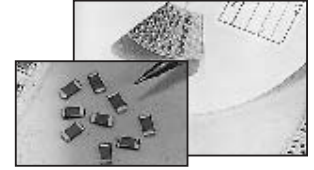


FEATURES

- HIGH VOLTAGE 200Vdc ~ 3KVdc
- NPO AND X7R DIELECTRICS
- 0603, 0805, 1206, 1210, 1808 AND 1812 SIZES
- NICKEL BARRIER TERMINATION AND EXCELLENT MECHANICAL STRENGTH

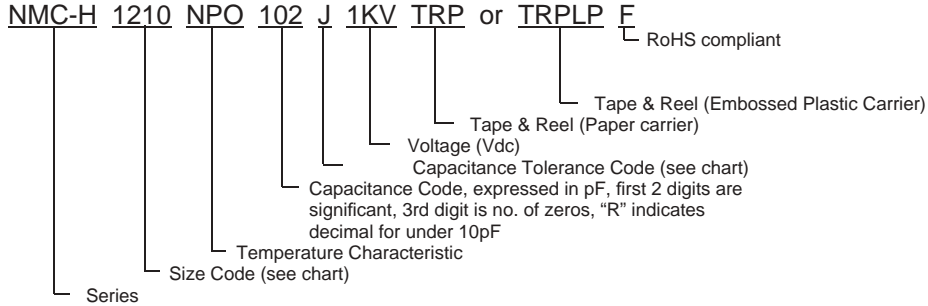
RoHS Compliant
includes all homogeneous materials

*See Part Number System for Details

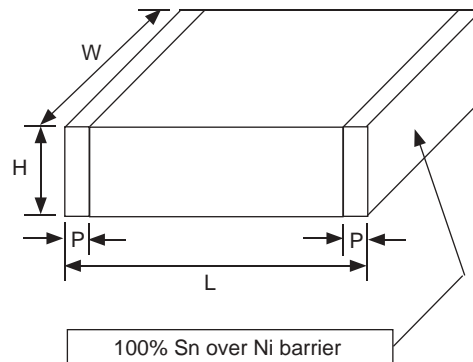


| SPECIFICATIONS | NPO | X7R |
|---------------------------------|---|-------------------------|
| Operating Temperature Range | -55°C ~ +125°C | -55°C ~ +125°C |
| Temperature Characteristic | ±30ppm | ±15% |
| Dissipation Factor | ≤ 0.1% | ≤ 2.5% |
| Insulation Resistance | ≥ 500MegΩ or 500MegΩ-μF whichever is less Test Method: Voltage rating ≤ 500V measured after 1 minute at rated voltage, Voltage rating > 500V measured after 1 minute at 500V | |
| Capacitance Range | 0.22pF ~ 0.0056μF | 150pF ~ 0.47μF |
| Capacitance Tolerance | ±0.1pF(B), ±0.25pF(C), ±0.5pF(D) ±1%(F), ±2%(G), ±5%(J), ±10%(K), ±20(M) | ±5%(J), ±10%(K), ±20(M) |
| Rated Voltage | 250Vdc ~ 3KVdc | |
| Dielectric Withstanding Voltage | Working Voltage 200 & 250Vdc x 1.5 + 100Vdc for 5 seconds Working Voltage 500Vdc x 1.5 for 5 seconds Working Voltage greater than 500Vdc x 1.2 for 5 seconds | |
| Test Conditions (C & DF) | C ≤ 1000pF = 1MHz, 1Vrms @ 25°C C ≤ 1000pF = 1KHz, 1Vrms @ 25°C | 1KHz, 1Vrms @ 25°C |

