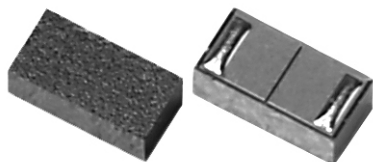


High Performance, High Precision Surface Mount 0603 Capacitor



PATENTED

FEATURES

- New technology surface mount capacitor based on a special semiconductor process
- Construction reduces the parasitic inductance and brings the SRF values to ultra-high frequencies
- Capacitance is extremely stable in a wide range of frequencies from 1 MHz to several GHz.
- High Q and low ESR
- Tight tolerance to $\pm 1\%$ or 0.05 pF
- Ultra high SRF
- Low parasitic inductance (~ 0.046 nH)
- Capacitance range : 0.8 pF to 560 pF

ELECTRICAL SPECIFICATIONS

Operating Temperature: - 55 °C to + 125 °C

Temperature Coefficient

of Capacitance (TCC): 0 ± 30 ppm/°C

Insulation Resistance: $10^{11} \Omega$ min

Voltage: 2.5 x rated voltage for 5 seconds

Ageing: none

ENVIRONMENTAL SPECIFICATIONS

Life Test: 1000 hours, + 125 °C at
2 x rated voltage

Thermal Shock: 100 Cycles, - 55 °C/+ 125 °C

Moisture Resistance: 240 hours, 85 % RH, + 85 °C

APPLICATIONS

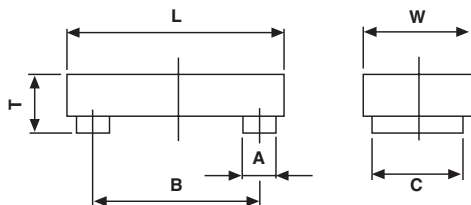
- Wireless communications
- Mobile phones
- Cordless phones
- GPS
- VCO
- Filter Networks
- Matching Networks
- Base station
- DC Blocking
- High speed circuitry

CAPACITANCE TOLERANCE CODE

FOR LESS THAN 10 pF			FOR 10 pF AND HIGHER		
A	B	C	F	G	J
± 0.05 pF	± 0.10 pF	± 0.25 pF	$\pm 1\%$	$\pm 2\%$	$\pm 5\%$

ORDERING INFORMATION

HPC	0603	A	100	G	X	X	T5
MODEL	SIZE	TYPE	CAPACITANCE VALUE	CAPACITANCE TOLERANCE	TERMINATION	VOLTAGE	PACKAGING
			The first two digits are significant, the third is a multiplier. An "R" indicates a decimal point. Examples: 101 = 100 pF 4R7 = 4.7 pF	see chart above	X = Tin/Lead termination W = Lead (Pb)-free termination	1 = 6 V Z = 10 V Y = 16 V X = 25 V M = 50 V	T5 = 5000 pcs tape and reel T1 = 1000 pcs tape and reel

