3 x 5.5 | 7.0 | 7.0 | 16.0 | 7.5 | 12.0 | 5.8 |

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.

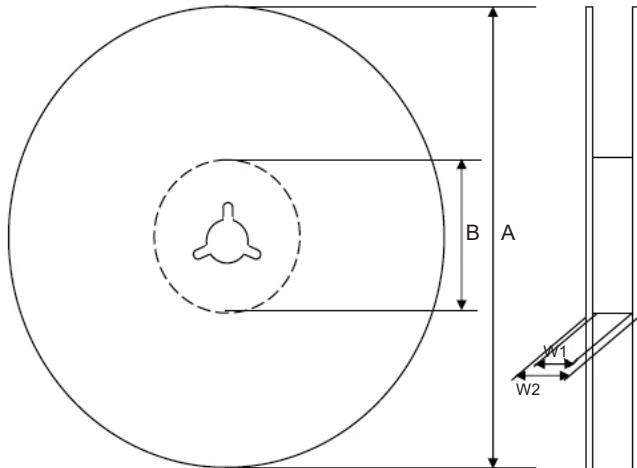
CARRIER



Surface Mount Aluminum Electrolytic Capacitors NACX Series

Preferred V-Chip 380mm Reels (TR15 suffix)

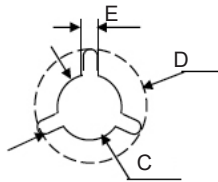
Dimensions (mm)



| Case Size | Tape Width | W1 | W2 |
|--------------|------------|-------------|-------------|
| 4x5.5, 5x5.5 | 12.0 | 12.5 ~ 14.0 | 15.5 ~ 20.0 |
| 6.3x5.5 | 16.0 | 16.5 ~ 18.0 | 19.5 ~ 24.0 |

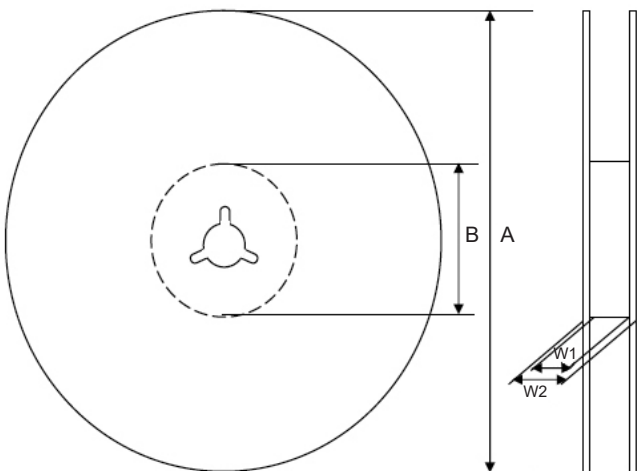
| Case Size | Tape Width | A | B | C | D | E |
|--------------|------------|------------|--------------------|-----------|-----------|-----------|
| 4x5.5, 5x5.5 | 12.0 | $\phi 380$ | $\phi 80 \sim 105$ | $\phi 13$ | $\phi 21$ | 2.0 |
| 6.3x5.5 | 16.0 | ± 2 | | ± 0.5 | ± 1.0 | ± 0.5 |

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



Optional V-Chip 13" (330mm) Reels (TR13 suffix)

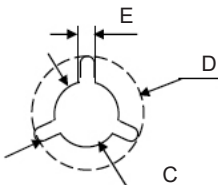
Dimensions (mm)



| Case Size | Tape Width | W1 | W2 |
|--------------|------------|-------------|-------------|
| 4x5.5, 5x5.5 | 12.0 | 12.4 ~ 14.4 | 15.5 ~ 20.0 |
| 6.3x5.5 | 16.0 | 16.4 ~ 18.4 | 19.5 ~ 24.0 |

| Case Size | Tape Width | A | B | C | D | E |
|--------------|------------|------------|--------------------|-----------|-----------|-----------|
| 4x5.5, 5x5.5 | 12.0 | $\phi 330$ | $\phi 50 \sim 105$ | $\phi 13$ | $\phi 21$ | 2.0 |
| 6.3x5.5 | 16.0 | ± 2.0 | | ± 0.5 | ± 1.0 | ± 0.5 |

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



| Case Size | Quantity Per Reel | |
|-----------|-------------------|-----------|
| | 13" Reel | 15" Reel |
| 4x5.5 | 1,500 pcs | 2,000 pcs |
| 5x5.5 | 1,000 pcs | 1,000 pcs |
| 6.3x5.5 | 1,000 pcs | 1,000 pcs |

