

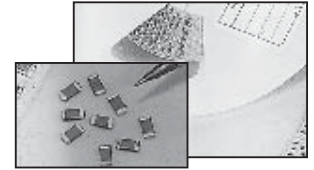
### FEATURES

- X7R, X5R AND Y5V DIELECTRICS
- HIGH CAPACITANCE & LOW PROFILE
- RoHS COMPLIANT
- SAC SOLDER COMPATIBLE

### RoHS Compliant

Includes all homogeneous materials

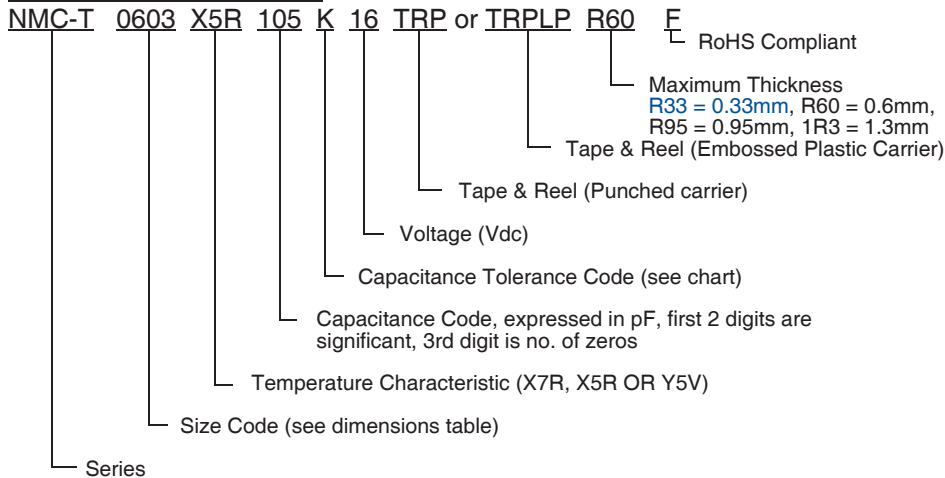
\*See Part Number System for Details



Temperature Coefficient	X7R	X5R	Y5V
Capacitance Range	1.0 $\mu$ F	0.22 $\mu$ F ~ 22 $\mu$ F	1.0 $\mu$ F ~ 10 $\mu$ F
Capacitance Tolerance	10% (K) & 20% (M)	10% (K) & 20% (M)	+80%/-20% (Z)
Operating Temperature Range	-55°C ~ +125°C	-55°C ~ +85°C	-25°C ~ +85°C
Temperature Characteristics	$\pm$ 15% $\Delta$ Cap.	$\pm$ 15% $\Delta$ Cap.	+30%, -80% $\Delta$ Cap.
Rated Voltages	25VDC	6.3, 10, 16 & 25VDC	10, 16, 25 & 50VDC
Dissipation Factor	10%	6.3V: 15%, 10V, 16V & 25V: 10%	10V & 16V: 12.5%, 25V: 9%, 50V: 7%
Insulation Resistance	500Megohm/ $\mu$ F minimum @ +25°C		
Dielectric Withstanding Voltage	250% of Rated Voltage for 5 $\pm$ 1 sec., 50mA max.		
Test Conditions (EIA-198-2E)	1KHz, 1.0V $\pm$ 0.2Vrms (ALC on), for C > 10 $\mu$ F 120Hz, 0.5 $\pm$ 0.2 VRMS (ALC on)		

\*Reflow soldering is recommended. Contact NIC regarding the use of other soldering methods.

