How to Order

Part Number Explanation

Commercial Surface Mount Chips

EXAMPLE: 08055A101JAT2A

0805	5	A	101	J*	A	T	2	A
Size	Voltage	Dielectric	Capacitance	Tolerance	Failure Rate	Terminations	Packaging	Special Code

Size (L" x W")
0201
0402
0603
0805
1206
1210
1812
1825
2220
2225

Voltage
4 = 4V
6 = 6.3V
Z = 10V
Y = 16V
3 = 25V
D = 35V
5 = 50V
1 = 100V
2 = 200V
7 = 500V

Contact Factory for Special Voltages

F = 63V	9 = 300V
* = 75V	X = 350V
E = 150V	8 = 400V
V = 250V	

Dielectric
A = NP0(C0G)
C = X7R
D = X5R
G = Y5V
U = U Series
W = X6S
Z = X7S

Capacitance
2 Sig. Fig +
No. of Zeros
Examples:
100 = 10 pF
101 = 100 pF
102 = 1000 pF
223 = 22000 pF
224 = 220000 pF
105 = 1µF
106 = 10µF
107 = 100µF
For values below 10 pF, use "R" in place of Decimal point, e.g., 9.1 pF = 9R1.

Tolerance
B = ±.10 pF
C = ±.25 pF
D = ±.50 pF
F = ±1% (≥ 10 pF)
G = ±2% (≥ 10 pF)
J = ±5%
K = ±10%
M = ±20%
Z = +80%, -20%
P = +100%, -0%

Failure Rate
A = N/A
4 = Automotive

Terminations
T = Plated Ni and Sn
7 = Gold Plated
J = Tin/Lead

Contact Factory For
1 = Pd/Ag Term
Z = Soft Termination

Packaging
Available
2 = 7" Reel
4 = 13" Reel
7 = Bulk Cass.
9 = Bulk

Contact Factory For Multiples

Special Code
A = Std.

* B, C & D tolerance for ≤10 pF values.

Standard Tape and Reel material (Paper/Embossed) depends upon chip size and thickness.

See individual part tables for tape material type for each capacitance value.

High Voltage Surface Mount Chips

EXAMPLE: 1808AA271KA11A

1808	A	A	271	K	A	1	1A
AVX Style	Voltage	Temperature Coefficient	Capacitance Code	Capacitance Tolerance	Failure Rate	Termination	Packaging/Marking

AVX Style
1206
1210
1808
1812
1825
2220
2225
3640

Voltage
C = 600V
A = 1000V
S = 1500V
G = 2000V
W = 2500V
H = 3000V
J = 4000V
K = 5000V

Temperature Coefficient
A = C0G
C = X7R

Capacitance Code
(2 significant digits + no. of zeros)
Examples:
10 pF = 100
100 pF = 101
1,000 pF = 102
22,000 pF = 223
220,000 pF = 224
1 µF = 105

Capacitance Tolerance
C0G: J = ±5%
K = ±10%
M = ±20%
X7R: K = ±10%
M = ±20%
Z = +80%, -20%

Failure Rate
A=Not Applicable

Termination
1= Pd/Ag
T = Plated Ni and Sn

Packaging/Marking
1A = 7" Reel Unmarked
3A = 13" Reel Unmarked
9A = Bulk/Unmarked

How to Order

Part Number Explanation

Capacitor Array

EXAMPLE: W2A43C103MAT2A

W	Style	
2	Case Size	1 = 0405 2 = 0508 3 = 0612
A	Array	
4	Number of Caps	
3	Voltage	6 = 6.3V Z = 10V Y = 16V 3 = 25V 5 = 50V 1 = 100V
C	Dielectric	A = NP0 C = X7R D = X5R
103	Capacitance Code (In pF)	2 Sig Digits + Number of Zeros
M	Capacitance Tolerance	J = ±5% K = ±10% M = ±20%
A	Failure Rate	
T	Termination Code	T = Plated Ni and Sn
2A	Packaging & Quantity Code	2A = 7" Reel (4000) 4A = 13" Reel (10000) 2F = 7" Reel (1000)

Low Inductance Capacitors (LICC)

