

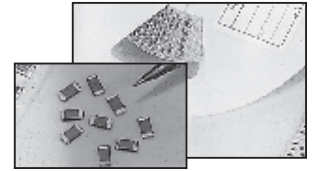
### FEATURES

- HIGH K DIELECTRIC
- HIGH CAPACITANCE DENSITY
- EXCELLENT MECHANICAL STRENGTH
- NICKEL BARRIER TERMINATIONS

### RoHS Compliant

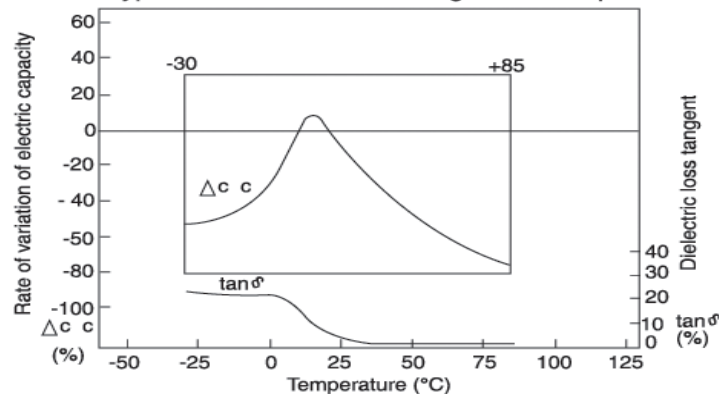
Includes all homogeneous materials

\*See Part Number System for Details



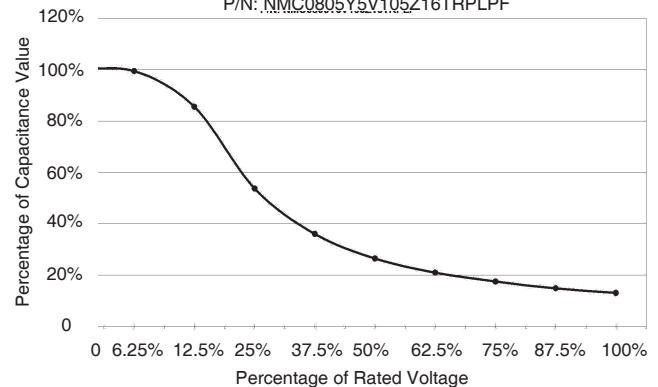
|                                 |                                                                                      |
|---------------------------------|--------------------------------------------------------------------------------------|
| Capacitance Range               | 0.01 $\mu$ F ~ 0.82 $\mu$ F (see high CV datasheet for higher capacitance values)    |
| Capacitance Tolerance           | +80%/-20% (Z)                                                                        |
| Operating Temperature Range     | -30°C ~ +85°C                                                                        |
| Temperature Characteristics     | +22%, -82% max. capacitance $\Delta$ over temperature range                          |
| Rated Voltages                  | 4Vdc, 6.3Vdc, 16Vdc, 25Vdc, 50Vdc & 100Vdc<br>(see NMC-H Series for higher voltages) |
| Dissipation Factor              | (See Values Table)                                                                   |
| Insulation Resistance           | 10,000Megohms min. or 500Megohm/ $\mu$ F min. whichever is less @ +25°C              |
| Dielectric Withstanding Voltage | 150% of Rated Voltage for 1 ~ 5 seconds, 50mA maximum current                        |
| Test Conditions (EIA-198-2E)    | 1KHz, 1.0V $\pm$ 0.2Vrms                                                             |

Typical Y5V C and DF Change over Temp.



CAPACITANCE CHANGE AS FUNCTION OF APPLIED VOLTAGE (VDC)

1.0 $\mu$ F / 16VDC / Y5V Dielectric  
P/N: NMC0805Y5V105Z16TRPLPF



### PART NUMBER SYSTEM

NMC 0805 Y5V 103 Z 50 TRP or TRPLP 3K 7C3 E

- NMC: Series
- 0805: Size Code (see chart)
- Y5V: Temperature Characteristic
- 103: Capacitance Code, expressed in pF, first 2 digits are significant, 3rd digit is no. of zeros, "R" indicates decimal for under 10pF
- Z: Capacitance Tolerance Code (see chart)
- 50: Voltage (Vdc)
- TRP or TRPLP: Tape & Reel (Punched carrier)
- 3K: Tape & Reel (Embossed Plastic Carrier)
- 7C3: Optional RoHS 7C-III Exemption Free\*
- E: Optional Reel Qty (3K=3,000pcs)

