

Surface Mount Aluminum Electrolytic Capacitors NACEW Series

FEATURES

- CYLINDRICAL V-CHIP CONSTRUCTION
- WIDE TEMPERATURE -55 ~ +105°C
- ANTI-SOLVENT (2 MINUTES)
- DESIGNED FOR REFLOW SOLDERING

RoHS Compliant

includes all homogeneous materials

*See Part Number System for Details



CHARACTERISTICS

| | | | | | | | | | | |
|---|---|--------------------|------|------|--|------|------|------|------|--|
| Rated Voltage Range | 6.3 ~ 100Vdc** | | | | | | | | | |
| Rate Capacitance Range | 0.1 ~ 6,800µF | | | | | | | | | |
| Operating Temp. Range | -55°C ~ +105°C (100V -40°C ~ +105 °C) | | | | | | | | | |
| Capacitance Tolerance | ±20% (M), ±10% (K)* | | | | | | | | | |
| Max. Leakage Current After 2 Minutes @ 20°C | 0.01CV or 3µA whichever is greater | | | | | | | | | |
| Max. Tan δ @ 120Hz/20°C | W.V. (Vdc) | 6.3 | 10 | 16 | 25 | 35 | 50 | 63 | 100 | |
| | S.V. (Vdc) | 8 | 13 | 20 | 32 | 44 | 63 | 79 | 125 | |
| | 4 ~ 6.3mm Dia. | 0.24 | 0.20 | 0.16 | 0.14 | 0.12 | 0.10 | 0.12 | 0.10 | |
| | 8 & larger | 0.28 | 0.24 | 0.20 | 0.16 | 0.14 | 0.12 | 0.12 | 0.10 | |
| Low Temperature Stability Impedance Ratio @ 120Hz | W.V. (Vdc) | 6.3 | 10 | 16 | 25 | 35 | 50 | 63 | 100 | |
| | Z-40°C/Z+20°C | 3 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | |
| | Z-55°C/Z+20°C | 8 | 6 | 4 | 4 | 3 | 3 | 3 | - | |
| Load Life Test | 4 ~ 6.3mm Dia. & 10x8mm +105°C 1,000 hours +95°C 2,000 hours +85°C 4,000 hours | Capacitance Change | | | Within ± 25% of initial measured value | | | | | |
| | 8 ~ 16mm Dia. +105°C 2,000 hours +95°C 4,000 hours +85°C 8,000 hours | Tan δ | | | Less than 200% of specified max. value | | | | | |
| | | Leakage Current | | | Less than specified max. value | | | | | |

* Optional ± 10% (K) Tolerance - see case size chart.**

For higher voltages, 200V and 400V, see NACV series.

MAXIMUM PERMISSIBLE RIPPLE CURRENT (mA rms AT 120Hz AND 105°C)

| Cap. (µF) | Working Voltage (Vdc) | | | | | | | |
|-----------|-----------------------|-----|-----|-----|-----|-----|-----|-----|
| | 6.3 | 10 | 16 | 25 | 35 | 50 | 63 | 100 |
| 0.1 | - | - | - | - | - | 0.7 | 0.7 | - |
| 0.22 | - | - | - | - | - | 1.6 | 1.6 | - |
| 0.33 | - | - | - | - | - | 2.5 | 2.5 | - |
| 0.47 | - | - | - | - | - | 3.5 | 3.5 | - |
| 1.0 | - | - | - | - | - | 7.0 | 7.0 | 7.0 |
| 2.2 | - | - | - | - | - | 11 | 11 | 14 |
| 3.3 | - | - | - | - | - | 13 | 14 | 20 |
| 4.7 | - | - | - | 13 | 14 | 16 | 16 | 25 |
| 10 | - | - | 18 | 20 | 21 | 24 | 24 | 35 |
| 22 | 22 | 25 | 27 | 36 | 38 | 32 | 49 | 84 |
| 33 | 27 | 30 | 40 | 44 | 42 | 60 | 112 | 133 |
| 47 | 33 | 41 | 48 | 48 | 49 | 63 | 119 | 240 |
| 100 | 50 | - | 60 | 91 | 84 | 140 | 196 | - |
| 150 | 55 | 62 | 95 | 140 | 155 | - | - | 500 |
| 220 | 67 | 105 | 105 | 175 | 190 | 220 | 287 | - |
| 330 | 105 | 195 | 195 | 220 | 300 | - | - | - |
| 470 | 210 | 210 | 230 | 300 | 410 | - | 630 | - |
| 1000 | 280 | 310 | - | 460 | - | 655 | - | - |
| 1500 | 310 | - | 500 | - | 740 | - | - | - |
| 2200 | - | 510 | - | 805 | - | - | - | - |
| 3300 | 520 | - | 840 | - | - | - | - | - |
| 4700 | - | 880 | - | - | - | - | - | - |
| 6800 | 930 | - | - | - | - | - | - | - |

