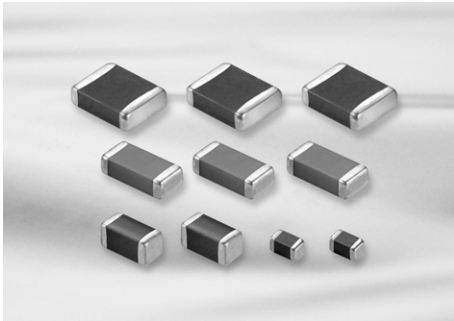


# High Capacitance Capacitors



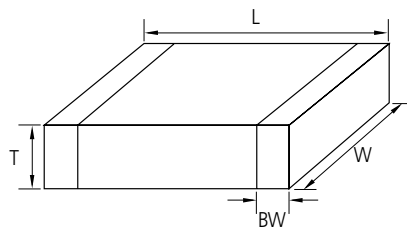
## Feature

- Wide selection of size : from 0402 to 1812
- Highly reliable tolerance and high speed automatic chip placement on PCBs
- Wide capacitance range
- Highly reliable performance
- Highly resistant termination metal
- Tape & reel for surface mount assembly

## Application

- Desktop PC, Note PC, HHP, DC-DC Converter, DSC
- LCD TV, LCD Monitor
- ※ For using special purpose like Military, Medical, Aviation, Automobile device should be following a special specification.

## Structure and Dimensions



Size Code	EIA Code	Dimension(mm)				
		L	W	T	Thickness Code	BW
05	0402	1.00±0.05	0.50±0.05	0.50±0.05	5	0.2+0.15/-0.1
10	0603	1.60±0.10	0.80±0.10	0.50±0.05	5	0.30±0.20
				0.80±0.10	8	
21	0805	2.00±0.10	1.25±0.10	0.85±0.10	C	0.5+0.2/-0.3
				1.25±0.10	F	
				1.25±0.15	Q	
31	1206	3.20±0.20	1.60±0.20	1.25±0.15	Y	0.50±0.30
				0.60±0.10	6	
				0.85±0.10	C	
32	1210	3.20±0.15	1.60±0.15	1.15±0.10	P	0.60±0.30
				1.60±0.20	H	
				0.85±0.10	C	
42	1808	3.20±0.20	2.50±0.20	0.90±0.10	9	0.80±0.30
				1.60±0.20	H	
				1.80±0.20	U	
				2.00±0.20	I	
				2.50±0.20	J	
43	1812	3.20±0.40	2.50±0.30	2.50±0.30	v	0.80±0.30
				4.50±0.40	2.00±0.20	
43	1812	4.50±0.40	3.20±0.30	3.20±0.30	L	0.80±0.30

Part Numbering System

General Capacitors

High Capacitance Capacitors

Super Small Size Capacitors

Medium-High Voltage Capacitors

Array Type Capacitors

Low ESL Capacitors

Reliability Test Condition

Premium Capacitors for Automotive Applications

Packaging Specification

Application Manual for Surface Mounting



### High Capacitance Table (X5R)

Size(mm)	Vr(V)	Capacitance (uF)									
		0.1	0.22	0.47	1	2.2	4.7	10	22	47	100
0402(1005)	4		■	■	■	■	■	■	■	■	■
	6.3		■	■	■	■	■	■	■	■	■
	10		■	■	■	■	■	■	■	■	■
	16		■	■	■	■	■	■	■	■	■
	25		■	■	■	■	■	■	■	■	■
0603(1608)	4			■	■	■	■	■	■	■	■
	6.3			■	■	■	■	■	■	■	■
	10			■	■	■	■	■	■	■	■
	16			■	■	■	■	■	■	■	■
	25			■	■	■	■	■	■	■	■
	50			■	■	■	■	■	■	■	■
0805(2012)	4				■	■	■	■	■	■	■
	6.3				■	■	■	■	■	■	■
	10				■	■	■	■	■	■	■
	16				■	■	■	■	■	■	■
	25				■	■	■	■	■	■	■
	50				■	■	■	■	■	■	■
1206(3216)	6.3						■	■	■	■	■
	10						■	■	■	■	■
	16						■	■	■	■	■
	25						■	■	■	■	■
	50						■	■	■	■	■
1210(3225)	6.3							■	■	■	■
	10							■	■	■	■
	16							■	■	■	■
	25							■	■	■	■

### High Capacitance Table\_Low Profile (X5R)

Size(mm)	Tmax (mm)	Vr(V)	Capacitance (uF)								
			1	2.2	4.7	10	22	33	47		
0402(1005)	0.3	6.3	X6S								
		10									
		16									
0603(1608)	0.5	6.3									
		10									
		16									
		25									
0805(2012)	0.5	10									
		16									
		25									
	0.95	4								(Tmax=1.0)	
		6.3								(Tmax=1.0)	
10											
16											
25							X6S				
1206(3216)	0.7	10									
	0.95	6.3									
		10									
		16									
		25					X6S				
		50									
1210(3225)	0.95	16									
	2.0	25									
		35									
		50									

