



UHF/RF High Q Power Transmitter
Capacitors (NP0 TC)
Multi-Layer Ceramic Capacitors

6040C (0.600" x 0.400")

Product Features

- High Q
- High RF Current/Voltage
- Ultra Stable Performance
- Capacitance Range:
1.0pF to 6800pF
- Working Voltage: 5000V
- Extended Voltage: 8000V

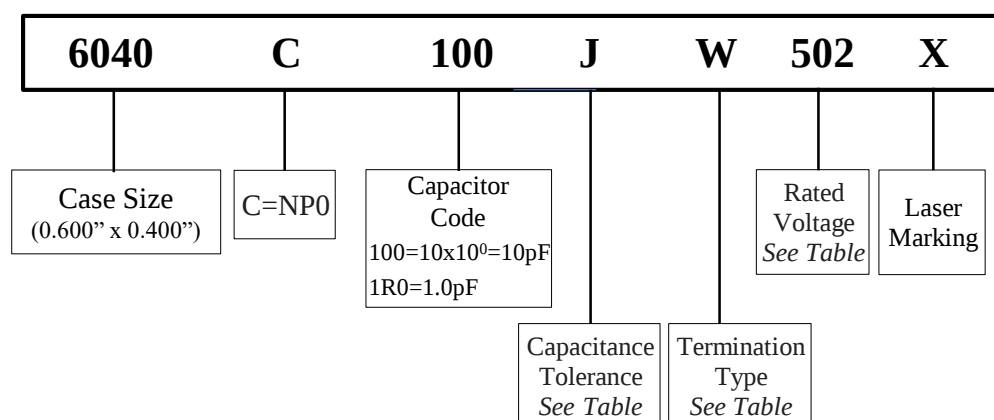
Typical Circuit Applications

- Semiconductor Manufacturing
- High Energy Power Transfers
- Plasma Chambers
- Medical Equipment



Marking shown for illustration purposes only.
Actual marking may differ.

Part Numbering



Capacitance Tolerance Codes

Code	B	C	D	F	G	J	K
Tol.	±0.1pF	±0.25pF	±0.5pF	±1%	±2%	±5%	±10%

Voltage Codes

Voltage	Code
1000V	102
2000V	202
3000V	302
5000V	502
8000V	802



UHF/RF High Q Power Transmitter
Capacitors (NP0 TC)
Multi-Layer Ceramic Capacitors

6040C (0.600" x 0.400")

≠ 6040C Capacitance Values

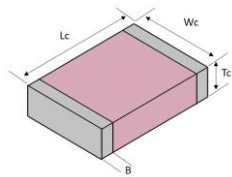
For special capacitances, tolerances and WVDC, please contact PPI.



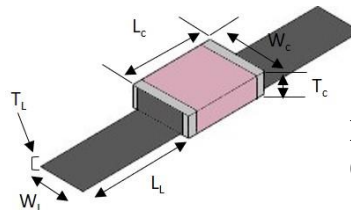
Marking shown for illustration purposes only.
Actual marking may differ.

Cap. pF	Cap Code	Tol.	Rated WVDC		Cap. pF	Cap Code	Tol.	Rated WVDC		Cap. pF	Cap Code	Tol.	Rated WVDC	
			Std.	Ext.				Std.	Ext.				Std.	Ext.
1.0	1R0				39	390				1500	152			
1.2	1R2				47	470				1800	182	F,G, J,K	2000V	3000V
1.5	1R5				56	560	F,G, J,K	5000V	8000V	2200	222			
1.8	1R8				68	680				2700	272			
2.2	2R2				82	820				3300	332			
2.7	2R7	B,C, D	5000V	8000V	100	101				4700	472	F,G, J,K	1000V	2000V
3.3	3R3				120	121				5100	512			
3.9	3R9				150	151				5600	562			
4.7	4R7				180	181				6800	682			
5.6	5R6				220	221								
6.8	6R8				270	271	F,G, J,K	3000V	5000V					
8.2	8R2				330	331								
10	100				390	391								
12	120				470	471								
15	150				560	561								
18	180	F,G, J,K	5000V	8000V	680	681								
22	220				820	821								
27	270				1000	102	F,G, J,K	2000V	3000V					
33	330				1200	122								

