

# Multilayer Ceramic Chip Capacitor

# CC Series



## INTRODUCTIONS

Yageo CC Series MLCC is Made by Either Pd/Ag or Nickel Electrode System and Offering Full Range of Chip Ceramic Capacitor in 10, 16, 25, 50, 100, 200, 250, 500V Ratings.

The Dielectric Material of CC Series Ranging is involved NP0, X7R, Y5V.

The CC Series Chip Capacitor Has Much Lower ESR and ESL Than Most Leaded Type Capacitor, and Its Lower Dissipation Factor Leads to Lower Power is Wasted Than Aluminum Electrolytic and Tantalum Capacitors.

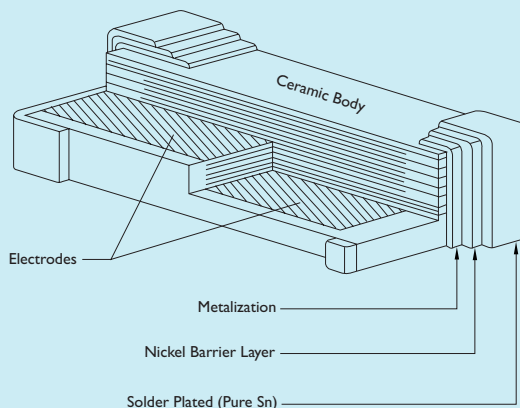
## FEATURES

Standard EIA Chip Size Available

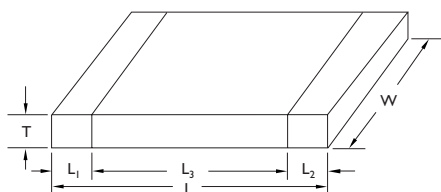
Wide Range of Capacitance 0.47pF~10uF is Available for Various Circuit Needs

The CC Series is Available in Both Paper and Plastic Embossed Tape and Reel Packaging for Automatic SMD Placement

Rugged Termination is Capable to Use at Both Reflow and Wave Soldering System



## DIMENSIONS



Unit : mm

STYLE	L	W	T		L <sub>1</sub> : L <sub>2</sub>		L <sub>3</sub>
			Min.	Max.	Min.	Max.	Min.
CC0402	1.0±0.05	0.5±0.05	0.45	0.55	0.15	0.30	0.40
CC0603	1.6±0.10	0.8±0.07	0.73	0.87	0.20	0.60	0.40
CC0805	2.0±0.10	1.25±0.10	0.50	1.35	0.25	0.75	0.55
CC1206	3.2±0.15	1.6±0.15	0.50	1.75	0.25	0.75	1.40
CC1210	3.2±0.20	2.5±0.20	0.50	1.80	0.25	0.75	1.40
CC1812	4.5±0.20	3.2±0.20	0.50	1.80	0.25	0.75	2.20