- Part Numbering System
- General Capacitors
- High Capacitance Capacitors
- Super Small Size Capacitors
- Medium-High Voltage Capacitors
- Array Type Capacitors
- Low ESL Capacitors
- Reliability Test Condition
- Premium Capacitors for Automotive Applications
- Packaging Specification
- Application Manual for Surface Mounting



### High Capacitance Table (X6S)

Size(mm)	Vr(V)	Capacitance (uF)									
		0.1	0.22	0.47	1	2.2	4.7	10	22	47	100
0402(1005)	4		■	■	■	■	■	■			
	6.3		■	■	■	■	■	■			
	10		■	■	■	■	■	■			
0603(1608)	4			■	■	■	■	■	■	■	
	6.3			■	■	■	■	■	■	■	
	10			■	■	■	■	■	■	■	
	16			■	■	■	■	■	■	■	
	25			■	■	■	■	■	■	■	
0805(2012)	4				■	■	■	■	■	■	■
	6.3				■	■	■	■	■	■	■
	10				■	■	■	■	■	■	■
	16				■	■	■	■	■	■	■
	25				■	■	■	■	■	■	■
1206(3216)	6.3						■	■	■	■	■
	10						■	■	■	■	■
	16						■	■	■	■	■
	25						■	■	■	■	■
1210(3225)	6.3							■	■	■	■
	10							■	■	■	■
	16							■	■	■	■
	25							■	■	■	■

## High Capacitance Table (X7R)

Size(mm)	Vr(V)	Capacitance (uF)									
		0.1	0.22	0.47	1	2.2	4.7	10	22	47	100
0402(1005)	6.3		■								
	10		■								
	16		■								
0603(1608)	6.3			■	■	■	■				
	10			■	■	■	■				
	16			■	■	■	■				
	25			■	■	■	■				
	50										
0805(2012)	6.3				■	■	■	■	■		
	10				■	■	■	■	■		
	16				■	■	■	■	■		
	25				■	■	■	■	■	X7S	
	35				■	■	■	■			
	50				■	■	■				
1206(3216)	6.3						■	■	■	■	
	10						■	■	■	■	
	16						■	■	■	■	
	25						■	■	■	■	
	35						■	■	■	■	
	50						■	■			
1210(3225)	6.3							■	■	■	■
	10							■	■	■	■
	16							■	■	■	■
	25							■	■	■	■
	50							■	■		

- Part Numbering System
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- Array Type Capacitors
- Low ESL Capacitors
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- Premium Capacitors for Automotive Applications
- Packaging Specification
- Application Manual for Surface Mounting



**Product Lineup (High Capacitance-X5R)**

	Part Number	Size L×W (mm)	Capacitance	Rated Voltage (Vdc)	Capacitance Tolerance	Thickness Max. (mm)
1	CL05A224KQ5NNN □	100×0.50	0.22 μF	6.3	±10%	0.55
2	CL05A224KR5NNN □		0.22 μF	4	±10%	0.55
3	CL05A224KA5NNN □		0.22 μF	25	±10%	0.55
4	CL05A224KO5NNN □		0.22 μF	16	±10%	0.55
5	CL05A224KP5NNN □		0.22 μF	10	±10%	0.55
6	CL05A334KA5NNN □		0.33 μF	25	±10%	0.55
7	CL05A334KQ5NNN □		0.33 μF	6.3	±10%	0.55
8	CL05A334KR5NNN □		0.33 μF	4	±10%	0.55
9	CL05A474KA5NNN □		0.47 μF	25	±10%	0.55
10	CL05A474KO5NNN □		0.47 μF	16	±10%	0.55
11	CL05A474KP5NNN □		0.47 μF	10	±10%	0.55
12	CL05A474KQ5NNN □		0.47 μF	6.3	±10%	0.55
13	CL05A474KR5NNN □		0.47 μF	4	±10%	0.55
14	CL05A105KA5NQN □		1 μF	25	±10%	0.60
15	CL05A105KO5NNN □		1 μF	16	±10%	0.55
16	CL05A105KO3LQN □		1 μF	16	±10%	0.33
17	CL05A105KP5NNN □		1 μF	10	±10%	0.55
18	CL05A105KP3LNN □		1 μF	10	±10%	0.33
19	CL05A105KQ5NNN □		1 μF	6.3	±10%	0.55
20	CL05A105KQ3LNN □		1 μF	6.3	±10%	0.33
21	CL05A105KR5NNN □		1 μF	4	±10%	0.55
22	CL05A105KR3LNN □		1 μF	4	±10%	0.33
23	CL05A225KO5NQN □		2.2 μF	16	±10%	0.60
24	CL05A225MP5NSN □		2.2 μF	10	±20%	0.57
25	CL05A225KP3LRN □		2.2 μF	10	±10%	0.33
26	CL05A225MQ5NNN □		2.2 μF	6.3	±20%	0.55
27	CL05A225KQ3LRN □		2.2 μF	6.3	±10%	0.33
28	CL05A225MR5NNN □		2.2 μF	4	±20%	0.55
29	CL05A225KR3LRN □		2.2 μF	4	±10%	0.33
30	CL05A475MP5NRN □		4.7 μF	10	±20%	0.65
31	CL05A475MQ5NRN □		4.7 μF	6.3	±20%	0.65
32	CL05A475MR5NRN □		4.7 μF	4	±20%	0.65
33	CL05A106MQ5NUN □		10 μF	6.3	±20%	0.70
34	CL05A106MR5NRN □		10 μF	4	±20%	0.65
1	CL10A474KB8NNN □	1.60×0.80	0.47 μF	50	±10%	0.90
2	CL10A474KA8NNN □		0.47 μF	25	±10%	0.90
3	CL10A474KP8NNN □		0.47 μF	10	±10%	0.90
4	CL10A474KQ8NNN □		0.47 μF	6.3	±10%	0.90
5	CL10A474KR8NNN □		0.47 μF	4	±10%	0.90
6	CL10A105KB8NNN □		1 μF	50	±10%	0.90
7	CL10A105KA85NN □		1 μF	25	±10%	0.55
8	CL10A105KA8NNN □		1 μF	25	±10%	0.90
9	CL10A105KO8NNN □		1 μF	16	±10%	0.90
10	CL10A105KO5LNN □		1 μF	16	±10%	0.55
11	CL10A105KP8NNN □		1 μF	10	±10%	0.90
12	CL10A105KP5LNN □		1 μF	10	±10%	0.55
13	CL10A105KQ8NNN □		1 μF	6.3	±10%	0.90
14	CL10A105KQ5LNN □		1 μF	6.3	±10%	0.55

