

### FEATURES

- HIGH Q FOR RF APPLICATIONS
- STABLE NPO CHARACTERISTICS OVER TEMPERATURE AND VOLTAGE
- HIGH VOLTAGE (UP TO 250VDC)
- EIA 0201, 0402 AND 0603 CASE SIZES
- IDEAL FOR WIRELESS DATA AND VOICE COMMUNICATIONS APPLICATIONS  
WLANs, HIPERLAN, 802.11A, 802.11B, Wi-Fi, BLUETOOTH, TELEMATICS, PCS, LMDS AND CELLULAR



SPECIFICATIONS	NPO
Capacitance Range	0.1pF ~ 47pF
Capacitance Tolerance	±0.05pF(A), ±0.1pF(B), ±0.25pF(C), ±0.5pF(D) ±1%(F), ±2%(G), ±5%(J)
Operating Temperature Range	-55°C ~ +125°C
Temperature Characteristics	0 ± 30PPM/°C
Rated Voltage	25Vdc, 50Vdc, 100Vdc & 250Vdc
Q Factor	0201 & 0402 Q <sub>≥</sub> 400+20C (1MHz, +25°C) 0603 C<30pF Q <sub>≥</sub> 800+20C, C ≥30pF Q <sub>≥</sub> 1000
Insulation Resistance	10,000 Megohms min. @ +25°C
Dielectric Withstanding Voltage	100V < X 2.5RV, 250V x 2RV for 5 ± 1 seconds

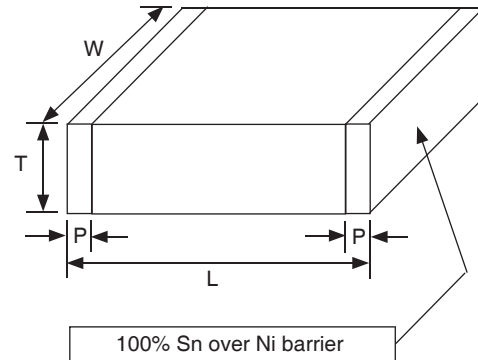
**RoHS  
Compliant**

Includes all homogeneous materials

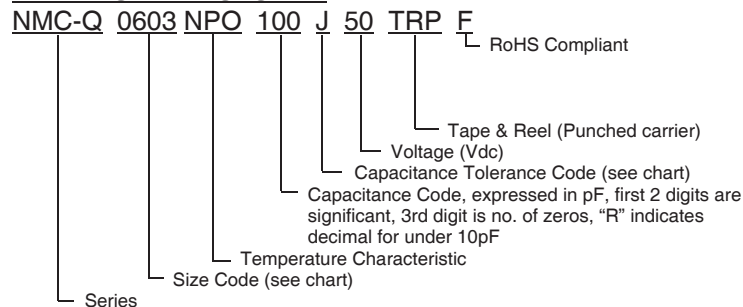
\*See Part Number System for Details

### DIMENSIONS (mm)

EIA Case Size	0201	0402	0603
Length (L)	0.6 ± 0.03	1.0 ± 0.05	1.6 ± 0.10
Width (W)	0.3 ± 0.03	0.5 ± 0.05	0.8 ± 0.10
Thickness (T)	0.33 max.	0.55 max.	0.87 max.
Termination Width (P)	0.10 ~ 0.20	0.15 ~ 0.30	0.25 ~ 0.55