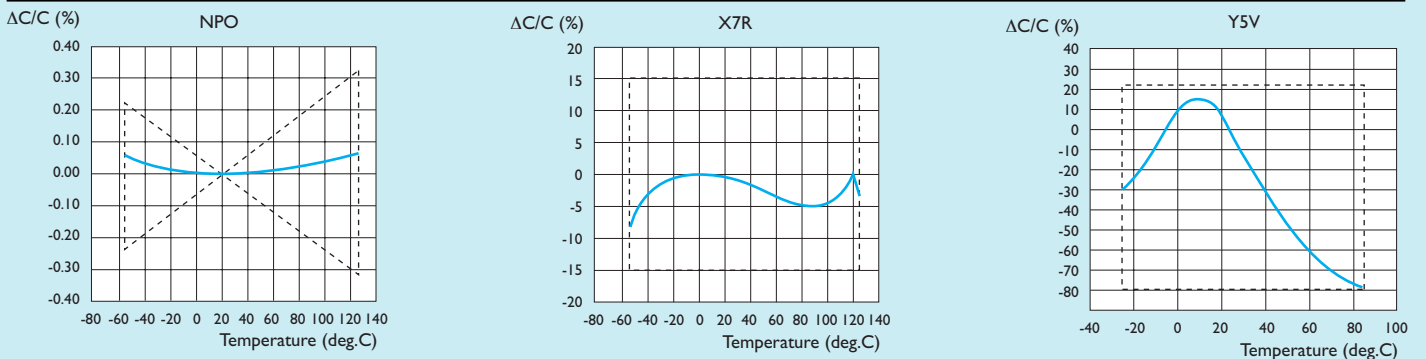
## ELECTRICAL CHARACTERISTICS

CHARACTERISTICS	TEST CONDITIONS	REQUIREMENT		
		CLASS I	CLASS II	
		NPO	X7R	Y5V
Operation Temperature Range		-55°C to 125°C	-55°C to 125°C	-25°C to 85°C
Temperature	With Respect to 20°C (25°C for Y5V)	NPO 16V, 0±60ppm/K	±15%	+30% to -80%
Characteristic/Coefficient (TC)	Within Operation Temperature Range	NPO > 16V, 0±30ppm/K		
Capacitance Tolerance	With Respect to 20°C (25°C for Y5V)	In Accordance with Specification		
Dissipation Factor (Tanδ)	NPO :	C < 10pF :	U <sub>r</sub> = 10V; Tanδ ≤ 5%	U <sub>r</sub> = 10V; Tanδ ≤ 12.5%
	C ≤ 1000pF; 1Vrms/1MHz	Tanδ ≤ 10 (3/C+0.7) × 10 <sup>-4</sup> or 30 × 10 <sup>-4</sup>	U <sub>r</sub> = 16V; Tanδ ≤ 3.5%	U <sub>r</sub> = 16V; Tanδ ≤ 9% or ≤ 12.5% Depending on Capacitance Value
	C > 1000pF; 1Vrms/1kHz	Whichever is Less	U <sub>r</sub> ≥ 25V; Tanδ ≤ 2.5%	U <sub>r</sub> ≥ 25V; Tanδ ≤ 5% or ≤ 7% Depending on Capacitance Value
X7R/Y5V :	C ≥ 10pF			
1Vrms/1kHz	Tanδ ≤ 10 × 10 <sup>-4</sup>			
Insulation Resistance (IR)	At U <sub>r</sub> (Rated Voltage) for 1 Minute 500V for U <sub>r</sub> ≥ 500V	R <sub>ins</sub> ≥ 10GΩ or R <sub>ins</sub> × C ≥ 500s Whichever is Less	R <sub>ins</sub> ≥ 10GΩ or R <sub>ins</sub> × C ≥ 500s Whichever is Less	R <sub>ins</sub> ≥ 10GΩ or R <sub>ins</sub> × C ≥ 100s Whichever is Less
Dielectric Withstanding Voltage	At 2.5U <sub>r</sub> (for U <sub>r</sub> ≤ 100V) 1.5U <sub>r</sub> + 100V (for U <sub>r</sub> > 100V)	No Breakdown		

## ENVIRONMENTED CHARACTERISTICS

IEC	TEST ITEMS	CONDITIONS	REQUIREMENT		
			NPO	X7R	Y5V
384-10	Bending	Bending Rate 1mm/s, Jig. Radius 340mm	ΔC/C ≤ 1%	ΔC/C ≤ 10%	ΔC/C ≤ 20%
4.9	Resistance to Soldering Heat	260±5°C for 10±0.5s in Static Soldering Bath	ΔC/C ≤ 0.5% or 0.5pF Whichever is Greater	-5% ≤ ΔC/C ≤ 10%	-10% ≤ ΔC/C ≤ 20%
4.10	Solderability	235±5°C for 2±0.5s in a Static Soldering Bath	75% Minimum Coverage of Metallic Area		
4.11	Rapid Change of Temperature	NPO/X7R : -55°C to +125°C, 5Cycles Y5V : -25°C to +85°C, 5Cycles	ΔC/C ≤ 1% or 1pF Whichever is Greater	ΔC/C ≤ 15%	ΔC/C ≤ 20%
4.12	Damp Heat, Steady State	At 40°C, 90 to 95% R.H. and U <sub>r</sub> Applied (Max. 500V, No Voltage for U <sub>r</sub> ≥ 1000V) for 56 Days (500 Hours for Y5V)	ΔC/C ≤ 2% or 1pF Whichever is Greater Tanδ : ≤ 2 x Specified Value IR : 2500MΩ or RxC ≥ 25s Whichever is Less	ΔC/C ≤ 15% Tanδ : ≤ 5%, 7% IR : 1000MΩ or RxC ≥ 25s Whichever is Less	ΔC/C ≤ 30% Tanδ : ≤ 7%, 12.5%, 15% IR : 1000MΩ or RxC ≥ 25s Whichever is Less
4.14	Endurance	At Upper Category Temperature, 2 x U <sub>r</sub> Applied (1.5U <sub>r</sub> for U <sub>r</sub> > 50V, 1.2 x U <sub>r</sub> for U <sub>r</sub> ≥ 1000V) Applied for 1000 Hours	ΔC/C ≤ 2% or 1pF Whichever is Greater Tanδ : ≤ 2 x Specified Value IR : 4000MΩ or RxC ≥ 40s Whichever is Less	ΔC/C ≤ 20% Tanδ : ≤ 5%, 7% IR : 2000MΩ or RxC ≥ 50s Whichever is Less	ΔC/C ≤ 30% Tanδ : ≤ 7%, 12.5%, 15% IR : 2000MΩ or RxC ≥ 50s Whichever is Less
4.15					

## CAPACITANCE - TEMPERATURE CHARACTERISTICS





## SPECIFICATION & PACKING

Tape Width : 8mm

### NPO

		16V	
CAP.	CODE 15-17	CC0402	CC0603
(pF) 270	271	0.5±0.05	
330	331		
390	391		
470	471		
560	561		
680	681		
820	821		
1000	102		
1200	122		
1500	152		
1800	182		0.8±0.07
2200	222		
2700	272		
3300	332		

In Columns :  
Thickness Class

### THICKNESS CLASS AND PACKAGING QUANTITIES

Thickness Classes (mm)	8mm Tape Width Quantity Per Reel		Quantity Per Bulk Case	
	180mm/7"	330mm/13"	CC0402	CC0603
	Paper	Paper		
0.5±0.05	10000	50000	50000	-
0.8±0.07	4000	15000	-	15000