※ □ mark means packaging code. If you want to learn the code or quantity in detail, please see p80.

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**Product Lineup (High Capacitance-X5R)**

	Part Number	Size L×W (mm)	Capacitance	Rated Voltage (Vdc)	Capacitance Tolerance	Thickness Max. (mm)
15	CL10A105KR8N <sup>□</sup>	1.60×0.80	1 μF	4	±10%	0.90
16	CL10A105KR5L <sup>□</sup>		1 μF	4	±10%	0.55
17	CL10A225KA8N <sup>□</sup>		2.2 μF	25	±10%	0.90
18	CL10A105KA85N <sup>□</sup>		2.2 μF	25	±10%	0.55
19	CL10A225KO8N <sup>□</sup>		2.2 μF	16	±10%	0.90
20	CL10A225KO5L <sup>□</sup>		2.2 μF	16	±10%	0.55
21	CL10A225KP8N <sup>□</sup>		2.2 μF	10	±10%	0.90
22	CL10A225KP5L <sup>□</sup>		2.2 μF	10	±10%	0.55
23	CL10A225KQ8N <sup>□</sup>		2.2 μF	6.3	±10%	0.90
24	CL10A225KQ5L <sup>□</sup>		2.2 μF	6.3	±10%	0.55
25	CL10A225KR8N <sup>□</sup>		2.2 μF	4	±10%	0.90
26	CL10A225KR5L <sup>□</sup>		2.2 μF	4	±10%	0.55
27	CL10A335KQ8N <sup>□</sup>		3.3 μF	6.3	±10%	0.90
28	CL10A335KR8N <sup>□</sup>		3.3 μF	4	±10%	0.90
29	CL10A475KA8N <sup>□</sup>		4.7 μF	25	±10%	0.95
30	CL10A475KO8N <sup>□</sup>		4.7 μF	16	±10%	0.90
31	CL10A475KP8N <sup>□</sup>		4.7 μF	10	±10%	0.90
32	CL10A475KP5N <sup>□</sup>		4.7 μF	10	±10%	0.55
33	CL10A475KQ5L <sup>□</sup>		4.7 μF	6.3	±10%	0.55
34	CL10A475KQ8N <sup>□</sup>		4.7 μF	6.3	±10%	0.90
35	CL10A475KR5L <sup>□</sup>		4.7 μF	4	±10%	0.55
36	CL10A475KR8N <sup>□</sup>		4.7 μF	4	±10%	0.90
37	CL10A106MO8N <sup>□</sup>		10 μF	16	±20%	0.95
38	CL10A106MP8N <sup>□</sup>		10 μF	10	±20%	0.90
39	CL10A106KQ8N <sup>□</sup>		10 μF	6.3	±10%	0.90
40	CL10A106MQ5N <sup>□</sup>		10 μF	6.3	±10%	0.55
41	CL10A106KR8N <sup>□</sup>		10 μF	4	±10%	0.90
42	CL10A106MR5N <sup>□</sup>		10 μF	4	±10%	0.55
43	CL10A226MQ8N <sup>□</sup>		22 μF	6.3	±20%	1.00
44	CL10A226MR8N <sup>□</sup>		22 μF	4	±20%	1.00
1	CL21A105KBQ <sup>□</sup>	2.00×1.25	1 μF	50	±10%	1.40
2	CL21A105KAF <sup>□</sup>		1 μF	25	±10%	1.35
3	CL21A105KA6L <sup>□</sup>		1 μF	25	±10%	0.70
4	CL21A105KOF <sup>□</sup>		1 μF	16	±10%	1.35
5	CL21A105KO6L <sup>□</sup>		1 μF	16	±10%	0.70
6	CL21A105KQF <sup>□</sup>		1 μF	6.3	±10%	1.35
7	CL21A105KRF <sup>□</sup>		1 μF	4	±10%	1.35
8	CL21A225KBQ <sup>□</sup>		2.2 μF	50	±10%	1.40
9	CL21A225KAF <sup>□</sup>		2.2 μF	25	±10%	1.35
10	CL21A225KO6L <sup>□</sup>		2.2 μF	16	±10%	0.70
11	CL21A225KOF <sup>□</sup>		2.2 μF	16	±10%	1.35
12	CL21A225KPF <sup>□</sup>		2.2 μF	10	±10%	1.35
13	CL21A225KQF <sup>□</sup>		2.2 μF	6.3	±10%	1.35
14	CL21A225KRF <sup>□</sup>		2.2 μF	4	±10%	1.35
15	CL21A475KBQ <sup>□</sup>		4.7 μF	50	±10%	1.40
16	CL21A475KAQ <sup>□</sup>		4.7 μF	25	±10%	1.40
17	CL21A475KACL <sup>□</sup>		4.7 μF	25	±10%	0.95
18	CL21A475KOF <sup>□</sup>		4.7 μF	16	±10%	1.35
19	CL21A475KOCL <sup>□</sup>		4.7 μF	16	±10%	0.70
20	CL21A475KPF <sup>□</sup>		4.7 μF	10	±10%	1.35