### PART NUMBER SYSTEM



## X7R & X5R CASE SIZES AND VALUES

Dielectric	X7R			X5R										
Case Size	1206	0402		0603		0805				1206				1210
Voltage Rating (VDC)	25V	6.3V	25V	10V	16V	6.3V	10V	16V	25V	6.3V	10V	16V	25V	10V
0.22μF	-	-	0.33	0.60	0.60	-	-	-	-	-	-	-	-	-
0.47μF	-	-	0.33	-	-	-	-	-	-	-	-	-	-	-
1.0μF	0.95	0.33	-	0.60	0.60	-	0.95	0.95	0.95	-	0.95	0.95	0.95	-
1.5μF	-	-	-	-	-	-	0.95	0.95	-	-	0.95	0.95	0.95	-
2.2μF	-	-	-	-	-	0.95	0.95	0.95	-	-	0.95	0.95	0.95	-
3.3μF	-	-	-	-	-	-	-	-	-	-	0.95	0.95	0.95	0.95
4.7μF	-	-	-	-	-	0.95	0.95	0.95	-	-	0.95	0.95	0.95	0.95
6.8μF	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10μF	-	-	-	-	-	0.95	0.95	-	-	1.30	0.95/1.30	-	-	-
22μF	-	-	-	-	-	0.95	-	-	-	0.95	-	-	-	-

Denotes maximum component thickness ("T" dim.) in mm

## Y5V CASE SIZES AND VALUES

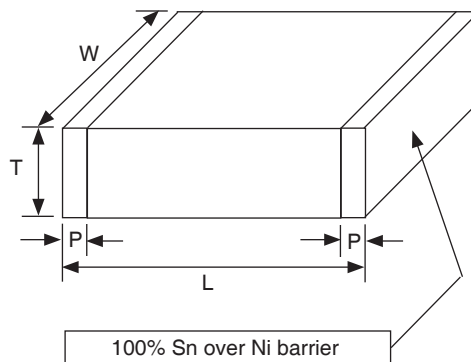
Dielectric	Y5V									
Case Size	0805				1206				1210	
Voltage Rating (VDC)	10V	16V	25V	50V	10V	16V	25V	50V	10V	16V
1.0μF	-	-	-	0.95	-	-	-	-	-	-
1.5μF	-	-	-	-	-	-	-	-	-	-
2.2μF	-	0.95	-	-	0.95	0.95	0.95	0.95	-	-
3.3μF	0.95	-	-	-	-	-	-	-	-	-
4.7μF	0.95	0.95	-	-	0.95	0.95	-	-	-	-
6.8μF	-	-	-	-	0.95	-	-	-	-	-
10μF	0.95	-	-	-	0.95	-	-	-	0.95	-

Denotes maximum component thickness ("T"dim.) in mm

(CONSULT FACTORY FOR CAPACITANCE VALUES NOT LISTED)

## DIMENSIONS (mm)

Case Size	0402	0603	0805	1206	1210
Length (L)	1.00 ± 0.05	1.60 +0.15/-0.10	2.00 ± 0.20	3.20 ± 0.20	3.20 ± 0.30
Width (W)	0.50 ± 0.05	0.8 +0.15/-0.10	1.25 ± 0.20	1.60 ± 0.20	2.50 ± 0.20
Thickness (T)	See Case Sizes and Values Tables				
Termination (P)	0.25 ± 0.10	0.45 ± 0.15	0.50 ± 0.20	0.60 ± 0.20	0.75 ± 0.25