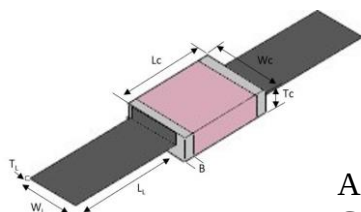
≠ Termination Types and Codes



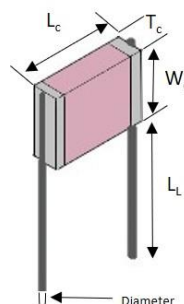
Chip Termination:
Codes: **W, L, P**



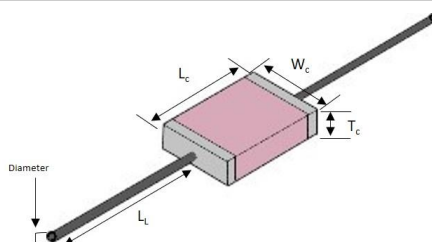
Microstrip Termination:
Codes: **MS, MN**



Axial Ribbon Termination:
Code: **AR, AN**



Radial Wire Termination:
Codes: **RW, RN**



Axial Wire Termination:
Codes: **AW, BN**

Termination Code	Magnetic Termination
W 	100% Sn Solder over Nickel Plating
L	90% Sn10%Pb Tin/Lead Solder over Nickel Plating
MS 	Silver-Plated Copper
AR 	
RW 	
AW 	

Termination Code	Non-Magnetic Terminations
P 	100%Sn Solder over Copper Plating
MN 	Silver-Plated Copper
AN 	
RN 	
BN 	

Note: "Non-Magnetic" means no magnetic materials.



UHF/RF High Q Power Transmitter
Capacitors (NP0 TC)
Multi-Layer Ceramic Capacitors

6040C (0.600" x 0.400")

≠ Terminations

For Termination Types images, see previous page

Unit: inch (millimeter)

Magnetic Terminations								
Capacitor Dimensions						Lead Dimensions		
		Length	Width	Thickness	Overlap	Length	Width	Thickness
Code	Term.	Lc	Wc	Tc	B	LL	WL	TL
W	Chip	0.614 -0.010+0.015 (15.6 -0.25+0.38)	0.433±0.010 (11.0±0.25)	0.154±0.008 (3.90±0.20) max	0.063 (1.60) max	-	-	-
MS	Microstrip	0.614 -0.010+0.015 (15.6 -0.25+0.38)	0.433±0.010 (11.0±0.25)	0.154±0.008 (3.90±0.20) max	-	0.787 (20.0) min	0.350 ± 0.010 (8.89±0.25)	0.008±0.001 (0.20± 0.025)
AR	Axial Ribbon					0.787 (20.00) min	Dia.: 0.030±0.004 (0.80 ± 0.10)	
RW	Radial Wire							
AW	Axial Wire							
⊗ Non-Magnetic Terminations ⊗								
Capacitor Dimensions						Lead Dimensions		
		Length	Width	Thickness	Overlap	Length	Width	Thickness
Code	Term.	Lc	Wc	Tc	B	LL	WL	TL
P	Chip	0.614 -0.010+0.015 (15.6 -0.25+0.38)	0.433±0.010 (11.0±0.25)	0.154±0.008 (3.90±0.20) max	0.063 (1.60) max	-	-	-
MN	Microstrip	0.614 -0.010+0.015 (15.6 -0.25+0.38)	0.433±0.010 (11.0±0.25)	0.154±0.008 (3.90±0.20) max	-	0.787 (20.0) min	0.350 ± 0.010 (8.89±0.25)	0.008 ±0.001 (0.20 ± 0.025)
AN	Axial Ribbon					0.787 (20.00) min	Dia.: 0.031 ±0 .004 (0.80 ± 0.10)	
RN	Radial Wire							
BN	Axial Wire							

Note: Non-Magnetic means no magnetic materials. All leads are attached with high temperature solder and parts are RoHS Compliant.



