Multilayer Ceramic Chip Capacitor

STANDARD TYPE MLCC

FEATURES

・Nickel barrier end terminations to improve solderability.
・Multilayer block structure provides higher reliability.
・A wide range of capacitance values available in standard case sizes.

APPLICATIONS

. General electronic devices.

1. Product Identification

CP	101	K	050	X	R	A
1-1	1-2	1-3	1-4	1-5	1-6	1-7

1-1. **CP** **UWA Standard Type MLCC**

1-2. **101** **Capacitance**

Code	Capacitance (pF)	Code	Capacitance (pF)
0R5	0.5	101	100
010	1	104	100,000 (100nF)
100	10	106	10,000,000 (10uF)

1-3. **J** **Capacitance Tolerance**

Code	Tolerance	Nominal Capacitance
B	± 0.1 pF	≦ 10 pF
C	± 0.25 pF	
D	± 0.5 pF	
F	± 1 %	≧ 10 pF
G	± 2 %	
H	± 3 %	
J	± 5 %	
K	± 10 %	
M	± 20 %	
Z	- 20 ~ + 80 %	

1-4. **050** **Rated Voltage**

Code	Rated Voltage	Code	Rated Voltage
007	6.3V	025	25V
010	10V	050	50V
016	16V		

1-7. **0603** **Size**

Code	EIA Code	Length * Width mm / (inch)
H	0201	0.60 * 0.30 / (0.024 * 0.012)
F	0402	1.00 * 0.50 / (0.04 * 0.02)
A	0603	1.60 * 0.80 / (0.06 * 0.03)
B	0805	2.00 * 1.25 / (0.08 * 0.05)
C	1206	3.20 * 1.60 / (0.12 * 0.06)
D	1210	3.20 * 2.50 / (0.12 * 0.10)
E	1812	4.50 * 3.20 / (0.18 * 0.12)
G	2220	5.70 * 5.00 / (0.22 * 0.20)

1-5. **N** **Temperature Characteristic**

Code	Temperature Characteristic	Capacitance Change	Operation Temperature Range
N	NPO	±30 ppm	-55℃ ~ +125℃
X	X7R	±15 %	-55℃ ~ +125℃
Y	Y5V	+22 ~ -82 %	-30℃ ~ + 85℃
B	X5R	±15 %	-55℃ ~ + 85℃
S	X6S	±22 %	-55℃ ~ + 105℃
R	X5S	±22 %	-55℃ ~ + 85℃
E	Y5U	+22 ~ -56 %	-30℃ ~ + 85℃
Z	Z5U	+22 ~ -56 %	+10℃ ~ + 85℃

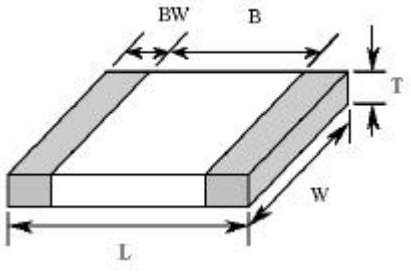
2.Standard Combination of Nominal Capacitance and Tolerance

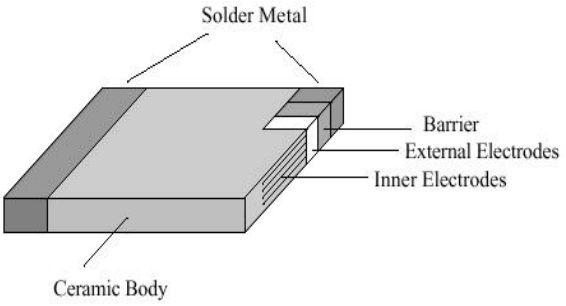
Class	Temperature Characteristic	Tolerance		Nominal Capacitance
Class I	NPO	Less Than 10pF	B(±0.10 pF)	0.5,1,1.5,2,2.5,3
			C(±0.25 pF)	0.5,1,1.5,2,2.5,3,3.5,4,4.5,5
			D(±0.50 pF)	5,6,7,8,9,10
			F(±1.00 pF)	6,7,8,9,10
		More Than 10pF	J(±5%)	E-24 series
			B(±10%)	
Class II	X7R / X5R X5S / X6S	K(±10%) , M(±20%)		E-12 series
	Y5V	M(±20%) , Z(-20 ~ +80%)		E- 6 series
	Y5U			
	Z5U			