## PART NUMBERS AND SPECIFICATIONS

Part Number	Case Size	Cap. (μF)	Cap. Tolerance	Dielectric	Voltage (Vdc)	Withstanding Voltage	Min. Insulation Resistance (MΩ)	
NMC-T0402X5R224_25TRPR33F	0402	0.22	±10%(K) & ±20%(M)	X5R	25	62.5	2272.7	
NMC-T0402X5R474_25TRPR33F		0.47	±10%(K) & ±20%(M)	X5R	25	62.5	1063.0	
NMC-T0402X5R105_6.3TRPR33F		1.0	±10%(K) & ±20%(M)	X5R	6.3	15.75	500.0	
NMC-T0603X5R224_10TRPR60F	0603	0.22	±10%(K) & ±20%(M)	X5R	10	25	2272.7	
NMC-T0603X5R224_16TRPR60F		0.22	±10%(K) & ±20%(M)	X5R	16	40	2272.7	
NMC-T0603X5R105_10TRPR60F		1.0	±10%(K) & ±20%(M)	X5R	10	25	500.0	
NMC-T0603X5R105_16TRPR60F		1.0	±10%(K) & ±20%(M)	X5R	16	40	500.0	
NMC-T0805X5R105_10TRPR95F	0805	1.0	±10%(K) & ±20%(M)	X5R	10	25	500.0	
NMC-T0805X5R105_16TRPR95F		1.0	±10%(K) & ±20%(M)	X5R	16	40	500.0	
NMC-T0805X5R105_25TRPR95F		1.0	±10%(K) & ±20%(M)	X5R	25	62.5	500.0	
NMC-T0805Y5V105Z50TRPR95F		1.0	+80%/-20%(Z)	Y5V	50	125	500.0	
NMC-T0805X5R155_10TRPR95F		1.5	±10%(K) & ±20%(M)	X5R	10	25	333.3	
NMC-T0805X5R155_16TRPR95F		1.5	±10%(K) & ±20%(M)	X5R	16	40	333.3	
NMC-T0805X5R225_6.3TRPR95F		2.2	±10%(K) & ±20%(M)	X5R	6.3	15.75	227.3	
NMC-T0805X5R225_10TRPR95F		2.2	±10%(K) & ±20%(M)	X5R	10	25	227.3	
NMC-T0805X5R225_16TRPR95F		2.2	±10%(K) & ±20%(M)	X5R	16	40	227.3	
NMC-T0805Y5V225Z16TRPR95F		2.2	+80%/-20%(Z)	Y5V	16	40	227.3	
NMC-T0805Y5V335Z10TRPR95F		3.3	+80%/-20%(Z)	Y5V	10	25	151.5	
NMC-T0805X5R475_6.3TRPR95F		4.7	±10%(K) & ±20%(M)	X5R	6.3	15.75	106.4	
NMC-T0805X5R475_10TRPR95F		4.7	±10%(K) & ±20%(M)	X5R	10	25	106.4	
NMC-T0805Y5V475Z10TRPR95F		4.7	+80%/-20%(Z)	Y5V	10	25	106.4	
NMC-T0805X5R475_16TRPR95F		4.7	±10%(K) & ±20%(M)	X5R	16	40	106.4	
NMC-T0805Y5V475Z16TRPR95F		4.7	+80%/-20%(Z)	Y5V	16	40	106.4	
NMC-T0805X5R106_6.3TRPR95F		10	±10%(K) & ±20%(M)	X5R	6.3	15.75	50.0	
NMC-T0805X5R106_10TRPR95F		10	±10%(K) & ±20%(M)	X5R	10	25	50.0	
NMC-T0805Y5V106Z10TRPR95F		10	+80%/-20%(Z)	Y5V	10	25	50.0	
NMC-T0805X5R226M6.3TRPR95F		22	±20%(M)	X5R	6.3	15.75	22.7	
NMC-T1206X5R105_10TRPR95F		1206	1.0	±10%(K) & ±20%(M)	X5R	10	25	500.0