✚ Electrical Specifications

Quality Factor (Q)	No less than 1000pF, Q value more than 2000, Test Frequency 1MHz; More than 1000pF, Q value more than 2000, Test Frequency 1MHz
Insulation Resistance (IR)	Test Voltage: 500V 10 ⁵ Megaohms min. @ +25°C rated WVDC 10 ⁴ Megaohms min. @ +125°C rated WVDC
Rated Voltage	See Rated Voltage Table
Dielectric Withstanding Voltage (WVDC)	250% of Voltage of 5 seconds, Rated Voltage ≤ 500VDC 150% of Voltage for 5 seconds, 500VDC < Rated Voltage ≤ 1250 VDC 120% of Voltage for 5 seconds, Rated Voltage > 1250 VDC
Operating Temperature Range	-55°C to 175°C
Temperature Coefficient (TC)	-55°C to 125°C 0±30ppm/°C >125°C to 175°C 0±60ppm/°C
Capacitance Drift	±0.02% or ±0.02pF, whichever is greater
Piezoelectric Effects	None
Termination Type	See Termination Type Table

✚ Environmental Specifications

	Specification	Test Parameters
Thermal Shock	DWV: The initial value IR: Shall not be less than 30% of the initial value. Capacitance Change:	MIL-STD-202, Method 107, Condition A. At the maximum rated temperature (-55°C and 175°C) stay 30 minutes, the time of removing shall not be more than 3 minutes. Perform five cycles.
Moisture Resistance	No more than 0.5% or 0.5pF, whichever is greater.	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, whichever is greater.	MIL-STD-202, Method 103, Condition A With 1.5Volts DC applied while subjected to an environment of 85°C with 85% relative humidity for 240 hours minimum.
Life	IR: Shall not be less than 30% of the initial value. Capacitance Change: No more than 2.0% or 0.5pF, whichever is greater.	MIL-STD-202, Method 108. For 2000 hours, at 125°C. 200% of Voltage for Capacitors, Rated Voltage ≤ 500VDC; 120% of Voltage for Capacitors, 500VDC < Rated Voltage ≤ 1250VDC; 100% for Voltage for Capacitors, Rated Voltage > 1250VDC
Terminal Strength	Force: 25lbs typical, 20lbs. min. Duration Time: 5 to 10 seconds	MIL-STD-202, Method 211A, Test Condition A. Applied a force and maintained for a period of 5 to 10 seconds. The force shall be in the direction of the axes of the terminations.

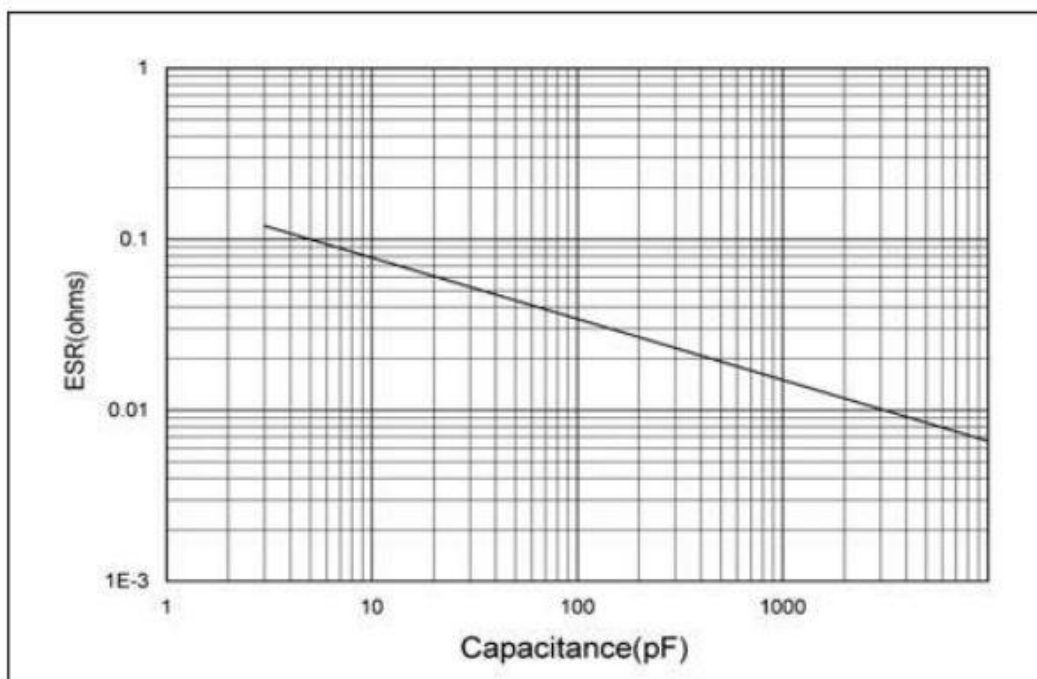
Capacitors are designed and manufactured to meet the requirements of MIL-PRF-55681 and MIL-PRF-123.



