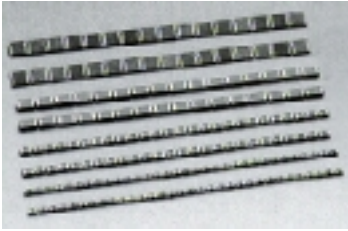


Multi-Layer Ceramic Chip Capacitor

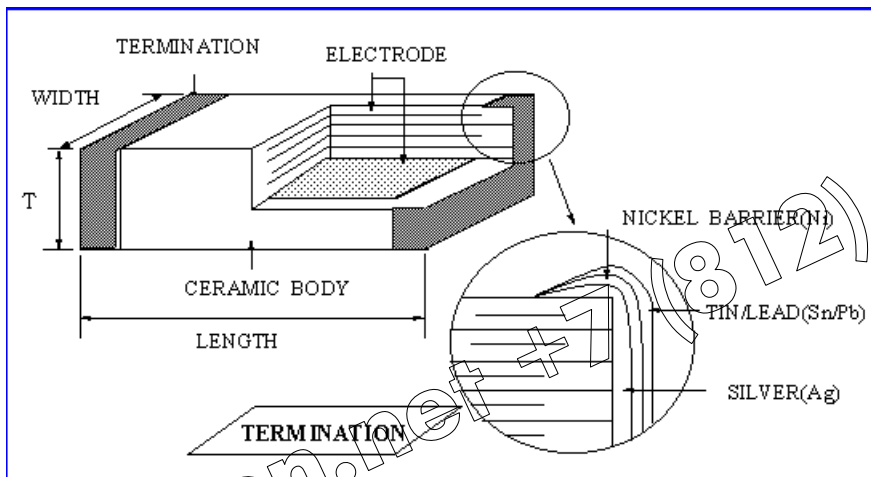
Picture



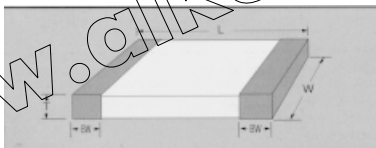
Feature

- Miniature Size
- Wide Capacitance, TC and Voltage Range

Structure



Dimensions



Product Identification

<u>CL</u>	<u>21</u>	<u>B</u>	<u>102</u>	<u>K</u>	<u>B</u>	<u>N</u>	<u>C</u>
1	2	3	4	5	6	7	8

- SAMSUNG Multi-Layer ceramic capacitor
- Type(Size)
- Capacitance temperature characteristics
- Nominal capacitance
- Capacitance tolerance
- Rated voltage
- Thickness option
- Packaging code

- Highly Reliable Performance
- Industry Standard Size
- Tape & Reel for Surface Mount Assembly

(unit)

Type	Dimension (mm)			
	L	W	Tmax	BW

05	1.0 ± 0.05	0.5 ± 0.05	0.5 ± 0.05	0.2+0.15/-0.1
10	1.6 ± 0.1	0.8 ± 0.1	0.8 ± 0.1	0.3 ± 0.2
21	2.0 ± 0.1	1.25 ± 0.1	1.25 ± 0.1	0.5+0.2/-0.3
22	2.0 ± 0.1	1.0 ± 0.1	1.0 ± 0.1	0.3 - 0.7
31	3.2 ± 0.15	1.6 ± 0.15	1.6 ± 0.15	0.5+0.2/-0.3
32	3.2 ± 0.3	2.5 ± 0.2	2.5 ± 0.2	0.6 ± 0.3
43	4.5 ± 0.4	3.2 ± 0.3	2.5 ± 0.2	0.9 ± 0.6

Capacitance Temperature Characteristics

	Symbol	EIA Code	Temperature Coefficient (ppm/'c)	Capacitance Change (ΔC : %)	Operating temperature range
Class I (Temperature Compensation)	C	C0G	0 ±30		-55 ~ +125 'c
	L	S2L	+ 350 ~ - 1000		
	P	P2H	-150 ± 60		
	R	R2H	-220± 60		
	S	S2H	-330±60		
	T	T2H	-470 ± 60		
	U	U2J	-750 ± 120		
Class I± (High dielectric Constant)	B	X7R		±15	-55 ~ +125 'c
	E	Z5U		+22 ~ -56	+10 ~ +85 'c
	F	Y5V		+30 ~ -82	-30 ~ +85 'c

Nominal Capacitance

The nominal capacitance value is expressed in pico-Farad(pF) and identified by a three-digit number, first two digits represent significant figures and last digit specifies the number of zeros to follow.

