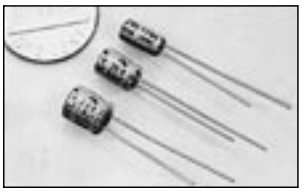
# Miniature Aluminum Electrolytic Capacitors

NLES Series

SUPER LOW PROFILE, LOW LEAKAGE, ELECTROLYTIC CAPACITORS



## FEATURES

- LOW LEAKAGE CURRENT
- 5mm HEIGHT

**RoHS Compliant**
includes all homogeneous materials
*See Part Number System for Details

## CHARACTERISTICS

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Rated Voltage Range | 6.3 ~ 50Vdc | | | | | | |
| Capacitance Range | 0.1 ~ 100µF | | | | | | |
| Operating Temperature Range | -40~+85°C | | | | | | |
| Capacitance Tolerance | ±20% (M) | | | | | | |
| Max. Leakage Current After 1 minute At 20°C | 0.002CV, or 0.4µA, whichever is greater | | | | | | |
| Surge Voltage & Max. Tan δ | W.V. (Vdc) | 6.3 | 10 | 16 | 25 | 35 | 50 |
| | S.V. (Vdc) | 8 | 13 | 20 | 32 | 44 | 63 |
| | Tan d at 120Hz/20°C | 0.24 | 0.20 | 0.16 | 0.14 | 0.12 | 0.10 |
| Low Temperature Stability (Impedance Ratio at 120Hz) | W.V. (Vdc) | 6.3 | 10 | 16 | 25 | 35 | 50 |
| | Z-25°C/Z+20°C | 4 | 3 | 2 | 2 | 2 | 2 |
| | Z-40°C/Z+20°C | 8 | 6 | 6 | 4 | 3 | 3 |
| Load Life Test 85°C 1,000 Hours | Capacitance Change | Within ±20% of initial measured value | | | | | |
| | Tan δ | Less than 200% of specified value | | | | | |
| | Leakage Current | Less than specified value | | | | | |

## MAXIMUM PERMISSIBLE RIPPLE CURRENT (mA rms AT 120Hz AND 85°C)

| Cap. (µF) | Working Voltage (Vdc) | | | | | |
|---|---|---|---|---|---|---|
| | 6.3 | 10 | 16 | 25 | 35 | 50 |
| 0.1 | - | - | - | - | - | 1.0 |
| 0.22 | - | - | - | - | - | 2.0 |
| 0.33 | - | - | - | - | - | 2.8 |
| 0.47 | - | - | - | - | - | 4.0 |
| 1.0 | - | - | - | - | - | 4.0 |
| 2.2 | - | - | - | - | - | 8.5 |
| 3.3 | - | - | - | - | - | 13 |
| 4.7 | - | - | - | 16 | 18 | 17 |
| 10 | - | - | 23 | 27 | 29 | 20 |
| 22 | 28 | 33 | 37 | 42 | 46 | - |
| 33 | 37 | 41 | 49 | 52 | - | - |
| 47 | 45 | 52 | 58 | - | - | - |
| 100 | 70 | - | - | - | - | - |

## MAXIMUM E.S.R. (Ω AT 120HZ AND 20°C)

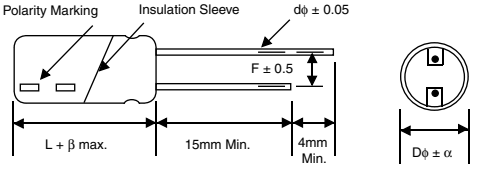
| Cap. (µF) | Working Voltage (Vdc) | | | | | |
|---|---|---|---|---|---|---|
| | 6.3 | 10 | 16 | 25 | 35 | 50 |
| 0.1 | - | - | - | - | - | 1660 |
| 0.22 | - | - | - | - | - | 755 |
| 0.33 | - | - | - | - | - | 503 |
| 0.47 | - | - | - | - | - | 353 |
| 1.0 | - | - | - | - | - | 166 |
| 2.2 | - | - | - | - | - | 75.5 |
| 3.3 | - | - | - | - | - | 50.3 |
| 4.7 | - | - | - | 49.4 | 42.4 | 35.3 |
| 10 | - | - | 26.6 | 23.3 | 19.9 | 16.6 |
| 22 | 18.1 | 15.1 | 12.1 | 10.6 | 9.05 | - |
| 33 | 12.1 | 10.1 | 8.05 | 7.04 | - | - |
| 47 | 8.47 | 7.06 | 5.64 | - | - | - |
| 100 | 3.98 | - | - | - | - | - |

## STANDARD VALUES AND CASE SIZE TABLE Dϕ x L(mm)

| Cap.(µF) | Code | Working Voltage (Vdc) | | | | | |
|---|---|---|---|---|---|---|---|
| | | 6.3 | 10 | 16 | 25 | 35 | 50 |
| 0.1 | R10 | - | - | - | - | - | 4 x 5 |
| 0.22 | R22 | - | - | - | - | - | 4 x 5 |
| 0.33 | R33 | - | - | - | - | - | 4 x 5 |
| 0.47 | R47 | - | - | - | - | - | 4 x 5 |
| 1.0 | 1R0 | - | - | - | - | - | 4 x 5 |
| 2.2 | 2R2 | - | - | - | - | - | 4 x 5 |
| 3.3 | 3R3 | - | - | - | - | - | 4 x 5 |
| 4.7 | 4R7 | - | - | - | 4 x 5 | 4 x 5 | 5 x 5 |
| 10 | 100 | - | - | 4 x 5 | 5 x 5 | 5 x 5 | 6.3 x 5 |
| 22 | 220 | 4 x 5 | 5 x 5 | 5 x 5 | 6.3 x 5 | 6.3 x 5 | - |
| 33 | 330 | 5 x 5 | 5 x 5 | 6.3 x 5 | 6.3 x 5 | - | - |
| 47 | 470 | 5 x 5 | 6.3 x 5 | 6.3 x 5 | - | - | - |
| 100 | 101 | 6.3 x 5 | - | - | - | - | - |

## LEAD SPACING AND DIAMETER (mm)

| Case Dia. (DØ) | 4 | 5 | 6.3 |
|---|---|---|---|
| Leads Dia. (dØ) | 0.45 | 0.45 | 0.45 |
| Lead Spacing (F) | 1.5 | 2.0 | 2.5 |
| Dim. α | 0.5 | 0.5 | 0.5 |
| Dim. β | 1.0 | 1.0 | 1.0 |




## PART NUMBER SYSTEM

NLE-S 100 M 25V 5x5 F

- F — RoHS Compliant
- 5x5 — Size (DØ x L)
- 25V — Rated Voltage
- M — Tolerance Code
- 100 — Capacitance Code
- NLE-S — Series

## 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**