

Surface Mount Aluminum Electrolytic Capacitors NACVF Series

FEATURES

- CYLINDRICAL V-CHIP CONSTRUCTION FOR SURFACE MOUNT
- HIGH VOLTAGE (160VDC AND 450VDC)
- 10mm x 14mm ~ 18mm x 22mm CASE SIZES
- LONG LIFE (5000 HOURS AT +105°C)
- DESIGNED FOR REFLOW SOLDERING

**RoHS
Compliant**
includes all homogeneous materials

*See Part Number System for Details

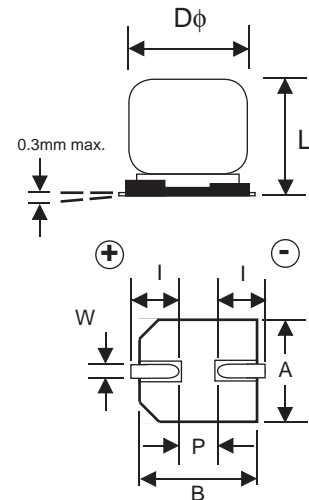


CHARACTERISTICS

| | | | | | | | |
|---|--|--|--------|--------|--------|--------|--------|
| Rated Voltage Range | | 160 ~ 450Vdc | | | | | |
| Rated Capacitance Range | | 2.2 ~ 100 μ F | | | | | |
| Operating Temperature Range | | -40°C ~ +105°C | | | | | |
| Capacitance Tolerance | | \pm 20% (M) | | | | | |
| Max. Leakage Current After 2 Minutes | | 0.06CV + 10 μ A | | | | | |
| Max. Tan δ at 120Hz & 20°C | | 160Vdc | 200Vdc | 250Vdc | 350Vdc | 400Vdc | 450Vdc |
| | | 0.15 | | | 0.20 | 0.24 | |
| Low Temperature Stability (Impedance Ratio @ 120Hz) | Z -25°C/+20°C | 2 | 2 | 3 | 5 | 6 | 6 |
| | Load Life @ 105°C & Rated Voltage 10x14mm 3,000 hours 10x18mm 4,000 hours 12.5 ~ 18mm Dia 5,000 hours | Capacitance Change Within \pm 20% of initial measured value | | | | | |
| | | Tan δ Less than 200% of specified value | | | | | |
| | | Leakage Current Less than the specified maximum value | | | | | |
| Resistance to Soldering Heat Within the Recommended Reflow Conditions | Capacitance Change | Within \pm 10% of initial measured value | | | | | |
| | Tan δ | Less than the specified maximum value | | | | | |
| | Leakage Current | Less than the specified maximum value | | | | | |

STANDARD PRODUCT AND CASE SIZE TABLE D ϕ xL (mm)

| Cap (μ F) | Code | Working Voltage (Vdc) | | | | | |
|-------------------|------|-----------------------|-----------|---------|---------|---------|-----------|
| | | 160 | 200 | 250 | 350 | 400 | 450 |
| 2.2 | 2R2 | - | - | - | - | - | 10 x 14 |
| 3.3 | 3R3 | - | - | - | 10 x 14 | 10 x 14 | 10 x 18 |
| 4.7 | 4R7 | - | - | - | 10 x 18 | 10 x 18 | 12.5 x 17 |
| 10 | 100 | 10 x 14 | 10 x 18 | 10 x 18 | 16 x 17 | 16 x 17 | 18 x 17 |
| 22 | 220 | - | 12.5 x 17 | 16 x 17 | 18 x 17 | 16 x 22 | 18 x 22 |
| 33 | 330 | 12.5 x 17 | 16 x 17 | 18 x 17 | 16 x 22 | 18 x 22 | - |
| 47 | 470 | 16 x 17 | 18 x 17 | 16 x 22 | 18 x 22 | - | - |
| 68 | 680 | 18 x 17 | 16 x 22 | 18 x 22 | - | - | - |
| | | 18 x 22 | | | | | |
| 100 | 101 | 18 x 22 | 18 x 22 | - | - | - | - |