### PART NUMBER SYSTEM



## 0201 25 Volt Standard Values and Characteristics

NIC PART NUMBER	CAPACITANCE VALUE (pF)	AVAILABLE TOLERANCE	Q FACTOR (typ. @ 1GHz)*	ESR $\Omega$ (typ. @ 1GHz)*
NMC-Q0201NPO0R1_25TRPF	0.1	B	400	2.20
NMC-Q0201NPO0R2_25TRPF	0.2	A, B	400	1.80
NMC-Q0201NPO0R3_25TRPF	0.3	A, B	400	0.95
NMC-Q0201NPO0R4_25TRPF	0.4	A, B	400	0.75
NMC-Q0201NPO0R5_25TRPF	0.5	A, B, C	400	0.50
NMC-Q0201NPO0R6_25TRPF	0.6	A, B, C	400	0.45
NMC-Q0201NPO0R7_25TRPF	0.7	A, B, C	400	0.40
NMC-Q0201NPO0R8_25TRPF	0.8	A, B, C	400	0.40
NMC-Q0201NPO0R9_25TRPF	0.9	A, B, C	400	0.35
NMC-Q0201NPO1R0_25TRPF	1.0	A, B, C	400	0.35
NMC-Q0201NPO1R2_25TRPF	1.2	A, B, C	400	0.35
NMC-Q0201NPO1R5_25TRPF	1.5	A, B, C	400	0.30
NMC-Q0201NPO1R8_25TRPF	1.8	A, B, C	400	0.30
NMC-Q0201NPO2R2_25TRPF	2.2	A, B, C	400	0.25
NMC-Q0201NPO2R7_25TRPF	2.7	A, B, C	400	0.25
NMC-Q0201NPO3R3_25TRPF	3.3	A, B, C	400	0.25
NMC-Q0201NPO3R9_25TRPF	3.9	A, B, C	400	0.20
NMC-Q0201NPO4R7_25TRPF	4.7	A, B, C	400	0.20
NMC-Q0201NPO5R6_25TRPF	5.6	B, C, D	350	0.15
NMC-Q0201NPO6R8_25TRPF	6.8	B, C, D	350	0.15
NMC-Q0201NPO8R2_25TRPF	8.2	B, C, D	300	0.15
NMC-Q0201NPO100_25TRPF	10	F, G, J	300	0.10
NMC-Q0201NPO120_25TRPF	12	F, G, J	300	0.10
NMC-Q0201NPO150_25TRPF	15	F, G, J	250	0.10
NMC-Q0201NPO180_25TRPF	18	F, G, J	250	0.10

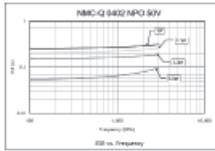
\*Typical Q & ESR

## 0402 50 Volt Standard Values and Characteristics

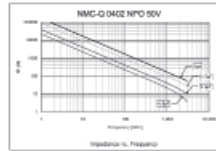
NIC PART NUMBER	CAPACITANCE VALUE (pF)	AVAILABLE TOLERANCE	Q FACTOR (typ. @ 1GHz)*	ESR $\Omega$ (typ. @ 1GHz)*
NMC-Q0402NPO0R1_50TRPF	0.1	B	400	2.50
NMC-Q0402NPO0R2_50TRPF	0.2	A, B	400	1.60
NMC-Q0402NPO0R3_50TRPF	0.3	A, B	400	1.10
NMC-Q0402NPO0R4_50TRPF	0.4	A, B	400	0.80
NMC-Q0402NPO0R5_50TRPF	0.5	A, B, C	400	0.50
NMC-Q0402NPO0R6_50TRPF	0.6	A, B, C	400	0.40
NMC-Q0402NPO0R7_50TRPF	0.7	A, B, C	400	0.30
NMC-Q0402NPO0R8_50TRPF	0.8	A, B, C	400	0.25
NMC-Q0402NPO0R9_50TRPF	0.9	A, B, C	400	0.20
NMC-Q0402NPO1R0_50TRPF	1.0	A, B, C	400	0.20
NMC-Q0402NPO1R2_50TRPF	1.2	A, B, C	400	0.20
NMC-Q0402NPO1R5_50TRPF	1.5	A, B, C	400	0.20
NMC-Q0402NPO1R8_50TRPF	1.8	A, B, C	400	0.20
NMC-Q0402NPO2R2_50TRPF	2.2	A, B, C	400	0.20
NMC-Q0402NPO2R4_50TRPF	2.4	A, B, C	400	0.20
NMC-Q0402NPO2R7_50TRPF	2.7	A, B, C	400	0.20
NMC-Q0402NPO3R3_50TRPF	3.3	A, B, C	400	0.15
NMC-Q0402NPO3R6_50TRPF	3.6	A, B, C	400	0.15
NMC-Q0402NPO3R9_50TRPF	3.9	A, B, C	350	0.15
NMC-Q0402NPO4R7_50TRPF	4.7	A, B, C	300	0.15
NMC-Q0402NPO5R1_50TRPF	5.1	B, C, D	300	0.15
NMC-Q0402NPO5R6_50TRPF	5.6	B, C, D	300	0.15
NMC-Q0402NPO6R8_50TRPF	6.8	B, C, D	250	0.15
NMC-Q0402NPO8R2_50TRPF	8.2	B, C, D	250	0.10
NMC-Q0402NPO100_50TRPF	10	F, G, J	250	0.10
NMC-Q0402NPO120_50TRPF	12	F, G, J	250	0.10
NMC-Q0402NPO150_50TRPF	15	F, G, J	250	0.10
NMC-Q0402NPO180_50TRPF	18	F, G, J	250	0.10
NMC-Q0402NPO220_50TRPF	22	F, G, J	250	0.10