DIMENSIONS

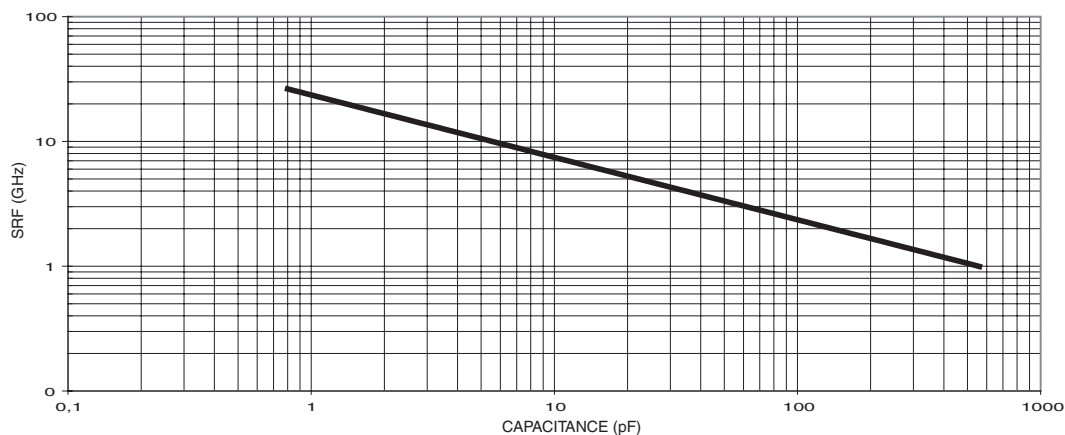
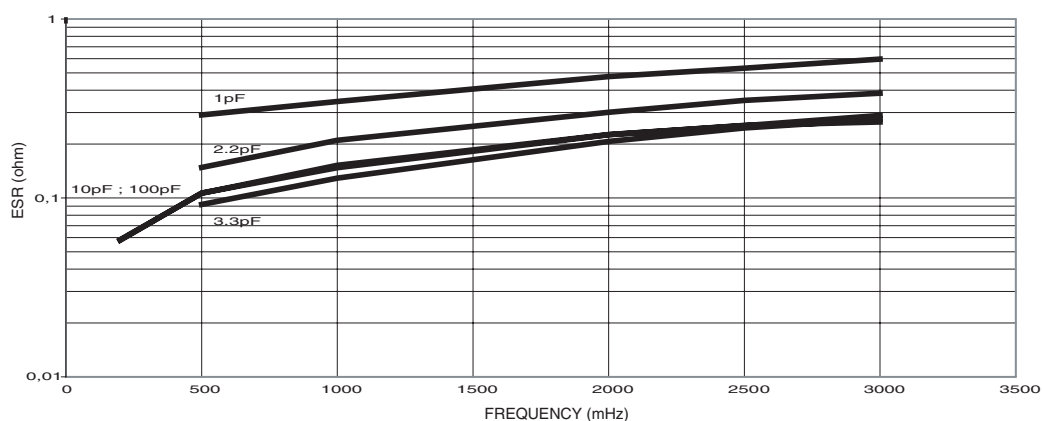
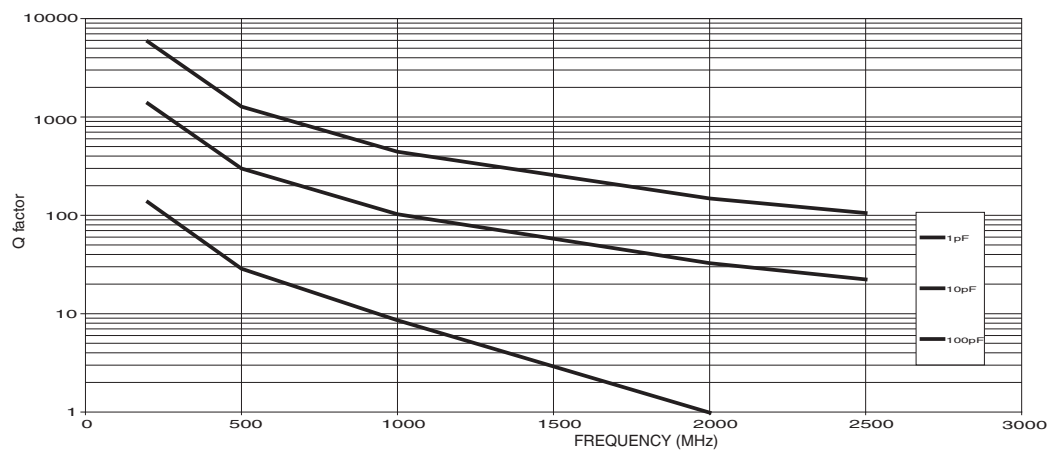
For PAD DESIGN, please see assembly/reflow recommendations page 21.