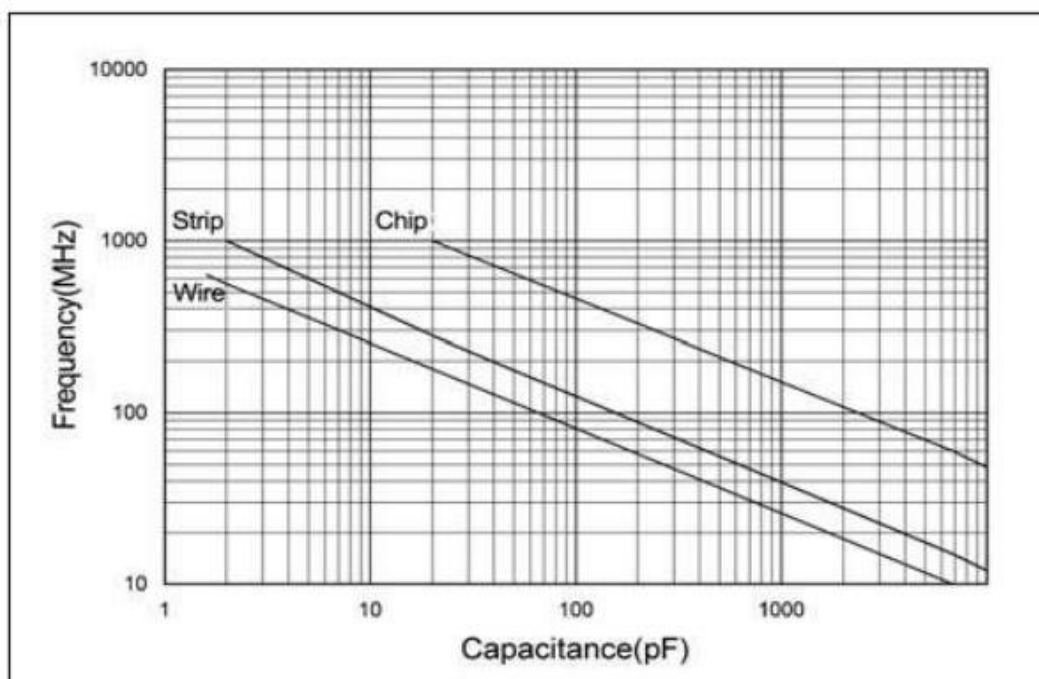
UHF/RF High Q Power Transmitter
Capacitors (NP0 TC)
Multi-Layer Ceramic Capacitors

6040C (0.600" x 0.400")

