0505C (.055 x .055)

◆Product Features

High Q, High Power, Low ESR/ESL, Low Noise, High Self-Resonance, Ultra- Stable Performance.

◆Product Application

Typical Functional Applications: Tuning, Bypass, Coupling, Feedback, D.C. Blocking and Impedance Matching.

Typical Circuit Applications: UHF/Microwave RF Power Amplifiers, Mixers, Oscillators, Low Noise Amplifiers, Filter Networks, Timing Circuits and Delay Lines.

◆0505C Capacitance 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	150V Code 151 or 300V Code 301	2.4	2R4	A,B,C,D	150V Code 151 or 300V Code 301	20	200	F,G, J,K	150V Code 151 or 300V Code 301
0.2	0R2			2.7	2R7			22	220		
0.3	0R3			3.0	3R0			24	240		
0.4	0R4			3.3	3R3			27	270		
0.5	0R5			3.6	3R6			30	300		
0.6	0R6			3.9	3R9			33	330		
0.7	0R7			4.3	4R3			36	360		
0.8	0R8			4.7	4R7			39	390		
0.9	0R9			5.1	5R1			43	430		
1.0	1R0			5.6	5R6			47	470		
1.1	1R1			6.2	6R2			51	510		150V Code 151
1.2	1R2			6.8	6R8	B,C,J,K		56	560		
1.3	1R3			7.5	7R5			62	620		
1.4	1R4			8.2	8R2			68	680		
1.5	1R5			9.1	9R1			75	750		
1.6	1R6			10	100	F,G,J,K		82	820		
1.7	1R7			11	110			91	910		
1.8	1R8			12	120			100	101		
1.9	1R9			13	130			110	111		
2.0	2R0			15	150			120	121		
2.1	2R1			16	160			150	151		
2.2	2R2			18	180			180	181		

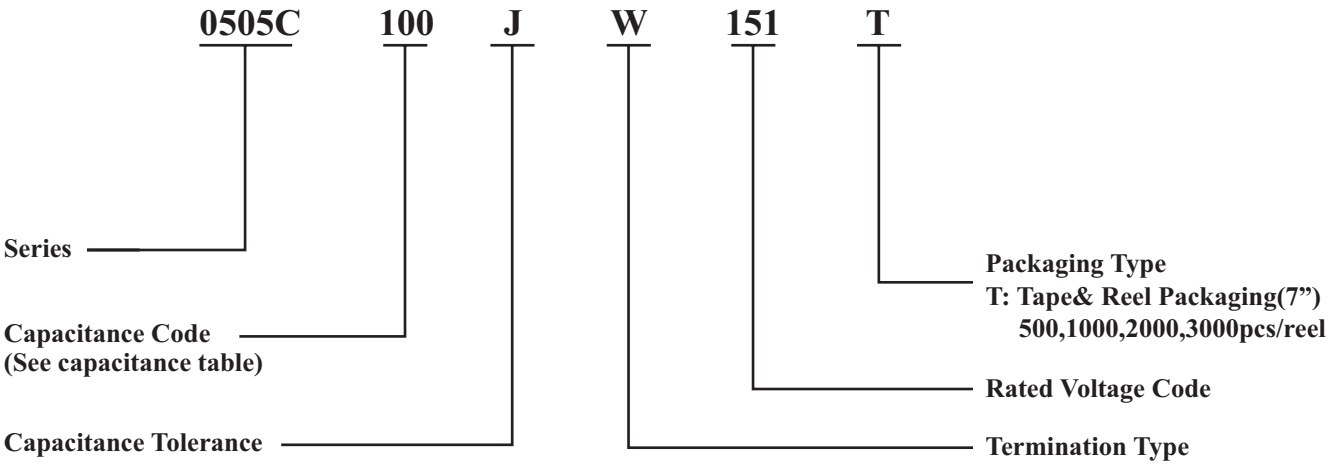
Remark: special capacitance, tolerance and WVDC are available, consult with PASSIVE PLUS.

Passive Plus

Traditional High Q (>10,000) Low ESR Capacitors (NP0 TC)

0505C (.055 x.055)

◆Part Numbering



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

◆0505C Magnetic and Non-Magnetic Dimensions

unit:inch(millimeter)

Series	Term. Code	Type / Outlines	Capacitor Dimensions			Plated Material
			Length (L_C)	Width (W_C)	Thickness (T_C)	
0505C	W	 Chip	.055 +.015~ −.010 (1.4+ 0.38~ −0.25)	.055 ±.010 (1.4 ±0.25)	.057 (1.45) max	Plated Nickel, Plated 100%Sn, RoHS Compliant
0505C	P (non-mag)	 Chip (Non-Magnetic)				Plated Copper, Plated 100%Sn, RoHS Compliant

◆Performance

Item	Specifications
Quality Factor (Q)	greater than 10,000 at 1 MHz
Insulation Resistance (IR)	0.1 pF to 180 pF: 10^6 Megohms min. @ +25℃ at rated WVDC. 10^5 Megohms min. @ +125℃ at rated WVDC.
Rated Voltage	See Rated Voltage Table
Dielectric Withstanding Voltage (DWV)	250% of Rated Voltage for 5 seconds. Rated Voltage≤500V
Operating Temperature Range	−55℃ to +125℃
Temperature Coefficient (TC)	0±30ppm/℃
Capacitance Drift	±0.02% or ±0.02pF, whichever is greater.
Piezoelectric Effects	None
Termination Type	See Termination Type Table

