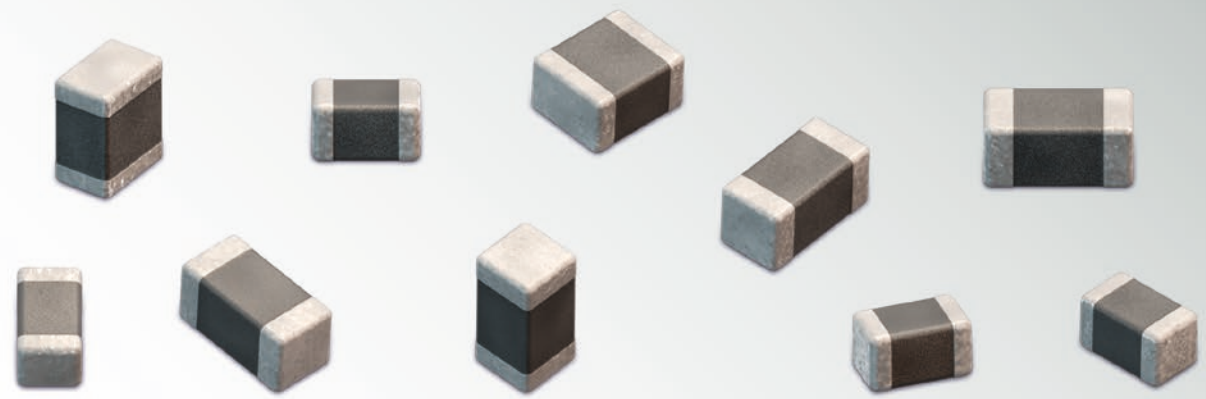




# DESIGN KIT

## WCAP-CSGP Multilayer Ceramic Chip Capacitors 1206 / 1210 / 1812



**SIZE:**

1206 / 1210 / 1812

**TECHNICAL DATA:**

Capacitance Range: 1000pF ~ 100µF  
Rated Voltages: 6.3V, 10V, 16V, 25V, 50V  
Dielectrics: NPO, X7R, X5R  
Termination: Cu / Ni / Sn

