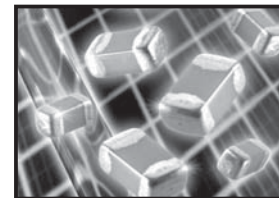


FEATURES

- LOWER ESR - HIGH Q at HIGH FREQUENCY
- STABLE NPO CHARACTERISTICS OVER TEMPERATURE AND VOLTAGE
- EIA 0201, 0402, 0603 & 0805 CASE SIZES
- WIDE CAPACITANCE (UP TO 3,300pF) & VOLTAGE RANGE (UP TO 100VDC)



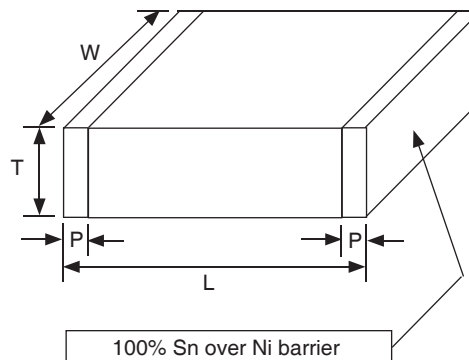
RoHS Compliant

Includes all homogeneous materials

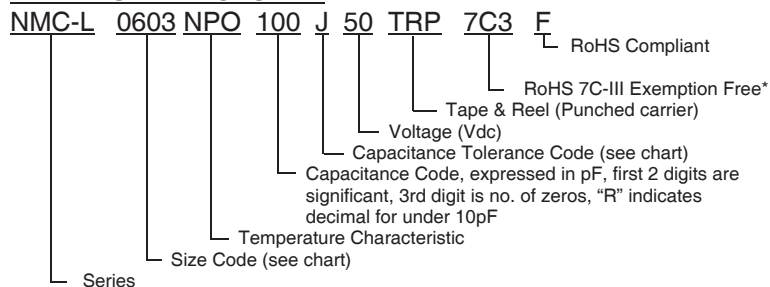
*See Part Number System for Details

SPECIFICATIONS	NPO			
Case Sizes	0201	0402	0603	0805
Capacitance Range*	1.0pF ~ 15pF	0.5pF ~ 470pF	0.5pF ~ 3300pF	1.0pF ~ 150pF
Capacitance Tolerance	Cap. Values ≤ 5pF: ±0.1pF(B), ±0.25pF(C) Cap. Values 5pF ~ 8.2pF: ±0.25pF(C), ±0.5pF(D) Cap. Values ≥10pF: ±1%(F), ±2%(G), ±5% (J)			
Operating Temperature Range	-55°C ~ +125°C			
Temperature Characteristics	0 ± 30PPM/°C			
Rated Voltage	16Vdc, 25Vdc, 50Vdc		16Vdc, 25Vdc, 50Vdc & 100Vdc	
Q Factor*	Cap. Values <30pF: Q ≥ 400 + 20C Cap. Values ≥30pF: Q ≥ 1000			
ESR	Cap. Values < 2.2pF: ≤1000mΩ@900MHz ± 100MHz Cap. Values 2.2pF ~ 470pF: ≤500mΩ@900MHz ± 100MHz Cap. Values >470pF: ≤500mΩ@60MHz ± 10MHz			
Insulation Resistance	10,000 Megohms min. @ +25°C			
Dielectric Withstanding Voltage	250% of rated voltage for 1 ~ 5 seconds			
Test Conditions (Cap. & Q)	*1.0 ± 0.2Vrms, 1MHz ± 10% (<1000pF) or 1KHz ± 10% (>1000pF)			

EIA Case Size	0201	0402	0603	0805
Length (L)	0.6 ± 0.05	1.0 ± 0.05	1.6 ± 0.10	2.0 ± 0.10
Width (W)	0.3 ± 0.05	0.5 ± 0.05	0.8 ± 0.10	1.25 ± 0.10
Thickness (T)	0.33 max.	0.60 max.	1.0 max.	1.3 max.
Termination Width (P)	$0.10 \sim 0.20$	$0.15 \sim 0.30$	$0.12 \sim 0.55$	$0.25 \sim 0.71$