※ □ mark means packaging code. If you want to learn the code or quantity in detail, please see p 80.



**Product Lineup (High Capacitance-X5R)**

	Part Number	Size L×W (mm)	Capacitance	Rated Voltage (Vdc)	Capacitance Tolerance	Thickness Max. (mm)
21	CL21A475KPCLNN □	2.00×1.25	4.7 μF	10	±10%	0.95
22	CL21A475KQFNNN □		4.7 μF	6.3	±10%	1.35
23	CL21A475KQCLNN □		4.7 μF	6.3	±10%	0.95
24	CL21A475KRFNNN □		4.7 μF	4	±10%	1.35
25	CL21A106KAYNNN □		10 μF	25	±10%	1.45
26	CL21A106KACLRN □		10 μF	25	±10%	0.95
27	CL21A106KOFNNN □		10 μF	16	±10%	1.35
28	CL21A106KOQNNN □		10 μF	16	±10%	1.40
29	CL21A106KOCLRN □		10 μF	16	±10%	0.70
30	CL21A106KPFNNN □		10 μF	10	±10%	1.35
31	CL21A106KPCLQN □		10 μF	10	±20%	0.95
32	CL21A106KQFNNN □		10 μF	6.3	±10%	1.35
33	CL21A106KQCLNN □		10 μF	6.3	±10%	0.95
34	CL21A475KRCLNN □		4.7 μF	4	±10%	0.95
35	CL21A106KRFNNN □		10 μF	4	±10%	1.35
36	CL21A106KRCLNN □		10 μF	4	±10%	0.95
37	CL21A226MPQNNN □		22 μF	10	±20%	1.40
38	CL21A226MPCLRN □		22 μF	10	±20%	0.95
39	CL21A226MQQNNN □		22 μF	6.3	±20%	1.40
40	CL21A226MQCLRN □		22 μF	6.3	±20%	0.95
41	CL21A226MRQNNN □		22 μF	4	±20%	1.40
42	CL21A226MRCLRN □		22 μF	4	±20%	0.95
43	CL21A336MQELNN □		33 μF	6.3	±20%	1.20
44	CL21A336MQ9LNN □		33 μF	6.3	±20%	1.00
45	CL21A336MRELNN □		33 μF	4	±20%	1.20
46	CL21A336MR9LNN □		33 μF	4	±20%	1.00
47	CL21A476MQYNNN □		47 μF	6.3	±20%	1.45
48	CL21A476MRYNNN □		47 μF	4.0	±20%	1.45
1	CL31A475KBHNNN □	3.20×1.60	4.7 μF	50	±10%	1.80
2	CL31A475KB9LNN □		4.7 μF	50	±10%	1.00
3	CL31A475KAHNNN □		4.7 μF	25	±10%	1.80
4	CL31A475KACLNN □		4.7 μF	25	±10%	0.95
5	CL31A475KOHNNN □		4.7 μF	16	±10%	1.80
6	CL31A475KOCLNN □		4.7 μF	16	±10%	0.95
7	CL31A475KPHNNN □		4.7 μF	10	±10%	1.80
8	CL31A475KQHNNN □		4.7 μF	6.3	±10%	1.80
9	CL31A475KRHNNN □		4.7 μF	4	±10%	1.80
10	CL31A106KBHNNN □		10 μF	50	±10%	1.80
11	CL31A106KAHNNN □		10 μF	25	±10%	1.80
12	CL31A106KACLNN □		10 μF	25	±10%	0.95
13	CL31A106KOHNNN □		10 μF	16	±10%	1.80
14	CL31A106KOCLNN □		10 μF	16	±10%	0.95
15	CL31A106KPHNNN □		10 μF	10	±10%	1.80
16	CL31A106KPCLNN □		10 μF	10	±10%	0.95
17	CL31A106KQHNNN □		10 μF	6.3	±10%	1.80
18	CL31A106KRHNNN □		10 μF	4	±10%	1.80
19	CL31A156KQHNNN □		15 μF	6.3	±10%	1.80
20	CL31A156KRHNNN □		15 μF	4	±10%	1.80
21	CL31A226KAHNNN □		22 μF	25	±10%	1.80
22	CL31A226KOHNNN □		22 μF	16	±10%	1.80

Part Numbering System

General Capacitors

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Packaging Specification

Application Manual for Surface Mounting

※ □ mark means packaging code. If you want to learn the code or quantity in detail, please see p 80.