**Order Code 885 080**

**Version 1.0**

# WCAP-CSGP

## Multilayer Ceramic Chip Capacitors 1206 / 1210 / 1812

NPO 1206		X7R 1206		X5R 1206		NPO 1210		X7R 1210		X5R 1210		NPO 1812		X7R 1812				
<b>885 012 208 010</b> 10V	NPO120633J010DFCT10000	<b>885 012 208 019</b> 10V	X7R1206226K010DFCT10000	<b>885 012 208 087</b> 50V	X7R1206104K050DFCT10000	<b>885 012 108 005</b> 6.3V	X5R1206107M6R3DFCT10000	<b>885 012 209 017</b> 50V	X7R1210102J050DFCT10000	<b>885 012 209 006</b> 10V	X7R1210226K010DFCT10000	<b>885 012 109 004</b> 6.3V	X5R1210107M6R3DFCT10000	<b>885 012 210 009</b> 50V	NPO1812152J050DFCT10000	<b>885 012 210 025</b> 50V	X7R1812104K050DFCT10000	
33,000pF, ±5%, H=0.85mm Q <sub>2</sub> ≥1000, IR <sub>2</sub> ≥10G Ohm		22μF, ±10%, H=1.6mm DF≤10%, IR <sub>2</sub> ≥0.005G Ohm		100,000pF, ±10%, H=0.8mm DF≤2.5%, IR <sub>2</sub> ≥5G Ohm		100μF, ±20%, H=1.6mm DF≤15%, IR <sub>2</sub> ≥0.0005G Ohm		1,000pF, ±5%, H=0.95mm Q <sub>2</sub> ≥1000, IR <sub>2</sub> ≥10G Ohm		22μF, ±10%, H=2.5mm DF≤5%, IR <sub>2</sub> ≥0.1G Ohm		100μF, ±20%, H=2.5mm DF≤15%, IR <sub>2</sub> ≥0.001G Ohm		1,500pF, ±5%, H=1.25mm Q <sub>2</sub> ≥1000, IR <sub>2</sub> ≥10G Ohm		100,000pF, ±10%, H=1.25mm DF≤2.5%, IR <sub>2</sub> ≥5G Ohm		
<b>885 012 208 049</b> 50V	NPO1206102J050DFCT10000	<b>885 012 208 069</b> 25V	X7R1206106K025DFCT10000	<b>885 012 208 088</b> 50V	X7R1206154K050DFCT10000	<b>885 012 108 012</b> 10V	X5R1206476M010DFCT10000	<b>885 012 209 018</b> 50V	NPO1210152J050DFCT10000	<b>885 012 209 028</b> 25V	X7R1210106K025DFCT10000	<b>885 012 109 008</b> 16V	X5R1210475M016DFCT10000	<b>885 012 210 010</b> 50V	NPO1812332J050DFCT10000	<b>885 012 210 026</b> 50V	X7R1812154K050DFCT10000	
1,000pF, ±5%, H=0.8mm Q <sub>2</sub> ≥1000, IR <sub>2</sub> ≥10G Ohm		10μF, ±10%, H=1.6mm DF≤10%, IR <sub>2</sub> ≥0.01G Ohm		150,000pF, ±10%, H=0.95mm DF≤2.5%, IR <sub>2</sub> ≥3.3G Ohm		47μF, ±20%, H=1.6mm DF≤5%, IR <sub>2</sub> ≥0.02G Ohm		1,500pF, ±5%, H=0.95mm Q <sub>2</sub> ≥1000, IR <sub>2</sub> ≥10G Ohm		10μF, ±10%, H=2.0mm DF≤5%, IR <sub>2</sub> ≥0.1G Ohm		4.7μF, ±20%, H=2.0mm DF≤5%, IR <sub>2</sub> ≥0.1G Ohm		3,300pF, ±5%, H=1.25mm Q <sub>2</sub> ≥1000, IR <sub>2</sub> ≥10G Ohm		150,000pF, ±10%, H=1.25mm DF≤2.5%, IR <sub>2</sub> ≥3.3G Ohm		
<b>885 012 208 050</b> 50V	NPO1206152J050DFCT10000	<b>885 012 208 081</b> 50V	X7R1206103K050DFCT10000	<b>885 012 208 089</b> 50V	X7R1206224K050DFCT10000	<b>885 012 108 015</b> 16V	X5R1206335M016DFCT10000	<b>885 012 209 019</b> 50V	NPO1210222J050DFCT10000	<b>885 012 209 043</b> 50V	X7R1210224K050DFCT10000	<b>885 012 109 009</b> 16V	X5R1210106M016DFCT10000	<b>885 012 210 011</b> 50V	NPO1812472J050DFCT10000	<b>885 012 210 027</b> 50V	X7R1812224K050DFCT10000	
1,500pF, ±5%, H=0.8mm Q <sub>2</sub> ≥1000, IR <sub>2</sub> ≥10G Ohm		10,000pF, ±10%, H=0.8mm DF≤2.5%, IR <sub>2</sub> ≥10G Ohm		220,000pF, ±10%, H=0.95mm DF≤2.5%, IR <sub>2</sub> ≥2.3G Ohm		3.3μF, ±20%, H=1.6mm DF≤5%, IR <sub>2</sub> ≥0.2G Ohm		2,200pF, ±5%, H=0.95mm Q <sub>2</sub> ≥1000, IR <sub>2</sub> ≥10G Ohm		220,000pF, ±10%, H=0.95mm DF≤2.5%, IR <sub>2</sub> ≥2.3G Ohm		10μF, ±20%, H=2.0mm DF≤5%, IR <sub>2</sub> ≥0.05G Ohm		4,700pF, ±5%, H=1.25mm Q <sub>2</sub> ≥1000, IR <sub>2</sub> ≥10G Ohm		4,700pF, ±5%, H=1.25mm Q <sub>2</sub> ≥1000, IR <sub>2</sub> ≥10G Ohm		220,000pF, ±10%, H=1.25mm DF≤2.5%, IR <sub>2</sub> ≥2.3G Ohm
