

### ■ INTRODUCTION

MAQ and MAZ series MLCC offer very low ESR and high Q ratings. Q factor is important in RF frequencies (higher frequencies) and the ESR increases at high frequency and dissipation factor losses also increase. The MAQ and MAZ series capacitors are ideal for RF frequency applications.

### ■ FEATURES

- High Q, Low ESR
- High Mounting Density
- Nickel Barrier Termination
- COG / NPO material
- Voltages up to 630V
- RoHS Compliant
- Soft Terminations available upon request

### ■ DIMENSIONS

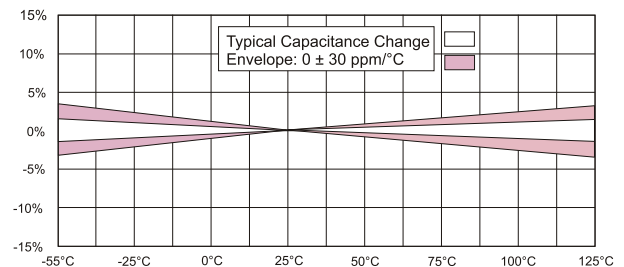
Size	0201	0402	0603	0805
LXW IN	0.024 x 0.012	0.04 x 0.02	0.063 x 0.03	0.08 x 0.05
MM	0.60 x 0.30	1.00 x 0.50	1.60 x 0.80	2.03 x 1.27
T IN	0.39	0.022	0.036	0.053
(max) MM	0.0153	0.55	0.92	1.35

\* Thicknesses noted are maximum.  
Thicknesses are less on low capacitance values.

### ■ SPECIFICATIONS

Specification	COG(NPO)
Temp(°C)	-55~ +125
TempCoeff	0% ±30PPM
Dissipation (25°C)	<0.001@1KHz
Insulation Resistance	>1000MΩF or 100GΩ

COG/NPO: Typical Capacitance Change vs. Temperature



### ■ Q (at 25 C)

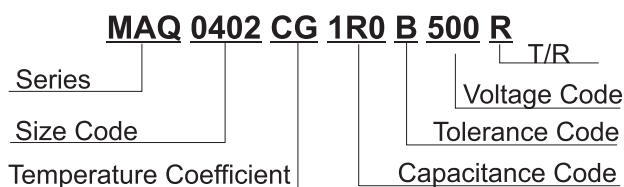
Size	MAQ Series	MAZ Series
0201	$< 30\text{pF} : Q \geq 400 + 20C$ $\geq 30\text{pF} : Q \geq 1000$	25V~50V, $< 30\text{pF} : Q \geq 400 + 20C$ , $\geq 30\text{pF} : Q \geq 1000$
0402		25V~50V, $< 30\text{pF} : Q \geq 400 + 20C$ , $\geq 30\text{pF} : Q \geq 1000$
		100V~200V, $< 30\text{pF} : Q \geq 800 + 20C$ , $\geq 30\text{pF} : Q \geq 1400$
0603		$< 30\text{pF} : Q \geq 800 + 20C$ , $\geq 30\text{pF} : Q \geq 1400$
0805		$< 30\text{pF} : Q \geq 800 + 20C$ , $\geq 30\text{pF} : Q \geq 1400$

### ■ STANDARD VOLTAGES AND CAPACITANCE RANGES (pF)

Temperature Coefficient			MAQ	MAZ
Size Code	Voltage	Code		
0201	6.3V	060		0.1 33
	10V	100	0.5 ~ 33	0.1 ~ 33
	16V	160	0.5 ~ 33	
	25V	250	0.5 ~ 33	0.1 ~ 33
	50V	500	0.5 ~ 33	0.1 ~ 33
0402	16V	160	0.5 ~ 470	
	25V	250	0.5 ~ 470	0.1 ~ 100
	50V	500	0.5 ~ 470	0.1 ~ 56
	100V	101	0.5 ~ 220	0.1 ~ 56
	200V	201		0.1 ~ 33
0603	16V	160	0.5 ~ 3300	
	25V	250	0.5 ~ 3300	
	50V	500	0.5 ~ 3300	0.1 ~ 100
	100V	101	0.5 ~ 1000	0.1 ~ 100
	250V	251		0.1 ~ 100
0805	50V	500	0.5 ~ 150	0.2 ~ 100
	100V	101	0.5 ~ 150	0.2 ~ 100
	200V	201	1.0 ~ 391	
	250V	251	1.0 ~ 391	0.2 ~ 100
	500V	501	1.0 ~ 391	0.2 ~ 68
	630V	631	1.0 ~ 391	

### ■ PART NUMBER EXAMPLE

### ■ TOLERANCE CODE

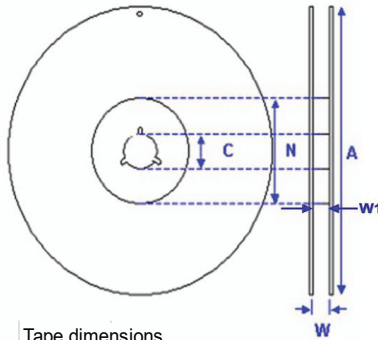


Code	Capacitance Tolerance
A	±0.05pF
B	±0.1pF
C	±0.25pF
D	±0.5pF
F	±1%
G	±2%
J	±5%