NMC-T1206X5R105_16TRPR95F			1.0	±10%(K) & ±20%(M)	X5R	16	40	500.0
NMC-T1206X5R105_25TRPR95F	1.0		±10%(K) & ±20%(M)	X5R	25	62.5	500.0	
NMC-T1206X7R105_25TRPR95F	1.0		±10%(K) & ±20%(M)	X7R	25	62.5	500.0	
NMC-T1206X5R155_10TRPR95F	1.5		±10%(K) & ±20%(M)	X5R	10	25	333.3	
NMC-T1206X5R155_16TRPR95F	1.5		±10%(K) & ±20%(M)	X5R	16	40	333.3	
NMC-T1206X5R155_25TRPR95F	1.5		±10%(K) & ±20%(M)	X5R	25	62.5	333.3	
NMC-T1206X5R225_10TRPR95F	2.2		±10%(K) & ±20%(M)	X5R	10	25	227.3	
NMC-T1206Y5V225Z10TRPR95F	2.2		+80%/-20%(Z)	Y5V	10	25	227.3	
NMC-T1206X5R225_16TRPR95F	2.2		±10%(K) & ±20%(M)	X5R	16	40	227.3	
NMC-T1206Y5V225Z16TRPR95F	2.2		+80%/-20%(Z)	Y5V	16	40	227.3	
NMC-T1206X5R225_25TRPR95F	2.2		±10%(K) & ±20%(M)	X5R	25	62.5	227.3	
NMC-T1206Y5V225Z25TRPR95F	2.2		+80%/-20%(Z)	Y5V	25	62.5	227.3	
NMC-T1206Y5V225Z50TRPR95F	2.2		+80%/-20%(Z)	Y5V	50	125	227.3	
NMC-T1206X5R335_10TRPR95F	3.3		±10%(K) & ±20%(M)	X5R	10	25	151.5	
NMC-T1206X5R335_16TRPR95F	3.3		±10%(K) & ±20%(M)	X5R	16	40	151.5	
NMC-T1206X5R335_25TRPR95F	3.3		±10%(K) & ±20%(M)	X5R	25	62.5	151.5	
NMC-T1206X5R475_10TRPR95F	4.7		±10%(K) & ±20%(M)	X5R	10	25	106.4	
NMC-T1206Y5V475Z10TRPR95F	4.7		+80%/-20%(Z)	Y5V	10	25	106.4	
NMC-T1206X5R475_16TRPR95F	4.7		±10%(K) & ±20%(M)	X5R	16	40	106.4	
NMC-T1206Y5V475Z16TRPR95F	4.7		+80%/-20%(Z)	Y5V	16	40	106.4	
NMC-T1206X5R475_25TRPR95F	4.7		±10%(K) & ±20%(M)	X5R	25	62.5	106.4	
NMC-T1206Y5V685Z10TRPR95F	6.8		+80%/-20%(Z)	Y5V	10	25	73.5	
NMC-T1206X5R106_6.3TRPLP1R3F	10		±10%(K) & ±20%(M)	X5R	6.3	15.75	50.0	
NMC-T1206X5R106_10TRPLPR95F	10		±10%(K) & ±20%(M)	X5R	10	25	50.0	
NMC-T1206X5R106_10TRPLP1R3F	10		±10%(K) & ±20%(M)	X5R	10	25	50.0	
NMC-T1206Y5V106Z10TRPR95F	10		+80%/-20%(Z)	Y5V	10	25	50.0	
NMC-T1206X5R226M6.3TRPR95F	22		±20%(M)	X5R	6.3	15.75	22.7	
NMC-T1210X5R335_10TRPLPR95F	1210		3.3	±10%(K) & ±20%(M)	X5R	10	25	151.5
NMC-T1210X5R475_10TRPLPR95F			4.7	±10%(K) & ±20%(M)	X5R	10	25	106.4
NMC-T1210Y5V106Z10TRPLPR95F			10	+80%/-20%(Z)	Y5V	10	25	50.0

