

**0402N (.040 x .020)**

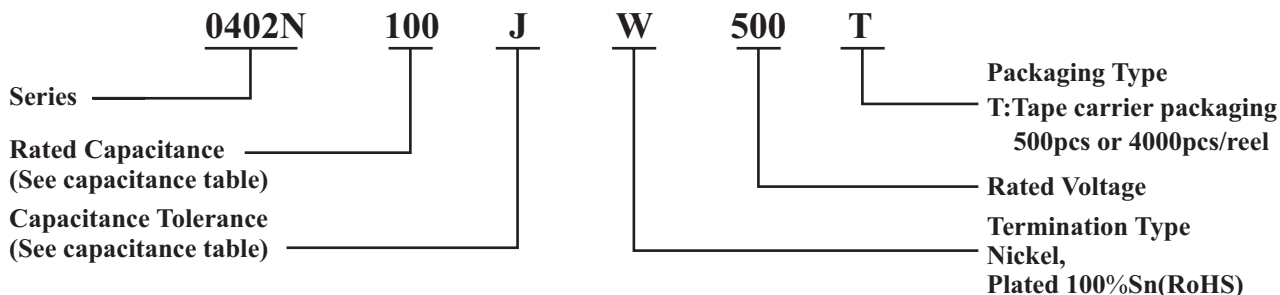


**◆0402N Capacitance & Rated Voltage Table**

Cap.pF	Code	Tol.	Rated WVDC	Cap.pF	Code	Tol.	Rated WVDC	Cap.pF	Code	Tol.	Rated WVDC
0.1	0R1	A,B, C,D	50V Code 500 or 200V Code 201	2.0	2R0	A,B, C,D	50V Code 500 or 200V Code 201	10	100	F,G, J,K	50V Code 500
0.2	0R2			2.1	2R1			11	110		
0.3	0R3			2.2	2R2			12	120		
0.4	0R4			2.4	2R4			13	130		
0.5	0R5			2.7	2R7			15	150		
0.6	0R6			3.0	3R0			16	160		
0.7	0R7			3.3	3R3			18	180		
0.8	0R8			3.6	3R6			20	200		
0.9	0R9			3.9	3R9			22	220		
1.0	1R0			4.3	4R3			24	240		
1.1	1R1			4.7	4R7			27	270		
1.2	1R2			5.1	5R1			30	300		
1.3	1R3			5.6	5R6			33	330		
1.4	1R4			6.2	6R2						
1.5	1R5			6.8	6R8						
1.6	1R6			7.5	7R5						
1.7	1R7			8.2	8R2						
1.8	1R8			9.1	9R1						
1.9	1R9										

Remark: special capacitance, tolerance and WVDC are available, consult with PASSIVE PLUS.


◆ Part Numbering



Code	A	B	C	D	F	G	J	K
Tolerance	± 0.05pF	± 0.1pF	± 0.25pF	± 0.5pF	± 1%	± 2%	± 5%	± 10%

◆ 0402N Chip Dimensions

unit: inch(millimeter)

Series	Term. Code	Type / Outlines	Capacitor Dimensions			Plated Material
			Length (L <sub>c</sub> )	Width (W <sub>c</sub> )	Thickness (T <sub>c</sub> )	
0402N	W	 Chip	.040 ± .004 (1.02 ± 0.1)	.020 ± .004 (0.51 ± 0.1)	.020 ± .004 (0.51 ± 0.1)	Sn/Ni (RoHS)

Remark: for Non-Magnetic NP0 products please refer to page 81.

**◆ Performance**

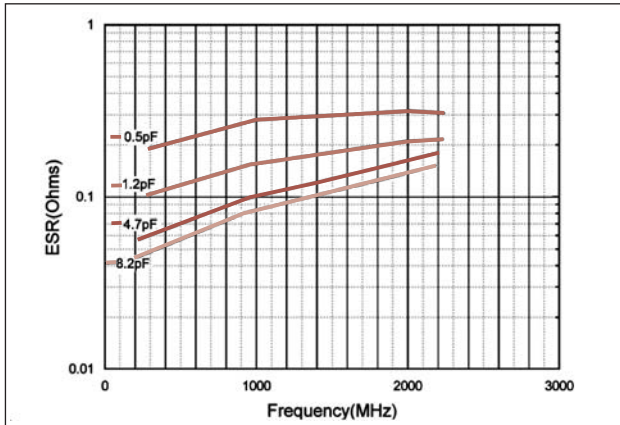
Item	Specifications
Quality Factor (Q)	2,000 min.
Insulation Resistance (IR)	10 <sup>5</sup> Megohms min. @ +25°C at rated WVDC. 10 <sup>4</sup> Megohms min. @ +125°C at rated WVDC.
Rated Voltage	50V
Dielectric Withstanding Voltage (DWV)	250% of rated voltage for 5 seconds.
Operating Temperature Range	-55°C to +125°C
Temperature Coefficient (TC)	0 ± 30ppm/°C
Capacitance Drift	± 0.02% or ± 0.02pF, whichever is greater.
Piezoelectric Effects	None