Product Lineup (High Capacitance-X5R)

	Part Number	Size L×W (mm)	Capacitance	Rated Voltage (Vdc)	Capacitance Tolerance	Thickness Max. (mm)	
23	CL31A226KOC LNN □	3.20×1.60	22μF	16	±10%	0.95	
24	CL31A226KPHNNN □		22μF	10	±10%	1.80	
25	CL31A226KPCLNN □		22μF	10	±10%	0.95	
26	CL31A226KQHNNN □		22μF	6.3	±10%	1.80	
27	CL31A226KRHNNN □		22μF	4.0	±10%	1.80	
28	CL31A476MQHNNN □		47μF	6.3	±20%	1.80	
29	CL31A476MRHNNN □		47μF	4.0	±20%	1.80	
30	CL31A107MQHNNN □		100μF	6.3	±20%	1.80	
31	CL31A107MRHNNN □		100μF	4.0	±20%	1.80	
1	CL32A106KQC LNN □		3.20×2.50	10μF	6.3	±10%	0.95
2	CL32A106KRCLNN □			10μF	4.0	±10%	0.95
3	CL32A106KBULNN □	10μF		50	±10%	2.00	
4	CL32A106KAJNNN □	10μF		25	±10%	2.70	
5	CL32A106KAULNN □	10μF		25	±10%	2.00	
6	CL32A106KOJNNN □	10μF		16	±10%	2.70	
7	CL32A106KPJNNN □	10μF		10	±10%	2.70	
8	CL32A226KAJNNN □	22μF		25	±10%	2.70	
9	CL32A226KOJNNN □	22μF		16	±10%	2.70	
10	CL32A226KOC LNN □	22μF		16	±10%	0.95	
11	CL32A226KPJNNN □	22μF		10	±10%	2.70	
12	CL32A226KQJNNN □	22μF		6.3	±10%	2.70	
13	CL32A226MQCLNN □	22μF		6.3	±20%	0.95	
14	CL32A226KRJNNN □	22μF		4.0	±10%	2.70	
15	CL32A226MRCLNN □	22μF		4.0	±20%	0.95	
16	CL32A476KPJNNN □	47μF		10	±10%	2.70	
17	CL32A476MQJNNN □	47μF		6.3	±20%	2.70	
18	CL32A476MRJNNN □	47μF		4.0	±20%	2.70	
19	CL32A107MPVNNN □	100μF		10	±20%	2.80	
20	CL32A107MQVNNN □	100μF		6.3	±20%	2.80	
21	CL32A107MRVNNN □	100μF		4.0	±20%	2.80	
1	CL43A476MQJNNN □	4.50×3.20	47μF	6.3	±20%	2.70	
2	CL43A476MRJNNN □		47μF	4.0	±20%	2.70	
3	CL43A107KQLNNN □		100μF	6.3	±20%	3.50	
4	CL43A107KRLNNN □		100μF	4.0	±20%	3.50	

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**Product Lineup (High Capacitance-X6S)**