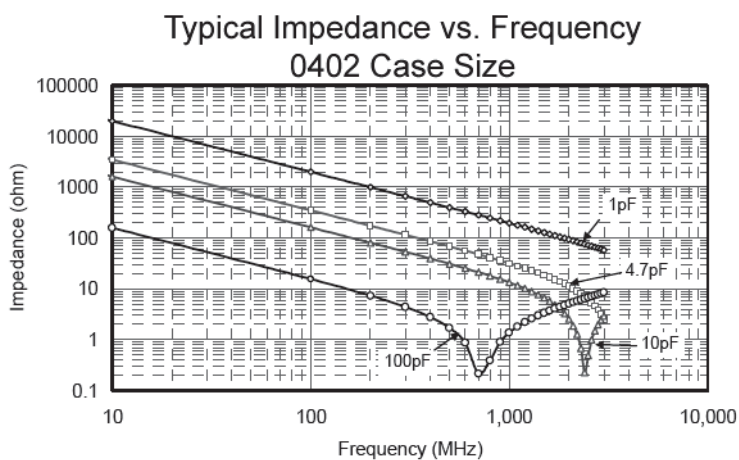
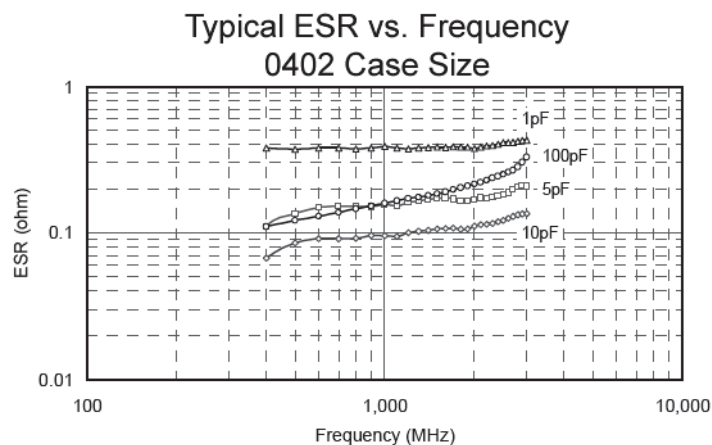
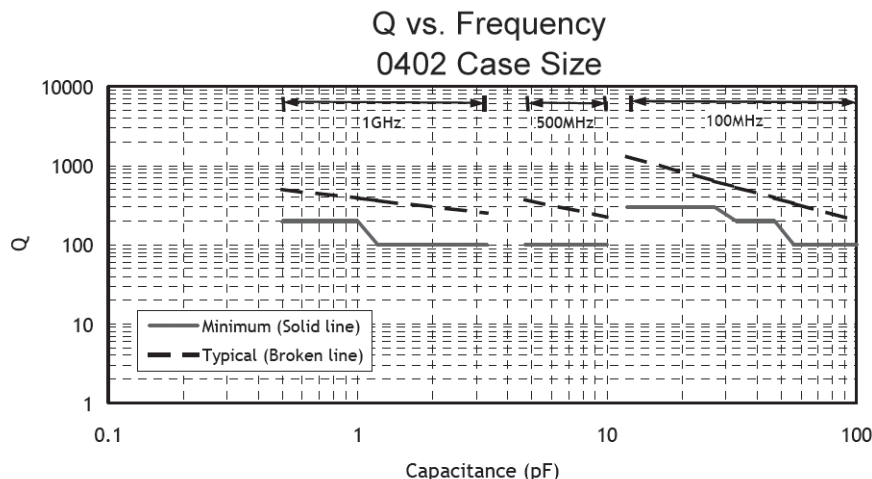
PART NUMBER SYSTEM

