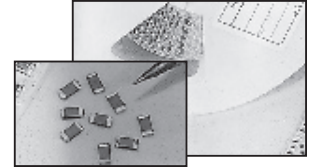


FEATURES

- CLASS II DIELECTRIC, TEMPERATURE STABLE
- EXCELLENT FREQUENCY CHARACTERISTICS, NON-LINEAR CAPACITANCE CHANGE
- NICKEL BARRIER TERMINATIONS AND EXCELLENT MECHANICAL STRENGTH

**Expanded
01005
Case Size**

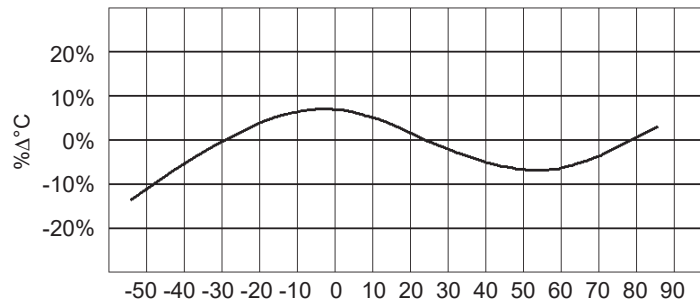


SPECIFICATIONS

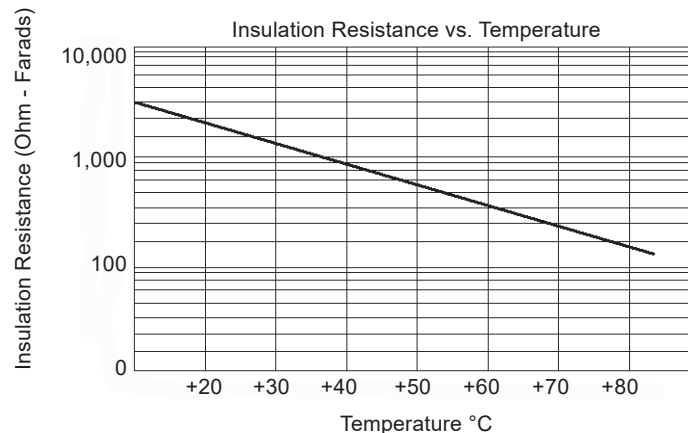
Capacitance Range	100pF ~ 0.82μF (see high CV datasheet for higher capacitance values)
Capacitance Tolerance	±10% (K), ±20% (M)
Operating Temperature Range	-55°C ~ +85°C
Temperature Characteristics	±15%Δ max. over temperature range (with 0 Vdc applied)
Rated Voltages	6.3Vdc, 10Vdc, 16Vdc, 25Vdc, 35Vdc & 50Vdc (see NMC-H Series for higher voltages, NMC High Cap for higher capacitance)
Dissipation Factor	See Available Values Tables (1KHz @ +25°C)
Insulation Resistance	10,000Megohms min. or 500Megohm/μF min. whichever is less @ +25°C Except: 01005 0.1μF/6.3V 100MΩ, 0.1μF/10V = 500MΩ
Dielectric Withstanding Voltage	250% of Rated Voltage for 1 ~ 5 seconds, 50mA maximum current
Test Conditions (EIA-198-2E)	1KHz, 1.0V ±0.2Vrms

Note: Reflow soldering allowed for all case sizes. Contact NIC for wave soldering restrictions.

Typical X5R Temperature Coefficient



Insulation Resistance vs. Temperature



PART NUMBER SYSTEM

NMC 0805 X5R 102 K 50 TRP or TRPLP 3K 7C3 F

- NMC: Series
- 0805: Size Code (see chart)
- X5R: Temperature Characteristic
- 102: Capacitance Code, expressed in pF, first 2 digits are significant, 3rd digit is no. of zeros, "R" indicates decimal for under 10pF
- K: 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*
- F: RoHS Compliant

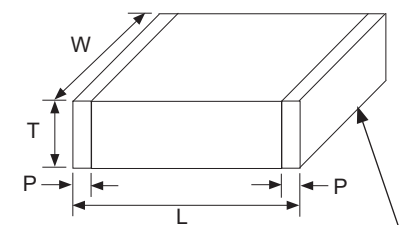
* - Part Number Level Identification of X5R MLCCs that do not take RoHS exemption 7C-III



01005 Case Size Available Values

EIA Case Size	01005	
Length (L)	0.4±0.02	
Width (W)	0.2±0.02	
Thickness max. (T)	0.22	
Termination Width (P)	0.1±0.03	
Capacitance	Working Voltage (Vdc)	
	6.3	10
100pF		7.5%
150pF		7.5%
220pF		7.5%
330pF		7.5%
470pF		7.5%
680pF		7.5%
1,000pF		7.5%
1,500pF	10%	
2,200pF	10%	
3,300pF	10%	
4,700pF	10%	
6,800pF	10%	
10,000pF	10%	10%
100,000pF	12.5%	10%

