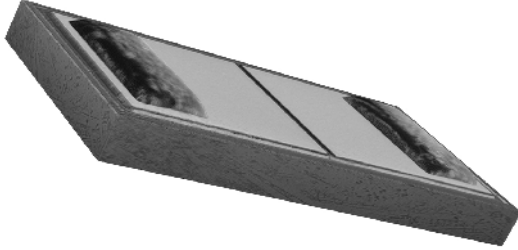


High Performance, High Precision Surface Mount 0402 Capacitor


PATENTED
ELECTRICAL SPECIFICATIONS

Operating Temperature: - 55 °C to + 125 °C
Temperature Coefficient of Capacitance (TCC): 0 ± 30 ppm/°C
Insulation Resistance: 10¹¹ Ω 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

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 ± 1 % or 0.05 pF
- Ultra high SRF
- Low parasitic inductance (~ 0.032nH)
- Capacitance range : 0.1 pF to 180 pF
- Lead (Pb)-free solder available

APPLICATIONS

- Wireless communications
- Mobile phones
- Cordless phones
- GPS
- VCO
- Filter Networks
- Matching Networks

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	± 1 %	± 2 %	± 5 %

ORDERING INFORMATION

HPC	0402	A	100	G	X	X	T
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	1 = 6 V Z = 10 V Y = 16 V X = 25 V M = 50V	T = 10000 pcs T5 = 5000 pcs T1 = 1000 pcs tape and reel

For Lead (Pb)-free solder please contact factory.

DIMENSIONS			
	DIMENSION	INCHES	MILLIMETERS
	L	0.040 ± 0.002	1.02 ± 0.05
	W	0.020 ± 0.002	0.51 ± 0.05
	T*	0.016 ± 0.004	0.40 ± 0.10
	A	0.006 ± 0.002	0.15 ± 0.05
	A1	0.004 ± 0.001	0.10 ± 0.03
	B	0.028 ± 0.002	0.71 ± 0.05
	C	0.014 ± 0.002	0.36 ± 0.05
	D	0.008 ± 0.002	0.20 ± 0.05
	E	0.010 ± 0.002	0.25 ± 0.05

For PAD DESIGN, please see assembly/reflow recommendations page 17.

*For low profile versions see data sheet HPC0402B/C

CAPACITANCE RANGE AND VOLTAGE							
CAPACITANCE (pF)	CAPACITANCE	VOLTAGE (V)					
		6	10	16	25	50	
0.1	0R1						
0.2	0R2						
0.3	0R3						
0.4	0R4						
0.5	0R5						
0.6	0R6						
0.7	0R7						
0.8	0R8						
0.9	0R9						
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						



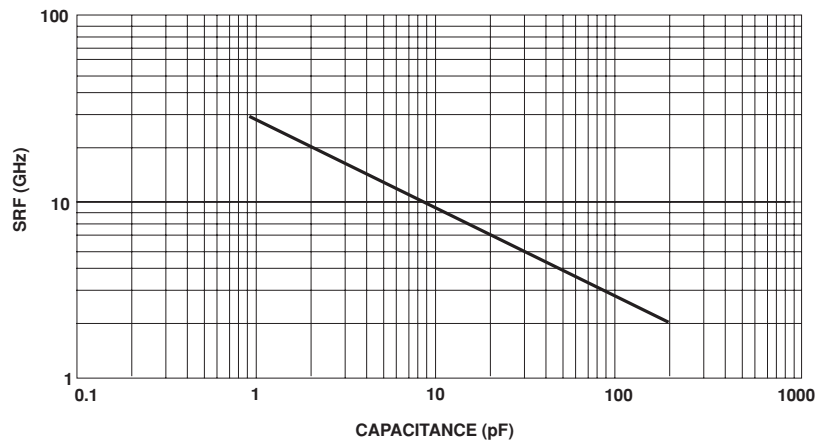
High Performance, High Precision
Surface Mount 0402 Capacitor