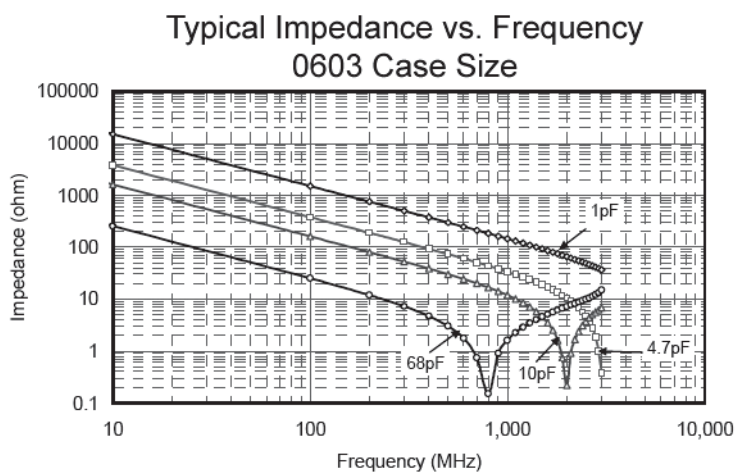
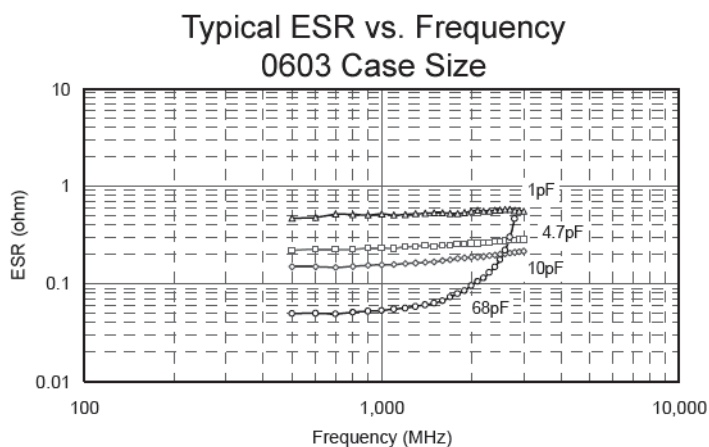
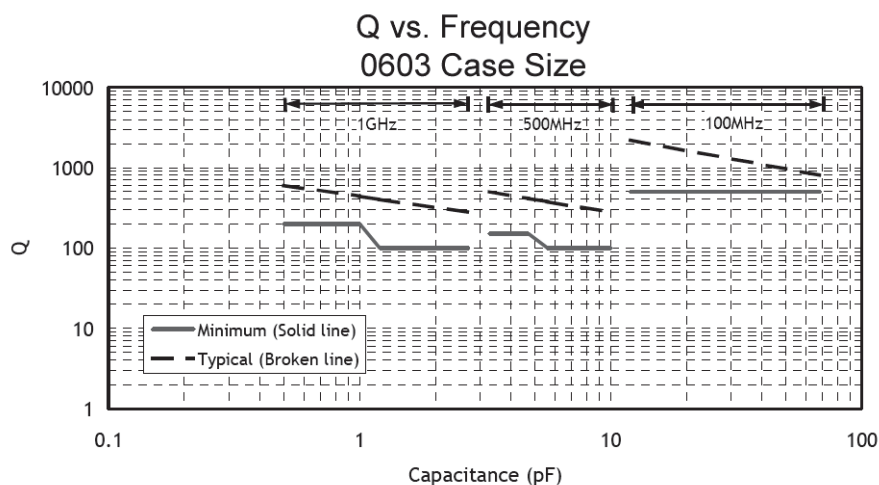