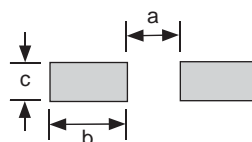


DIMENSIONS (mm)

| Case Size | D ϕ \pm 0.5 | L max. | A \pm 0.2 | B \pm 0.2 | I \pm 0.2 | W | P \pm 0.2 |
|-------------|--------------------|--------|-------------|-------------|-------------|-----------|-------------|
| 10 x 14T2 | 10.0 | 14.0 | 10.3 | 10.3 | 3.5 | 0.7 ~ 1.4 | 4.6 |
| 10 x 18T2 | 10.0 | 18.5 | 10.3 | 10.3 | 3.5 | 1.1 ~ 1.4 | 4.6 |
| 12.5 x 17T2 | 12.5 | 17.5 | 13.5 | 13.5 | 4.7 | 0.6 ~ 1.2 | 4.4 |
| 16 x 17T2 | 16.0 | 17.5 | 17.0 | 17.0 | 5.5 | 0.9 ~ 1.5 | 6.7 |
| 18 x 17T2 | 18.0 | 17.5 | 19.0 | 19.0 | 6.5 | 0.9 ~ 1.5 | 6.7 |
| 18 x 22T2 | 18.0 | 22.5 | 19.0 | 19.0 | 6.5 | 0.9 ~ 1.5 | 6.7 |

RECOMMENDED LAND PATTERN DIMENSIONS (mm)

| Case Size | a | b | c |
|-------------|-----|-----|-----|
| 10 ϕ | 4.0 | 4.5 | 2.0 |
| 12.5 ϕ | 4.0 | 5.7 | 2.0 |
| 16 ϕ | 6.0 | 6.5 | 2.5 |
| 18 ϕ | 6.0 | 7.5 | 2.5 |



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.niccomp.com/precautions
If in doubt or uncertainty, please review your specific application - process details with NIC's technical support personnel: tpmg@niccomp.com



Surface Mount Aluminum Electrolytic Capacitors NACVF Series

STANDARD VALUES, CASE SIZES AND SPECIFICATIONS

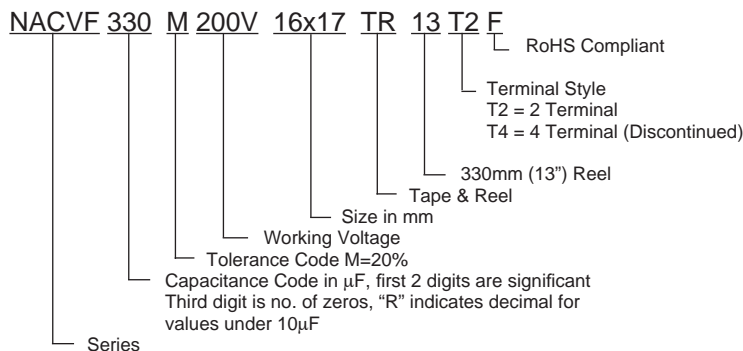
| NIC Part Number | Cap. (μF) | W.V. (Vdc) | Dissipation Factor (Tan δ) | Max. Ripple Current (mA) +105°C/100KHz | Max. ESR (Ω) +20°C/120Hz | Load Life Hours @ +105°C |
|-----------------------------|-----------|------------|----------------------------|--|--------------------------|--------------------------|
| NACVF100M160V10X14TR13T2F | 10 | 160 | 0.15 | 70 | 24.9 | 3,000 |
| NACVF330M160V12.5X17TR13T2F | 33 | | 0.15 | 470 | 7.55 | 5,000 |
| NACVF470M160V16X17TR13T2F | 47 | | 0.15 | 600 | 5.30 | 5,000 |
| NACVF680M160V18X17TR13T2F | 68 | | 0.15 | 750 | 3.66 | 5,000 |
| NACVF680M160V18X22TR13T2F | | | | | | |
| NACVF101M160V18X22TR13T2F | 100 | 0.15 | 1060 | 2.49 | 5,000 | |
| NACVF100M200V10X18TR13T2F | 10 | 200 | 0.15 | 80 | 24.9 | 4,000 |
| NACVF220M200V12.5X17TR13T2F | 22 | | 0.15 | 470 | 11.3 | 5,000 |
| NACVF330M200V16X17TR13T2F | 33 | | 0.15 | 600 | 7.55 | 5,000 |
| NACVF470M200V18X17TR13T2F | 47 | | 0.15 | 600 | 5.30 | 5,000 |
| NACVF680M200V16X22TR13T2F | 68 | | 0.15 | 750 | 3.66 | 5,000 |
| NACVF101M200V18X22TR13T2F | 100 | 0.15 | 1060 | 2.49 | 5,000 | |
| NACVF100M250V10X18TR13T2F | 10 | 250 | 0.15 | 88 | 24.9 | 4,000 |
| NACVF220M250V16X17TR13T2F | 22 | | 0.15 | 560 | 11.3 | 5,000 |
| NACVF330M250V18X17TR13T2F | 33 | | 0.15 | 560 | 7.55 | 5,000 |
| NACVF470M250V16X22TR13T2F | 47 | | 0.15 | 710 | 5.30 | 5,000 |
| NACVF680M250V18X22TR13T2F | 68 | | 0.15 | 990 | 3.66 | 5,000 |
| NACVF3R3M350V10X14TR13T2F | 3.3 | 350 | 0.20 | 38 | 101 | 3,000 |
| NACVF4R7M350V10X18TR13T2F | 4.7 | | 0.20 | 50 | 70.7 | 3,000 |
| NACVF100M350V16X17TR13T2F | 10 | | 0.20 | 270 | 33.2 | 5,000 |
| NACVF220M350V18X17TR13T2F | 22 | | 0.20 | 350 | 15.1 | 5,000 |
| NACVF330M350V16X22TR13T2F | 33 | | 0.20 | 480 | 10.1 | 5,000 |
| NACVF470M350V18X22TR13T2F | 47 | 0.20 | 670 | 7.07 | 5,000 | |
| NACVF3R3M400V10X14TR13T2F | 3.3 | 400 | 0.24 | 40 | 121 | 3,000 |
| NACVF4R7M400V10X18TR13T2F | 4.7 | | 0.24 | 50 | 84.8 | 4,000 |
| NACVF100M400V16X17TR13T2F | 10 | | 0.24 | 250 | 39.9 | 5,000 |
| NACVF220M400V16X22TR13T2F | 22 | | 0.24 | 410 | 18.1 | 5,000 |
| NACVF330M400V18X22TR13T2F | 33 | | 0.24 | 600 | 12.1 | 5,000 |
| NACVF2R2M450V10X14TR13T2F | 2.2 | 450 | 0.24 | 29 | 181 | 3,000 |
| NACVF3R3M450V10X18TR13T2F | 3.3 | | 0.24 | 41 | 121 | 4,000 |
| NACVF4R7M450V12.5X17TR13T2F | 4.7 | | 0.24 | 49 | 84.8 | 5,000 |
| NACVF100M450V18X17TR13T2F | 10 | | 0.24 | 310 | 39.9 | 5,000 |
| NACVF220M450V18X22TR13T2F | 22 | | 0.24 | 560 | 18.1 | 5,000 |