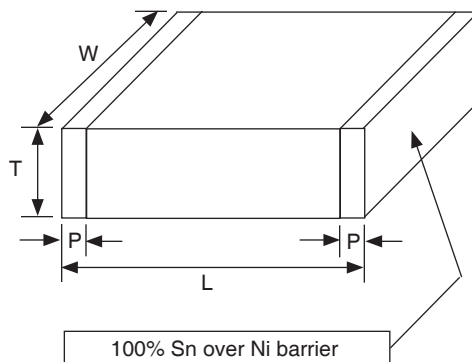
\* - Part Number Level Identification of Y5V MLCCs that do not take RoHS exemption 7C-III

**Y5V CAPACITOR SIZE AND DISSIPATION FACTOR CHART (mm)**

| EIA Case Size         | 0201                  |     |       |     | 0402       |    |    |    | 0603        |       |    |    |
|-----------------------|-----------------------|-----|-------|-----|------------|----|----|----|-------------|-------|----|----|
| Length (L)            | 0.6 ± 0.05            |     |       |     | 1.0 ± 0.05 |    |    |    | 1.6 ± 0.15  |       |    |    |
| Width (W)             | 0.3 ± 0.05            |     |       |     | 0.5 ± 0.05 |    |    |    | 0.8 ± 0.15  |       |    |    |
| Thickness max. (T)    | 0.33                  |     |       |     | 0.6        |    |    |    | 1.0         |       |    |    |
| Termination Width (P) | 0.10 ~ 0.20           |     |       |     | 0.2±0.1    |    |    |    | 0.12 ~ 0.51 |       |    |    |
| Capacitance           | Working Voltage (Vdc) |     |       |     |            |    |    |    |             |       |    |    |
|                       | 4                     | 6.3 | 10    | 6.3 | 10         | 16 | 25 | 50 | 10          | 16    | 25 | 50 |
| 0.01μF                |                       |     |       |     | 12.5%      | 9% | 7% | 7% | 12.5%       | 7%    | 5% | 5% |
| 0.015μF               |                       |     |       |     | 12.5%      | 9% | 7% | 7% | 12.5%       | 7%    | 5% | 5% |
| 0.022μF               | 16%                   | 16% | 12.5% | 16% | 12.5%      | 9% | 7% | 7% | 12.5%       | 7%    | 5% | 5% |
| 0.027μF               | 16%                   | 16% | 12.5% | 16% | 12.5%      | 9% | 7% | 7% | 12.5%       | 7%    | 5% | 5% |
| 0.033μF               | 16%                   | 16% | 12.5% | 16% | 12.5%      | 9% | 7% | 7% | 12.5%       | 7%    | 5% | 5% |
| 0.036μF               | 16%                   | 16% | 12.5% | 16% | 12.5%      | 9% | 7% |    | 12.5%       | 7%    | 5% | 5% |
| 0.039μF               | 16%                   | 16% | 12.5% | 16% | 12.5%      | 9% | 7% |    | 12.5%       | 7%    | 5% | 5% |
| 0.047μF               | 16%                   | 16% | 12.5% | 16% | 12.5%      | 9% | 7% |    | 12.5%       | 7%    | 5% | 5% |
| 0.056μF               | 16%                   | 16% |       | 16% | 12.5%      | 9% |    |    | 12.5%       | 7%    | 5% | 5% |
| 0.068μF               | 16%                   | 16% |       | 16% | 12.5%      | 9% |    |    | 12.5%       | 7%    | 5% | 5% |
| 0.075μF               | 16%                   | 16% |       | 16% | 12.5%      | 9% |    |    | 12.5%       | 7%    | 5% | 5% |
| 0.082μF               | 16%                   | 16% |       | 16% | 12.5%      | 9% |    |    | 12.5%       | 7%    | 5% | 5% |
| 0.1μF                 |                       |     |       | 16% | 12.5%      | 9% |    |    | 12.5%       | 7%    | 7% | 7% |
| 0.15μF                |                       |     |       | 16% | 12.5%      |    |    |    | 12.5%       | 9%    | 9% | 9% |
| 0.18μF                |                       |     |       | 16% | 12.5%      |    |    |    | 12.5%       | 9%    | 9% | 9% |
| 0.22μF                |                       |     |       | 16% | 12.5%      |    |    |    | 12.5%       | 9%    | 9% | 9% |
| 0.27μF                |                       |     |       | 16% | 12.5%      |    |    |    | 12.5%       | 12.5% | 9% |    |
| 0.33μF                |                       |     |       | 16% | 12.5%      |    |    |    | 12.5%       | 12.5% | 9% |    |
| 0.36μF                |                       |     |       | 16% | 12.5%      |    |    |    | 12.5%       | 12.5% | 9% |    |
| 0.39μF                |                       |     |       | 16% | 12.5%      |    |    |    | 12.5%       | 12.5% | 9% |    |
| 0.47μF                |                       |     |       | 16% | 12.5%      |    |    |    | 12.5%       | 12.5% | 9% |    |
| 0.56μF                |                       |     |       | 16% |            |    |    |    | 12.5%       | 12.5% | 9% |    |
| 0.68μF                |                       |     |       | 16% |            |    |    |    | 12.5%       | 12.5% | 9% |    |
| 0.82μF                |                       |     |       | 16% |            |    |    |    | 12.5%       | 12.5% | 9% |    |