**SPECIFICATION & PACKING**

Tape Width : 8mm

**NP0**

		25V				
CAP.	CODE 15~17	CC0402	CC0603	CC0805	CC1206	CC1210
(pF) 270	271	0.5±0.05				
330	331					
390	391					
470	471	In Columns : Thickness Class				
560	561					
680	681					
820	821			0.8±0.07		
1000	102					
1200	122					
1500	152					
1800	182					
2200	222					
2700	272					
3300	332			0.85±0.1		
3900	392			1.25±0.1		
4700	472					
5600	562					
6800	682					
8200	822				0.85±0.1	
10000	103					
12000	123					0.5 to 1.0
15000	153					
18000	183					
22000	223					0.9 to 1.3

**THICKNESS CLASS AND PACKAGING QUANTITIES**

Thickness Classes (mm)	8mm Tape Width Quantity Per Reel				Quantity Per Bulk Case		
	180mm/7"		330mm/13"		CC0402	CC0603	CC0805
	Paper	Blister	Paper	Blister			
0.5±0.05	10000	–	50000	–	50000	–	–
0.8±0.07	4000	–	15000	–	–	15000	–
0.85±0.1	4000	–	15000	–	–	–	8000
0.5 to 1.0	–	4000	–	10000	–	–	–
0.9 to 1.3	–	3000	–	10000	–	–	–
1.25±0.1	–	3000	–	10000	–	–	5000



## SPECIFICATION & PACKING

Tape Width : mm

**NPO**

TAPE WIDTH		8					12
		50V				50V	
CAP.	CODE 15-17	CC0402	CC0603	CC0805	CC1206	CC1210	CC1812
(pF) 0.47	R47	0.5±0.05	0.8±0.07	0.6±0.1	0.6±0.1		
0.56	R56						
0.68	R68						
0.82	R82						
1.0	1R0						
1.2	1R2						
1.5	1R5						
1.8	1R8						
2.2	2R2						
2.7	2R7						
3.3	3R3						
3.9	3R9						
4.7	4R7						
5.6	5R6						
6.8	6R8						
8.2	8R2						
10	100						
12	120						
15	150						
18	180						
22	220						
27	270						
33	330						
39	390						
47	470						
56	560						
68	680						
82	820						
100	101						
120	121						
150	151						
180	181						
220	221						
270	271						
330	331						
390	391						
470	471						

In Columns :  
Thickness Class

**SPECIFICATION & PACKING**

Tape Width : mm

**NP0**

TAPE WIDTH		8				12	
		50V				50V	
CAP.	CODE 15-17	CC0402	CC0603	CC0805	CC1206	CC1210	CC1812
(pF) 560	561						
680	681						
820	821						
1000	102					0.5 to 1.0	
1200	122			0.85±0.1			
1500	152						
1800	182						
2200	222			1.25±0.1			0.5 to 1.0
2700	272						
3300	332				0.85±0.1		
3900	392						
4700	472						
5600	562				1.5±0.1		
6800	682						
8200	822						
10000	103						
12000	123						
15000	153						
18000	183						0.9 to 1.3
22000	223						

**THICKNESS CLASS AND PACKAGING QUANTITIES**

Thickness Classes (mm)	8mm Tape Width Quantity Per Reel				12mm Tape Width Quantity Per Reel	Quantity Per Bulk Case		
	180mm/7"		330mm/13"		180mm/7"	CC0402	CC0603	CC0805
	Paper	Blister	Paper	Blister	Blister			
0.5±0.05	10000	-	50000	-	-	50000	-	-
0.6±0.1	4000	-	20000	-	-	-	-	10000
0.8±0.07	4000	-	15000	-	-	-	15000	-
0.85±0.1	4000	-	15000	-	-	-	-	8000
0.5 to 1.0	-	4000	-	10000	2000	-	-	-
0.9 to 1.3	-	3000	-	10000	1500	-	-	-
1.15±0.1	-	3000	-	10000	-	-	-	-
1.25±0.1	-	3000	-	10000	-	-	-	5000



## SPECIFICATION & PACKING

Tape Width : mm

NPO		8				12
TAPE WIDTH		100V				100V
CAP.	CODE 15~17	CC0603	CC0805	CC1206	CC1210	CC1812
(pF) 10	100	0.8±0.07	0.6±0.1	0.6±0.1		
12	120					
15	150					
18	180					
22	220					
27	270					
33	330					
39	390					
47	470					
56	560					
68	680					
82	820					
100	101					
120	121					
150	151					
180	181					
220	221					
270	271					
330	331					
390	391					
470	471					
560	561					
680	681					
820	821					
1000	102					
1200	122		0.85±0.1			
1500	152					
1800	182					
2200	222		1.25±0.1			
2700	272					
3300	332			0.85±0.1		
3900	392					
4700	472					
5600	562			1.15±0.1		
6800	682					
8200	822				0.5 to 1.0	
10000	103					
12000	123					0.5 to 1.0
15000	153					
18000	183					0.9 to 1.3
22000	223					