MAXIMUM ESR (Ω AT 120Hz AND 20°C)

| Cap. (µF) | Working Voltage (Vdc) | | | | | | | |
|-----------|-----------------------|------|------|------|------|------|------|------|
| | 6.3 | 10 | 16 | 25 | 35 | 50 | 63 | 100 |
| 0.1 | - | - | - | - | - | 1660 | 1990 | - |
| 0.22 | - | - | - | - | - | 754 | 905 | - |
| 0.33 | - | - | - | - | - | 503 | 604 | - |
| 0.47 | - | - | - | - | - | 353 | 424 | - |
| 1.0 | - | - | - | - | - | 166 | 199 | 166 |
| 2.2 | - | - | - | - | - | 75.4 | 90.5 | 75.4 |
| 3.3 | - | - | - | - | - | 50.3 | 60.3 | 50.3 |
| 4.7 | - | - | - | 49.4 | 42.3 | 35.3 | 42.3 | 35.3 |
| 10 | - | - | 26.5 | 23.2 | 19.9 | 16.6 | 19.9 | 16.6 |
| 22 | 18.1 | 15.1 | 12.1 | 10.6 | 9.05 | 7.64 | 9.04 | 7.64 |
| 33 | 12.1 | 10.1 | 8.04 | 7.04 | 6.04 | 5.03 | 6.03 | 5.03 |
| 47 | 8.47 | 7.06 | 5.65 | 4.95 | 4.24 | 3.53 | 4.24 | 3.53 |
| 100 | 3.98 | - | 2.66 | 2.32 | 2.32 | 1.99 | 1.99 | - |
| 150 | 2.66 | 2.21 | 1.77 | 1.77 | 1.55 | - | - | 1.10 |
| 220 | 1.81 | 1.51 | 1.21 | 1.21 | 1.06 | 0.91 | 0.91 | - |
| 330 | 1.21 | 1.21 | 1.00 | 0.80 | 0.70 | - | - | - |
| 470 | 0.99 | 0.85 | 0.71 | 0.57 | 0.49 | - | 0.42 | - |
| 1000 | 0.46 | 0.40 | - | 0.27 | - | 0.20 | - | - |
| 1500 | 0.31 | - | 0.23 | - | 0.15 | - | - | - |
| 2200 | - | 0.18 | - | 0.14 | - | - | - | - |
| 3300 | 0.14 | - | 0.12 | - | - | - | - | - |
| 4700 | - | 0.11 | - | - | - | - | - | - |
| 6800 | 0.093 | - | - | - | - | - | - | - |

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

RIPPLE CURRENT FREQUENCY CORRECTION FACTOR

| Frequency (Hz) | f ≤ 100 | 100 > f ≤ 1K | 1K > f ≤ 10K | f ≥ 100K |
|-------------------|---------|--------------|--------------|----------|
| Correction Factor | 0.8 | 1.0 | 1.3 | 1.5 |



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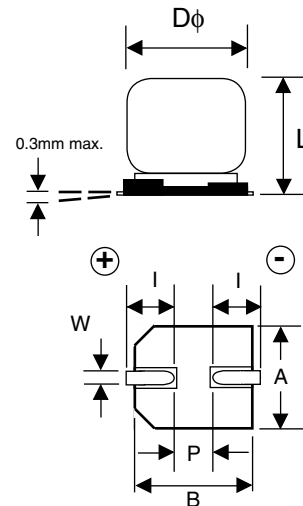
STANDARD PRODUCT AND CASE SIZE TABLE DφxL (mm)