<b>885 012 208 051</b> 50V	NPO1206222J050DFCT10000	<b>885 012 208 082</b> 50V	X7R1206153K050DFCT10000	<b>885 012 208 090</b> 50V	X7R1206334K050DFCT10000	<b>885 012 108 017</b> 16V	X5R1206106M016DFCT10000	<b>885 012 209 020</b> 50V	NPO1210332J050DFCT10000	<b>885 012 209 044</b> 50V	X7R1210334K050DFCT10000	<b>885 012 109 010</b> 16V	X5R1210226M016DFCT10000	<b>885 012 210 012</b> 50V	NPO1812682J050DFCT10000	<b>885 012 210 028</b> 50V	X7R1812334K050DFCT10000	
2,200pF, ±5%, H=0.8mm Q <sub>2</sub> ≥1000, IR <sub>2</sub> ≥10G Ohm		15,000pF, ±10%, H=0.8mm DF≤2.5%, IR <sub>2</sub> ≥10G Ohm		330,000pF, ±10%, H=1.25mm DF≤2.5%, IR <sub>2</sub> ≥1.5G Ohm		10μF, ±20%, H=1.6mm DF≤10%, IR <sub>2</sub> ≥0.01G Ohm		3,300pF, ±5%, H=0.95mm Q <sub>2</sub> ≥1000, IR <sub>2</sub> ≥10G Ohm		330,000pF, ±10%, H=1.25mm DF≤2.5%, IR <sub>2</sub> ≥1.5G Ohm		22μF, ±20%, H=2.50mm DF≤10%, IR <sub>2</sub> ≥0.02G Ohm		6,800pF, ±5%, H=1.25mm Q <sub>2</sub> ≥1000, IR <sub>2</sub> ≥10G Ohm		6,800pF, ±5%, H=1.25mm Q <sub>2</sub> ≥1000, IR <sub>2</sub> ≥10G Ohm		330,000pF, ±10%, H=1.25mm DF≤2.5%, IR <sub>2</sub> ≥1.5G Ohm
<b>885 012 208 052</b> 50V	NPO1206332J050DFCT10000	<b>885 012 208 083</b> 50V	X7R1206223K050DFCT10000	<b>885 012 208 091</b> 50V	X7R1206474K050DFCT10000	<b>885 012 108 018</b> 16V	X5R1206226M016DFCT10000	<b>885 012 209 021</b> 50V	NPO1210472J050DFCT10000	<b>885 012 209 045</b> 50V	X7R1210474K050DFCT10000	<b>885 012 109 011</b> 16V	X5R1210476M016DFCT10000	<b>885 012 210 013</b> 50V	NPO1812103J050DFCT10000	<b>885 012 210 029</b> 50V	X7R1812474K050DFCT10000	
3,300pF, ±5%, H=0.8mm Q <sub>2</sub> ≥1000, IR <sub>2</sub> ≥10G Ohm		22,000pF, ±10%, H=0.8mm DF≤2.5%, IR <sub>2</sub> ≥10G Ohm		470,000pF, ±10%, H=1.6mm DF≤3%, IR <sub>2</sub> ≥1.1G Ohm		22μF, ±20%, H=1.6mm DF≤10%, IR <sub>2</sub> ≥0.005G Ohm		4,700pF, ±5%, H=0.95mm Q <sub>2</sub> ≥1000, IR <sub>2</sub> ≥10G Ohm		470,000pF, ±10%, H=1.25mm DF≤2.5%, IR <sub>2</sub> ≥1.1G Ohm		47μF, ±20%, H=2.50mm DF≤10%, IR <sub>2</sub> ≥0.02G Ohm		10,000pF, ±5%, H=1.25mm Q <sub>2</sub> ≥1000, IR <sub>2</sub> ≥10G Ohm		10,000pF, ±5%, H=1.25mm Q <sub>2</sub> ≥1000, IR <sub>2</sub> ≥10G Ohm		470,000pF, ±10%, H=1.25mm DF≤2.5%, IR <sub>2</sub> ≥1.1G Ohm
<b>885 012 208 053</b> 50V	NPO1206472J050DFCT10000	<b>885 012 208 084</b> 50V	X7R1206333K050DFCT10000	<b>885 012 208 092</b> 50V	X7R1206684K050DFCT10000	<b>885 012 108 019</b> 25V	X5R1206225M025DFCT10000	<b>885 012 209 022</b> 50V	NPO1210682J050DFCT10000	<b>885 012 209 046</b> 50V	X7R1210684K050DFCT10000	<b>885 012 109 012</b> 25V	X5R1210475M025DFCT10000	<b>885 012 210 014</b> 50V	NPO1812153J050DFCT10000	<b>885 012 210 030</b> 50V	X7R1812684K050DFCT10000	