\*Typical Q & ESR

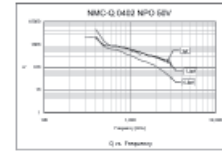
**Link**  
**0402 Q vs. Frequency**



**Link**  
**0603 Q vs. Frequency**



**Link**  
**0603 ESR vs. Frequency**



## 0603 50 Volt Standard Values and Characteristics

NIC PART NUMBER	CAPACITANCE VALUE (pF)	AVAILABLE TOLERANCE	Q FACTOR (typ. @ 1GHz)*	ESR Ω (typ. @ 1GHz)*
NMC-Q0603NPO0R3_50TRPF	0.3	B	400	0.90
NMC-Q0603NPO0R4_50TRPF	0.4	A, B	400	0.90
NMC-Q0603NPO0R45_50TRPF	0.45	A, B	400	0.90
NMC-Q0603NPO0R5_50TRPF	0.5	A, B, C	400	0.80
NMC-Q0603NPO0R6_50TRPF	0.6	A, B, C	400	0.70
NMC-Q0603NPO0R7_50TRPF	0.7	A, B, C	400	0.50
NMC-Q0603NPO0R8_50TRPF	0.8	A, B, C	400	0.50
NMC-Q0603NPO0R9_50TRPF	0.9	A, B, C	400	0.40
NMC-Q0603NPO1R0_50TRPF	1.0	A, B, C	400	0.30
NMC-Q0603NPO1R2_50TRPF	1.2	A, B, C	400	0.20
NMC-Q0603NPO1R5_50TRPF	1.5	A, B, C	400	0.20
NMC-Q0603NPO1R6_50TRPF	1.6	A, B, C	400	0.20
NMC-Q0603NPO1R8_50TRPF	1.8	A, B, C	400	0.20
NMC-Q0603NPO2R0_50TRPF	2.0	A, B, C	400	0.20
NMC-Q0603NPO2R2_50TRPF	2.2	A, B, C	400	0.20
NMC-Q0603NPO2R7_50TRPF	2.7	A, B, C	400	0.15
NMC-Q0603NPO3R3_50TRPF	3.3	A, B, C	350	0.15
NMC-Q0603NPO3R9_50TRPF	3.9	A, B, C	350	0.10
NMC-Q0603NPO4R3_50TRPF	4.3	A, B, C	300	0.10
NMC-Q0603NPO4R7_50TRPF	4.7	A, B, C	300	0.10
NMC-Q0603NPO5R6_50TRPF	5.6	B, C, D	300	0.10
NMC-Q0603NPO6R8_50TRPF	6.8	B, C, D	250	0.10
NMC-Q0603NPO8R2_50TRPF	8.2	B, C, D	200	0.10
NMC-Q0603NPO100_50TRPF	10	F, G, J	150	0.10
NMC-Q0603NPO120_50TRPF	12	F, G, J	100	0.10
NMC-Q0603NPO150_50TRPF	15	F, G, J	100	0.10
NMC-Q0603NPO180_50TRPF	18	F, G, J	100	0.10
NMC-Q0603NPO220_50TRPF	22	F, G, J	100	0.10
NMC-Q0603NPO270_50TRPF	27	F, G, J	75	0.10
NMC-Q0603NPO330_50TRPF	33	F, G, J	60	0.10
NMC-Q0603NPO390_50TRPF	39	F, G, J	40	0.10
NMC-Q0603NPO430_50TRPF	43	F, G, J	25	0.10
NMC-Q0603NPO470_50TRPF	47	F, G, J	25	0.10