PART NUMBER SYSTEM



CONSTRUCTION



NPO-HIGH VOLTAGE SIZE CHART (mm)

| EIA Case Size | 0603 | | 0805 | | | 1206 | | | | 1210 | | | | | | |
|-----------------------|-----------------------|--|-------------|--|-----|-------------|--|-----|--|-------------|-----|--|-----|--|--|--|
| Length (L) | 1.6 ± 0.10 | | 2.0 ± 0.15 | | | 3.2 ± 0.15 | | | | 3.2 ± 0.30 | | | | | | |
| Width (W) | 0.80 ± 0.10 | | 1.25 ± 0.10 | | | 1.6 ± 0.20 | | | | 2.5 ± 0.20 | | | | | | |
| Thickness (T) | 0.90 max. | | 1.45 max. | | | 1.80 max. | | | | 2.60 max. | | | | | | |
| Termination Width (P) | 0.25 ~ 0.65 | | 0.25 ~ 0.75 | | | 0.25 ~ 0.80 | | | | 0.25 ~ 1.00 | | | | | | |
| Capacitance | Working Voltage (Vdc) | | | | | | | | | | | | | | | |
| | 200 | | 250 | | 500 | 200 | | 250 | | 500 | 1KV | | 2KV | | | |
| 0.22pF ~ 8.2pF | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | | | |
| 33 | | | | | | | | | | | | | | | | |
| 39 | | | | | | | | | | | | | | | | |
| 47 | | | | | | | | | | | | | | | | |
| 56 | | | | | | | | | | | | | | | | |
| 68 | | | | | | | | | | | | | | | | |
| 82 | | | | | | | | | | | | | | | | |
| 100 | | | | | | | | | | | | | | | | |
| 120 | | | | | | | | | | | | | | | | |
| 150 | | | | | | | | | | | | | | | | |
| 180 | | | | | | | | | | | | | | | | |
| 220 | | | | | | | | | | | | | | | | |
| 270 | | | | | | | | | | | | | | | | |
| 330 | | | | | | | | | | | | | | | | |
| 390 | | | | | | | | | | | | | | | | |
| 470 | | | | | | | | | | | | | | | | |
| 560 | | | | | | | | | | | | | | | | |
| 680 | | | | | | | | | | | | | | | | |
| 820 | | | | | | | | | | | | | | | | |
| 0.001µF | | | | | | | | | | | | | | | | |
| 0.0012 | | | | | | | | | | | | | | | | |
| 0.0015 | | | | | | | | | | | | | | | | |
| 0.0018 | | | | | | | | | | | | | | | | |
| 0.0022 | | | | | | | | | | | | | | | | |
| 0.0027 | | | | | | | | | | | | | | | | |
| 0.0033 | | | | | | | | | | | | | | | | |
| 0.0039 | | | | | | | | | | | | | | | | |
| 0.0047 | | | | | | | | | | | | | | | | |
| 0.0068 | | | | | | | | | | | | | | | | |
| 0.0082 | | | | | | | | | | | | | | | | |
| 0.01 | | | | | | | | | | | | | | | | |

NPO-HIGH VOLTAGE SIZE CHART (mm)