In Columns :  
Thickness Class

### THICKNESS CLASS AND PACKAGING QUANTITIES

Thickness Classes (mm)	8mm Tape Width Quantity Per Reel				12mm Tape Width Quantity Per Reel		
	180mm/7"		330mm/13"		180mm/7"	Quantity Per Bulk Case	
	Paper	Blister	Paper	Blister	Blister	CC0603	CC0805
0.6±0.1	4000	-	20000	-	-	-	10000
0.8±0.07	4000	-	15000	-	-	15000	-
0.85±0.1	4000	-	15000	-	-	-	8000
0.5 to 1.0	-	4000	-	10000	2000	-	-
0.9 to 1.3	-	3000	-	10000	1500	-	-
1.15±0.1	-	3000	-	10000	-	-	-
1.25±0.1	-	3000	-	10000	-	-	5000

**SPECIFICATION & PACKING**

Tape Width : mm

NPO		8			12		8		12
TAPE WIDTH		200V			200V		500V		500V
CAP.	CODE 15-17	CC0805	CC1206	CC1210	CC1812	CC1206	CC1210	CC1812	
(pF) 10	100	0.6±0.1	0.6±0.1			0.6±0.1			
12	120								
15	150								
18	180								
22	220								
27	270								
33	330								
39	390								
47	470								
56	560								
68	680								
82	820								
100	101								
120	121								
150	151								
180	181								
220	221	0.85±0.1	0.85±0.1			0.85±0.1			
270	271								
330	331								
390	391								
470	471								
560	561	1.25±0.1				1.15±0.1			
680	681								
820	821								
1000	102								
1200	122								
1500	152		1.15±0.1						
1800	182			0.8 to 1.0					
2200	222			0.9 to 1.3					
2700	272								
3300	332								
3900	392								
4700	472					0.8 to 1.0			
5600	562					0.9 to 1.3			

In Columns :  
Thickness Class

**THICKNESS CLASS AND PACKAGING QUANTITIES**

Thickness Classes (mm)	8mm Tape Width Quantity Per Reel				12mm Tape Width Quantity Per Reel		Quantity Per Bulk Case
	180mm/7"		330mm/13"		180mm/7"	Quantity Per Bulk Case	
	Paper	Blister	Paper	Blister	Blister		
0.6±0.1	4000	-	20000	-	-	10000	
0.85±0.07	4000	-	15000	-	-	8000	
0.8 to 1.0	-	4000	-	10000	2000	-	
0.9 to 1.3	-	3000	-	10000	1500	-	
1.15±0.1	-	3000	-	10000	-	-	
1.25±0.1	-	3000	-	10000	-	5000	
1.2 to 1.75	-	2500	-	10000	1200	-	





## SPECIFICATION & PACKING

Tape Width : 8mm

X7R		10V			
CAP.	CODE 15~17	CC0603	CC0805	CC1206	
(pF) 150000	154	0.8±0.07			
220000	224		0.6±0.1		
330000	334		0.85±0.1		
470000	474				
680000	684		1.25±0.1		
1000000	105	In Columns : Thickness Class		0.85±0.1	
1500000	155			1.15±0.1	
2200000	225				
3300000	335			1.60±0.15	
4700000	475				

### THICKNESS CLASS AND PACKAGING QUANTITIES

Thickness Classes (mm)	8mm Tape Width Quantity Per Reel				Quantity Per Bulk Case	
	180mm/7"		330mm/13"		CC0603	CC0805
	Paper	Blister	Paper	Blister		
0.6±0.1	4000	-	20000	-	-	10000
0.8±0.07	4000	-	15000	-	15000	-
0.85±0.1	4000	-	15000	-	-	8000
1.15±0.1	-	3000	-	10000	-	-
1.25±0.1	-	3000	-	10000	-	5000
1.60±0.15	-	2500	-	7000	-	-

**SPECIFICATION & PACKING**

Tape Width : 8mm

<b>X7R</b>										
		<b>16V</b>				<b>25V</b>				
<b>CAP.</b>	<b>CODE 15-17</b>	<b>CC0402</b>	<b>CC0603</b>	<b>CC0805</b>	<b>CC1206</b>	<b>CC0402</b>	<b>CC0603</b>	<b>CC0805</b>	<b>CC1206</b>	<b>CC1210</b>
(pF) 3300	332					0.5±0.05				
4700	472									
6800	682	0.5±0.05								
10000	103						0.8±0.07	0.6±0.01		
15000	153									
22000	223									
33000	333		0.8±0.07							
47000	473			0.6±0.1				0.85±0.1		
68000	683									
100000	104			0.85±0.1					0.85±0.1	
150000	154									
220000	224				0.85±0.1					0.5 to 1.0
330000	334			1.25±0.1					1.15±0.1	
470000	474									
680000	684				1.15±0.1					
1000000	105									