(CONSULT FACTORY  
FOR CAPACITANCE  
VALUES NOT LISTED)

Percentages in the table represent the dissipation factor for that value.



**See NMC High CV series for values above 0.82μF**

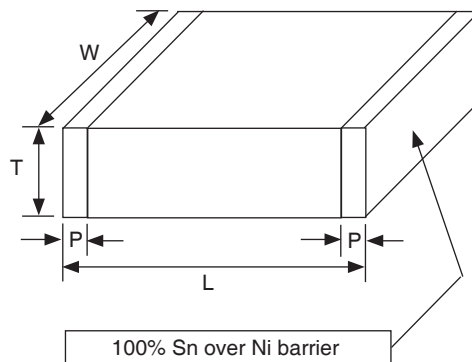
**Y5V CAPACITOR SIZE AND DISSIPATION FACTOR CHART (mm)**

| EIA Case Size         | 0805                  |       |    |     |    |     | 1206        |       |    |    |    |     |
|-----------------------|-----------------------|-------|----|-----|----|-----|-------------|-------|----|----|----|-----|
| Length (L)            | 2.0 ± 0.2             |       |    |     |    |     | 3.2 ± 0.2   |       |    |    |    |     |
| Width (W)             | 1.25 ± 0.2            |       |    |     |    |     | 1.6 ± 0.2   |       |    |    |    |     |
| Thickness max. (T)    | 1.30                  |       |    |     |    |     | 1.80        |       |    |    |    |     |
| Termination Width (P) | 0.25 ~ 0.71           |       |    |     |    |     | 0.25 ~ 0.71 |       |    |    |    |     |
| Capacitance           | Working Voltage (Vdc) |       |    |     |    |     |             |       |    |    |    |     |
|                       | 6.3                   | 10    | 16 | 25  | 50 | 100 | 6.3         | 10    | 16 | 25 | 50 | 100 |
| 0.01μF                | 16%                   | 12.5% | 9% | 5%  | 5% | 5%  | 16%         | 12.5% | 9% | 5% | 5% | 5%  |
| 0.015μF               | 16%                   | 12.5% | 9% | 5%  | 5% | 5%  | 16%         | 12.5% | 9% | 5% | 5% | 5%  |
| 0.022μF               | 16%                   | 12.5% | 9% | 5%  | 5% | 5%  | 16%         | 12.5% | 9% | 5% | 5% | 5%  |
| 0.027μF               | 16%                   | 12.5% | 9% | 5%  | 5% | 5%  | 16%         | 12.5% | 9% | 5% | 5% | 5%  |
| 0.033μF               | 16%                   | 12.5% | 9% | 5%  | 5% | 5%  | 16%         | 12.5% | 9% | 5% | 5% | 5%  |
| 0.036μF               | 16%                   | 12.5% | 9% | 5%  | 5% | 5%  | 16%         | 12.5% | 9% | 5% | 5% | 5%  |
| 0.039μF               | 16%                   | 12.5% | 9% | 5%  | 5% | 5%  | 16%         | 12.5% | 9% | 5% | 5% | 5%  |
| 0.047μF               | 16%                   | 12.5% | 9% | 5%  | 5% | 5%  | 16%         | 12.5% | 9% | 5% | 5% | 5%  |
| 0.056μF               | 16%                   | 12.5% | 9% | 5%  | 5% | 5%  | 16%         | 12.5% | 9% | 5% | 5% | 5%  |
| 0.068μF               | 16%                   | 12.5% | 9% | 5%  | 5% | 5%  | 16%         | 12.5% | 9% | 5% | 5% | 5%  |
| 0.075μF               | 16%                   | 12.5% | 9% | 5%  | 5% | 5%  | 16%         | 12.5% | 9% | 5% | 5% | 5%  |
| 0.082μF               | 16%                   | 12.5% | 9% | 5%  | 5% | 5%  | 16%         | 12.5% | 9% | 5% | 5% | 5%  |
| 0.1μF                 | 16%                   | 12.5% | 9% | 5%  | 5% | 5%  | 16%         | 12.5% | 9% | 5% | 5% | 5%  |
| 0.15μF                | 16%                   | 12.5% | 9% | 5%  | 5% |     | 16%         | 12.5% | 9% | 5% | 5% | 5%  |
| 0.18μF                | 16%                   | 12.5% | 9% | 5%  | 5% |     | 16%         | 12.5% | 9% | 5% | 5% | 5%  |
| 0.22μF                | 16%                   | 12.5% | 9% | 5%  | 5% |     | 16%         | 12.5% | 9% | 5% | 5% | 5%  |
| 0.27μF                | 16%                   | 12.5% | 9% | 5%  | 5% |     | 16%         | 12.5% | 9% | 5% | 5% |     |
| 0.33μF                | 16%                   | 12.5% | 9% | 7%  | 7% |     | 16%         | 12.5% | 9% | 5% | 5% |     |
| 0.36μF                | 16%                   | 12.5% | 9% | 9%  |    |     | 16%         | 12.5% | 9% | 5% | 5% |     |
| 0.39μF                | 16%                   | 12.5% | 9% | 9%  |    |     | 16%         | 12.5% | 9% | 5% | 5% |     |
| 0.47μF                | 16%                   | 12.5% | 9% | 9%  |    |     | 16%         | 12.5% | 9% | 5% | 5% |     |
| 0.56μF                | 16%                   | 12.5% | 9% | 9%  |    |     | 16%         | 12.5% | 9% | 5% | 5% |     |
| 0.68μF                | 16%                   | 12.5% | 9% | 9%* |    |     | 16%         | 12.5% | 9% | 5% | 5% |     |
| 0.82μF                | 16%                   | 12.5% | 9% | 9%* |    |     | 16%         | 12.5% | 9% | 5% | 5% |     |