**◆ Environmental Tests**

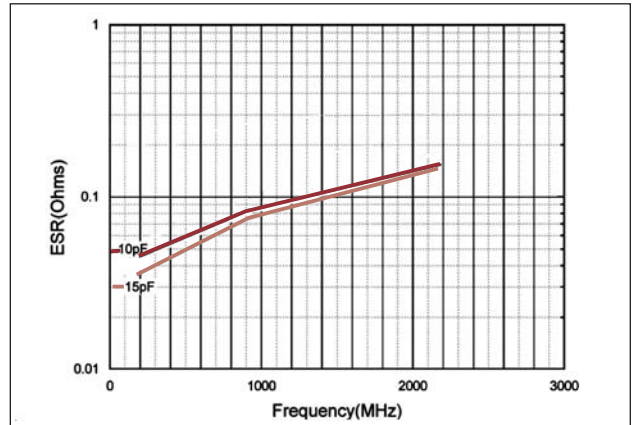
Item	Specifications	Method
Terminal Adhesion	Termination should not pull off. Ceramic should remain undamaged.	Linear pull force exerted on axial leads soldered to each terminal. 2.0lbs.
Resistance to soldering heat	No mechanical damage Capacitance change: - 1.0% ~ +2.0% Q > 500 I.R. > 10 G Ohms Breakdown voltage: 2.5 x WVDC	Preheat device to 150°C-180°C for 60 sec. Dip in 260±5°C solder for 10±1 sec. Measure after 24±2 hour cooling period.
Thermal Shock	No mechanical damage Capacitance change: ±0.5% or 0.5pF max Q > 2000 I.R. > 10 G Ohms Breakdown voltage: 2.5 x WVDC	MIL-STD-202, Method 107, Condition A. At the maximum rated temperature (-55°C and 125°C) stay 30 minutes. The time of removing shall not be more than 3 minutes. Perform the five cycles.
Humidity, Steady State	No mechanical damage Capacitance change: ±0.5% or 0.5pF max. Q > 300 I.R. > 1 G Ohms Breakdown voltage: 2.5 x WVDC	MIL-STD-202, Method 106.
Low Voltage Humidity	No mechanical damage Capacitance change: ±0.3% or 0.3pF max. Q > 300 I.R. > 1 G Ohms Breakdown voltage: 2.5 x WVDC	MIL-STD-202, Method 103, Condition A, with 1.5 Volts D.C. applied while subjected to an environment of 85°C with 85% relative humidity for 240 hours minimum.
Life	No mechanical damage Capacitance change: ±2.0% or 0.5pF max. Q > 500 I.R. > 1 G Ohms Breakdown voltage: 2.5 x WVDC	MIL-STD-202, Method 108, for 1000 hours, at 125°C. 200% Rated voltage D.C. applied.

◆ **0402N Performance Curve**

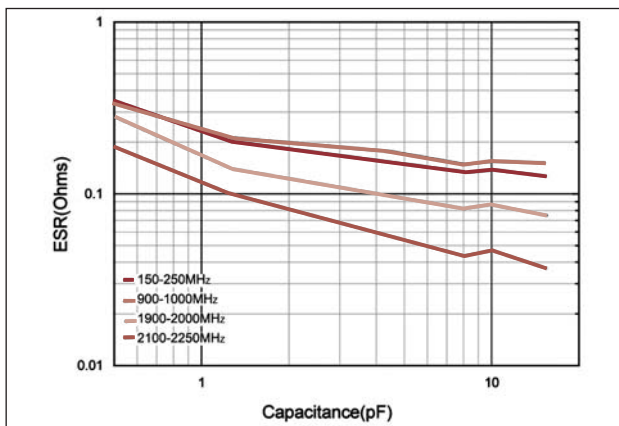
**ESR vs Frequency**



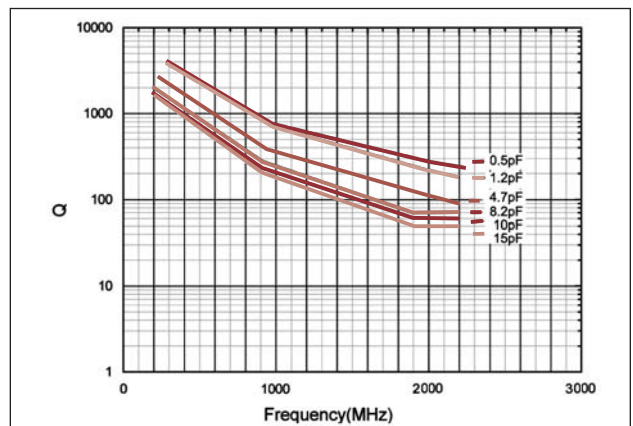
**ESR vs Frequency**



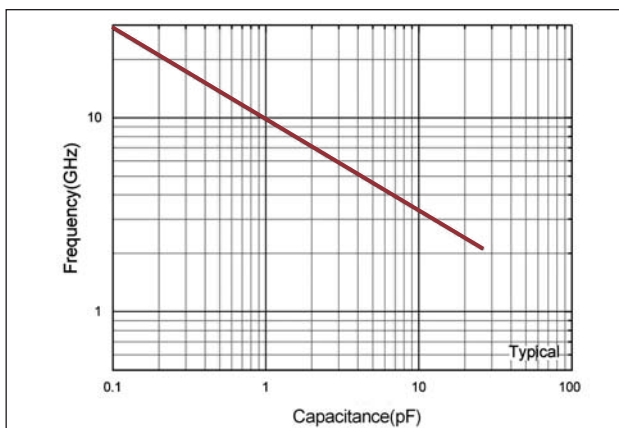
**ESR vs Capacitance**



**Q Factor vs Frequency**



**Series Resonant Frequency vs Capacitance**



**Q Factor vs Capacitance**