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	
0.1	A	N/A										
0.2	A	N/A										
0.3	A	N/A										
0.4	A	N/A										
0.5	A	N/A										
0.6	A,B	N/A										
0.7	A,B	N/A										
0.8	A,B	32.5	0.80	12994	0.80	3924	0.80	1392	0.80	439	0.80	296
0.9	A,B	30.6	0.90	12052	0.90	3639	0.90	1291	0.90	407	0.91	275
1	A,B,C	29.1	1.00	11340	1.00	3424	1.00	1215	1.00	383	1.01	258
1.2	A,B,C	26.5	1.20	10395	1.20	3139	1.20	1113	1.21	351	1.21	236
1.3	A,B,C	25.5	1.30	9595	1.30	2897	1.30	1028	1.31	324	1.31	218
1.5	A,B,C	23.7	1.50	8316	1.50	2511	1.50	890	1.51	280	1.52	189
1.6	A,B,C	23.0	1.60	7796	1.60	2354	1.60	835	1.61	263	1.62	177
1.8	A,B,C	21.7	1.80	6930	1.80	2092	1.80	742	1.82	233	1.82	157
2	A,B,C	20.5	2.00	6237	2.00	1883	2.00	667	2.02	210	2.03	141
2.2	A,B,C	19.6	2.20	5670	2.20	1711	2.21	607	2.22	190	2.24	128
2.4	A,B,C	18.8	2.40	5197	2.40	1569	2.41	556	2.43	174	2.44	117
2.7	A,B,C	17.7	2.70	4620	2.70	1394	2.71	494	2.73	155	2.76	104
3	A,B,C	16.8	3.00	4158	3.00	1255	3.01	444	3.04	139	3.07	93
3.3	A,B,C	16.0	3.30	3780	3.30	1141	3.31	404	3.35	126	3.38	85
3.6	A,B,C	15.3	3.60	3464	3.60	1045	3.62	370	3.66	116	3.70	77
3.9	A,B,C	14.7	3.90	3198	3.90	965	3.92	341	3.97	107	4.02	71
4.3	A,B,C	14.0	4.30	2900	4.31	875	4.32	310	4.39	96	4.44	64
4.7	A,B,C	13.4	4.70	2654	4.71	801	4.73	283	4.81	88	4.87	59
5.1	A,B,C	12.9	5.10	2445	5.11	738	5.13	261	5.23	81	5.30	54
5.6	A,B,C	12.3	5.60	2227	5.61	672	5.64	237	5.75	74	5.84	49
6.2	B,C	11.7	6.20	2011	6.21	607	6.25	214	6.39	66	6.50	44
6.8	B,C	11.1	6.80	1834	6.81	553	6.86	195	7.03	60	7.16	40
7.5	B,C	10.6	7.50	1663	7.52	501	7.57	177	7.78	54	7.94	36
8.2	B,C	10.1	8.20	1521	8.22	458	8.28	162	8.53	50	8.73	33
9.1	B,C	9.6	9.10	1370	9.12	413	9.20	145	9.51	45	9.76	29
10	F,G,J	9.2	10.0	1247	10.0	376	10.1	132	10.5	40	10.8	27
11	F,G,J	8.8	11.0	1133	11.0	341	11.1	120	11.6	36	12.0	24
12	F,G,J	8.4	12.0	1039	12.0	313	12.2	110	12.7	33	13.2	22
13	F,G,J	8.1	13.0	959	13.1	289	13.2	101	13.9	31	14.4	20
15	F,G,J	7.5	15.0	831	15.1	250	15.3	88	16.1	26	16.9	17
16	F,G,J	7.3	16.0	779	16.1	234	16.3	82	17.3	24	18.1	16
18	F,G,J	6.8	18.0	692	18.1	208	18.4	73	19.7	22	20.8	14
20	F,G,J	6.5	20.0	623	20.1	187	20.5	65	22.1	19	23.5	12
22	F,G,J	6.2	22.0	566	22.1	170	22.6	59	24.6	17	26.3	11
24	F,G,J	5.9	24.0	519	24.2	156	24.7	54	27.1	16	29.2	10
27	F,G,J	5.6	27.0	461	27.2	138	27.9	48	31.0	14	33.7	8
30	F,G,J	5.3	30.0	415	30.3	124	31.1	43	35.0	12	38.6	7
33	F,G,J	5.1	33.1	377	33.3	113	34.3	39	39.1	11	43.7	7
36	F,G,J	4.8	36.1	346	36.4	104	37.6	36	43.4	10	49.1	6
39	F,G,J	4.7	39.1	319	39.5	95	40.9	33	47.8	9	54.8	5
43	F,G,J	4.4	43.1	290	43.6	87	45.3	30	54.0	8	63.1	5
47	F,G,J	4.2	47.1	265	47.7	79	49.8	27	60.5	7	72.1	4
51	F,G,J	4.1	51.1	244	51.8	73	54.3	25	67.2	6	81.9	3
56	F,G,J	3.9	56.1	222	56.9	66	60.0	22	76.2	6	95.6	3
62	F,G,J	3.7	62.2	201	63.2	60	66.9	20	87.8	5	114.6	2
68	F,G,J	3.5	68.2	183	69.4	54	74.0	18	100.3	4	136.9	2
75	F,G,J	3.4	75.3	166	76.7	49	82.3	16	116.3	4	168.6	2
82	F,G,J	3.2	82.3	152	84.0	45	90.8	15	134.1	3	208.6	1
91	F,G,J	3.0	91.4	136	93.5	40	102.0	13	160.0	3	278.8	1
100	F,G,J	2.9	100.5	124	103.1	37	113.4	12	190.0	2	384.9	1
110	F,G,J	2.8	110.6	113	113.7	33	126.5	11	229.7	2		
120	F,G,J	2.7	120.7	103	124.4	30	139.9	10	278.1	2		
130	F,G,J	2.5	130.8	95	135.2	28	153.7	9	338.4	1		
150	F,G,J	2.4	151.1	83	157.0	24	182.4	7	518.3	1		
160	F,G,J	2.3	161.2	77	168.0	22	197.4	7	661.1	1		
180	F,G,J	2.2	181.5	69	190.1	20	228.8	6				