### ■ CAPACITANCE CODE (pF)

Code	0R5	1R0	100	330	101	332
Capacitance	0.5 pF	1.0 pF	10 pF	33 pF	100 pF	3300 pF

### SMD REEL TAPE SPECIFICATIONS

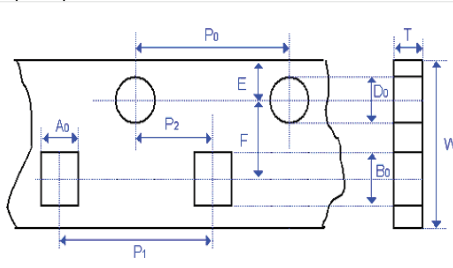


Reel dimensions

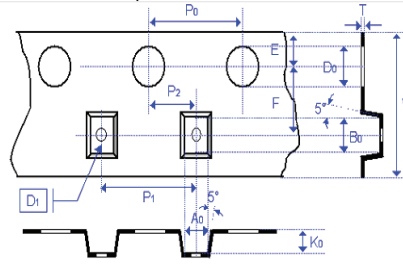
<b>Size</b>	0201, 0402, 0603, 0805, 1206, 1210	1808, 1812, 1825, 2220, 2225
<b>Reel size</b>	7"(Standard)	13"(Speci) 7"
<b>C</b>	13.0	13.0
<b>W<sub>1</sub></b>	8.4+1.5	8.4+1.5
<b>W</b>	14.4max	14.4max
<b>A</b>	178.0	330.0
<b>N</b>	60.0	100

Tape dimensions

Paper tape



Embossed Plastic Tape



Size	0402	0603	0805	1206 & 1210	1808
Chip Thickness	0.5	0.5 ~ 0.8	0.5 ~ 0.8	1.25	2
A <sub>0</sub>	0.70±0.20	1.00	1.50±0.20	<1.80	<2.50
B <sub>0</sub>	1.20±0.20	1.80±0.10	2.30±0.20	<2.70	<5.30
T	≤0.80	0.95±0.05	0.95±0.05	0.23±0.05	0.25±0.05
K <sub>0</sub>	-	-	-	<2.50	<2.50
W	8.00±0.10	8.00±0.10	8.00±0.10	8.00±0.10	12.00±0.2
P <sub>0</sub>	4.00±0.10	4.00±0.10	4.00±0.10	4.00±0.10	4.00±0.10
10xP <sub>0</sub>	40.00±0.10	40.00±0.2	40.00±0.20	40.00±0.2	40.00±0.2
P <sub>1</sub>	2.00±0.05	4.00±0.10	4.00±0.10	4.00±0.10	4.00±0.10
P <sub>2</sub>	2.00±0.05	2.00±0.05	2.00±0.05	2.00±0.05	2.00±0.05
D <sub>0</sub>	1.50 +0.10/-0	1.50	1.50 +0.10/-0	1.50	1.50
D <sub>1</sub>	-	-	-	1.00±0.10	1.50±0.10
E	1.75±0.05	1.75±0.05	1.75±0.05	1.75±0.10	1.75±0.10
F	3.50±0.05	3.50±0.05	3.50±0.05	3.50±0.05	5.50±0.05

1812	1825	2220
1.25~1.6	2.5 ~ 2.8	1.4 ~ 2
<3.90	<6.80	<5.80
<5.30	<6.80	<6.50
0.25±0.05	0.30±0.10	0.30±0.10
<2.50	<3.10	<3.10
12.00±0.2	12.00±0.2	12.00±0.2
4.00±0.10	4.00±0.10	4.00±0.10
40.00±0.2	40.00±0.2	40.00±0.2
8.00±0.10	8.00±0.10	8.00±0.10
2.00±0.05	2.00±0.05	2.00±0.05
1.50	1.50	1.50
1.50±0.10	1.50±0.10	1.50±0.10
1.75±0.10	1.75±0.10	1.75±0.10
5.50±0.05	5.50±0.05	5.50±0.05

Size code	Nominal Thickness, (mm)	Paper tape		Plastic tape	
		7" reel	13" reel	7" reel	13" reel
0402	0.5	10,000	50,000	-	-
	0.8	4,000	15,000	-	-
0603	0.5	4,000	15,000	-	-
	0.8	4,000	15,000	-	-
0805	0.50 ~ 0.85	4,000	15,000	-	-
	1.25	-	-	3,000	10,000
1206 & 1210	0.80 ~ 0.85	4,000	15,000	-	-
	0.95 ~ 1.25	-	-	3,000	10,000
	1.6	-	-	2,000	10,000
1808	1.25	-	-	2,000	10,000
	1.6	-	-	2,000	8,000
	2	-	-	1,000	6,000
1812 & 1825	1.25	-	-	1,000	5,000
	1.6 ~ 2	-	-	1,000	-
	2.5 ~ 2.8	-	-	500	-
2220 & 2225	1.6 ~ 2	-	-	1,000	-
	2.5 ~ 2.8	-	-	500	-