| Cap. (μF) | Code | Working Voltage (Vdc) | | | | | | | |
|-----------|------|-----------------------|----------|----------|----------|----------|----------|----------|----------|
| | | 6.3 | 10 | 16 | 25 | 35 | 50 | 63 | 100 |
| 0.1 | R10 | - | - | - | - | - | 4x5.5* | 4x5.5* | - |
| 0.22 | R22 | - | - | - | - | - | 4x5.5* | 4x5.5* | - |
| 0.33 | R33 | - | - | - | - | - | 4x5.5* | 4x5.5* | - |
| 0.47 | R47 | - | - | - | - | - | 4x5.5* | 4x5.5* | - |
| 1.0 | 1R0 | - | - | - | - | - | 4x5.5* | 4x5.5* | 4x6.3* |
| 2.2 | 2R2 | - | - | - | - | - | 4x5.5* | 4x5.5* | 6.3x6.3* |
| 3.3 | 3R3 | - | - | - | - | - | 4x5.5* | 5x5.5* | 6.3x6.3* |
| 4.7 | 4R7 | - | - | - | 4x5.5* | 4x5.5* | 5x5.5* | 5x5.5* | 6.3x6.3* |
| 10 | 100 | - | - | 4x5.5* | 5x5.5* | 5x5.5* | 6.3x5.5* | 6.3x5.5* | 6.3x8* |
| 22 | 220 | 4x5.5* | 5x5.5* | 5x5.5* | 6.3x5.5* | 6.3x5.5* | 6.3x6.3* | 6.3x8* | 8x10.5* |
| 33 | 330 | 5x5.5* | 5x5.5* | 6.3x5.5* | 6.3x5.5* | 6.3x6.3* | 6.3x8* | 8x10.5* | 10x10.5* |
| 47 | 470 | 5x5.5* | 6.3x5.5* | 6.3x5.5* | 6.3x6.3* | 6.3x6.3* | 6.3x8* | 8x10.5* | 12.5x14 |
| 100 | 101 | 6.3x5.5* | - | 6.3x5.5* | 6.3x8* | 6.3x8 | 8x10.5* | 10x10.5* | - |
| 150 | 151 | 6.3x5.5* | 6.3x6.3* | 6.3x8* | 8x10.5* | 8x10.5* | 10x8* | - | 16x17 |
| 220 | 221 | 6.3x6.3* | 6.3x8* | 6.3x8* | 8x10.5* | 8x10.5 | 10x10.5 | 12.5x14 | - |
| 330 | 331 | 6.3x8* | 8x10.5* | 8x10.5* | 10x8* | 10x10.5 | - | - | - |
| 470 | 471 | 8x10.5 | 8x10.5 | 8x10.5 | 10x10.5* | 12.5x14 | - | 16x17 | - |
| 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 values available in 10% tolerance

DIMENSIONS (mm)

| Case Size | Dφ ±0.5 | L max. | A ±0.2 | B ±0.2 | I ±0.2 | W | P ±0.2 |
|-----------|---------|--------|--------|--------|--------|-----------|--------|
| 4 x 5.5 | 4.0 | 5.5 | 4.3 | 4.3 | 1.8 | 0.5 ~ 0.8 | 1.0 |
| 5 x 5.5 | 5.0 | 5.5 | 5.3 | 5.3 | 2.1 | 0.5 ~ 0.8 | 1.4 |
| 6.3 x 5.5 | 6.3 | 5.5 | 6.6 | 6.6 | 2.5 | 0.5 ~ 0.8 | 2.2 |
| 6.3 x 6.3 | 6.3 | 6.3 | 6.6 | 6.6 | 2.5 | 0.5 ~ 0.8 | 2.2 |
| 6.3 x 8 | 6.3 | 8.0 | 6.6 | 6.6 | 2.5 | 0.5 ~ 0.8 | 2.2 |
| 8 x 6.5 | 8.0 | 6.5 | 8.3 | 8.3 | 3.4 | 0.5 ~ 0.8 | 2.2 |
| 8 X 10.5 | 8.0 | 10.5 | 8.3 | 8.3 | 2.9 | 0.7 ~ 1.0 | 3.2 |
| 10 x 8 | 10.0 | 8.0 | 10.3 | 10.3 | 3.2 | 0.7 ~ 1.4 | 4.6 |
| 10 x 10.5 | 10.0 | 10.5 | 10.3 | 10.3 | 3.2 | 0.7 ~ 1.4 | 4.6 |
| 12.5 x 14 | 12.5 | 14.0 | 12.8 | 12.8 | 4.5 | 0.6 ~ 1.4 | 4.6 |
| 16 x 17 | 16.0 | 17.5 | 17.0 | 17.0 | 5.5 | 0.9 ~ 1.5 | 6.7 |



PART NUMBER SYSTEM