	Part Number	Size L×W (mm)	Capacitance	Rated Voltage (Vdc)	Capacitance Tolerance	Thickness Max. (mm)
1	CL05X224KP5NNN □	1.00×0.50	0.22 μF	10	±10%	0.55
2	CL05X224KQ5NNN □		0.22 μF	6.3	±10%	0.55
3	CL05X224KR5NNN □		0.22 μF	4	±10%	0.55
4	CL05X474KP5NNN □		0.47 μF	10	±10%	0.55
5	CL05X474KQ5NNN □		0.47 μF	6.3	±10%	0.55
6	CL05X474KR5NNN □		0.47 μF	4	±10%	0.55
7	CL05X105KP5NNN □		1 μF	10	±10%	0.55
8	CL05X105MQ3LNN □		1 μF	6.3	±20%	0.33
9	CL05X105KQ5NNN □		1 μF	6.3	±10%	0.55
10	CL05X105MR3LNN □		1 μF	4	±20%	0.33
11	CL05X105KR5NNN □		1 μF	4	±10%	0.55
12	CL05X225MQ5NSN □		2.2 μF	6.3	±20%	0.57
13	CL05X225MR5NSN □		2.2 μF	4	±20%	0.57
1	CL10X474KA8NNN □	1.60×0.80	0.47 μF	25	±10%	0.90
2	CL10X474KO8NNN □		0.47 μF	16	±10%	0.90
3	CL10X474KP8NNN □		0.47 μF	10	±10%	0.90
4	CL10X474KQ8NNN □		0.47 μF	6.3	±10%	0.90
5	CL10X474KR8NNN □		0.47 μF	4	±10%	0.90
6	CL10X105KA8NNN □		1 μF	25	±10%	0.90
7	CL10X105KO8NNN □		1 μF	16	±10%	0.90
8	CL10X105KP8NNN □		1 μF	10	±10%	0.90
9	CL10X105KQ8NNN □		1 μF	6.3	±10%	0.90
10	CL10X105KR8NNN □		1 μF	4	±10%	0.90
11	CL10X225KA8NQN □		2.2 μF	25	±10%	0.90
12	CL10X225KO8NNN □		2.2 μF	16	±10%	0.90
13	CL10X225KP8NNN □		2.2 μF	10	±10%	0.90
14	CL10X225KQ8NNN □		2.2 μF	6.3	±10%	0.90
15	CL10X225KR8NNN □		2.2 μF	4	±10%	0.90
16	CL10X475KA8NQN □		4.7 μF	25	±10%	0.90
17	CL10X475KO8NQN □		4.7 μF	16	±10%	0.90
18	CL10X475KP5NNN □		4.7 μF	10	±10%	0.90
19	CL10X475KQ8NNN □		4.7 μF	6.3	±10%	0.90
20	CL10X475KR8NNN □		4.7 μF	4	±10%	0.90
21	CL10X106MP8NNN □		10 μF	10	±20%	0.90
22	CL10X106KQ8NNN □		10 μF	6.3	±10%	0.90
23	CL10X106KR8NNN □		10 μF	4	±10%	0.90
1	CL21X105KAFNNN □	2.00×1.25	1 μF	25	±10%	1.35
2	CL21X105KOFNNN □		1 μF	16	±10%	1.35
3	CL21X105KPFNNN □		1 μF	10	±10%	1.35
4	CL21X105KQFNNN □		1 μF	6.3	±10%	1.35
5	CL21X105KRFNNN □		1 μF	4	±10%	1.35
6	CL21X225KAFNNN □		2.2 μF	25	±10%	1.35
7	CL21X225KOFNNN □		2.2 μF	16	±10%	1.35
8	CL21X225KPFNNN □		2.2 μF	10	±10%	1.35
9	CL21X225KQFNNN □		2.2 μF	6.3	±10%	1.35
10	CL21X225KRFNNN □		2.2 μF	4	±10%	1.35
11	CL21X475KAQNNN □		4.7 μF	25	±10%	1.40
12	CL21X475KOFNNN □		4.7 μF	16	±10%	1.35
13	CL21X475KPFNNN □		4.7 μF	10	±10%	1.35
14	CL21X475KQFNNN □		4.7 μF	6.3	±10%	1.35

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- Part Numbering System
- General Capacitors
- High Capacitance Capacitors
- Super Small Size Capacitors
- Medium-High Voltage Capacitors
- Array Type Capacitors
- Low ESL Capacitors
- Reliability Test Condition
- Premium Capacitors for Automotive Applications
- Packaging Specification
- Application Manual for Surface Mounting



Product Lineup (High Capacitance -X7R)

	Part Number	Size L×W (mm)	Capacitance	Rated Voltage (Vdc)	Capacitance Tolerance	Thickness Max. (mm)	
15	CL21X475KRFNNN □	2.00×1.25	4.7μF	4	±10%	1.35	
16	CL21X106KACLRN □		10μF	25	±10%	0.95	
17	CL21X106KAYNNN □		10μF	25	±10%	1.45	
18	CL21X106KOYNNN □		10μF	16	±10%	1.45	
19	CL21X106KPCLNN □		10μF	10	±10%	0.95	
20	CL21X106KPYNNN □		10μF	10	±10%	1.45	
21	CL21X106KQQNNN □		10μF	6.3	±10%	1.40	
22	CL21X106KRQNNN □		10μF	4	±10%	1.40	
23	CL21X106KRCLNN □		10μF	4	±10%	0.95	
24	CL21X226MQQNNN □		22μF	6.3	±20%	1.40	
25	CL21X226MRQNNN □		22μF	4	±20%	1.40	
26	CL21X476MRYNNN □		47μF	4	±20%	1.45	
1	CL31X475KAHNNN □		3.20×1.60	4.7μF	25	±10%	1.80
2	CL31X475KACLNN □			4.7μF	25	±10%	0.95
3	CL31X475KOHNNN □	4.7μF		16	±10%	1.80	
4	CL31X475KPHNNN □	4.7μF		10	±10%	1.80	
5	CL31X475MQHNNN □	4.7μF		6.3	±20%	1.80	
6	CL31X475KRHNNN □	4.7μF		4	±10%	1.80	
7	CL31X106KACLNN □	10μF		25	±10%	0.95	
8	CL31X106KAHNNN □	10μF		25	±10%	1.80	
9	CL31X106KOHNNN □	10μF		16	±10%	1.80	
10	CL31X106KPHNNN □	10μF		10	±10%	1.80	
11	CL31X106KHNNN □	10μF		6.3	±10%	1.80	
12	CL31X106KRHNNN □	10μF		4	±10%	1.80	
13	CL31X226KOHNNN □	22μF		16	±10%	1.80	
14	CL31X226KPHNNN □	22μF		10	±10%	1.80	
15	CL31X226KHNNN □	22μF		6.3	±10%	1.80	
16	CL31X226KRHNNN □	22μF		4	±10%	1.80	
17	CL31X107MQHNNN □	100μF		6.3	±20%	1.80	
18	CL31X107MRHNNN □	100μF		4	±20%	1.80	
1	CL32X106KAUNNN □	3.20×2.50	10μF	25	±10%	2.00	
2	CL32X106KOJNNN □		10μF	16	±10%	2.70	
3	CL32X106KPJNNN □		10μF	10	±10%	2.70	
4	CL32X106KQJNNN □		10μF	6.3	±10%	2.70	
5	CL32X106KRJNNN □		10μF	4	±10%	2.70	
6	CL32X226KAJNNN □		22μF	25	±10%	2.70	
7	CL32X226KOJNNN □		22μF	16	±10%	2.70	
8	CL32X226KPJNNN □		22μF	10	±10%	2.70	
9	CL32X226KQJNNN □		22μF	6.3	±10%	2.70	
10	CL32X226KRJNNN □		22μF	4	±10%	2.70	
11	CL32X476MPJNNN □		47μF	10	±20%	2.70	
12	CL32X476KQJNNN □		47μF	6.3	±10%	2.70	
13	CL32X476KRJNNN □		47μF	4	±10%	2.70	
14	CL32X107MQVNNN □		100μF	6.3	±20%	2.70	
15	CL32X107MRVNNN □		100μF	4	±20%	2.70	

