

NMC NPO Series

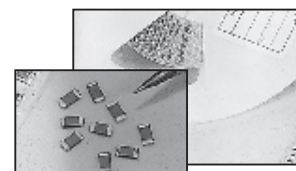
Surface Mount High Capacitance Ceramic Capacitors



FEATURES

- CLASS I DIELECTRIC, TEMPERATURE COMPENSATING
- HIGH STABILITY OVER TIME, VOLTAGE AND TEMPERATURE CHANGES
- LOW DIELECTRIC LOSS
- NICKEL BARRIER TERMINATIONS AND EXCELLENT MECHANICAL STRENGTH

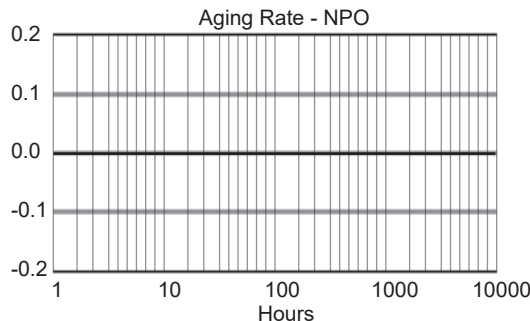
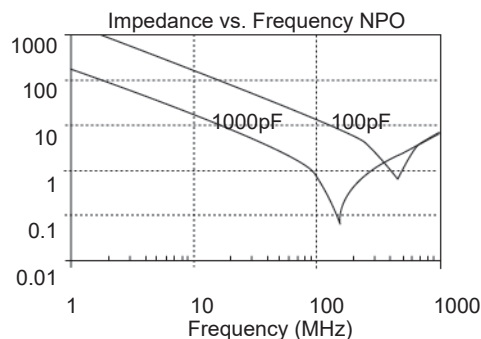
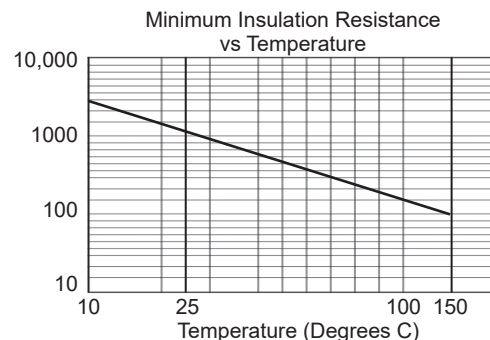
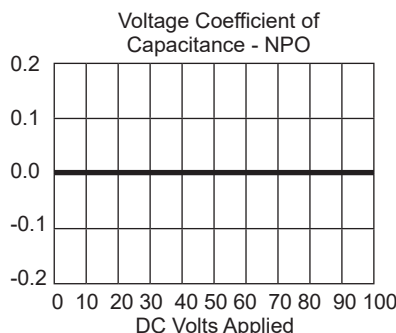
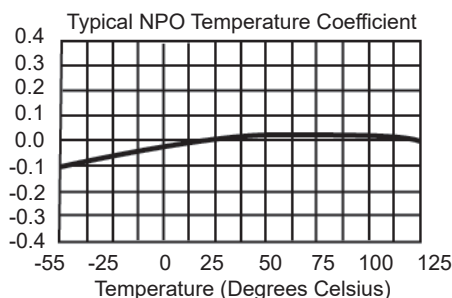
Expanded Value Range Up to 0.1 μ F