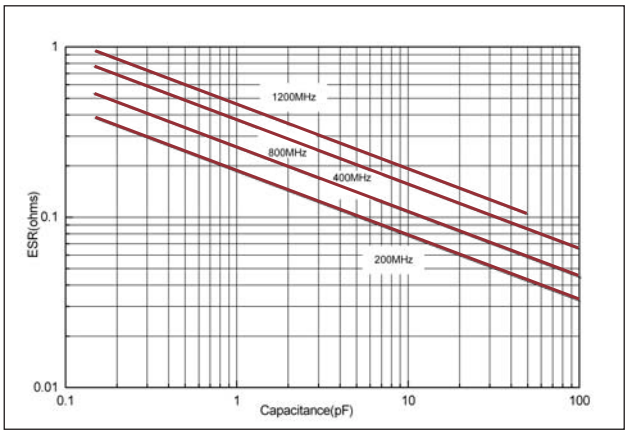
Capacitors are designed and manufactured to meet the requirements of MIL-PRF-55681 and MIL-PRF-123.

◆Environmental Tests

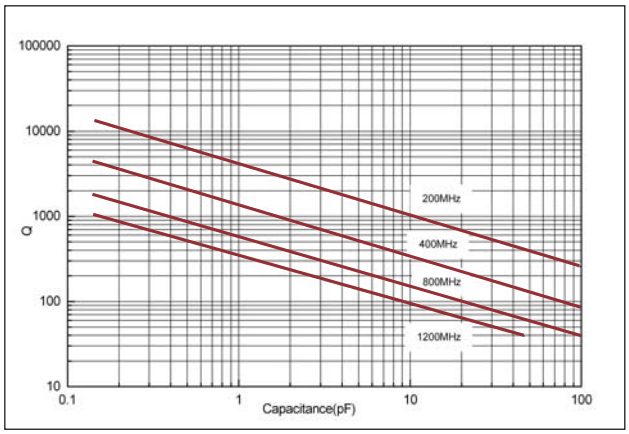
Item	Specifications	Method
Thermal Shock	DWV: the initial value IR: Shall not be less than 30% of the initial value Capacitance change: no more than 0.5% or 0.5pF.	MIL-STD-202, Method 107, Condition A. At the maximum rated temperature(-55°C and 125°C) stay 30 minutes. The time of removing shall not be more than 3 minutes. Perform the five cycles.
Moisture Resistance		MIL-STD-202, Method 106.
Humidity (steady state)	DWV: the initial value IR: the initial value Capacitance change: no more than 0.3% or 0.3pF.	MIL-STD-202, Method 103, Condition A, with 1.5 Volts D.C. applied while subjected to an environment of 85°Cwith 85% relative humidity for 240 hours minimum.
Life	IR: Shall not be less than 30% of the initial value Capacitance change: no more than 0.2%	MIL-STD-202, Method 108, for 2000 hours, at 125°C. 200% Rated voltage D.C. applies

◆0505C Performance Curve

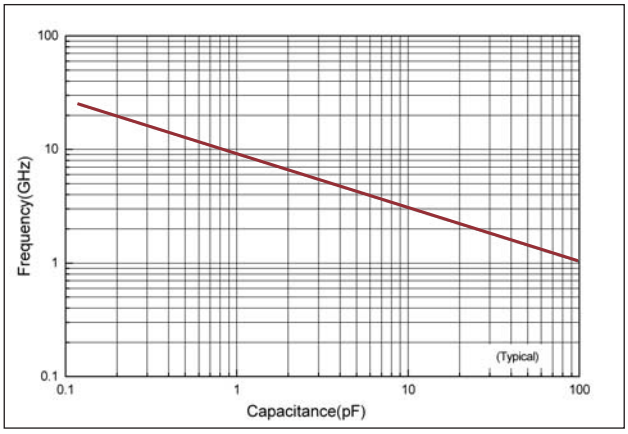
ESR vs Capacitance



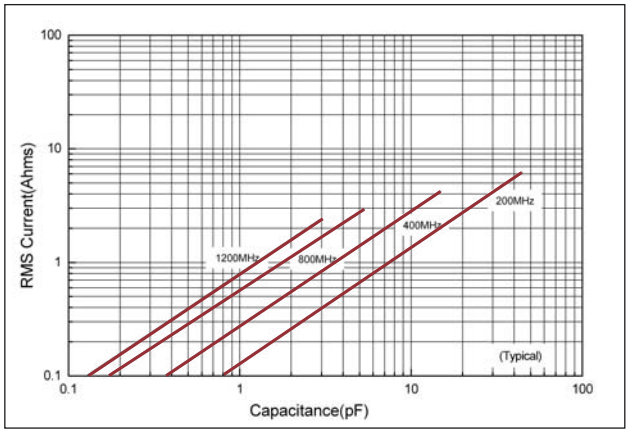
Q vs Capacitance



Series Resonance vs Capacitance



Current Rating vs Capacitance



The current depends on voltage limited: $I = \frac{\sqrt{2}}{2} I_{peak} = \frac{\sqrt{2}}{2} \times \frac{V_{rated}}{X_C} = \sqrt{2}\pi f C V_{rated}$

The current depends on power dissipation limited: $I = \sqrt{\frac{P_{dissipation}}{ESR}}$

Note: If the thermal resistance of mounting surface is 40°C/W.

then a power dissipation of 1.5 W will result in the current limited

we can calculate the current limited $I = \sqrt{\frac{P_{dissipation}}{ESR}}$