In Columns :  
Thickness Class

**THICKNESS CLASS AND PACKAGING QUANTITIES**

<b>Thickness Classes (mm)</b>	<b>8mm Tape Width Quantity Per Reel</b>				<b>8mm Tape Width Quantity Per Reel</b>		<b>Quantity Per Bulk Case</b>		
	<b>180mm/7"</b>		<b>330mm/13"</b>		<b>180mm/7"</b>				
	<b>Paper</b>	<b>Blister</b>	<b>Paper</b>	<b>Blister</b>	<b>Blister</b>	<b>CC0402</b>	<b>CC0603</b>	<b>CC0805</b>	
0.5±0.05	10000	-	50000	-	-	50000	-	-	
0.6±0.1	4000	-	20000	-	-	-	-	10000	
0.8±0.07	4000	-	15000	-	-	-	15000	-	
0.85±0.1	4000	-	15000	-	-	-	-	8000	
0.5 to 1.0	-	4000	-	10000	-	-	-	-	
0.9 to 1.3	-	3000	-	10000	1500	-	-	-	
1.15±0.1	-	3000	-	10000	-	-	-	-	
1.25±0.1	-	3000	-	10000	-	-	-	5000	
1.2 to 1.75	-	2500	-	10000	-	-	-	-	



## SPECIFICATION & PACKING

Tape Width : mm

X7R													
TAPE WIDTH		8					12		8			12	
		50V					50V		100V			100V	
CAP.	CODE 15~17	CC0402	CC0603	CC0805	CC1206	CC1210	CC1812	CC0805	CC1206	CC1210	CC1812		
(pF) 100	101	0.5±0.05	0.8±0.07										
150	151												
220	221			0.6±0.1	0.85±0.1			0.6±0.1	0.85±0.1				
330	331												
470	471												
680	681												
1000	102												
1500	152												
2200	222												
3300	332												
4700	472												
6800	682												
10000	103					0.5 to 1.0							
15000	153							0.85±0.1					
22000	223												
33000	333			0.85±0.1									
47000	473									0.5 to 1.0			
68000	683			1.25±0.1					1.15±0.1				
100000	104						0.9 to 1.3				0.9 to 1.3		
150000	154				1.15±0.1					0.9 to 1.3			
220000	224					0.9 to 1.3							
330000	334												
470000	474												
680000	684												
1000000	105						1.2 to 1.75						

In Columns :  
Thickness Class

### THICKNESS CLASS AND PACKAGING QUANTITIES

Thickness Classes (mm)	8mm Tape Width Quantity Per Reel				8mm Tape Width Quantity Per Reel			
	180mm/7"		330mm/13"		180mm/7"		Quantity Per Bulk Case	
	Paper	Blister	Paper	Blister	Blister	CC0402	CC0603	CC0805
0.5±0.05	10000	–	50000	–	–	50000	–	–
0.6±0.1	4000	–	20000	–	–	–	–	10000
0.8±0.07	4000	–	15000	–	–	–	15000	–
0.85±0.1	4000	–	15000	–	–	–	–	8000
0.5 to 1.0	–	4000	–	10000	–	–	–	–
0.9 to 1.3	–	3000	–	10000	1500	–	–	–
1.15±0.1	–	3000	–	10000	–	–	–	–
1.25±0.1	–	3000	–	10000	–	–	–	5000
1.2 to 1.75	–	2500	–	10000	–	–	–	–

**SPECIFICATION & PACKING**

Tape Width : mm

<b>X7R</b>		<b>8</b>			<b>12</b>		<b>8</b>		<b>12</b>
<b>TAPE WISTH</b>		<b>200V</b>			<b>200V</b>		<b>500V</b>		<b>500V</b>
<b>CAP.</b>	<b>CODE 15-17</b>	<b>CC0805</b>	<b>CC1206</b>	<b>CC1210</b>	<b>CC1812</b>	<b>CC1206</b>	<b>CC1210</b>	<b>CC1812</b>	
(pF) 220	221	0.85±0.1							
330	331								
470	471								
680	681		0.85±0.1						
1000	102								
1500	152								
2200	222								
3300	332								
4700	472								
6800	682	1.25±0.1							
10000	103								
15000	153								
22000	223		1.15±0.1	0.9 to 1.3					
33000	333								
47000	473								
68000	683								
100000	104								

In Columns :  
Thickness Class

**THICKNESS CLASS AND PACKAGING QUANTITIES**

<b>Thickness Classes (mm)</b>	<b>8mm Tape Width Quantity Per Reel</b>				<b>12mm Tape Width Quantity Per Reel</b>		<b>Quantity Per Bulk Case</b>
	<b>180mm/7"</b>		<b>330mm/13"</b>		<b>180mm/7"</b>	<b>CC0805</b>	
	<b>Paper</b>	<b>Blister</b>	<b>Paper</b>	<b>Blister</b>	<b>Blister</b>		
0.85±0.1	4000	-	15000	-	-	-	8000
0.9 to 1.3	-	3000	-	10000	15000	-	-
1.15±0.1	-	3000	-	10000	-	-	-
1.25±0.1	-	3000	-	10000	-	-	5000
1.2 to 1.75	-	2500	-	10000	-	-	-