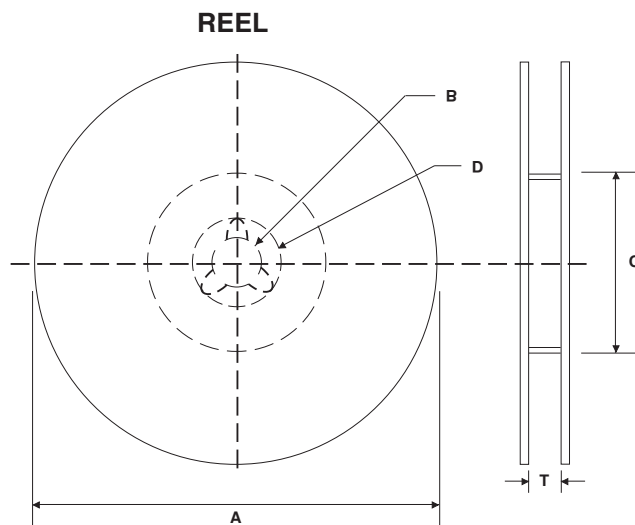
\*1.35mm maximum thickness

(CONSULT FACTORY  
FOR CAPACITANCE  
VALUES NOT LISTED)

Percentages in the table represent the dissipation factor for that value.



**See NMC High CV series for values above 0.82μF**



## REEL DIMENSIONS (mm)

| Reel Diameter (A) | B        | C         | D        | T max.                                          |
|-------------------|----------|-----------|----------|-------------------------------------------------|
| 7" (178 ± 2.0)    | 13 ± 0.5 | 50 min.   | 21 ± 1.0 | 8.4 +1.0/-0<br>(1812 case size<br>12.4 +2.0/-0) |
| 10" (250 ± 2.0)   |          | 100 ± 1.0 |          |                                                 |
| 13" (330 ± 2.0)   |          | 100 ± 1.0 |          |                                                 |

## 7 INCH REEL QUANTITIES\*

| Size              | 01005  | 0201   | 0402   | 0603  | 0805  | 1206  | 1210  | 1812  |
|-------------------|--------|--------|--------|-------|-------|-------|-------|-------|
| Tape Size         | 8mm    | 8mm    | 8mm    | 8mm   | 8mm   | 8mm   | 8mm   | 12mm  |
| Min. Qty Per Reel | 20,000 | 20,000 | 10,000 | 4,000 | 4,000 | 4,000 | 2,000 | 1,000 |
| Max. Qty Per Reel | 20,000 | 20,000 | 10,000 | 4,000 | 5,000 | 5,000 | 5,000 | 2,000 |

\*Quantity dependent on chip thickness. Contact NIC for reel quantities on larger diameter reels.