DIMENSION**INCHES****MILLIMETERS****L** 0.063 ± 0.002 1.60 ± 0.05 **W** 0.031 ± 0.002 0.80 ± 0.05 **T** 0.022 ± 0.002 0.56 ± 0.05 **A** 0.008 ± 0.002 0.20 ± 0.05 **B** 0.049 ± 0.002 1.24 ± 0.05 **C** 0.025 ± 0.002 0.64 ± 0.05 **CAPACITANCE RANGE AND VOLTAGE**

CAPACITANCE (pF)	CAPACITANCE CODE	VOLTAGE (V)				
		6	10	16	25	50
0.8	0R8					
1.0	1R0					
1.2	1R2					
1.5	1R5					
1.8	1R8					
2.2	2R2					
2.7	2R7					
3.3	3R3					
3.9	3R9					
4.7	4R7					
5.6	5R6					
6.8	6R8					
8.2	8R2					
10	100					
12	120					
15	150					
18	180					
22	220					
27	270					
33	330					
39	390					
47	470					
56	560					
68	680					
82	820					
100	101					
120	121					
150	151					
180	181					
220	221					
270	271					
330	331					
390	391					
470	471					
560	561					

**ELECTRICAL SPECIFICATIONS***

CAPACITANCE (pF) AT 1 MHz	TOLERANCE CODE**	SRF (GHz) TYP.	Ceff TYP.	Q	Ceff TYP.	Q	Ceff TYP.	Q	Ceff TYP.	Q	Ceff TYP.	Q
			200 MHz		500 MHz		1000 MHz		2000 MHz		2500 MHz	
0.8	A,B,C	26.4	0.80	6813	0.80	1491	0.80	519	0.80	174	0.81	124
1	A,B,C	23.6	1.00	5826	1.00	1275	1.00	443	1.01	148	1.01	105
1.2	A,B,C	21.5	1.20	5232	1.20	1145	1.20	398	1.21	133	1.22	95
1.5	A,B,C	19.2	1.50	4724	1.50	1033	1.50	359	1.52	120	1.53	85
1.8	A,B,C	17.6	1.80	4465	1.80	977	1.81	339	1.82	113	1.84	80
2.2	A,B,C	15.9	2.20	3947	2.20	863	2.21	300	2.24	100	2.26	70
2.7	A,B,C	14.3	2.70	3480	2.70	761	2.71	264	2.75	88	2.78	62
3.3	A,B,C	13.0	3.30	4157	3.30	909	3.32	315	3.38	104	3.43	73
3.6	A,B,C	12.4	3.60	3810	3.61	833	3.62	289	3.70	95	3.75	67
3.9	A,B,C	11.9	3.90	3517	3.91	769	3.93	266	4.01	88	4.08	62
4.3	A,B,C	11.4	4.30	3190	4.31	697	4.33	241	4.44	79	4.52	56
4.7	A,B,C	10.9	4.70	2918	4.71	638	4.74	221	4.86	72	4.96	51
5.1	A,B,C	10.4	5.10	2689	5.11	587	5.15	203	5.29	66	5.41	46
5.6	A,B,C	10.0	5.60	2449	5.61	535	5.66	185	5.84	60	5.98	42
6.2	B,C	9.5	6.20	2212	6.22	483	6.27	167	6.49	54	6.66	38
6.8	B,C	9.0	6.80	2017	6.82	440	6.88	152	7.15	49	7.36	34
7.5	B,C	8.6	7.50	1828	7.53	399	7.60	138	7.93	44	8.19	31
8.2	B,C	8.2	8.20	1672	8.23	365	8.32	126	8.71	40	9.03	28
9.1	B,C	7.8	9.11	1507	9.14	329	9.25	113	9.74	36	10.14	25
10	F,G,J	7.5	10.0	1371	10.0	299	10.2	103	10.8	33	11.3	22
11	F,G,J	7.1	11.0	1246	11.1	272	11.2	93	11.9	29	12.6	20
12	F,G,J	6.8	12.0	1142	12.1	249	12.3	85	13.1	27	13.9	18
13	F,G,J	6.5	13.0	1054	13.1	230	13.3	79	14.3	25	15.2	16
15	F,G,J	6.1	15.0	914	15.1	199	15.4	68	16.8	21	18.0	14
16	F,G,J	5.9	16.0	857	16.1	186	16.5	63	18.1	19	19.5	13
18	F,G,J	5.6	18.0	761	18.1	165	18.6	56	20.7	17	22.6	11