RIPPLE CURRENT FREQUENCY CORRECTION FACTORS

| Voltage (Vdc) | Frequency (Hz) | | | |
|---------------|----------------|------|-----------|------------|
| | 120 | 1K | 10K ~ 30K | 31K ~ 100K |
| 160V ~ 250V | 0.55 | 0.85 | 0.90 | 1.00 |
| 350V ~ 450V | 0.50 | 0.80 | 0.90 | 1.00 |

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

PART NUMBER SYSTEM



Surface Mount Aluminum Electrolytic Capacitors NACVF Series

CARRIER TAPE

| Case Size | A ±0.5 | B ±0.2 | C ±0.3 | D ±0.1 | P ±0.1 | T ±0.2 |
|-------------|--------|--------|--------|--------|--------|--------|
| 10 x 14 | 10.7 | 10.7 | 32.0 | 14.2 | 20.0 | 14.5 |
| 10 x 18 | 10.7 | 10.7 | 32.0 | 14.2 | 20.0 | 18.5 |
| 12.5 x 17T2 | 14.0 | 14.0 | 32.0 | 14.2 | 24.0 | 17.5 |
| 16 x 17T2 | 17.5 | 17.5 | 44.0 | 20.2 | 28.0 | 17.5 |
| 18 x 17T2 | 19.5 | 19.5 | 44.0 | 20.2 | 32.0 | 17.5 |
| 18 x 22T2 | 19.5 | 19.5 | 44.0 | 20.2 | 32.0 | 22.5 |

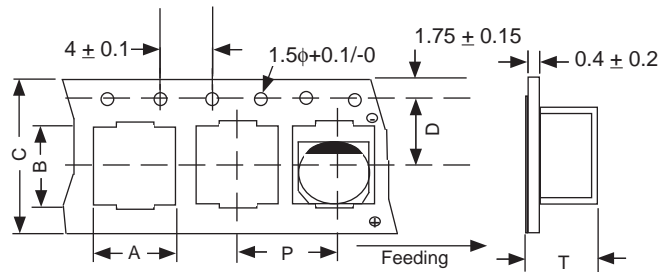
TR13 330mm (13") REEL TR15 380mm (15") REEL

| Case Size | W ±1.0 | Quantity Per Reel | |
|-------------|--------|-------------------|----------|
| | | 13" Reel | 15" Reel |
| 10 x 14 | 34.0 | 250 pcs | 300 pcs |
| 10 x 18 | 34.0 | 250 pcs | 300 pcs |
| 12.5 x 17T2 | 34.0 | 150 pcs | - |
| 16 x 17T2 | 46.0 | 125 pcs | - |
| 18 x 17T2 | 46.0 | 125 pcs | - |
| 18 x 22T2 | 46.0 | 75 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