## CARRIER TAPE MATERIAL

Parts with a thickness of  $\geq 1\text{mm}$  will be taped on embossed plastic carrier. Parts with a thickness of less than 1mm will be taped on paper carrier

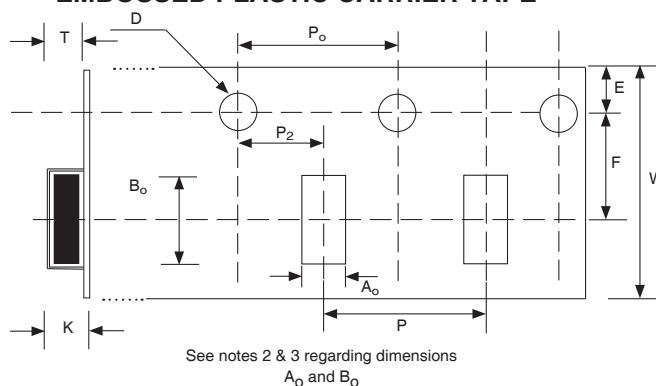
## EMBOSSED PLASTIC CARRIER TAPE DIMENSIONS (mm)

| Tape Size | W         | F          | E           | P <sub>0</sub> | P <sub>2</sub> | D                                   | K max. | T max. | P         |
|-----------|-----------|------------|-------------|----------------|----------------|-------------------------------------|--------|--------|-----------|
| 8mm       | 8.0 ± 0.2 | 3.5 ± 0.05 | 1.75 ± 0.10 | 4.0 ± 0.1      | 2.0 ± 0.5      | 1.5 <sup>+0.1</sup> <sub>-0.0</sub> | 3.0    | 2.0    | 4.0 ± 0.1 |
| 12mm      | 12 ± 0.2  | 5.5 ± 0.05 |             |                |                |                                     |        | 4.5    | 8.0 ± 0.1 |

### Notes:

- Specifications are in compliance with EIA RS481-1-A  
"Taping of Surface Mount Components for Automatic Placement"
- Dimensions A<sub>0</sub> (max.) equals component width dimension plus 0.5mm
- Dimension B<sub>0</sub> (max.) equals component length dimension plus 0.5mm

## EMBOSSED PLASTIC CARRIER TAPE



## PUNCHED CARRIER TAPE DIMENSIONS (mm)

| Type  | A <sub>o</sub> | B <sub>o</sub> | W         | F          | E          | P1         | P0        | D0               | T1<br>max. | T2<br>max. | Mounting<br>Hole         |  |  |  |
|-------|----------------|----------------|-----------|------------|------------|------------|-----------|------------------|------------|------------|--------------------------|--|--|--|
| 01005 | 0.25 ± 0.04    | 0.45 ± 0.04    | 8.0 ± 0.3 | 3.5 ± 0.05 | 1.75 ± 0.1 | 2.0 ± 0.05 | 4.0 ± 0.1 | 1.5<br>+0.1/-0.0 | 0.27       | 0.36       | Angular<br>Punch<br>Hole |  |  |  |
| 0201  | 0.37 ± 0.03    | 0.67 ± 0.05    |           |            |            |            |           |                  | 0.45       | 0.80       |                          |  |  |  |
| 0402  | 0.65 ± 0.05    | 1.15 ± 0.05    |           |            |            | 4.0 ± 0.10 |           |                  | 1.1        | 1.4        |                          |  |  |  |
| 0603  | 1.1 ± 0.2      | 1.9 ± 0.2      |           |            |            |            |           |                  |            |            |                          |  |  |  |
| 0805  | 1.65 ± 0.2     | 2.4 ± 0.2      |           |            |            |            |           |                  |            |            |                          |  |  |  |
| 1206  | 2.0 ± 0.2      | 3.6 ± 0.2      |           |            |            |            |           |                  |            |            |                          |  |  |  |

## PUNCHED CARRIER TAPE

