

### FEATURES

- STACKED METALLIZED POLYPHENYLENE SULFIDE (PPS) FILM
- STANDARD EIA 0805, 1206, 1210, 1913 AND 2416 SIZES
- WIDE TEMPERATURE RANGE (-55° +125°C)
- HIGH HEAT AND MOISTURE RESISTANT
- VERY STABLE TEMPERATURE, FREQUENCY, VOLTAGE, BIAS AND DIELECTRIC ABSORPTION CHARACTERISTICS
- REFLOW & FLOW SOLDERING APPLICABLE
- TAPE AND REEL PACKAGING

**NSHC IS  
RECOMMENDED  
FOR NEW DESIGNS**



**RoHS  
Compliant**  
includes all homogeneous materials

\*See Part Number System for Details

| SPECIFICATIONS                  | Case Sizes  |                 |               |               |               |
|---------------------------------|---|-----------------|---------------|---------------|---------------|
|                                 | 0805  | 1206            | 1210          | 1913          | 2416          |
| Capacitance Range               | 100pF ~ .01µF   | 3300pF ~ .047µF | .015µF ~ .1µF | .047µF ~ .1µF | .12µF ~ .22µF |
| Voltage Ratings*                | 16Vdc (12Vrms), 50Vdc (40Vrms)  |                 |               |               |               |
| Capacitance Tolerance           | ±5% Std, ±2% Opt.   |                 |               |               |               |
| Temperature Range               | -55°C ~ +125°C  |                 |               |               |               |
| Dissipation Factor (20°C)       | 0.6% max. @ 1KHz  |                 |               |               |               |
| Insulation Resistance (20°C)    | 3 Gigohms Minimum   |                 |               |               |               |
| Dielectric Withstanding Voltage | 150% of Rated Voltage 60 Seconds<br>175% of Rated Voltage for 5 Seconds |                 |               |               |               |
| Temperature Characteristic      | ±3% ΔC Maximum Over Temperature Range                                   |                 |               |               |               |
| Dielectric Absorption           | 0.05 ~ 0.10% Typical  |                 |               |               |               |

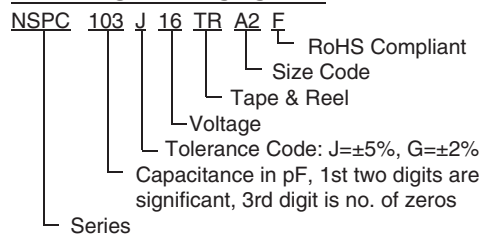
\* -AC Voltage Ratings (Vrms) From 60 hz to 30Khz. Contact NIC For Derating At Higher Frequencies.

### ENVIRONMENTAL CHARACTERISTICS

|   |   |   |
|---|---|---|
| Life Test At +125°C<br>1,000 Hours at 125% of<br>Rated Voltage                | Capacitance Change  | Within ±2% of Initial Value                 |
|   | Dissipation Factor  | 0.66% Maximum                               |
|   | Insulation Resistance   | 1 Gigohm Minimum                            |
| Resistance to Soldering Heat<br>+260°C Peak                                   | Capacitance Change  | Within ±3% of Initial Value                 |
|   | Dissipation Factor  | 0.66% Maximum                               |
|   | Insulation Resistance   | 1 Gigohm Minimum                            |
| Humidity Load Life (Note 1):<br>(1) 1000 Hours, +40°C<br>(2) 500 Hours, +60°C | Capacitance Change  | Within ±2% of Initial value                 |
|   | Dissipation Factor  | 0.90% Maximum                               |
|   | Insulation Resistance   | (1) 1 Gigohm Minimum (2) 0.5 Gigohm Minimum |
| Solderability with<br>25% Wt Rosin-Methanol Flux                              | 90% Minimum Coverage After 2.5 Second Dip into 255°C Solder Pot |   |

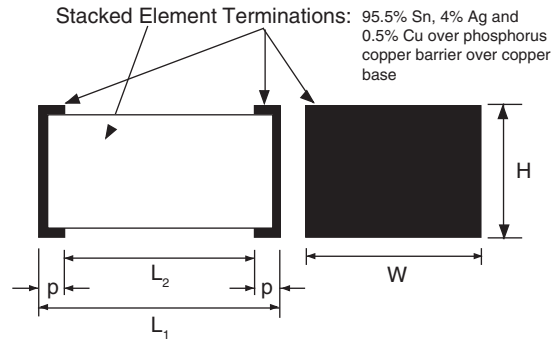
NOTE 1: At 90 ~ 95% Relative Humidity and Rated Voltage