**SPECIFICATION & PACKING**

Tape Width : 8mm

<b>Y5V</b>		<b>10V</b>			<b>CC1206</b>	
<b>CAP.</b>	<b>CODE 15-17</b>	<b>CC0603</b>	<b>CC0805</b>	<b>CC1206</b>		
(μF) 1.0	105	0.8±0.07	0.85±0.1			
2.2	225					
4.7	475					
10	106				1.6±0.15	

In Columns :  
Thickness Class

**THICKNESS CLASS AND PACKAGING QUANTITIES**

<b>Thickness Classes (mm)</b>	<b>8mm Tape Width Quantity Per Reel</b>				<b>Quantity Per Bulk Case</b>	
	<b>180mm/7"</b>		<b>330mm/13"</b>		<b>CC0603</b>	<b>CC0805</b>
	<b>Paper</b>	<b>Blister</b>	<b>Paper</b>	<b>Blister</b>		
0.8±0.07	4000	-	15000	-	15000	-
0.85±0.1	-	3000	-	10000	-	5000
1.6±0.15	-	2500	-	7000	-	-



## SPECIFICATION & PACKING

Tape Width : 8mm

Y5V		16V				25V		
CAP.	CODE 15-17	CC0402	CC0603	CC0805	CC1206	CC0603	CC0805	CC1206
(pF) 10000	103	0.5±0.05	In Columns : Thickness Class			0.8±0.07		
22000	223							
47000	473							
100000	104							0.6±0.1
220000	224		0.8±0.1				0.85±0.1	
470000	474			0.85±0.1			1.25±0.1	0.85±0.1
1000000	105			1.25±0.1	0.85±0.1			1.15±0.1
2200000	225				1.15±0.1			
4700000	475							

### THICKNESS CLASS AND PACKAGING QUANTITIES

Thickness Classes (mm)	8mm Tape Width Quantity Per Reel				Quantity Per Bulk Case		
	180mm/7"		330mm/13"		CC0402	CC0603	CC0805
	Paper	Blister	Paper	Blister			
0.5 ± 0.05	10000	-	50000	-	50000	-	-
0.6 ± 0.1	4000	-	20000	-	-	-	10000
0.8 ± 0.07	4000	-	15000	-	-	15000	-
0.85 ± 0.1	4000	-	15000	-	-	-	8000
1.15 ± 0.1	-	3000	-	10000	-	-	-
1.25 ± 0.1	-	3000	-	10000	-	-	5000

## SPECIFICATION & PACKING

Tape Width : 8mm

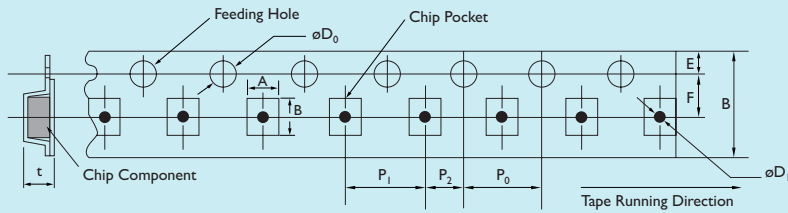
Y5V		50V		
CAP.	CODE 15-17	CC0603	CC0805	CC1206
(pF) 10000	103	0.8±0.07	0.6±0.1	
22000	223	In Columns : Thickness Class		
47000	473			
100000	104			0.6±0.1
220000	224			0.85±0.1
470000	474			0.85±0.1
1000000	105			1.15±0.1

### THICKNESS CLASS AND PACKAGING QUANTITIES

Thickness Classes (mm)	8mm Tape Width Quantity Per Reel				Quantity Per Bulk Case		
	180mm/7"		330mm/13"		CC0402	CC0603	CC0805
	Paper	Blister	Paper	Blister			
0.5 ± 0.05	10000	-	50000	-	50000	-	-
0.6 ± 0.1	4000	-	20000	-	-	-	10000
0.8 ± 0.07	4000	-	15000	-	-	15000	-
0.85 ± 0.1	4000	-	15000	-	-	-	8000
1.15 ± 0.1	-	3000	-	10000	-	-	-
1.25 ± 0.1	-	3000	-	10000	-	-	5000

## EMBOSSED TAPING

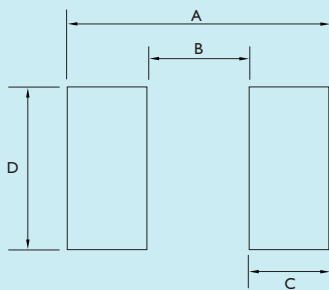
Unit : mm



STYLE	A	B	W	E	F	P <sub>0</sub>	P <sub>1</sub>	P <sub>2</sub>	øD <sub>0</sub>	øD <sub>1</sub>	T <sub>max</sub>
0805	1.45±0.1	2.2±0.1	8.0±0.2	1.75±0.1	3.5±0.05	4±0.1	4±0.1	2±0.05	1.5 <sup>+0.1</sup> <sub>0</sub>	≥1	2.0±0.1
1206	1.9±0.15	3.5±0.15	8.0±0.2	1.75±0.1	3.5±0.05	4±0.1	4±0.1	2±0.05	1.5 <sup>+0.1</sup> <sub>0</sub>	≥1	2.5±0.1
1210	3.0 (Max.)	3.0 (Max.)	8.1±0.2	1.75±0.1	3.5±0.05	4±0.1	4±0.1	2±0.05	1.5 <sup>+0.1</sup> <sub>0</sub>	≥1	3.5 (Max.)
1812	4.0 (Max.)	4.0 (Max.)	12.0±0.2	1.75±0.1	5.5±0.05	4±0.1	8±0.1	2±0.05	1.5 <sup>+0.1</sup> <sub>0</sub>	1.5	3.5 (Max.)