\*Typical Q & ESR

## 0603 100 Volt Standard Values and Characteristics

NIC PART NUMBER	CAPACITANCE VALUE (pF)	AVAILABLE TOLERANCE	Q FACTOR (typ. @ 1GHz)*	ESR $\Omega$ (typ. @ 1GHz)*
NMC-Q0603NPO0R3_100TRPF	0.3	B	400	0.90
NMC-Q0603NPO0R4_100TRPF	0.4	A, B	400	0.90
NMC-Q0603NPO0R5_100TRPF	0.5	A, B, C	400	0.80
NMC-Q0603NPO0R6_100TRPF	0.6	A, B, C	400	0.70
NMC-Q0603NPO0R7_100TRPF	0.7	A, B, C	400	0.50
NMC-Q0603NPO0R8_100TRPF	0.8	A, B, C	400	0.50
NMC-Q0603NPO0R9_100TRPF	0.9	A, B, C	400	0.40
NMC-Q0603NPO1R0_100TRPF	1.0	A, B, C	400	0.30
NMC-Q0603NPO1R2_100TRPF	1.2	A, B, C	400	0.20
NMC-Q0603NPO1R5_100TRPF	1.5	A, B, C	400	0.20
NMC-Q0603NPO1R8_100TRPF	1.8	A, B, C	400	0.20
NMC-Q0603NPO2R2_100TRPF	2.2	A, B, C	400	0.20
NMC-Q0603NPO2R7_100TRPF	2.7	A, B, C	400	0.15
NMC-Q0603NPO3R3_100TRPF	3.3	A, B, C	350	0.15
NMC-Q0603NPO3R9_100TRPF	3.9	A, B, C	350	0.10
NMC-Q0603NPO4R7_100TRPF	4.7	A, B, C	300	0.10
NMC-Q0603NPO5R6_100TRPF	5.6	B, C, D	300	0.10
NMC-Q0603NPO6R8_100TRPF	6.8	B, C, D	250	0.10
NMC-Q0603NPO8R2_100TRPF	8.2	B, C, D	200	0.10
NMC-Q0603NPO100_100TRPF	10	F, G, J	150	0.10
NMC-Q0603NPO120_100TRPF	12	F, G, J	100	0.10
NMC-Q0603NPO150_100TRPF	15	F, G, J	100	0.10
NMC-Q0603NPO180_100TRPF	18	F, G, J	100	0.10
NMC-Q0603NPO220_100TRPF	22	F, G, J	100	0.10
NMC-Q0603NPO270_100TRPF	27	F, G, J	75	0.10
NMC-Q0603NPO330_100TRPF	33	F, G, J	60	0.10
NMC-Q0603NPO390_100TRPF	39	F, G, J	40	0.10
NMC-Q0603NPO430_100TRPF	43	F, G, J	25	0.10
NMC-Q0603NPO470_100TRPF	47	F, G, J	25	0.10