4,700pF, ±5%, H=0.8mm Q <sub>2</sub> ≥1000, IR <sub>2</sub> ≥10G Ohm		33,000pF, ±10%, H=0.8mm DF≤2.5%, IR <sub>2</sub> ≥10G Ohm		680,000pF, ±10%, H=1.6mm DF≤3%, IR <sub>2</sub> ≥0.7G Ohm		2.2μF, ±20%, H=1.6mm DF≤3.5%, IR <sub>2</sub> ≥0.2G Ohm		6,800pF, ±5%, H=0.95mm Q <sub>2</sub> ≥1000, IR <sub>2</sub> ≥10G Ohm		680,000pF, ±10%, H=1.25mm DF≤2.5%, IR <sub>2</sub> ≥0.7G Ohm		4.7μF, ±20%, H=2.0mm DF≤5%, IR <sub>2</sub> ≥0.1G Ohm		15,000pF, ±5%, H=1.25mm Q <sub>2</sub> ≥1000, IR <sub>2</sub> ≥10G Ohm		15,000pF, ±5%, H=1.25mm Q <sub>2</sub> ≥1000, IR <sub>2</sub> ≥10G Ohm		680,000pF, ±10%, H=2.0mm DF≤2.5%, IR <sub>2</sub> ≥0.7G Ohm
<b>885 012 208 054</b> 50V	NPO1206682J050DFCT10000	<b>885 012 208 085</b> 50V	X7R1206473K050DFCT10000	<b>885 012 208 093</b> 50V	X7R1206105K050DFCT10000	<b>885 012 108 020</b> 25V	X5R1206475M025DFCT10000	<b>885 012 209 023</b> 50V	NPO1210103J050DFCT10000	<b>885 012 209 047</b> 50V	X7R1210105K050DFCT10000	<b>885 012 109 013</b> 25V	X5R1210106M025DFCT10000	<b>885 012 210 015</b> 50V	NPO1812223J050DFCT10000	<b>885 012 210 031</b> 50V	X7R1812105K050DFCT10000	
6,800pF, ±5%, H=0.95mm Q <sub>2</sub> ≥1000, IR <sub>2</sub> ≥10G Ohm		47,000pF, ±10%, H=0.8mm DF≤2.5%, IR <sub>2</sub> ≥10G Ohm		1μF, ±10%, H=1.6mm DF≤3%, IR <sub>2</sub> ≥0.5G Ohm		4.7μF, ±20%, H=1.6mm DF≤7%, IR <sub>2</sub> ≥0.1G Ohm		10,000pF, ±5%, H=0.95mm Q <sub>2</sub> ≥1000, IR <sub>2</sub> ≥10G Ohm		1μF, ±10%, H=1.25mm DF≤2.5%, IR <sub>2</sub> ≥0.5G Ohm		10μF, ±20%, H=2.0mm DF≤5%, IR <sub>2</sub> ≥0.01G Ohm		22,000pF, ±5%, H=1.25mm Q <sub>2</sub> ≥1000, IR <sub>2</sub> ≥10G Ohm		22,000pF, ±5%, H=1.25mm Q <sub>2</sub> ≥1000, IR <sub>2</sub> ≥10G Ohm		1μF, ±10%, H=2.0mm DF≤2.5%, IR <sub>2</sub> ≥0.5G Ohm
<b>885 012 208 055</b> 50V	NPO1206103J050DFCT10000	<b>885 012 208 086</b> 50V	X7R1206683K050DFCT10000	<b>885 012 208 094</b> 50V	X7R1206475K050DFCT10000	<b>885 012 108 021</b> 25V	X5R1206106M025DFCT10000	<b>885 012 209 024</b> 50V	NPO1210153J050DFCT10000	<b>885 012 209 048</b> 50V	X7R1210475K050DFCT10000	<b>885 012 109 014</b> 25V	X5R1210226M025DFCT10000	<b>885 012 210 016</b> 50V	NPO1812333J050DFCT10000	<b>885 012 210 032</b> 50V	X7R1812225K050DFCT10000	
10,000pF, ±5%, H=1.25mm Q <sub>2</sub> ≥1000, IR <sub>2</sub> ≥10G Ohm		68,000pF, ±10%, H=0.8mm DF≤2.5%, IR <sub>2</sub> ≥7.4G Ohm		4.7μF, ±10%, H=1.6mm DF≤10%, IR <sub>2</sub> ≥0.02G Ohm		10μF, ±20%, H=1.6mm DF≤10%, IR <sub>2</sub> ≥0.01G Ohm		15,000pF, ±5%, H=1.25mm Q <sub>2</sub> ≥1000, IR <sub>2</sub> ≥10G Ohm		4.7μF, ±10%, H=2.50mm DF≤5%, IR <sub>2</sub> ≥0.02G Ohm		22μF, ±20%, H=2.50mm DF≤10%, IR <sub>2</sub> ≥0.005G Ohm		33,000pF, ±5%, H=1.25mm Q <sub>2</sub> ≥1000, IR <sub>2</sub> ≥10G Ohm		33,000pF, ±5%, H=1.25mm Q <sub>2</sub> ≥1000, IR <sub>2</sub> ≥10G Ohm		2.2μF, ±10%, H=2.50mm DF≤2.5%, IR <sub>2</sub> ≥0.2G Ohm

Dielectric	Operating Temperature
NPO	-55°C to +125°C
X7R	-55°C to +125°C
X5R	-55°C to +85°C

Dielectric	Capacitance Characteristics*
NPO	± 30ppm/°C; ± 0.54%/°C
X7R	± 15%
X5R	± 15%

\*within Operating Temperature Range

	6.3V
	10V
	16V
	25V
	50V



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