20	F,G,J	5.3	20.0	685	20.2	149	20.7	50	23.4	15	25.8	10
22	F,G,J	5.0	22.0	623	22.2	135	22.9	46	26.1	13	29.2	9
24	F,G,J	4.8	24.0	571	24.3	124	25.1	42	29.0	12	32.9	8
27	F,G,J	4.5	27.1	507	27.3	110	28.4	37	33.5	11	38.8	6
30	F,G,J	4.3	30.1	456	30.4	99	31.7	33	38.3	9	45.3	6
33	F,G,J	4.1	33.1	415	33.5	90	35.1	30	43.3	8	52.5	5
36	F,G,J	3.9	36.1	380	36.6	82	38.5	27	48.6	7	60.5	4
39	F,G,J	3.8	39.1	351	39.7	76	41.9	25	54.2	6	69.5	4
43	F,G,J	3.6	43.1	318	43.8	68	46.6	22	62.3	6	83.3	3
47	F,G,J	3.4	47.2	291	48.0	63	51.3	20	71.0	5	99.7	3
51	F,G,J	3.3	51.2	268	52.2	58	56.2	19	80.6	4	119.7	2
56	F,G,J	3.1	56.2	244	57.4	52	62.3	17	93.8	4	151.4	2
62	F,G,J	3.0	62.2	220	63.8	47	69.8	15	112.0	3	205.0	1
68	F,G,J	2.9	68.2	201	70.1	43	77.5	13	133.2	3	289.5	1
75	F,G,J	2.7	75.4	182	77.6	39	86.7	12	163.1	2	480.3	1
82	F,G,J	2.6	82.5	166	85.1	35	96.2	11	200.2	2		
91	F,G,J	2.5	91.6	150	94.9	32	108.8	10	264.0	1		
100	F,G,J	2.4	100.7	136	104.7	29	122.0	9	357.3	1		
110	F,G,J	2.2	110.9	124	115.7	26	137.2	8	529.1	1		
120	F,G,J	2.2	121.0	113	126.9	24	153.1	7				
130	F,G,J	2.1	131.2	105	138.1	22	169.7	6				
150	F,G,J	1.9	151.6	90	160.9	19	205.5	5				
160	F,G,J	1.9	161.9	85	172.4	17	224.7	5				
180	F,G,J	1.8	182.4	75	195.9	15	266.7	4				
200	F,G,J	1.7	202.9	68	219.8	14	312.5	3				
220	F,G,J	1.6	223.5	61	244.2	12	364.3	3				
240	F,G,J	1.5	244.2	56	269.1	11	422.6	2				
270	F,G,J	1.4	275.4	50	307.3	10	525.4	2				
300	F,G,J	1.4	306.6	45	346.8	9	652.3	2				
330	F,G,J	1.3	338.0	41	387.6	8	812.9	1				
360	F,G,J	1.2	369.6	37	429.6	7	1022.9	1				
390	F,G,J	1.2	401.3	34	473.0	6	1309.1	1				
430	F,G,J	1.1	443.7	31	533.2	6	1903.4	1				
470	F,G,J	1.1	486.5	28	596.1	5						
510	F,G,J	1.0	529.4	26	661.9	5						
560	F,G,J	1.0	583.5	24	748.7	4						

SRF VS. CAPACITANCE (TYPICAL)**ESR VS. FREQUENCY (TYPICAL)****Q VS. FREQUENCY (TYPICAL)**



Notice

Specifications of the products displayed herein are subject to change without notice. Vishay Intertechnology, Inc., or anyone on its behalf, assumes no responsibility or liability for any errors or inaccuracies.

Information contained herein is intended to provide a product description only. No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document. Except as provided in Vishay's terms and conditions of sale for such products, Vishay assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of Vishay products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Vishay for any damages resulting from such improper use or sale.