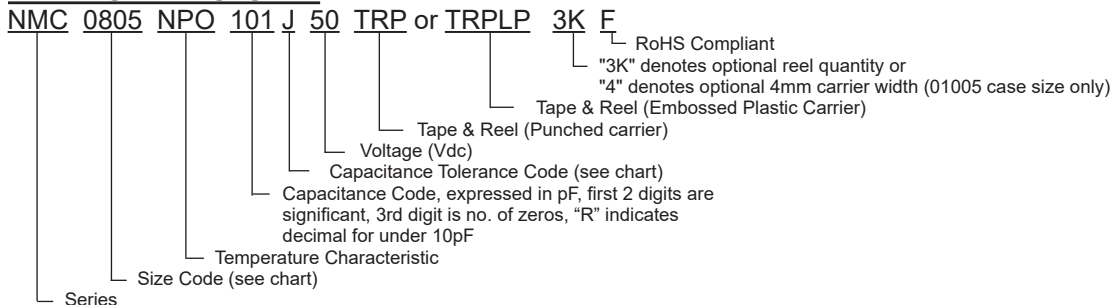
SPECIFICATIONS

Capacitance Range	0.3pF to 0.1 μ F
Capacitance Tolerance	<5pF: ± 0.1 pF(B), ± 0.25 pF(C) ≥ 5 pF to <10pF: ± 0.1 pF(B), ± 0.25 pF(C), ± 0.5 pF(D) 10pF and above: $\pm 1\%$ (F), $\pm 2\%$ (G), $\pm 5\%$ (J)
Operating Temperature Range	-55°C ~ +125°C
Temperature Characteristics	0 \pm 30ppm/°C
Rated Voltages	10Vdc, 16Vdc, 25Vdc, 35Vdc, 50Vdc, 100Vdc (see NMC-H Series for higher voltages)
Dissipation Factor	For values >30pF 0.1% @ 25°C; For values \leq 30pF Q=400+20 x C (C in pF)
Insulation Resistance	10,000Megohms min. or 500Megohm/ μ F (min.), whichever is less @ +25°C
Dielectric Withstanding Voltage	250% of Rated Voltage for 1 ~ 5 seconds, 50mA maximum current
Test Conditions (EIA-198-2E)	≤ 1000 pF; 1MHz, 1.2Vrms max. or >1000pF; 1KHz, 1.2Vrms max.

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



PART NUMBER SYSTEM



NMC NPO Series

Surface Mount High Capacitance Ceramic Capacitors



EIA Case Size		01005	EIA Case Size		0201	0402	0603	0805											
Length (L)		0.4±0.02	Length (L)		0.6±0.03	1.0±0.05	1.6±0.15	2.0±0.2											
Width (W)		0.2±0.02	Width (W)		0.3±0.03	0.5±0.05	0.8±0.15	1.25±0.2											
Thickness max. (T)		0.22	Thickness max. (T)		0.33	0.6	1.0	1.35											
Termination Width (P)		0.10 +0.04/-0.03	Termination Width (P)		0.15±0.05	0.2±0.1	0.12 ~ 0.51	0.25 ~ 0.71											
Capacitance	Working Voltage (Vdc)	16	Capacitance	Working Voltage (Vdc)															
				10	16	25	50	16	25	50	100	16	25	50	100	16	25	50	100
0.5pF			0.3pF & 0.4pF																
0.6pF			0.47pF ~ 22pF																
0.7pF			24pF																
0.8pF			27pF																
0.9pF			30pF																
1.0pF			33pF																
1.1pF			36pF																
1.2pF			39pF																
1.3pF			43pF																
1.5pF			47pF																
1.6pF			51pF																
1.8pF			56pF																
2.0pF			62pF																
2.2pF			68pF																
2.4pF			75pF																
2.5pF			82pF																
2.7pF			91pF																
3.0pF			100pF																
3.3pF			110pF																
3.6pF			120pF																
3.9pF			130pF																
4.0pF			150pF																
4.7pF			160pF																
5.0pF			180pF																
5.6pF			200pF																
6.0pF			220pF																
6.2pF			240pF																
6.8pF			270pF																
7.0pF			300pF																
7.5pF			330pF																
8.0pF			360pF																
8.2pF			390pF																
9.0pF			430pF																
9.1pF			470pF																
10pF			510pF																
12pF			560pF																
15pF			620pF																
18pF			680pF																
22pF			750pF																
27pF			820pF																
33pF			910pF																
39pF			0.001µF																
47pF			0.0012µF																
56pF			0.0015µF																
68pF			0.0018µF																
82pF			0.0022µF																
100pF			0.0027µF																*
			0.0033µF																*
			0.0039µF															*	*
			0.0047µF															*	*
			0.0056µF													*	*	*	*
			0.0068µF												*	*	*	*	*
			0.0082µF												*	*	*	*	*
			0.01µF												*	*	*	*	*

Highlighted values available on 4mm carrier, 40K pieces per reel.

(CONSULT FACTORY FOR CAPACITANCE VALUES NOT LISTED)

*1.45mm maximum thickness

Performance Passives By Design

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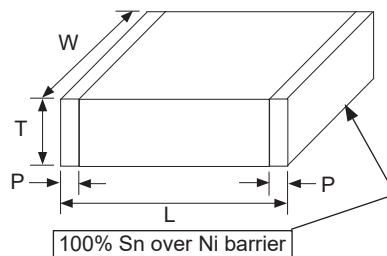


EIA Case Size	0805				1206				1210				1812			2225			
Length (L)	2.0±0.2				3.2±0.4				3.2±0.2				4.5±0.3			5.70±0.4			
Width (W)	1.25±0.2				1.6±0.3				2.5±0.2				3.2±0.25			6.35±0.25			
Thickness max. (T)	1.45				1.80				1.80				1.80			1.80			
Termination Width (P)	0.25 ~ 0.71				0.25 ~ 0.71				0.25 ~ 0.71				0.25 ~ 0.76			0.25 ~ 1.02			
Capacitance	Working Voltage (Vdc)																		
	16	25	50	100	10	16	25	50	100	10	16	25	50	100	25	50	100	50	100
0.47pF ~ 9.1pF																			
10pF ~ 22pF																			
24pF ~ 0.001µF																			
0.0012µF																			
0.0015µF																			
0.0018µF																			
0.0022µF																			
0.0027µF																			
0.0033µF																			
0.0039µF																			
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0.022µF																			**
0.027µF																			**
0.033µF																			**
0.039µF																			**
0.047µF																			
0.056µF																			
0.068µF																			
0.082µF																			
0.1µF																	***		

