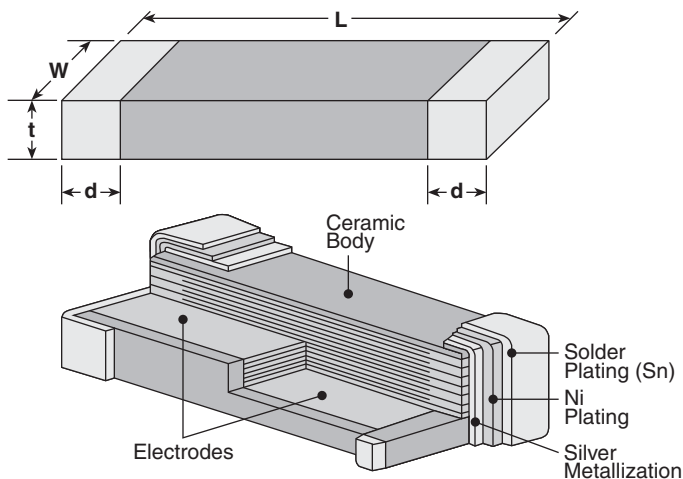


features

- High Q factor
- Low T.C.C.
- Available in high capacitance values (up to 100 μ F)
- Products with lead-free terminations meet EU RoHS requirements

dimensions and construction



Case Size	Dimensions inches (mm)			
	L	W	t (Max.)	d
0402	.039 $\pm$.004 (1.0 $\pm$ 0.1)	.02 $\pm$.004 (0.5 $\pm$ 0.1)	.021 (0.55)	.01 $\pm$.006 (0.25 $\pm$ 0.15)
0603	.063 $\pm$.006 (1.6 $\pm$ 0.15)	.032 $\pm$.006 (0.81 $\pm$ 0.15)	.035 (0.9)	.014 $\pm$.006 (0.35 $\pm$ 0.15)
0805	.079 $\pm$.008 (2.01 $\pm$ 0.2)	.049 $\pm$.008 (1.25 $\pm$ 0.2)	.051 (1.3)	.02 $\pm$.01 (0.50 $\pm$ 0.25)
1206	.126 $\pm$.008 (3.2 $\pm$ 0.2)	.063 $\pm$.008 (1.6 $\pm$ 0.2)	.059 (1.5)	.02 $\pm$.01 (0.5 $\pm$ 0.25)
1210	.126 $\pm$.008 (3.2 $\pm$ 0.2)	.098 $\pm$.008 (2.5 $\pm$ 0.2)	.067 (1.7)	.02 $\pm$.01 (0.5 $\pm$ 0.25)

ordering information

New Part #	NPO	0805	H	T	TD	101	K
	Dielectric	Size	Voltage	Termination Material	Packaging	Capacitance	Tolerance
	NPO X5R X7R Y5V	0402 0603 0805 1206 1210	A = 10V C = 16V E = 25V H = 50V I = 100V J = 200V K = 6.3V	T: Sn	TP: 7" 2mm pitch (0402 only) TD: 7" paper tape TE: 7" embossed plastic TDB: 13" paper tape TEB: 13" embossed plastic	NPO, X5R, X7R, Y5V: 2 significant digits + no. of zeros. "R" indicates decimal point	B: $\pm$ 0.1pF C: $\pm$ 0.25pF D: $\pm$ 0.5pF F: $\pm$ 1% G: $\pm$ 2% J: $\pm$ 5% K: $\pm$ 10% M: $\pm$ 20% Z: +80, -20%

For further information on packaging,
please refer to Appendix B.

applications and ratings

Dielectric	Capacitance Range	Capacitance Tolerance*	Voltage Ratings	Dissipation Factor	T.C.C.	Test Voltage	Operating Temperature	Insulation Resistance
NPO	0.47pF - 1000μF	.47pF~8.2pF= C:±0.25pF 5.6pF~8.2pF= D:±0.5pF 10pF~10000pF= F:±1%, G:±2%,J:±5%	50V 100V 200V	For Values >30pF: 0.1% max., ≤30pF: Q = 400 + 20 x C DF = 1/Q C is in pF	0 ± 30 ppm/°C	1.0 ± 0.2 Vrms	-55°C to +125°C	+25°C 100,000MΩ min. or 1000 MΩ - μF min. whichever is less
X5R	0.068μF - 100μF	K: ±10%	6.3V 10V	6.3V = 7.5% max. 10V = 10% max.	±15% (0 VDC)	1.0 ± 0.2 Vrms	-55°C to +85°C	+25°C 100,000MΩ min. or 500 MΩ - μF min. whichever is less
X7R	100pF - 4.7μF	K: ±10%	10V 16V 25V 50V 100V 200V	10V = 10% max. 16V = 3.5% max. 25V, 50V, 100V = 2.5% max.	±15% (0 VDC)	1.0 ± 0.2 Vrms	-55°C to +125°C	+25°C 100,000MΩ min. or 1000 MΩ - μF min. whichever is less
Y5V	10000pF - 22μF	Z: +80, -20%	10V 16V 25V 50V	16V & 25V = 7.0% 50V = 5.0%	+22% to -82% max.	1.0 ± 0.2 Vrms	-30°C to +85°C	+25°C 10,000MΩ min. or 1000 MΩ - μF min. whichever is less

* Special tolerances available, please consult factory.