EXAMPLE: 0612ZD105MAT2A

0612	Size	0306 0508 0612
Z	Voltage	6 = 6.3V Z = 10V Y = 16V 3 = 25V 5 = 50V
D	Dielectric	C = X7R D = X5R
105	Capacitance Code (In pF)	2 Sig. Digits + Number of Zeros
M	Capacitance Tolerance	K = ±10% M = ±20%
A	Failure Rate	A = N/A
T	Terminations	T = Plated Ni and Sn J = Tin/Lead
2	Packaging	Available 2 = 7" Reel 4 = 13" Reel
A	Thickness	See Page 51 for Codes

Interdigitated Capacitors (IDC)

EXAMPLE: W3L16D225MAT3A

W	Style	
3	Case Size	2 = 0508 3 = 0612
L	Low Inductance	
1	Number of Terminals	1 = 8 Terminals
6	Voltage	4 = 4V 6 = 6.3V Z = 10V Y = 16V
D	Dielectric	C = X7R D = X5R
225	Capacitance Code (In pF)	2 Sig. Digits + Number of Zeros
M	Capacitance Tolerance	M = ±20
A	Failure Rate	A = N/A
T	Termination	T = Plated Ni and Sn
3	Packaging	Available 1=7" Reel 3=13" Reel
A	Thickness	Max. Thickness mm (in.) A=0.95 (0.037) S=0.55 (0.022)

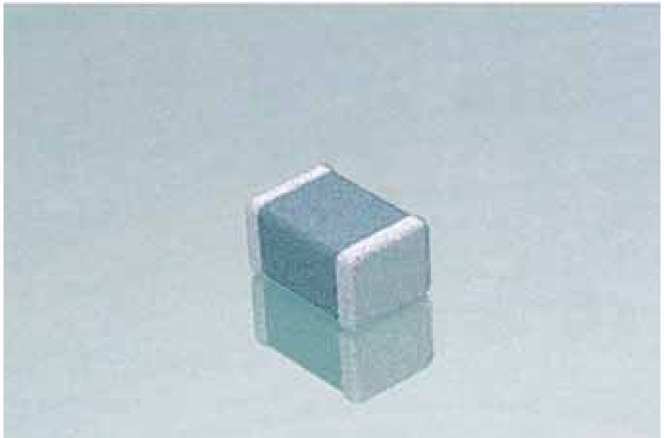
Decoupling Capacitor Arrays (LICA)

EXAMPLE: LICA3T183M3FC4AA

LICA	Style & Size	
3	Voltage	5V = 9 10V = Z 25V = 3
T	Dielectric	D = X5R T = T55T S = High K T55T
183	Cap/Section (EIA Code)	
M	Capacitance Tolerance	M = ±20% P = GMV
3	Height Code	6 = 0.500mm 3 = 0.650mm 1 = 0.875mm 5 = 1.100mm 7 = 1.600mm
F	Termination	F = C4 Solder Balls- 97Pb/3Sn H = C4 Solder Balls–Low ESR P = Cr-Cu-Au N = Cr-Ni-Au X = None
C	Reel Packaging	M = 7" Reel R = 13" Reel 6 = 2"x2" Waffle Pack 8 = 2"x2" Black Waffle Pack 7 = 2"x2" Waffle Pack w/ termination facing up A = 2"x2" Black Waffle Pack w/ termination facing up C = 4"x4" Waffle Pack w/ clear lid
4	# of Caps/Part	1 = one 2 = two 4 = four
A	Inspection Code	A = Standard B = Established Reliability Testing
A	Code Face	A = Bar B = No Bar C = Dot, S55S Dielectrics

C0G (NP0) Dielectric

General Specifications



C0G (NP0) is the most popular formulation of the "temperature-compensating," EIA Class I ceramic materials. Modern C0G (NP0) formulations contain neodymium, samarium and other rare earth oxides.