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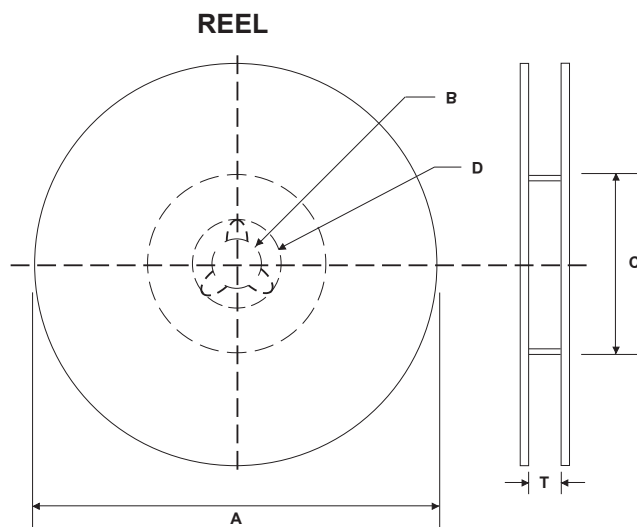
*1.90mm maximum thickness, **2.60mm maximum thickness, ***4.5mm ± 0.40 x 3.2mm ± 0.40 x 2.80mm maximum thickness

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



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REEL DIMENSIONS (mm)

Reel Diameter (A)	B	C	D	T max.
7" (178 ± 2.0)	13.0 ± 0.5	50 min.	21.0 ± 1.0	4mm Carrier: 5.0 ± 1.5
10" (250 ± 2.0)		100 ± 1.0		8mm Carrier: 8.4 ± 1.0
13" (330 ± 2.0)		100 ± 1.0		12mm Carrier: 12.8 ± 0.5

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

7 INCH REEL QUANTITIES*

Size	01005		0201	0402	0603	0805	1206	1210	1812	2225
Tape Size	4mm	8mm	8mm	8mm	8mm	8mm	8mm	8mm	12mm	12mm
Min. Qty Per Reel	40,000	20,000	15,000	10,000	4,000	4,000	4,000	2,000	1,000	400
Max. Qty Per Reel	40,000	20,000	15,000	10,000	4,000	5,000	5,000	5,000	2,000	1,000

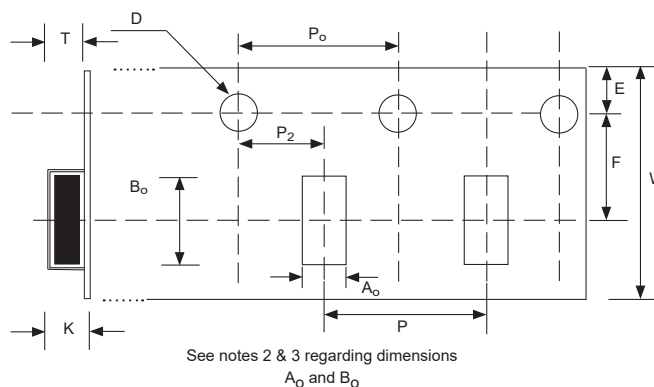
*Quantity dependent on chip thickness. Contact NIC for reel quantities on larger diameter reels.

8MM & 12MM EMBOSSED PLASTIC CARRIER TAPE DIMENSIONS (mm)

Carrier Width	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



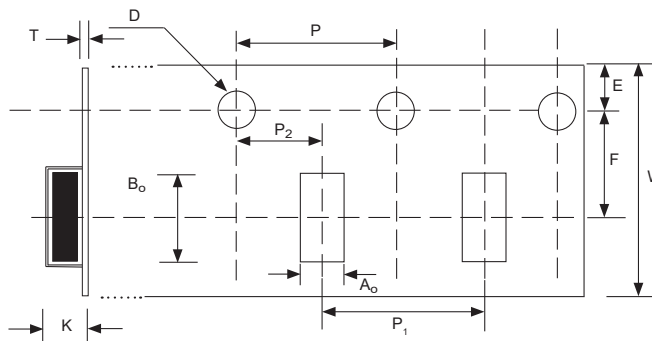
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4MM (01005 CASE SIZE) EMBOSSED PLASTIC CARRIER TAPE DIMENSIONS (mm)

Carrier Width	A ₀	B ₀	W	F	E	P	P ₁	P ₂	D	K max.	T max.
4mm	0.23 ± 0.02	0.43 ± 0.02	4.0 ± 0.05	1.8 ± 0.02	0.90 ± 0.05	2.0 ± 0.04	1.0 ± 0.02	1.0 ± 0.02	1.5 ^{+0.1} _{-0.0}	0.50	0.15 ~ 0.40



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				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