⚡ ESR vs. Capacitance Measured @ 30MHz



⚡ Self Resonant Frequency vs. Capacitance

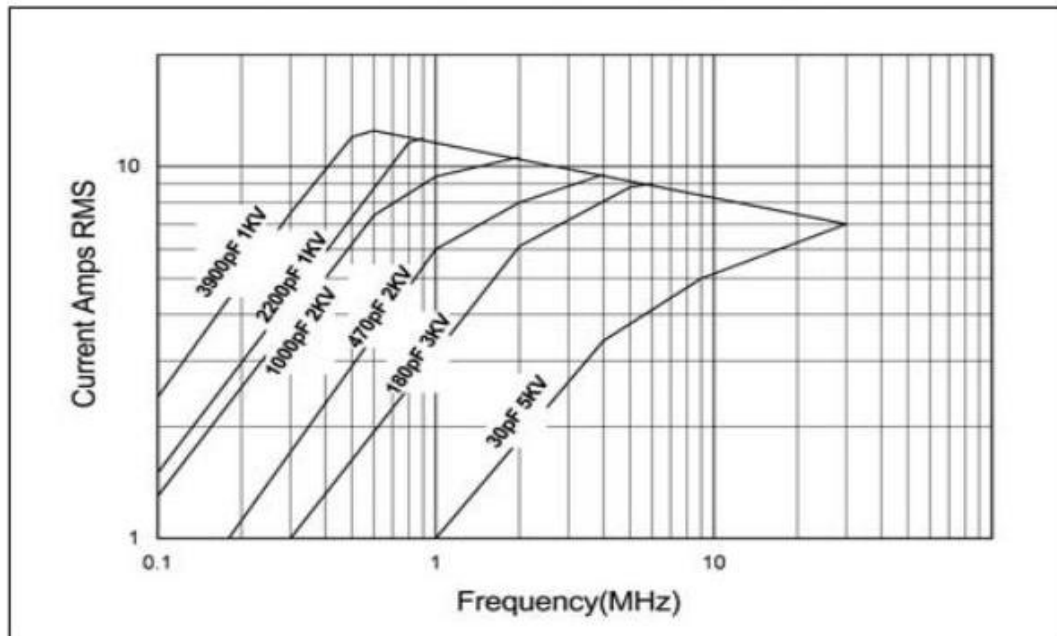




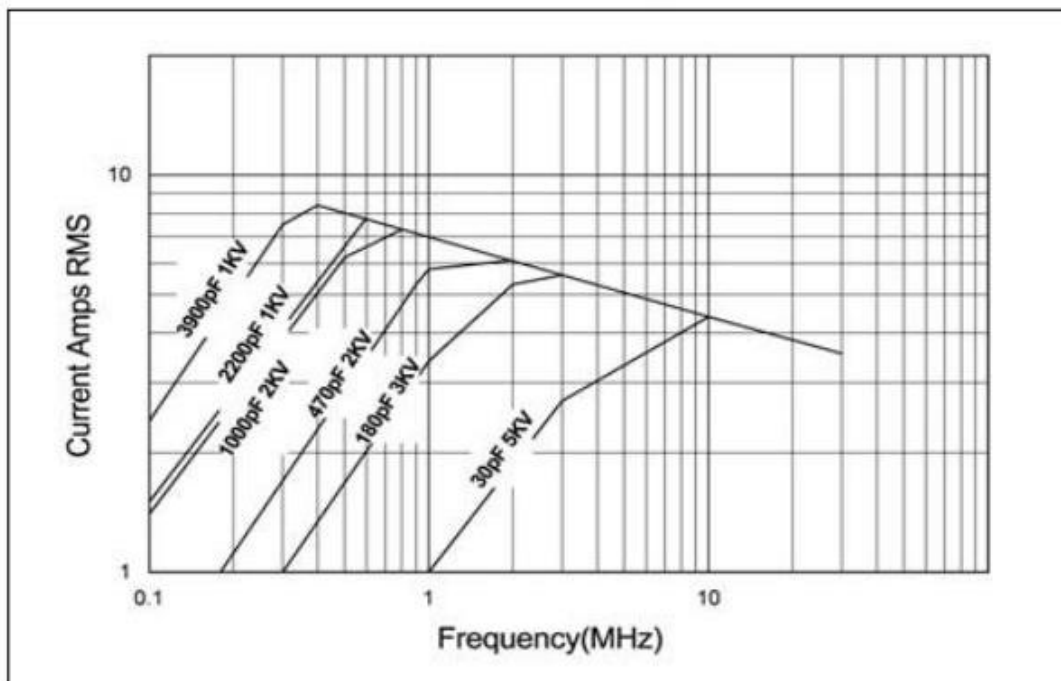
UHF/RF High Q Power Transmitter
Capacitors (NP0 TC)
Multi-Layer Ceramic Capacitors

6040C (0.600" x 0.400")