## RECOMMENDED LAND PATTERN DESIGN

Unit : mm



Soldering Pad

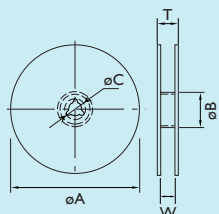
### REFLOW SOLDERING

STYLE	FOOTPRINT DIMENSION (mm)				PLACEMENT
	A	B	C	D	ACCURACY (mm)
0402	1.5	0.5	0.5	0.5	±0.15
0603	2.3	0.5	0.9	0.9	±0.25
0805	2.8	0.9	0.95	1.4	±0.25
1206	4.0	2.0	1.0	1.8	±0.25
1210	4.0	2.0	1.0	2.7	±0.25
1808	5.4	3.3	1.05	2.3	±0.25
1812	5.4	3.3	1.05	3.5	±0.25

### WAVE SOLDERING

STYLE	FOOTPRINT DIMENSION (mm)				PLACEMENT
	A	B	C	D	ACCURACY (mm)
0603	2.7	0.9	0.9	0.8	±0.25
0805	3.4	1.3	1.05	1.3	±0.25
1206	4.8	2.3	1.25	1.7	±0.25
1210	5.3	2.3	1.50	2.6	±0.25

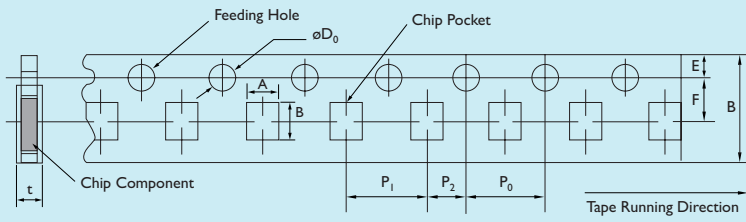
## TAPING REEL



STYLE	TAPE WIDE	øA	øB	øC	W	T <sub>Max</sub>
0402/0603/0805/1206	8	180 <sup>-0</sup> <sub>3</sub>	60 <sup>+1</sup> <sub>0</sub>	20.5	9.0±0.3	11.4±1
0402/0603/0805/1206	8	330±3	60 <sup>+1</sup> <sub>0</sub>	20.5	9.0±0.3	11.4±1
1812	12	180	62±1.5	20.5	12.4 <sup>+2</sup> <sub>0</sub>	18.4 (Max.)

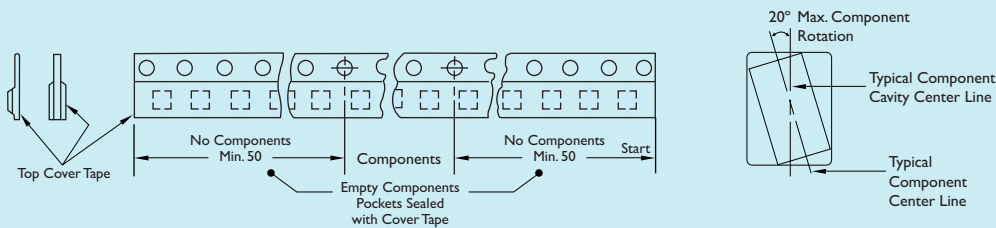


## TAPING REEL

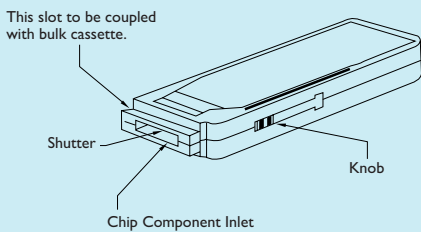


STYLE	A	B	W	E	F	P <sub>0</sub>	P <sub>1</sub>	P <sub>2</sub>	øD <sub>0</sub>	T <sub>max</sub>
0402	0.62±0.05	1.12±0.05	8.0±0.2	1.75±0.1	3.5±0.05	4±0.05	2±0.05	2±0.05	1.5 <sup>+0.1</sup> <sub>-0</sub>	0.6±0.05
0603	1.10±0.1	1.9±0.1	8.0±0.2	1.75±0.1	3.5±0.05	4±0.1	4±0.1	2±0.05	1.5 <sup>+0.1</sup> <sub>-0</sub>	1.0±0.05
0805	1.65±0.1	2.4±0.1	8.0±0.2	1.75±0.1	3.5±0.05	4±0.1	4±0.1	2±0.05	1.5 <sup>+0.1</sup> <sub>-0</sub>	1.0±0.05
1206	2.0±0.1	3.5±0.1	8.0±0.2	1.75±0.1	3.5±0.05	4±0.1	4±0.1	2±0.05	1.5 <sup>+0.1</sup> <sub>-0</sub>	1.0±0.05