\*Typical Q & ESR

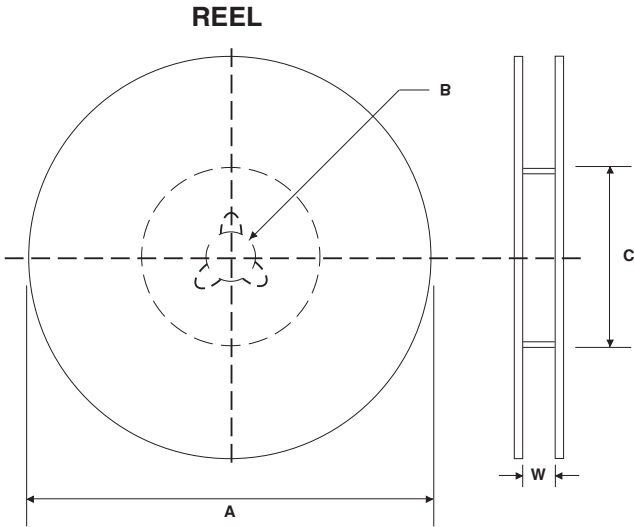


## 0603 250 Volt Standard Values and Characteristics

NIC PART NUMBER	CAPACITANCE VALUE (pF)	AVAILABLE TOLERANCE	Q FACTOR (typ. @ 1GHz)*	ESR $\Omega$ (@ 1GHz)*
NMC-Q0603NPO0R3_250TRPF	0.3	B	400	0.90
NMC-Q0603NPO0R4_250TRPF	0.4	A, B	400	0.90
NMC-Q0603NPO0R5_250TRPF	0.5	A, B, C	400	0.80
NMC-Q0603NPO0R6_250TRPF	0.6	A, B, C	400	0.70
NMC-Q0603NPO0R7_250TRPF	0.7	A, B, C	400	0.50
NMC-Q0603NPO0R8_250TRPF	0.8	A, B, C	400	0.50
NMC-Q0603NPO0R9_250TRPF	0.9	A, B, C	400	0.40
NMC-Q0603NPO1R0_250TRPF	1.0	A, B, C	400	0.30
NMC-Q0603NPO1R2_250TRPF	1.2	A, B, C	400	0.20
NMC-Q0603NPO1R5_250TRPF	1.5	A, B, C	400	0.20
NMC-Q0603NPO1R8_250TRPF	1.8	A, B, C	400	0.20
NMC-Q0603NPO2R2_250TRPF	2.2	A, B, C	400	0.20
NMC-Q0603NPO2R7_250TRPF	2.7	A, B, C	400	0.15
NMC-Q0603NPO3R3_250TRPF	3.3	A, B, C	350	0.15
NMC-Q0603NPO3R9_250TRPF	3.9	A, B, C	350	0.10
NMC-Q0603NPO4R7_250TRPF	4.7	A, B, C	300	0.10
NMC-Q0603NPO5R6_250TRPF	5.6	B, C, D	300	0.10
NMC-Q0603NPO6R8_250TRPF	6.8	B, C, D	250	0.10
NMC-Q0603NPO8R2_250TRPF	8.2	B, C, D	200	0.10
NMC-Q0603NPO100_250TRPF	10	F, G, J	150	0.10
NMC-Q0603NPO120_250TRPF	12	F, G, J	100	0.10
NMC-Q0603NPO150_250TRPF	15	F, G, J	100	0.10
NMC-Q0603NPO180_250TRPF	18	F, G, J	100	0.10
NMC-Q0603NPO220_250TRPF	22	F, G, J	100	0.10
NMC-Q0603NPO270_250TRPF	27	F, G, J	75	0.10
NMC-Q0603NPO330_250TRPF	33	F, G, J	60	0.10
NMC-Q0603NPO390_250TRPF	39	F, G, J	40	0.10
NMC-Q0603NPO430_250TRPF	43	F, G, J	25	0.10
NMC-Q0603NPO470_250TRPF	47	F, G, J	25	0.10

\*Typical Q & ESR





### REEL DIMENSIONS (mm)

Reel Diameter (A)	B	C	W1
7" (178 ± 1.0)	13 +0.5/-0.2	60.5 ± 1.0	8.4 +1.5/-0
13" (330 ± 1.0)		100 ± 1.0	

### REEL QUANTITIES

Size	0201	0402	0603
7"	15,000	10,000	4,000
13"	-	50,000	10,000

### PUNCHED CARRIER TAPE DIMENSIONS (mm)

Type	A <sub>o</sub>	B <sub>o</sub>	W	F	E	P0	P1	P2	D0	T
0201	0.37 ± 0.03	0.67 ± 0.03	8.00 ± 0.10	3.50 ± 0.05	1.75 ± 0.05	4.0 ± 0.10	2.0 ± 0.05	2.0 ± 0.05	1.55 ± 0.05	0.42 ± 0.30
0402	0.62 ± 0.05	1.12 ± 0.05								0.60 ± 0.05
0603	1.02 ± 0.05	1.82 ± 0.05					0.95 ± 0.05			

### CARDBOARD CARRIER TAPE