≠ Strip Terminals Rated Current vs. Frequency



≠ Wire Terminals Rated Current vs. Frequency

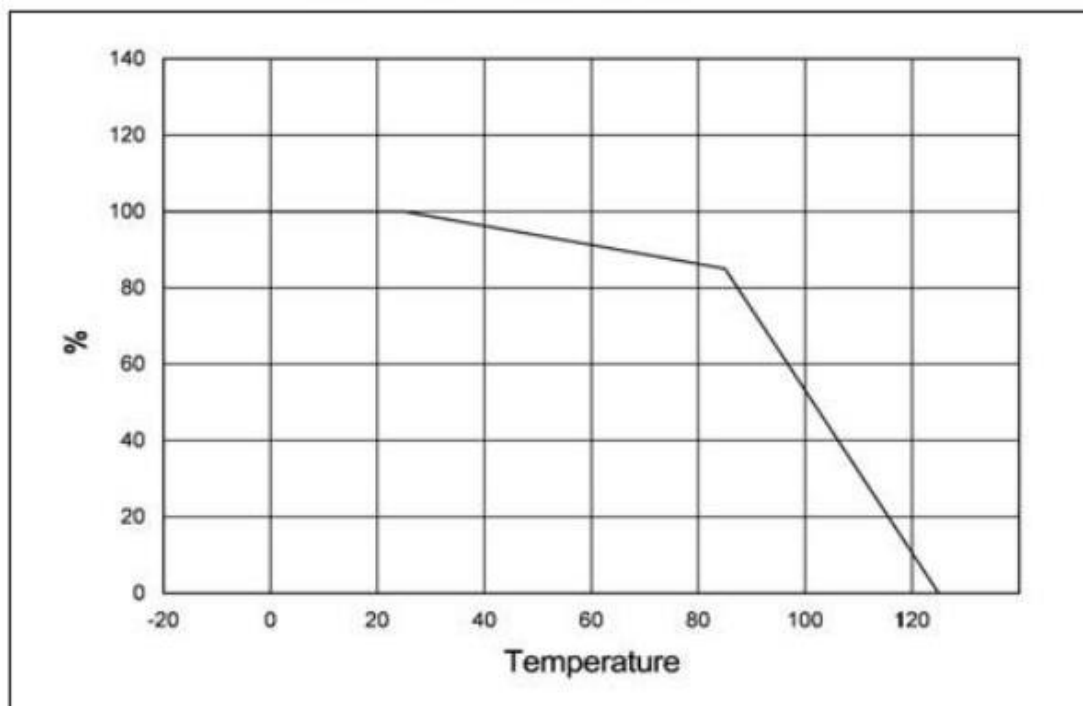




UHF/RF High Q Power Transmitter
Capacitors (NP0 TC)
Multi-Layer Ceramic Capacitors

6040C (0.600" x 0.400")

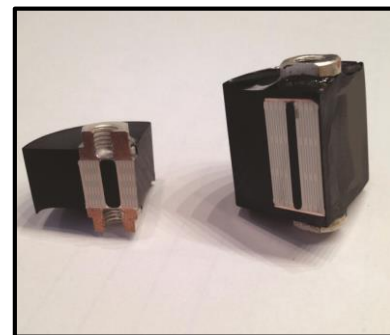
⚡ % Maximum Current vs. Ambient Temperature



⚡ Custom Assemblies

Passive Plus offers Capacitor Assemblies for high power requirements. Typical assemblies are configured in series and/or parallel combinations, producing higher voltage/current handling capabilities, extended capacitance range and tighter tolerances.

To get started, simply send us either a mechanical drawing or circuit conditions and we can recommend a solution. All components are 100% up-screened for Partial Discharge and Sonoscanned. All assemblies include a 100hr Military burn in.



⚡ Recommended Land Pattern Dimensions

When mounting the capacitor to substrate, it's important to carefully consider that the amount of solder (size of fillet) used has a direct effect upon the capacitor once it's mounted.

- 1) The greater the amount of solder, the greater the stress to the elements. This may cause the substrate to break or crack.
- 2) In the situation where two or more devices are mounted onto a common land, be sure to separate the device into exclusive pads by using soldering resist.

⚡ Horizontal Mounting

A	B	C
13.00	3.30	11.30

Dimensions: mm