| EIA Case Size | 1808 | | | | | | 1812 | | | | | | 1825 | | | | 2220 | | | 2225 | | |
|-----------------------|-----------------------|-----|-----|-----|-----|-----|-------------|-----|-----|-----|-----|-----|-------------|-----|----|----|-------------|-----|-----|-------------|--|--|
| Length (L) | 4.6 ± 0.40 | | | | | | 4.6 ± 0.30 | | | | | | 4.6 ± 0.30 | | | | 5.7 ± 0.40 | | | 5.70 ± 0.40 | | |
| Width (W) | 2.0 ± 0.30 | | | | | | 3.2 ± 0.30 | | | | | | 6.35 ± 0.40 | | | | 5.00 ± 0.40 | | | 6.35 ± 0.40 | | |
| Thickness (T) | 2.20 max. | | | | | | 3.00 max. | | | | | | 3.00 max. | | | | 3.00 max. | | | 3.00 max. | | |
| Termination Width (P) | 0.25 ~ 0.75 | | | | | | 0.25 ~ 0.75 | | | | | | 0.3 ~ 1.05 | | | | 0.30 ~ 1.10 | | | 0.30 ~ 1.10 | | |
| Capacitance | Working Voltage (Vdc) | | | | | | | | | | | | | | | | | | | | | |
| | 200 | 250 | 500 | 1KV | 2KV | 3KV | 200 | 250 | 500 | 1KV | 2KV | 3KV | 250 | 500 | 1K | 2K | 1K | 250 | 500 | 1K | | |
| 0.22pF ~ 8.2pF | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | | | | | | | | | |
| 33 | | | | | | | | | | | | | | | | | | | | | | |
| 39 | | | | | | | | | | | | | | | | | | | | | | |
| 47 | | | | | | | | | | | | | | | | | | | | | | |
| 56 | | | | | | | | | | | | | | | | | | | | | | |
| 68 | | | | | | | | | | | | | | | | | | | | | | |
| 82 | | | | | | | | | | | | | | | | | | | | | | |
| 100 | | | | | | | | | | | | | | | | | | | | | | |
| 120 | | | | | | | | | | | | | | | | | | | | | | |
| 150 | | | | | | | | | | | | | | | | | | | | | | |
| 180 | | | | | | | | | | | | | | | | | | | | | | |
| 220 | | | | | | | | | | | | | | | | | | | | | | |
| 270 | | | | | | | | | | | | | | | | | | | | | | |
| 330 | | | | | | | | | | | | | | | | | | | | | | |
| 390 | | | | | | | | | | | | | | | | | | | | | | |
| 470 | | | | | | | | | | | | | | | | | | | | | | |
| 560 | | | | | | | | | | | | | | | | | | | | | | |
| 680 | | | | | | | | | | | | | | | | | | | | | | |
| 820 | | | | | | | | | | | | | | | | | | | | | | |
| 0.001μF | | | | | | | | | | | | | | | | | | | | | | |
| 0.0012 | | | | | | | | | | | | | | | | | | | | | | |
| 0.0015 | | | | | | | | | | | | | | | | | | | | | | |
| 0.0018 | | | | | | | | | | | | | | | | | | | | | | |
| 0.0022 | | | | | | | | | | | | | | | | | | | | | | |
| 0.0027 | | | | | | | | | | | | | | | | | | | | | | |
| 0.0033 | | | | | | | | | | | | | | | | | | | | | | |
| 0.0039 | | | | | | | | | | | | | | | | | | | | | | |
| 0.0047 | | | | | | | | | | | | | | | | | | | | | | |
| 0.0056 | | | | | | | | | | | | | | | | | | | | | | |
| 0.0068 | | | | | | | | | | | | | | | | | | | | | | |
| 0.0082 | | | | | | | | | | | | | | | | | | | | | | |
| 0.01 | | | | | | | | | | | | | | | | | | | | | | |
| 0.012 | | | | | | | | | | | | | | | | | | | | | | |
| 0.015 | | | | | | | | | | | | | | | | | | | | | | |
| 0.018 | | | | | | | | | | | | | | | | | | | | | | |
| 0.022 | | | | | | | | | | | | | | | | | | | | | | |
| 0.027 | | | | | | | | | | | | | | | | | | | | | | |
| 0.033 | | | | | | | | | | | | | | | | | | | | | | |
| 0.039 | | | | | | | | | | | | | | | | | | | | | | |
| 0.047 | | | | | | | | | | | | | | | | | | | | | | |
| 0.056 | | | | | | | | | | | | | | | | | | | | | | |
| 0.068 | | | | | | | | | | | | | | | | | | | | | | |
| 0.082 | | | | | | | | | | | | | | | | | | | | | | |
| 0.1 | | | | | | | | | | | | | | | | | | | | | | |