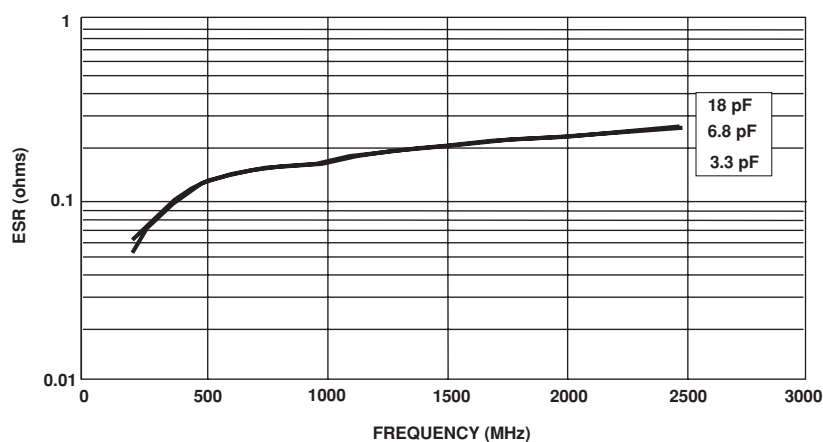
*Additional non-standard values available on request
 **A = ± 0.05; B = ± 0.10; C = ± 0.25; F = ± 1 %; G = ± 2 %; J = ± 5 %



SRF VS. CAPACITANCE (TYPICAL)



ESR VS. FREQUENCY (TYPICAL)



Q VS. FREQUENCY (TYPICAL)