For complete environmental specifications, please refer to www.koaspeer.com

X5R capacitance voltage availability

Size			0402	0603		0805	1206	1210
Capacitance values pF μF			10 (A)	6.3 (K)	10 (A)	6.3 (K)	10 (A)	10 (A)
56000	0.056	563						
68000	0.068	683						
82000	0.082	823						
100000	0.10	104						
120000	0.12	124						
150000	0.15	154						
180000	0.18	184						
220000	0.22	224						
270000	0.27	274						
330000	0.33	334						
470000	0.47	474						
560000	0.56	564						
680000	0.68	684						
820000	0.82	824						
1000000	1.0	105						
1200000	1.2	125						
1500000	1.5	155						
1800000	1.8	185						
2200000	2.2	225						
3300000	3.3	335						
4700000	4.7	475						
6800000	6.8	685						
10000000	10	106						
22000000	22	226						
47000000	47	476						
100000000	100	107						

Capacitance tolerance available: ±10%

Specifications given herein may be changed at any time without prior notice. Please confirm technical specifications before you order and/or use.

1/05/11

NPO capacitance voltage availability

Size				0402*	0603*		0805			1206		
pF	Capacitance values μF	Cap. Code	WVDC	50 (H)	50 (H)	100 (I)	50 (H)	100 (I)	200 (J)	50 (H)	100 (I)	200 (J)
0.47	.00000047	R47										
0.56	.00000056	R56										
0.68	.00000068	R68										
0.82	.00000082	R82										
1	.0000010	1R0										
1.2	.0000012	1R2										
1.5	.0000015	1R5										
1.8	.0000018	1R8										
2.2	.0000022	2R2										
2.7	.0000027	2R7										
3.3	.0000033	3R3										
3.9	.0000039	3R9										
4.7	.0000047	4R7										
5.6	.0000056	5R6										
6.8	.0000068	6R8										
8.2	.0000082	8R2										
10	.000010	100										
12	.000012	120										
15	.000015	150										
18	.000018	180										
22	.000022	220										
27	.000027	270										
33	.000033	330										
39	.000039	390										
47	.000047	470										
56	.000056	560										
68	.000068	680										
82	.000082	820										
100	.0001	101										
120	.00012	121										
150	.00015	151										
180	.00018	181										
220	.00022	221										
270	.00027	271										
330	.00033	331										
390	.00039	391										
470	.00047	471										
560	.00056	561										
680	.00068	681										
820	.00082	821										
1000	.0010	102										
1200	.0012	122										

Capacitance tolerance available:

.47pF~8.2pF = C: ±0.25pF

5.6pF~8.2pF = D: ±0.5pF

10pF~10000pF = F: ±1%, G: ±2%, J: ±5%

X7R capacitance voltage availability

Size			0402				0603				0805						1206					1210		
Capacitance values			10	16	25	50	10	16	25	50	10	16	25	50	100	200	10	16	50	100	200	50	100	200
pF	μF	Cap. Code	(A)	(C)	(E)	(H)	(A)	(C)	(E)	(H)	(A)	(C)	(E)	(H)	(I)	(J)	(A)	(C)	(H)	(I)	(J)	(H)	(I)	(J)
100	.0001	101																						
120	.00012	121																						
150	.00015	151																						
180	.00018	181																						
220	.00022	221																						
270	.00027	271																						
330	.00033	331																						
390	.00039	391																						
470	.00047	471																						
560	.00056	561																						
680	.00068	681																						
820	.00082	821																						
1000	.0010	102																						
1200	.0012	122																						
1500	.0015	152																						
1800	.0018	182																						
2200	.0022	222																						
2700	.0027	272																						
3300	.0033	332																						
3900	.0039	392																						
4700	.0047	472																						
5600	.0056	562																						
6800	.0068	682																						
8200	.0082	822																						
10000	.010	103																						
12000	.012	123																						
15000	.015	153																						
18000	.018	183																						
22000	.022	223																						
27000	.027	273																						
33000	.033	333																						
39000	.039	393																						
47000	.047	473																						
56000	.056	563																						
68000	.068	683																						
82000	.082	823																						
100000	.100	104																						
120000	.120	124																						
150000	.150	154																						
180000	.180	184																						
220000	.220	224																						
270000	.270	274																						
330000	.330	334																						
390000	.390	394																						
470000	.470	474																						
560000	.560	564																						
680000	.680	684																						
1000000	1.00	105																						
1200000	1.20	125																						
1500000	1.50	155																						
1800000	1.80	185																						
2200000	2.20	225																						
3900000	3.90	395																						
4700000	4.70	475																						

Capacitance tolerance available: ±10%

Y5V capacitance voltage availability

Size			0402	0603				0805				1206			
Capacitance values			16	16	25	50	10	16	25	50	10	16	25	50	
pF	μF	Cap. Code	(C)	(C)	(E)	(H)	(A)	(C)	(E)	(H)	(A)	(C)	(E)	(H)	
2200	.0022	222													
2700	.0027	272													
3300	.0033	332													
3900	.0039	392													
4700	.0047	472													
5600	.0056	562													
6800	.0068	682													
8200	.0082	822													
10000	.010	103													
12000	.012	123													
15000	.015	153													
18000	.018	183													
22000	.022	223													
27000	.027	273													
33000	.033	333													
39000	.039	393													
47000	.047	473													
56000	.056	563													
68000	.068	683													
82000	.082	823													
100000	.100	104													
120000	.120	124													
150000	.150	154													
180000	.180	184													
220000	.220	224													
270000	.270	274													
330000	.330	334													
390000	.390	394													
470000	.470	474													
560000	.560	564													
680000	.680	684													
820000	.820	824													
1000000	1.0	105													
1200000	1.2	125													
1500000	1.5	155													
1800000	1.8	185													
2200000	2.2	225													
2700000	2.7	275													
3300000	3.3	335													
3900000	3.9	395													
4700000	4.7	475													
5600000	5.6	565													
6800000	6.8	685													
10000000	10	106													
22000000	22	226													

Capacitance tolerance available: +80%, -20%