X7R-HIGH VOLTAGE SIZE CHART (mm)

| EIA Case Size | 0805 | | | 1206 | | | | | | 1210 | | | | |
|-----------------------|-----------------------|-----|-----|-------------|-----|-----|-----|-----|-------|-------------|-----|-----|-----|-----|
| Length (L) | 2.0 ± 0.1 | | | 3.2 ± 0.15 | | | | | | 3.2 ± 0.2 | | | | |
| Width (W) | 1.25 ± 0.1 | | | 1.6 ± 0.15 | | | | | | 2.5 ± 0.2 | | | | |
| Thickness (T) | 1.45 max. | | | 1.80 max. | | | | | | 2.20 max. | | | | |
| Termination Width (P) | 0.25 ~ 0.75 | | | 0.25 ~ 0.75 | | | | | | 0.25 ~ 0.75 | | | | |
| Capacitance | Working Voltage (Vdc) | | | | | | | | | | | | | |
| | 200 | 250 | 500 | 200 | 250 | 500 | 1KV | 2KV | 2.5KV | 200 | 250 | 500 | 1KV | 2KV |
| 150 | | | | | | | | | | | | | | |
| 180 | | | | | | | | | | | | | | |
| 220 | | | | | | | | | | | | | | |
| 270 | | | | | | | | | | | | | | |
| 330 | | | | | | | | | | | | | | |
| 390 | | | | | | | | | | | | | | |
| 470 | | | | | | | | | | | | | | |
| 560 | | | | | | | | | | | | | | |
| 680 | | | | | | | | | | | | | | |
| 820 | | | | | | | | | | | | | | |
| 0.001µF | | | | | | | | | | | | | | |
| 0.0012 | | | | | | | | | | | | | | |
| 0.0015 | | | | | | | | | | | | | | |
| 0.0018 | | | | | | | | | | | | | | |
| 0.0022 | | | | | | | | | | | | | | |
| 0.0027 | | | | | | | | | | | | | | |
| 0.0033 | | | | | | | | | | | | | | |
| 0.0039 | | | | | | | | | | | | | | |
| 0.0047 | | | | | | | | | | | | | | |
| 0.0056 | | | | | | | | | | | | | | |
| 0.0068 | | | | | | | | | | | | | | |
| 0.0082 | | | | | | | | | | | | | | |
| 0.01 | | | | | | | | | | | | | | |
| 0.012 | | | | | | | | | | | | | | |
| 0.015 | | | | | | | | | | | | | | |
| 0.018 | | | | | | | | | | | | | | |
| 0.022 | | | | | | | | | | | | | | |
| 0.027 | | | | | | | | | | | | | | |
| 0.033 | | | | | | | | | | | | | | |
| 0.039 | | | | | | | | | | | | | | |
| 0.047 | | | | | | | | | | | | | | |
| 0.056 | | | | | | | | | | | | | | |
| 0.068 | | | | | | | | | | | | | | |
| 0.082 | | | | | | | | | | | | | | |
| 0.1 | | | | | | | | | | | | | | |
| 0.12 | | | | | | | | | | | | | | |
| 0.15 | | | | | | | | | | | | | | |
| 0.18 | | | | | | | | | | | | | | |
| 0.22 | | | | | | | | | | | | | | |
| 0.27 | | | | | | | | | | | | | | |
| 0.33 | | | | | | | | | | | | | | |
| 0.39 | | | | | | | | | | | | | | |
| 0.47 | | | | | | | | | | | | | | |

X7R-HIGH VOLTAGE SIZE CHART (mm)