※ □ mark means packaging code. If you want to learn the code or quantity in detail, please see p80.

**Product Lineup (High Capacitance -X7R)**

	Part Number	Size L×W (mm)	Capacitance	Rated Voltage (Vdc)	Capacitance Tolerance	Thickness Max. (mm)
1	CL05B224KO5NNN □	1.00×0.50	0.22 μF	16	±10%	0.55
2	CL05B224KP5NNN □		0.22 μF	10	±10%	0.55
3	CL05B224KQ5NNN □		0.22 μF	6.3	±10%	0.55
1	CL10B474KA8NNN □	1.60×0.80	0.47 μF	25	±10%	0.90
2	CL10B474KO8NNN □		0.47 μF	16	±10%	0.90
3	CL10B474KP8NNN □		0.47 μF	10	±10%	0.90
4	CL10B474KQ8NNN □		0.47 μF	6.3	±10%	0.90
5	CL10B105KA8NNN □		1 μF	25	±10%	0.90
6	CL10B105KO8NNN □		1 μF	16	±10%	0.90
7	CL10B105KP8NNN □		1 μF	10	±10%	0.90
8	CL10B105KQ8NNN □		1 μF	6.3	±10%	0.90
9	CL10B225KP8NNN □		2.2 μF	10	±10%	0.90
10	CL10B225KQ8NNN □		2.2 μF	6.3	±10%	0.90
1	CL21B105KBFNNN □	2.00×1.25	1 μF	50	±10%	1.35
2	CL21B105KLFNNN □		1 μF	35	±10%	1.35
3	CL21B105KAFNNN □		1 μF	25	±10%	1.35
4	CL21B105KOFNNN □		1 μF	16	±10%	1.35
5	CL21B105KPFNNN □		1 μF	10	±10%	1.35
6	CL21B105KQFNNN □		1 μF	6.3	±10%	1.35
7	CL21B225KAFNNN □		2.2 μF	25	±10%	1.35
8	CL21B225KOFNNN □		2.2 μF	16	±10%	1.35
9	CL21B225KPFNNN □		2.2 μF	10	±10%	1.35
10	CL21B225KQFNNN □		2.2 μF	6.3	±10%	1.35
11	CL21B475KOFNFN □		4.7 μF	16	±10%	1.35
12	CL21B475KPFNFN □		4.7 μF	10	±10%	1.35
13	CL21B475KQFNFN □		4.7 μF	6.3	±10%	1.35
14	CL21B106KOQNNN □		10 μF	16	±10%	1.40
15	CL21B106KPQNNN □		10 μF	10	±10%	1.35
16	CL21B106KQNNN □		10 μF	6.3	±10%	1.35
1	CL31B475KBHNNN □	3.20×1.60	4.7 μF	50	±10%	1.80
2	CL31B475KLHNNN □		4.7 μF	35	±10%	1.80
3	CL31B475KAHNNN □		4.7 μF	25	±10%	1.80
4	CL31B475KOHNNN □		4.7 μF	16	±10%	1.80
5	CL31B475KPHNNN □		4.7 μF	10	±10%	1.80
6	CL31B475KQHNNN □		4.7 μF	6.3	±10%	1.80
7	CL31B106KLHNNN □		10 μF	35	±10%	1.80
8	CL31B106KAHNNN □		10 μF	25	±10%	1.80
9	CL31B106KOHNNN □		10 μF	16	±10%	1.80
10	CL31B106KPHNNN □		10 μF	10	±10%	1.80
11	CL31B106KQHNNN □		10 μF	6.3	±10%	1.80
1	CL32B106KBJNNN □	3.20×2.50	10 μF	50	±10%	2.70
2	CL32B106KAJNNN □		10 μF	25	±10%	2.70
3	CL32B106KOJNNN □		10 μF	16	±10%	2.70
4	CL32B106KPINNN □		10 μF	10	±10%	2.70
5	CL32B106KQJNNN □		10 μF	6.3	±10%	2.70
6	CL32B226KAJNNN □		22 μF	25	±10%	2.70
7	CL32B226KOJNNN □		22 μF	16	±10%	2.70
8	CL32B226KPJNNN □		22 μF	10	±10%	2.70
9	CL32B226KQJNNN □		22 μF	6.3	±10%	2.70
10	CL32B476MQJNNN □		47 μF	6.3	±20%	2.70