For values below 1 pF, the letter "R" is used as the decimal point and the last digit becomes significant.

Capacitance tolerance

Temperature characteristics	Symbol	Tolerance	Applicable capacitance range
C0G(NPO) or T.C Series	B	± 0.1pF	0.5 ~ 5pF
	C	±0.25pF	0.5 ~ 10pF
	D	±0.5pF	
	F	±1%	E-24 Series for over 10pF
	*G	±2%	
	J	±5%	
	K	±10%	
B(X7R)	J	±5%	E-12 Series
	K	±10%	
	M	±20%	
E(Z5U)	M	±20%	E-6 or E-3 Series
	Z	-20 ~ +80%	
F(Y5V)	Z	-20 ~ +80%	E-6 or E-3 Series

*Please consult us for special tolerance

*Option

Rated Voltage

Symbol	O	A	B	C
Rated voltage	16V	25V	50V	100V

■ Thickness Option

Code	Description of the code
N	Standard thickness (please refer to standard thickness table)
A	Thinner than standard thickness
B	Thicker than standard thickness
C	Standard thickness high Q (Low DF)

■ Packaging code

Symbol	Packaging	Marking	Symbol	Packaging	Marking
B	Bulk	No	I	Paper tape 13" reel	No
A	Bulk	Yes	E	Embossed tape 7" reel	No
P	Cassette	No	J	Embossed tape 7" reel	Yes
G	Cassette	Yes	L	Paper 13" reel	No
C	Paper tape 7" reel	No	N	Paper 13" reel	Yes
H	Paper tape 7" reel	Yes		I	
D	Paper Tape, 13" reel	No			

■ Standard Thickness by Capacitance Range

SIZE		1005 Type (0402)	1608 Type (0603)	2012 Type (0805)			3216 Type (1206)			3225 Type (1210)			
Dimension (mm)	L	1.0 ± 0.05	1.6 ± 0.1	2.0 ± 0.1			3.2 ± 0.15			3.2 ± 0.3			
	W	0.5 ± 0.05	0.8 ± 0.1	1.25 ± 0.1			1.6 ± 0.15			2.5 ± 0.2			
	T	0.5 ± 0.05	0.8 ± 0.1	0.65 ± 0.1	0.85 ± 0.1	1.25 ± 0.1	0.85 ± 0.15	1.15 ± 0.15	1.25 ± 0.15	1.00 ± 0.2	1.25 ± 0.2	1.4 ± 0.2	
Capacitance	SL	50V	240	1000	1000	1500	2700	2700	3300	5600			
		100V		680	560	1000	1000	1500	2200	3300			
Range	C,TC (Except SL)	50V	120	680	560	1000	1800	2200	2700	3300	4700	5600	7500
		100V		390	470	1000	1200	1800	2200	2700			
B (X7R)		16V	10000	100000	200000	330000	560000	910000	1200000	1500000	1800000	2400000	2700000
		25V	9100	43000	68000	130000	220000	390000	510000	620000	820000	1000000	1200000
		50V	2700	16000	39000	56000	100000	150000	220000	240000	300000	390000	470000
F (Y5V)		16V	47000	330000	680000	1000000	2200000	2200000	3300000	4700000	4700000	6800000	10000000
		25V	33000	100000	220000	470000	680000	1000000	1500000	2200000	2200000	3300000	3300000
		50V	10000	47000	68000	150000	330000	470000	680000	680000	680000	1000000	1000000
E (Z5U)		25V			220000	330000	560000	750000	1200000	1300000	1500000	2000000	2200000
		50V			91000	130000	240000	390000	560000	620000	750000	1000000	1200000

■ E-mail

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