	Application Capacitance											
E-3	1.0				2.2				4.7			
E-6	1.0		1.5		2.2		3.3		4.7		6.8	
E-12	1.0	1.2	1.5	1.8	2.2	2.7	3.3	3.9	4.7	5.6	6.8	8.2
E-24	1.0	1.2	1.5	1.8	2.2	2.7	3.3	3.9	4.7	5.6	6.8	8.2
	1.1	1.3	1.6	2.0	2.4	3.0	3.6	4.3	5.1	6.2	7.5	9.1

3. Dimension & Structure (Unit : mm)

Code	L	W	T(max)	Bw
0201	0.60±0.03	0.30±0.03	0.33	0.15±0.05
0402	1.00±0.05	0.50±0.05	0.55	0.25±0.10
0603	1.60±0.10	0.80±0.10	0.95	0.35±0.15
0805	2.00±0.20	1.25±0.20	1.40	0.45±0.25
1206	3.20±0.30	1.60±0.20	1.80	0.50±0.20
1210	3.20±0.30	2.50±0.20	2.70	0.60±0.30
1812	4.50±0.40	3.20±0.30	3.30	0.80±0.40
2220	5.70±0.40	5.00±0.40	3.00	1.00±0.50

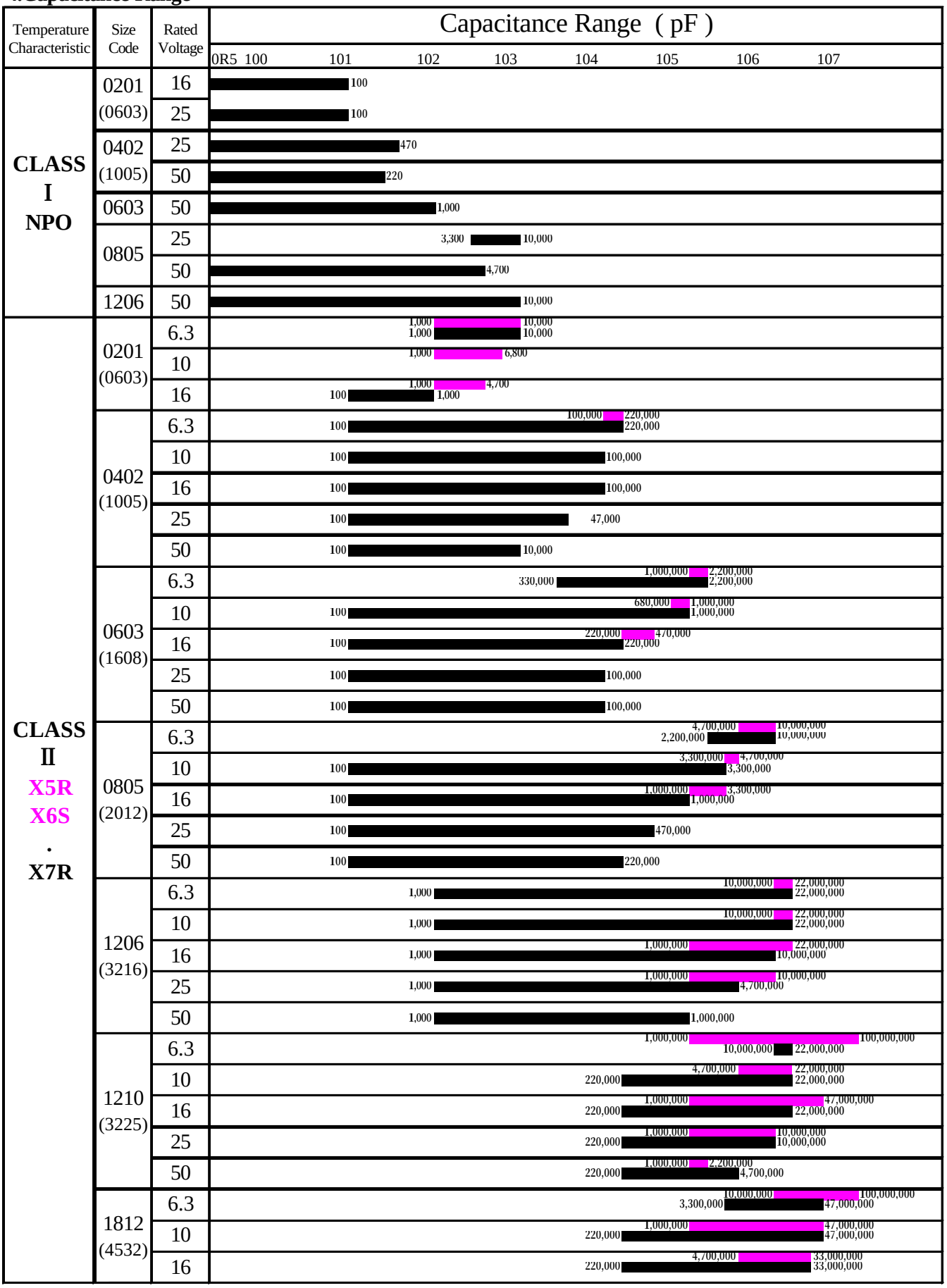




Low Profile MLCC Thickness

Cap	Code	0805							1206						1210			1812
uF	T.C.	X7R		X5R			Y5V		X7R	X5R			Y5V		X7R	X5R		X6S
	Vdc	16	10	16	10	6.3	10	6.3	10	16	10	6.3	10	6.3	25	10	6.3	6.3
0.22	224																	
0.33	334																	
0.47	474	D																
0.68	684	D																
1	105		D	D											D			
1.5	155			D						D								
2.2	225						D		D	D								
3.3	335										D					D		
4.7	475					D		D			D		D					
6.8	685																D	
10	106											D		D			D	
22	226																Y	
47	476																	
100	107																	Y

4.Capacitance Range