### PART NUMBER SYSTEM



## STANDARD PRODUCTS AND SIZE CODE

| Cap.   | Code | Working Voltage (Vdc) |    |
|--------|------|-----------------------|----|
|        |      | 16                    | 50 |
| 100pF  | 101  | -                     | A1 |
| 120    | 121  | -                     | A1 |
| 150    | 151  | -                     | A1 |
| 180    | 181  | -                     | A1 |
| 220    | 221  | -                     | A1 |
| 270    | 271  | -                     | A1 |
| 330    | 331  | -                     | A1 |
| 390    | 391  | -                     | A1 |
| 470    | 471  | -                     | A1 |
| 560    | 561  | -                     | A1 |
| 680    | 681  | -                     | A1 |
| 820    | 821  | -                     | A1 |
| 0.001  | 102  | -                     | A1 |
| 0.0012 | 122  | -                     | A1 |
| 0.0015 | 152  | -                     | A1 |
| 0.0022 | 222  | -                     | A1 |
| 0.0027 | 272  | -                     | A1 |
| 0.0033 | 332  | A1                    | B1 |
| 0.0039 | 392  | A1                    | B1 |
| 0.0047 | 472  | A1                    | B1 |
| 0.0056 | 562  | A1                    | B1 |
| 0.0068 | 682  | A1                    | B1 |
| 0.0082 | 822  | A2                    | B2 |
| 0.010  | 103  | A2                    | B2 |
| 0.012  | 123  | B1                    | C1 |
| 0.015  | 153  | B1                    | C1 |
| 0.018  | 183  | B1                    | C2 |
| 0.022  | 223  | B1                    | C2 |
| 0.027  | 273  | B2                    | C2 |
| 0.033  | 333  | B2                    | C3 |
| 0.039  | 393  | B3                    | C3 |
| 0.047  | 473  | B3                    | D1 |
| 0.056  | 563  | C2                    | D1 |
| 0.068  | 683  | C2                    | D1 |
| 0.082  | 823  | C3                    | D2 |
| 0.10   | 104  | C3                    | D2 |
| 0.12   | 124  | -                     | E1 |
| 0.15   | 154  | -                     | E3 |
| 0.18   | 184  | -                     | E4 |
| 0.22   | 224  | -                     | E5 |

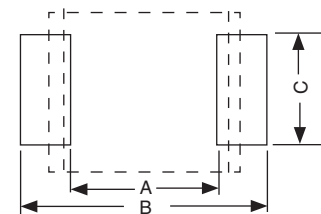


## DIMENSION (mm) AND CASE CODE

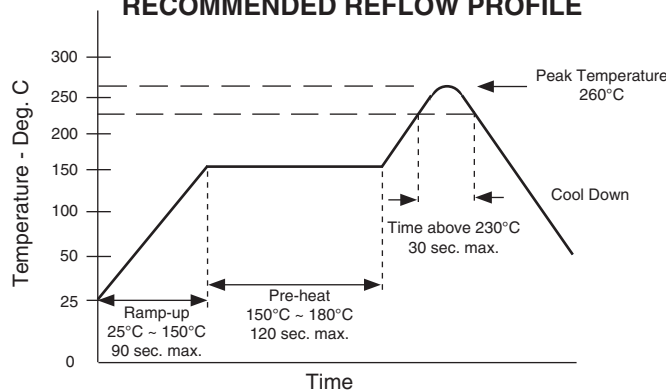
| Case Code | Length L ±0.2 | Width W    | Height H ±0.2 | p           | EIA  |
|-----------|---------------|------------|---------------|-------------|------|
| A1        | 2.0           | 1.25 ± 0.2 | 0.8           | 0.45 ± 0.25 | 0805 |
| A2        |               |            | 1.0           |             |      |
| B1        | 3.2           | 1.6 ± 0.2  | 0.8           | 0.65 ± 0.35 | 1206 |
| B2        |               |            | 1.0           |             |      |
| B3        |               |            | 1.4           |             |      |
| C1        | 3.2           | 2.5 ± 0.2  | 1.0           | 0.65 ± 0.35 | 1210 |
| C2        |               |            | 1.4           |             |      |
| C3        |               |            | 2.0           |             |      |
| D1        | 4.8           | 3.3 ± 0.3  | 1.4           | 0.35 ± 0.20 | 1913 |
| D2        |               |            | 2.0           |             |      |
| E1        | 6.0           | 4.1 ± 0.3  | 1.8           | 0.35 ± 0.20 | 2416 |
| E3        |               |            | 2.4           |             |      |
| E4        |               |            | 2.8           |             |      |
| E5        |               |            | 3.2           |             |      |

## RECOMMENDED LAND PATTERN (mm)

| EIA Size | A   | B   | C   |
|----------|-----|-----|-----|
| 0805     | 1.0 | 2.7 | 1.1 |
| 1206     | 2.2 | 3.8 | 1.4 |
| 1210     | 2.2 | 3.8 | 2.3 |
| 1913     | 2.6 | 6.6 | 3.0 |
| 2416     | 3.8 | 7.8 | 3.8 |



## RECOMMENDED REFLOW PROFILE



Solder within 1 year. Storage at +30°C and 60% RH