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- Low ESL Capacitors
- Reliability Test Condition
- Premium Capacitors for Automotive Applications
- Packaging Specification
- Application Manual for Surface Mounting

## Product Lineup (High Capacitance -Y5V)

	Part Number	Size L×W (mm)	Capacitance	Rated Voltage (Vdc)	Capacitance Tolerance	Thickness Max. (mm)	
1	CL05F224Z05NNN □	1.00×0.50	0.22μF	16	80%/-20%	0.55	
2	CL05F224ZP5NNN □		0.22μF	10	80%/-20%	0.55	
3	CL05F224ZQ5NNN □		0.22μF	6.3	80%/-20%	0.55	
4	CL05F474ZP5NNN □		0.47μF	10	80%/-20%	0.55	
5	CL05F474ZQ5NNN □		0.47μF	6.3	80%/-20%	0.55	
6	CL05F105ZQ5NNN □		1μF	6.3	80%/-20%	0.55	
1	CL10F474ZB8NNN □	1.60×0.80	0.47μF	50	80%/-20%	0.90	
2	CL10F474ZA8NNN □		0.47μF	25	80%/-20%	0.90	
3	CL10F474ZO8NNN □		0.47μF	16	80%/-20%	0.90	
4	CL10F474ZP8NNN □		0.47μF	10	80%/-20%	0.90	
5	CL10F105ZO8NNN □		1μF	16	80%/-20%	0.90	
6	CL10F105ZP8NNN □		1μF	10	80%/-20%	0.90	
7	CL10F225ZP8NNN □		2.2μF	10	80%/-20%	0.90	
8	CL10F225ZQ8NNN □		2.2μF	6.3	80%/-20%	0.90	
9	CL10F475ZQ8NNN □		4.7μF	6.3	80%/-20%	0.90	
1	CL21F105ZBFNNN □	2.00×1.25	1μF	50	80%/-20%	1.35	
2	CL21F105ZAFNNN □		1μF	25	80%/-20%	1.35	
3	CL21F105ZOFNNN □		1μF	16	80%/-20%	1.35	
4	CL21F225ZAFNNN □		2.2μF	25	80%/-20%	1.35	
5	CL21F225ZOFNNN □		2.2μF	16	80%/-20%	1.35	
6	CL21F475ZQFNNN □		4.7μF	6.3	80%/-20%	1.35	
1	CL21F475ZOFNNN □		4.7μF	16	80%/-20%	1.35	
2	CL21F475ZPFNNN □		4.7μF	10	80%/-20%	1.35	
3	CL21F106ZPFNNN □		10μF	10	80%/-20%	1.35	
4	CL21F106ZPCLNN □		10μF	10	80%/-20%	0.95	
5	CL21F106ZQFNNN □		10μF	6.3	80%/-20%	1.35	
6	CL21F106ZQCLNN □		10μF	6.3	80%/-20%	0.95	
1	CL31F475ZOHNNN □		3.20×1.60	4.7μF	16	80%/-20%	1.80
2	CL31F475ZPHNNN □			4.7μF	10	80%/-20%	1.80
3	CL31F475ZQHNNN □	4.7μF		6.3	80%/-20%	1.80	
4	CL31F106ZOHNNN □	10μF		16	80%/-20%	1.80	
5	CL31F106ZPHNNN □	10μF		10	80%/-20%	1.80	
6	CL31F106ZQHNNN □	10μF		6.3	80%/-20%	1.80	
7	CL31F226ZPHNNN □	22μF		10	80%/-20%	1.80	
8	CL31F226ZQHNNN □	22μF		6.3	80%/-20%	1.80	
1	CL32F106ZAHLNN □	3.20×2.50	10μF	25	80%/-20%	1.80	
2	CL32F106ZOELNN □		10μF	16	80%/-20%	2.00	
3	CL32F226ZPJNNN □		22μF	10	80%/-20%	2.70	
4	CL32F226ZPULNN □		22μF	10	80%/-20%	2.00	
5	CL32F476ZQJNNN □		47μF	6.3	80%/-20%	2.70	
6	CL32F107ZQJNNN □		100μF	6.3	80%/-20%	2.70	

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