

# CSA Series Edge-to-Edge Chip Capacitors



This classic two-electrode design is the simplest and most widely used. The chip size, shape and electrical properties may be determined and specified from the dielectric material data and the CSA Selection Chart. Case sizes are listed for guidance only. All parts are manufactured directly to customer requirements. All sizes and tolerances can be modified to provide the optimum part for your circuit. Filter applications are readily supported. Thicknesses up to 25 mils and extremely tight tolerances to  $\pm 0.005\text{pF}$  are available.

- CAPACITANCE: 0.08 TO 10,000 PICO FARADS
- CHIP SHAPES: SQUARE OR RECTANGLE
- CHIP LENGTH OR WIDTH: .005" AND UP

## CSA Part Number Assembly

Example shown specifies COMPEX Series CSA dielectric type C-200, .010" x .010" max. x .005", gold, 100pF,  $\pm 20\%$  tolerance.

**CSA - 200 - 10 x 10 M x 5 - G - 101 - M**

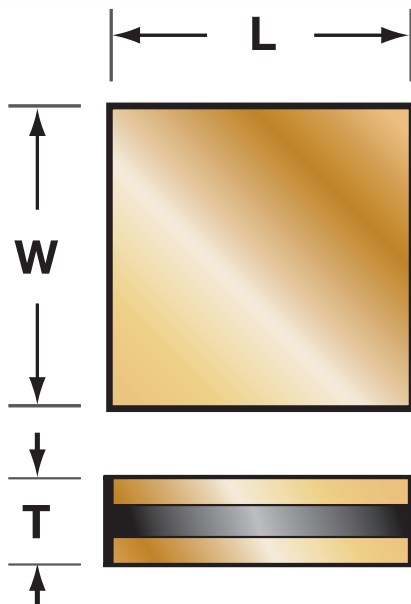
Capacitor Style	Metallization <b>G</b> (gold) or <b>T</b> (tin)
Dielectric Type See <i>Class I and Class II</i> tables (page 3)	Capacitance (pF) First two digits represent significant figures and the last, the number of zeros to follow. When required, the letter "R" is used as a decimal point and the succeeding digits represent significant figures only. eg.: 101 = 100pF, 1R6 = 1.6pF
Length x Width (milli-inches) See <i>CSA Chip Dimensions</i> (at right)	Capacitance Tolerance See <i>CSA Standard Capacitance Tolerance Codes</i> (below)
Insert <b>M</b> or leave blank (See <i>Note</i> below)	
Thickness <b>4-10</b> (milli-inches) See <i>CSA Selection Chart</i> (at right)	

**Note:** Standard dimensional tolerance for length and width is  $\pm 15\%$  up to 20 mils. For dimensions greater than 20 mils, standard tolerance is  $\pm 10\%$ . In cases where dimension *can not be exceeded*, insert "M" to signify a Maximum dimension. The thickness tolerance is  $\pm 1.5$  mils.

## CSA Standard Capacitance Tolerance Codes

Class I Dielectrics: C-20 thru C-75				Class II Dielectrics: C-80 thru C-200			
Tolerance	Code	Tolerance	Code	Tolerance	Code	Tolerance	Code
$\pm 0.01\text{pF}$	<b>P</b>	$\pm 20\%$	<b>M</b>	-20% thru +80%	<b>Z</b>	$\pm 20\%$	<b>M</b>
$\pm 0.05\text{pF}$	<b>A</b>	$\pm 15\%$	<b>L</b>	-10% thru +40%	<b>Y</b>	$\pm 15\%$	<b>L</b>
$\pm 0.10\text{pF}$	<b>B</b>	$\pm 10\%$	<b>K</b>	Guaranteed Min. Value	<b>GMV</b>	$\pm 10\%$	<b>K</b>
$\pm 0.25\text{pF}$	<b>C</b>	$\pm 5\%$	<b>J</b>			$\pm 5\%$	<b>J</b>
$\pm 0.50\text{pF}$	<b>D</b>	$\pm 2\%$	<b>G</b>				
		$\pm 1\%$	<b>F</b>				

## CSA Chip Dimensions



To determine rectangular chip dimensions, calculate the chip area by using the square equivalent. For example, if a 30 mil square chip (900 mil area) yields the desired capacitance and one dimension must not exceed 20 mils, then rectangular chip size would be 20 mil x 45 mil ( $900 \div 20 = 45$ ).