## TAPING REEL



## BULK CASSETTE

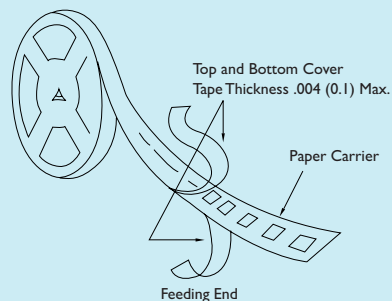


Dimension of Bulk Case

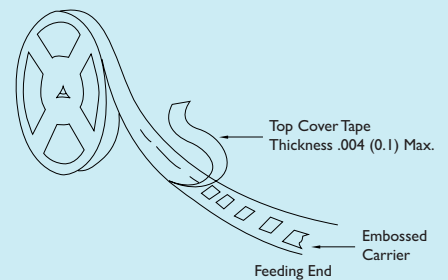
110 x 36 x 12 mm ( L x W x T )

Bulk case was standardized in Mar. 1992 (EIA-7201).

## PAPER CARRIER



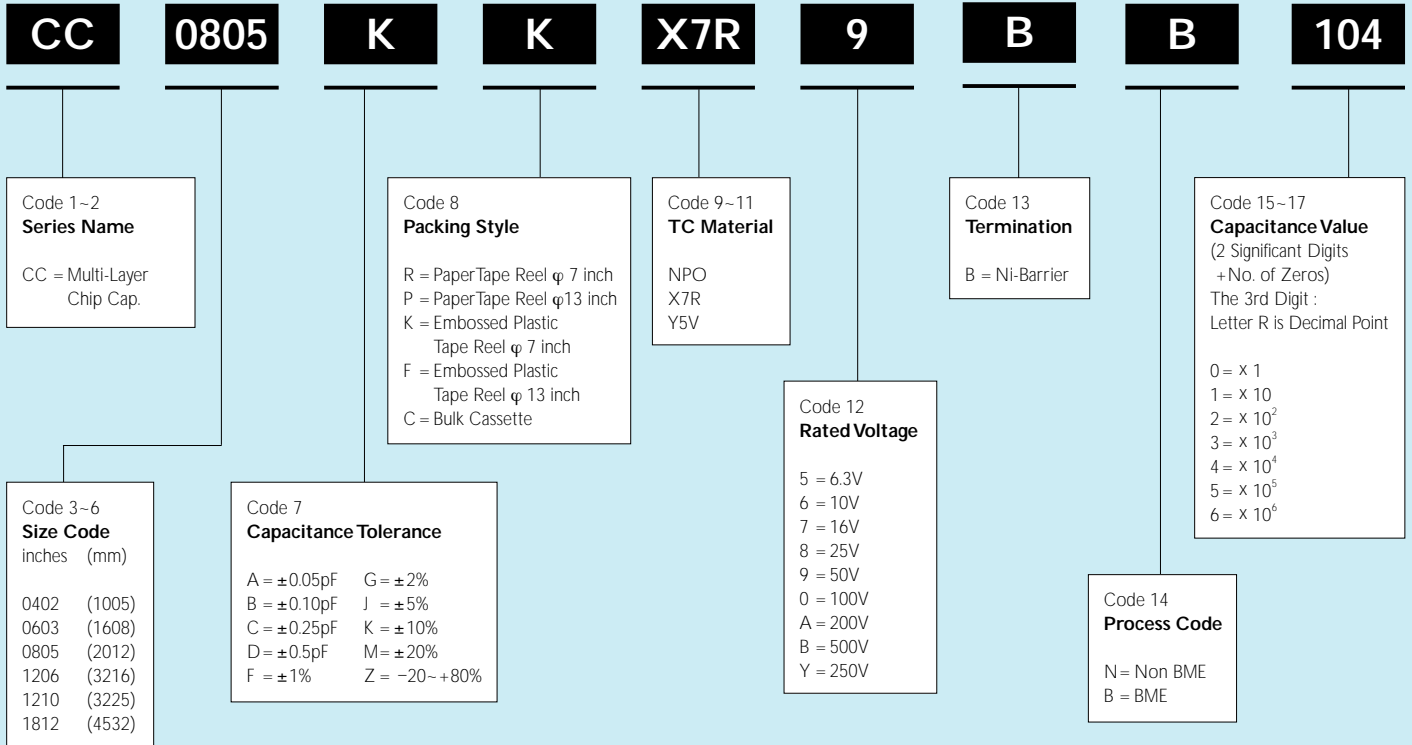
## EMBOSSED PLASTIC CARRIER



**1. SUBJECT :** This specification applies on the chip capacitor made by Yageo Corporation.

**2. PART NUMBER :** Part number of the chip capacitor is identified by the size, tolerance, packing, material and capacitor value.

Example :



**STANDARD SERIES OF VALUES**

<b>E6 SERIES</b>	10	15	22	33	47	68						
<b>E12 SERIES</b>	10	12	15	18	22	27	33	39	47	56	68	82