"\_" insert desired capacitance tolerance code



## REEL QUANTITIES

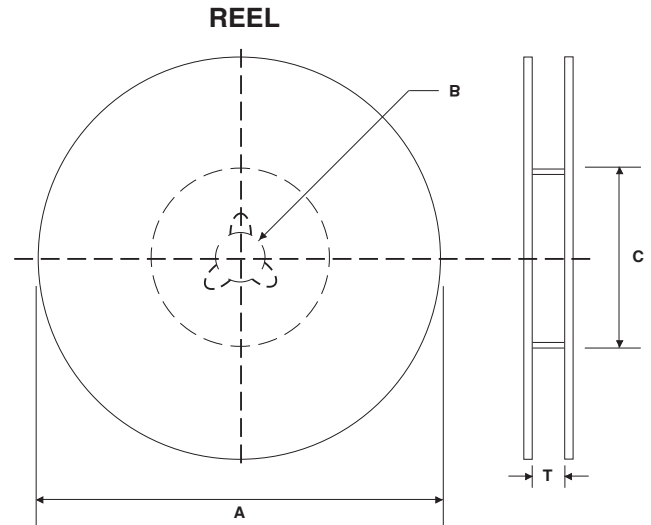
Maximum Thickness	Case Size	0402			0603			0805			1206			1210		
	Reel Diameter	7"	7"	10"	13"	7"	10"	13"	7"	10"	13"	7"	10"	13"		
0.33	/	15K	-	-	-	-	-	-	-	-	-	-	-	-		
0.60		-	4K	10K	15K	-	-	-	-	-	-	-	-	-		
0.95		-	-	-	-	4K	10K	15K	4K	10K	15K	3K	5K	10K		
1.30		-	-	-	-	-	-	-	3K	5K	10K	-	-	-		

## REEL DIMENSIONS (mm)

Reel Diameter (A)	B	C	T max.
7" (178 ± 1.0)	13 ± 0.5	60 ± 1.0	8.4 +1.5/-0
10" (250 ± 1.0)		100 ± 1.0	
13" (330 ± 1.0)		100 ± 1.0	

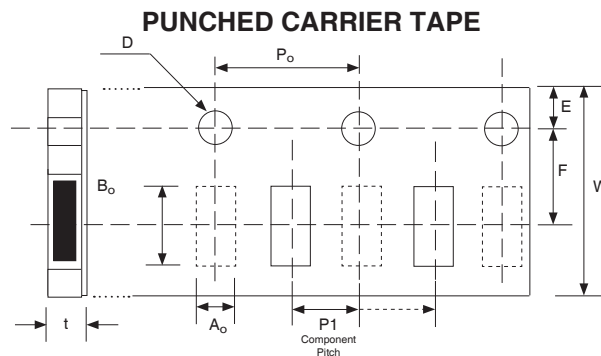
## CARRIER TAPE MATERIAL

Maximum Thickness	0402	0603	0805	1206	1210
0.33	Paper	-	-	-	-
0.60	-	Paper	-	-	-
0.95	-	-	Paper	Paper	Plastic
1.30	-	-	-	Plastic	-



## PUNCHED CARRIER TAPE DIMENSIONS (mm)

Case Size	A <sub>o</sub>	B <sub>o</sub>	W	F	E	P1	P0	D0	T	Mounting Hole
0402	0.62 ± 0.05	1.12 ± 0.05	8.0 ± 0.3	3.5 ± 0.05	1.75 ± 0.1	2.0 ± 0.10	4.0 ± 0.1	1.5 <sup>+0.1/-0.0</sup>	0.42 ± 0.05	Angular Punch Hole
0603	1.1 ± 0.2	1.9 ± 0.2				4.0 ± 0.10			0.60 ± 0.05	
0805	1.5 ± 0.1	2.4 ± 0.2				1.5 ± 0.05	0.95 ± 0.05			
1206	2.0 ± 0.2	3.6 ± 0.2								



## EMBOSSED PLASTIC CARRIER TAPE DIMENSIONS (mm)

Case Size	Tape Size	W	F	E	P <sub>0</sub>	P <sub>2</sub>	D	K max.	P
1206	8mm	8.0 ± 0.2	3.5 ± 0.05	1.75 ± 0.10	4.0 ± 0.1	2.0 ± 0.05	1.5 ± 0.05	2.5	4.0 ± 0.1
1210									

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