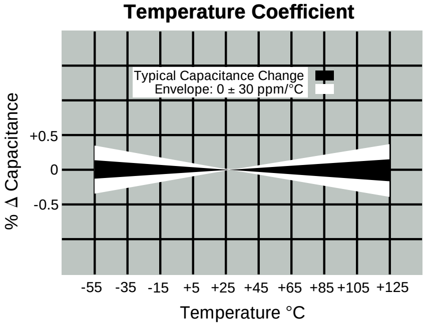
C0G (NP0) ceramics offer one of the most stable capacitor dielectrics available. Capacitance change with temperature is 0 ±30ppm/°C which is less than ±0.3% Δ C from -55°C to +125°C. Capacitance drift or hysteresis for C0G (NP0) ceramics is negligible at less than ±0.05% versus up to ±2% for films. Typical capacitance change with life is less than ±0.1% for C0G (NP0), one-fifth that shown by most other dielectrics. C0G (NP0) formulations show no aging characteristics.

The C0G (NP0) formulation usually has a "Q" in excess of 1000 and shows little capacitance or "Q" changes with frequency. Their dielectric absorption is typically less than 0.6% which is similar to mica and most films.

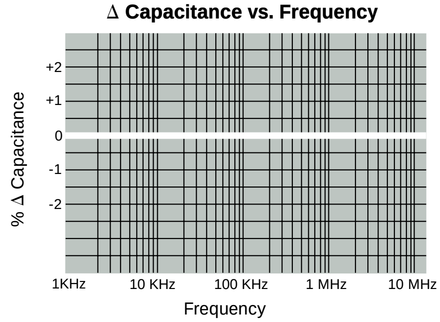
PART NUMBER (see page 2 for complete part number explanation)

0805	5	A	101	J	A	T	2	A
Size (L" x W")	**Voltage** 6.3V = 6 10V = Z 16V = Y 25V = 3 50V = 5 100V = 1 200V = 2 500V = 7	**Dielectric** C0G (NP0) = A	**Capacitance Code (In pF)** 2 Sig. Digits + Number of Zeros	**Capacitance Tolerance** B = ±.10 pF (<10pF) C = ±.25 pF (<10pF) D = ±.50 pF (<10pF) F = ±1% (≥ 10 pF) G = ±2% (≥ 10 pF) J = ±5% K = ±10%	**Failure Rate** A = Not Applicable	**Terminations** T = Plated Ni and Sn 7 = Gold Plated **Contact Factory For 1 = Pd/Ag Term**	**Packaging** 2 = 7" Reel 4 = 13" Reel 7 = Bulk Cass. 9 = Bulk **Contact Factory For Multiples**	**Special Code** A = Std. Product

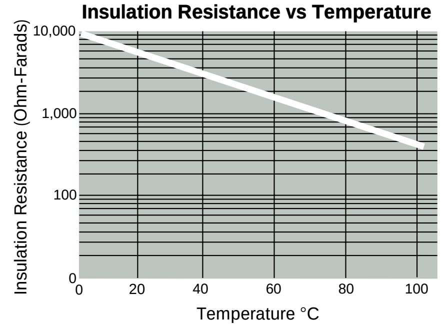
Temperature Coefficient



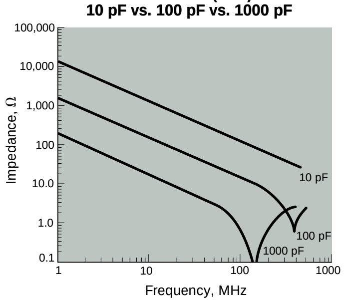
Δ Capacitance vs. Frequency



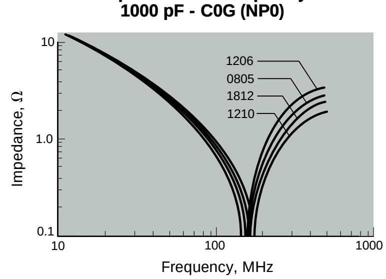
Insulation Resistance vs Temperature



Variation of Impedance with Cap Value
Impedance vs. Frequency
0805 - C0G (NP0)
10 pF vs. 100 pF vs. 1000 pF



Variation of Impedance with Chip Size
Impedance vs. Frequency
1000 pF - C0G (NP0)



Variation of Impedance with Ceramic Formulation
Impedance vs. Frequency
1000 pF - C0G (NP0) vs X7R
0805