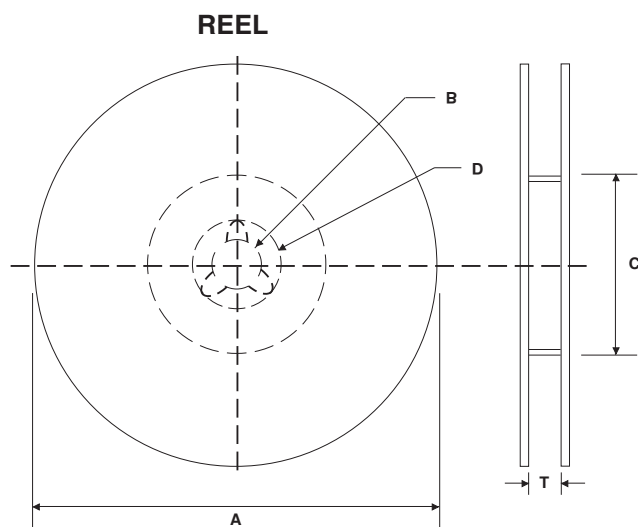
* - Part Number Level Identification of NPO MLCCs that do not take RoHS exemption 7C-III



EIA Case Size	0201	0402				0603				0805		
2.0	0.6 ± 0.05	1.0 ± 0.05				1.6 ±0.10				2.0 ± 0.1		
Width (W)	0.3 ± 0.05	0.5 ± 0.05				0.8 ± 0.10				1.25 ± 0.1		
Thickness max. (T)	0.33 max	0.55 max.				0.87 max.				1.30 max.		
Termination Width (P)	0.10 ~ 0.20	0.15 ~ 0.30				0.25 ~ 0.55				0.25 ~ 0.71		
Capacitance (pF)	Working Voltage (Vdc)											
	25V	16	25	50	100	16	25	50	100	50	100	
0.5			0.700Ω max. ESR @ 500MHz				0.700Ω max. ESR @ 500MHz			0.700Ω max. ESR @ 500MHz		
0.6												
0.7												
0.8												
0.9												
1.0												
1.2	0.700Ω max. ESR @ 1GHz											
1.5												
1.8												
2.2												
2.7												
3.3												
3.9	0.385Ω max. ESR @ 1GHz		0.385Ω max. ESR @ 500MHz				0.385Ω max. ESR @ 500MHz			0.385Ω max. ESR @ 500MHz		
4.7												
5.6												
6.8												
8.2												
10												
12			0.300Ω max. ESR @ 500MHz				0.300Ω max. ESR @ 500MHz			0.300Ω max. ESR @ 500MHz		
15												
18												
22												
27												
33												
39			0.260Ω max. ESR @ 500MHz				0.260Ω max. ESR @ 500MHz			0.260Ω max. ESR @ 500MHz		
47												
56												
68												
82												
100												
110			0.500Ω max. ESR @ 500MHz				0.400Ω max. ESR @ 500MHz			0.260Ω max. ESR @ 500MHz		
120												
130												
150												
180			500mΩ max. ESR @ 900MHz				500mΩ max. ESR @ 900MHz					
220												
270		500mΩ max. ESR @ 900MHz					500mΩ max. ESR @ 900MHz					
330												
390												
470												
560							500mΩ max. ESR @ 60MHz					
680												
820												
1,000												
1,200						500mΩ max. ESR @ 60MHz						
1,500												
1,800												
2,200												
2,700												
3,300												







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	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

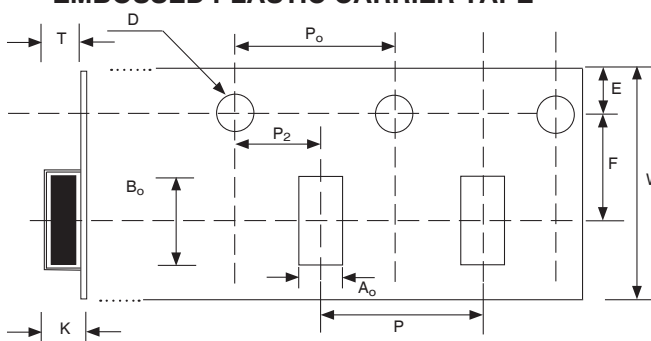
EMBOSSED PLASTIC CARRIER TAPE DIMENSIONS (mm)

Tape Size	W	F	E	P 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 _o	B _o	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