Percentage shown represent dissipation factor



100% Sn over Ni barrier

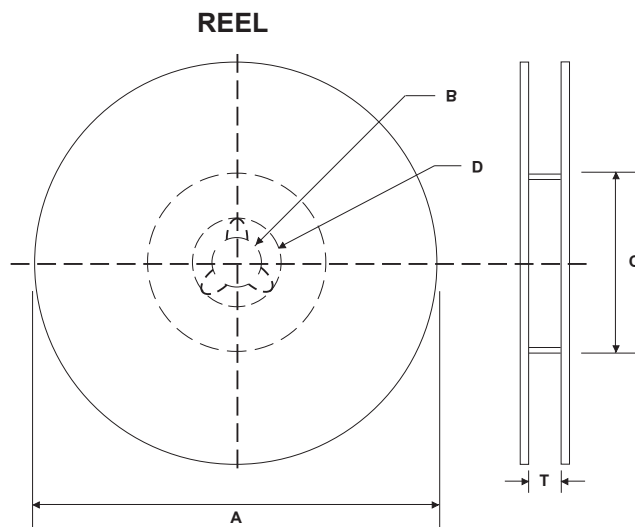
(CONSULT FACTORY
FOR CAPACITANCE
VALUES NOT LISTED)

0201, 0402 & 0603 Case Size Available Values

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)													
	6.3	10	6.3	10	16	25	35	6.3	10	16	25	35	50	
0.0012μF	10%	7.5%												
0.0015μF	10%	7.5%												
0.0018μF	10%	7.5%												
0.0022μF	10%	7.5%												
0.0027μF	10%	7.5%												
0.0033μF	10%	7.5%												
0.0039μF	10%	7.5%												
0.0047μF	10%	7.5%	10%	7.5%	5%									
0.0056μF	10%	7.5%	10%	7.5%	5%									
0.0068μF	10%	7.5%	10%	7.5%	5%									
0.0075μF	10%	7.5%	10%	7.5%	5%									
0.0082μF	10%	7.5%	10%	7.5%	5%									
0.01μF	10%	7.5%	10%	7.5%	5%									
0.015μF	10%		10%	7.5%	5%									
0.018μF	10%		10%	7.5%	5%									
0.022μF	10%		10%	7.5%	5%									
0.027μF	10%		10%	7.5%	5%									
0.033μF	10%		10%	7.5%	5%									
0.036μF	10%		10%	7.5%	5%									
0.039μF	10%		10%	7.5%	5%									
0.047μF	10%		10%	7.5%	5%									
0.056μF	10%		10%	7.5%	5%									
0.068μF	10%		10%	7.5%	5%									
0.075μF	10%		10%	7.5%	5%									
0.082μF	10%		10%	7.5%	5%									
0.1μF	10%	10%	10%	7.5%	5%							5%		
0.15μF			10%									5%		
0.18μF			10%									5%		
0.22μF	10%		10%	7.5%	5%	10%		10%	7.5%		5%	5%	5%	
0.27μF								10%	7.5%		5%			
0.33μF			10%	7.5%	5%	10%	10%	10%	7.5%	5%	5%	5%	5%	
0.36μF								10%	7.5%	5%	5%			
0.39μF								10%	7.5%	5%	5%			
0.47μF			10%	10%	10%	10%	10%	10%	7.5%	5%	5%	5%	5%	
0.68μF			10%			10%	10%	10%	7.5%	5%	5%	7.5%	7.5%	
0.82μF								10%	7.5%	5%				

Percentage shown represent dissipation factor

See NMC High Capacitance datasheet for higher capacitance values
or NMC-H High Voltage datasheet for higher voltage ratings



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 (1812 case size 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	15,000	10,000	4,000	4,000	4,000	2,000	1,000
Max. Qty Per Reel	20,000	15,000	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

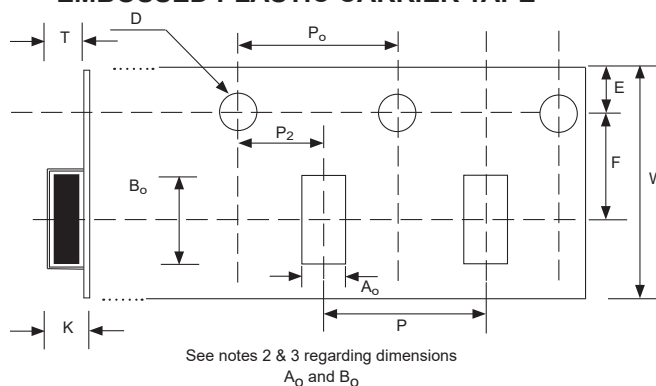
EMBOSSED PLASTIC CARRIER TAPE DIMENSIONS (mm)

Tape Size	W	F	E	P ₀	P ₂	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 ^{+0.1} _{-0.0}	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 A₀ (max.) equals component width dimension plus 0.5mm
- Dimension B₀ (max.) equals component length dimension plus 0.5mm

EMBOSSED PLASTIC CARRIER TAPE



See notes 2 & 3 regarding dimensions A₀ and B₀

PUNCHED CARRIER TAPE DIMENSIONS (mm)

Type	A ₀	B ₀	W	F	E	P1	P0	D0	T1 max.	T2 max.	Mounting 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 +0.1/-0.0	0.27	0.36	Angular Punch Hole		
0201	0.37 ± 0.03	0.67 ± 0.05							0.45	0.80			
0402	0.65 ± 0.05	1.15 ± 0.05											
0603	1.1 ± 0.2	1.9 ± 0.2				4.0 ± 0.10			1.1	1.4			
0805	1.65 ± 0.2	2.4 ± 0.2											
1206	2.0 ± 0.2	3.6 ± 0.2											

PUNCHED CARRIER TAPE