Temperature Characteristic	Size Code	Rated Voltage	Capacitance Range (pF)
			0R5 100 101 102 103 104 105 106 107
CLASS Ⅱ X5R X7R	1812 (4532)	25	220,000 – 22,000,000 (1,000,000)
		50	220,000 – 4,700,000 (1,000,000)
	2220 (5755)	6.3	10,000,000 – 100,000,000 (47,000,000)
		10	10,000,000 – 47,000,000 (100,000,000)
		16	10,000,000 – 22,000,000 (33,000,000)
		25	4,700,000 – 10,000,000 (22,000,000)
		50	100,000 – 4,700,000
CLASS Ⅱ Y5V	0402 (1005)	16	2,200 – 220,000
		25	2,200 – 47,000
		50	2,200 – 10,000
	0603 (1608)	6.3	1,000,000 – 2,200,000
		10	2,200 – 1,000,000
		16	2,200 – 1,000,000
		25	2,200 – 330,000
		50	2,200 – 100,000
	0805 (2012)	6.3	4,700,000 – 10,000,000
		10	4,700,000 – 10,000,000
		16	10,000 – 4,700,000
		25	10,000 – 2,200,000
		50	10,000 – 1,000,000
	1206 (3216)	10	100,000 – 22,000,000
		16	10,000 – 10,000,000
		25	10,000 – 4,700,000
		50	10,000 – 1,000,000
	1210 (3225)	6.3	22,000,000 – 47,000,000
		10	10,000,000 – 22,000,000
		16	220,000 – 22,000,000
		25	220,000 – 10,000,000
		50	220,000 – 4,700,000
	1812 (4532)	6.3	47,000,000 – 100,000,000
		10	10,000,000 – 47,000,000
		16	10,000,000 – 22,000,000
		25	4,700,000 – 10,000,000
	2220 (5755)	10	100,000,000 – 100,000,000
		16	10,000,000 – 47,000,000
		25	10,000,000 – 33,000,000
		50	4,700,000 – 10,000,000