## CSA Electrode Configuration

Two electrodes



## CSA Selection Chart

Cap. (pF)	Cap Size 10 x 10	Cap Size 15 x 15	Cap Size 20 x 20	Cap Size 25 x 25	Cap Size 30 x 30	Cap Size 35 x 35	Cap Size 40 x 40	Cap Size 50 x 50	
	Diel. Thick.	Diel. Thick.	Diel. Thick.	Diel. Thick.	Diel. Thick.	Diel. Thick.	Diel. Thick.	Diel. Thick.	
0.06	C-50 10	C-30 7	C-20 5	C-20 7	C-20 10				
0.08	C-50 9	C-30 5	C-30 10	C-20 6	C-20 8				
0.1	C-50 6	C-30 4	C-30 7	C-20 5	C-20 7	C-20 10			
0.2	C-50 4	C-50 7	C-50 10	C-30 6	C-30 10	C-20 5	C-20 7	C-20 10	
0.3	C-60 6	C-50 5	C-50 9	C-30 4	C-30 5	C-30 9	C-20 5	C-20 7	
0.4	C-60 4	C-50 4	C-50 5	C-50 10	C-30 4	C-30 6	C-30 9	C-20 5	
0.5	C-70 6	C-60 8	C-50 5	C-50 9	C-50 10	C-30 5	C-30 7	C-30 10	
0.6	C-70 5	C-60 7	C-50 4	C-50 7	C-50 10	C-30 4	C-30 6	C-30 9	
0.8	C-80 7	C-60 5	C-60 8	C-50 5	C-50 6	C-50 10	C-30 4	C-30 7	
1	C-80 5	C-60 4	C-60 6	C-50 4	C-50 6	C-50 9	C-30 4	C-30 5	
1.2	C-80 5	C-70 5	C-60 5	C-60 9	C-50 4	C-50 8	C-50 10	C-30 4	
1.5	C-80 4	C-70 4	C-60 4	C-60 7	C-50 4	C-50 6	C-50 8	C-30 5	
1.8	C-90 10	C-80 7	C-70 6	C-60 6	C-50 4	C-50 5	C-50 7	C-50 10	
2	C-90 9	C-80 6	C-70 5	C-60 5	C-60 8	C-50 5	C-50 6	C-50 9	
2.2	C-90 8	C-80 5	C-70 5	C-60 5	C-60 7	C-50 4	C-50 6	C-50 8	
2.7	C-90 7	C-80 4	C-75 7	C-60 4	C-60 6	C-60 8	C-50 5	C-50 7	
3.3	C-90 6	C-80 4	C-80 6	C-70 5	C-60 4	C-60 7	C-50 4	C-50 6	
3.9	C-90 5	C-90 10	C-80 5	C-70 4	C-70 7	C-60 6	C-60 8	C-50 5	
4.7	C-90 4	C-90 8	C-80 5	C-80 8	C-70 5	C-60 5	C-60 7	C-60 10	
5.6	C-100 7	C-90 7	C-90 10	C-80 6	C-70 5	C-60 4	C-60 6	C-60 8	
6.8	C-100 6	C-90 6	C-90 9	C-80 5	C-80 7	C-70 6	C-60 5	C-60 7	
8.2	C-100 5	C-90 5	C-90 8	C-80 4	C-80 6	C-70 5	C-70 6	C-60 6	
10	C-100 4	C-90 4	C-90 6	C-80 4	C-80 5	C-70 4	C-70 5	C-60 5	
12	C-120 6	C-100 6	C-90 5	C-90 9	C-80 4	C-80 7	C-70 4	C-70 7	
15	C-120 5	C-100 5	C-90 4	C-90 7	C-90 10	C-80 5	C-80 7	C-70 5	
18	C-130 6	C-100 4	C-100 7	C-90 6	C-90 9	C-80 4	C-80 6	C-80 8	
20	C-130 5	C-100 4	C-100 7	C-90 5	C-90 7	C-80 4	C-80 5	C-80 8	
22	C-130 4	C-100 4	C-100 6	C-90 5	C-90 7	C-90 10	C-80 5	C-80 7	
27	C-140 5	C-120 6	C-100 5	C-90 4	C-90 6	C-90 9	C-80 4	C-80 6	
33	C-140 5	C-120 5	C-100 4	C-100 7	C-90 5	C-90 7	C-90 9	C-80 5	
39	C-140 4	C-120 4	C-120 7	C-100 6	C-100 8	C-90 6	C-90 8	C-80 4	
47	C-140 4	C-130 5	C-120 5	C-100 5	C-100 7	C-90 5	C-90 7	C-90 10	
56	C-200 8	C-140 7	C-120 5	C-100 4	C-100 6	C-90 4	C-90 5	C-90 8	
68	C-200 8	C-140 6	C-120 4	C-120 7	C-100 5	C-100 7	C-90 4	C-90 7	
82	C-200 5	C-140 5	C-130 5	C-120 6	C-120 8	C-100 6	C-100 7	C-90 6	
100	C-200 5	C-140 4	C-140 7	C-120 5	C-120 7	C-100 5	C-100 6	C-90 5	
120		C-200 8	C-140 6	C-120 4	C-120 6	C-100 4	C-100 5	C-100 8	
150		C-200 8	C-140 5	C-130 4	C-120 5	C-120 7	C-100 4	C-100 7	
180		C-200 5	C-140 5	C-140 6	C-120 4	C-120 6	C-120 7	C-100 6	
200		C-200 5	C-140 4	C-140 6	C-120 5	C-120 5	C-120 7	C-100 5	
220		C-200 5	C-200 8	C-140 6	C-140 8	C-120 5	C-120 6	C-100 5	
270			C-200 8	C-140 4	C-140 6	C-120 4	C-120 5	C-120 8	
330			C-200 5	C-200 8	C-140 5	C-140 8	C-130 5	C-120 6	
390			C-200 5	C-200 8	C-140 4	C-140 7	C-140 8	C-120 5	
470				C-200 5	C-200 8	C-140 5	C-140 7	C-120 5	
560				C-200 5	C-200 8	C-140 4	C-140 6	C-130 5	
680				C-200 5	C-200 5	C-200 4	C-140 5	C-140 7	
820					C-200 5	C-200 8	C-140 4	C-140 6	
1000					C-200 5	C-200 8	C-200 8	C-140 5	
1200						C-200 5	C-200 8	C-140 4	
1500							C-200 5	C-200 8	
1800								C-200 8	
2200								C-200 5	
2700								C-200 5	

Class I Dielectrics

Class II Dielectrics