| EIA Case Size | 1808 | | | | | 1812 | | | | | 1825 | | | 2220 | | | 2225 | | | | |
|-----------------------|-----------------------|-----|-----|-----|-----|-----------|-----|-----|-----|-----|-------------|-----|-----|-------------|----|-----|-------------|----|-----|-----|----|
| Length (L) | 4.6 ± 0.4 | | | | | 4.6 ± 0.4 | | | | | 4.6 ± 0.30 | | | 5.7 ± 0.40 | | | 5.70 ± 0.40 | | | | |
| Width (W) | 2.0 ± 0.3 | | | | | 3.2 ± 0.3 | | | | | 6.35 ± 0.40 | | | 5.00 ± 0.40 | | | 6.35 ± 0.40 | | | | |
| Thickness (T) | 2.20 max. | | | | | 2.20 max. | | | | | 3.00 max. | | | 3.00 max. | | | 3.00 max. | | | | |
| Termination Width (P) | 0.30 min. | | | | | 0.30 min. | | | | | 0.3 ~ 1.05 | | | 0.30 ~ 1.10 | | | 0.30 ~ 1.10 | | | | |
| Capacitance | Working Voltage (Vdc) | | | | | | | | | | | | | | | | | | | | |
| | 200 | 250 | 500 | 1KV | 2KV | 3KV | 200 | 250 | 500 | 1KV | 2KV | 3KV | 250 | 500 | 1K | 250 | 500 | 1K | 250 | 500 | 1K |
| 150 | | | | | | | | | | | | | | | | | | | | | |
| 180 | | | | | | | | | | | | | | | | | | | | | |
| 220 | | | | | | | | | | | | | | | | | | | | | |
| 270 | | | | | | | | | | | | | | | | | | | | | |
| 330 | | | | | | | | | | | | | | | | | | | | | |
| 390 | | | | | | | | | | | | | | | | | | | | | |
| 470 | | | | | | | | | | | | | | | | | | | | | |
| 560 | | | | | | | | | | | | | | | | | | | | | |
| 680 | | | | | | | | | | | | | | | | | | | | | |
| 820 | | | | | | | | | | | | | | | | | | | | | |
| 0.001µF | | | | | | | | | | | | | | | | | | | | | |
| 0.0012 | | | | | | | | | | | | | | | | | | | | | |
| 0.0015 | | | | | | | | | | | | | | | | | | | | | |
| 0.0018 | | | | | | | | | | | | | | | | | | | | | |
| 0.0022 | | | | | | | | | | | | | | | | | | | | | |
| 0.0027 | | | | | | | | | | | | | | | | | | | | | |
| 0.0033 | | | | | | | | | | | | | | | | | | | | | |
| 0.0039 | | | | | | | | | | | | | | | | | | | | | |
| 0.0047 | | | | | | | | | | | | | | | | | | | | | |
| 0.0056 | | | | | | | | | | | | | | | | | | | | | |
| 0.0068 | | | | | | | | | | | | | | | | | | | | | |
| 0.0082 | | | | | | | | | | | | | | | | | | | | | |
| 0.01 | | | | | | | | | | | | | | | | | | | | | |
| 0.012 | | | | | | | | | | | | | | | | | | | | | |
| 0.015 | | | | | | | | | | | | | | | | | | | | | |
| 0.018 | | | | | | | | | | | | | | | | | | | | | |
| 0.022 | | | | | | | | | | | | | | | | | | | | | |
| 0.027 | | | | | | | | | | | | | | | | | | | | | |
| 0.033 | | | | | | | | | | | | | | | | | | | | | |
| 0.039 | | | | | | | | | | | | | | | | | | | | | |
| 0.047 | | | | | | | | | | | | | | | | | | | | | |
| 0.056 | | | | | | | | | | | | | | | | | | | | | |
| 0.068 | | | | | | | | | | | | | | | | | | | | | |
| 0.082 | | | | | | | | | | | | | | | | | | | | | |
| 0.1 | | | | | | | | | | | | | | | | | | | | | |
| 0.12 | | | | | | | | | | | | | | | | | | | | | |
| 0.15 | | | | | | | | | | | | | | | | | | | | | |
| 0.18 | | | | | | | | | | | | | | | | | | | | | |
| 0.22 | | | | | | | | | | | | | | | | | | | | | |
| 0.27 | | | | | | | | | | | | | | | | | | | | | |
| 0.33 | | | | | | | | | | | | | | | | | | | | | |
| 0.39 | | | | | | | | | | | | | | | | | | | | | |
| 0.47 | | | | | | | | | | | | | | | | | | | | | |
| 0.56 | | | | | | | | | | | | | | | | | | | | | |
| 0.68 | | | | | | | | | | | | | | | | | | | | | |
| 0.82 | | | | | | | | | | | | | | | | | | | | | |
| 1.0 | | | | | | | | | | | | | | | | | | | | | |
| 1.5 | | | | | | | | | | | | | | | | | | | | | |
| 2.2 | | | | | | | | | | | | | | | | | | | | | |