

## Multilayer Chip Beads / CB Series

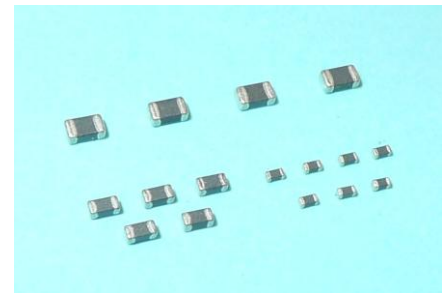
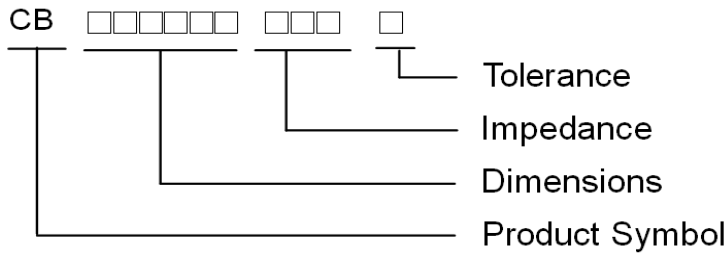
### .Features:

- 1.Closed magnetic circuit avoids crosstalk.
- 2.S.M.T. type.
- 3.Excellent solderability and heat resistance.
- 4.High reliability.
- 5.The products contain no lead and also support lead-free soldering.

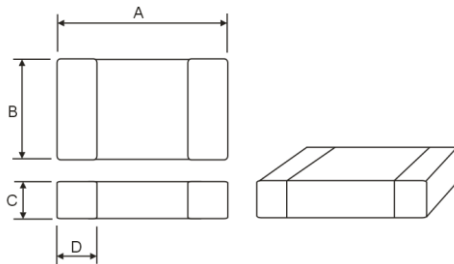
### .Applications:

Removal of signal line noises of cellular phones, PCs, note PCs, TVs, TV tuners, STBs, audio players, DVDs, DSCs, DVCs, game machines, digital photo frames, car navigation system, PNDs, etc.

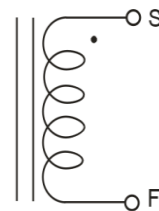
### .Product Identification :



### .Shape and Dimension



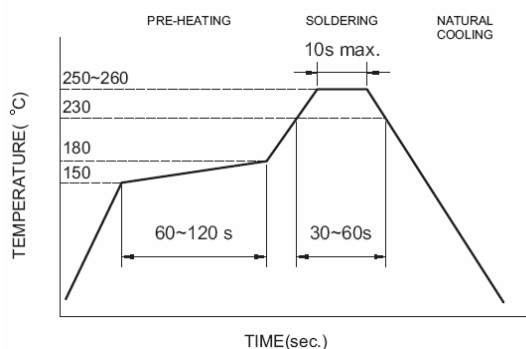
### .Schematic



Dimensions in mm

TYPE	A(mm)	B(mm)	C(mm)	D(mm)
<b>CB100505</b>	1.0±0.1	0.5±0.1	0.5±0.1	0.25±0.1
<b>CB160808</b>	1.6±0.2	0.8±0.15	0.8±0.15	0.3±0.2
<b>CB201209</b>	2.0±0.2	1.25±0.2	0.9±0.2	0.5±0.3
<b>CB321611</b>	3.2±0.2	1.6±0.2	1.1±0.2	0.5±0.3
<b>CB451616</b>	4.5±0.25	1.6±0.2	1.6±0.2	0.5±0.3

### .Recommended Reflow



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### Electrical Characteristics (CB100505 TYPE)

Part No.	IMPEDANCE ( $\Omega \pm 25\%$ )	Test frequency	DCR ( $\Omega$ ) Max	Rated Current (mA) Max
CB100505T-060□	6	100 MHZ,200 mV	0.05	500
CB100505T-100□	10	100 MHZ,200 mV	0.05	500
CB100505T-300□	30	100 MHZ,200 mV	0.3	300
CB100505T-400□	40	100 MHZ,200 mV	0.3	300
CB100505T-470□	47	100 MHZ,200 mV	0.4	300
CB100505T-600□	60	100 MHZ,200 mV	0.4	300
CB100505T-700□	70	100 MHZ,200 mV	0.4	300
CB100505T-750□	75	100 MHZ,200 mV	0.4	300
CB100505T-800□	80	100 MHZ,200 mV	0.4	300
CB100505T-121□	120	100 MHZ,200 mV	0.5	300
CB100505T-151□	150	100 MHZ,200 mV	0.5	300
CB100505T-221□	220	100 MHZ,200 mV	0.5	300
CB100505T-241□	240	100 MHZ,200 mV	0.5	300
CB100505T-301□	300	100 MHZ,200 mV	0.8	300
CB100505T-481□	480	100 MHZ,200 mV	0.8	300
CB100505T-601□	600	100 MHZ,200 mV	1	300
CB100505T-102□	1000	100 MHZ,200 mV	1.5	100
CB100505T-152□	1500	100 MHZ,200 mV	2	60

### Electrical Characteristics (CB160808 TYPE)

Part No.	IMPEDANCE ( $\Omega \pm 25\%$ )	Test frequency	DCR ( $\Omega$ ) Max	Rated Current (mA) Max
CB160808T-060□	6	100 MHZ,200 mV	0.05	500
CB160808T-070□	7	100 MHZ,200 mV	0.05	500
CB160808T-100□	10	100 MHZ,200 mV	0.05	500
CB160808T-110□	11	100 MHZ,200 mV	0.05	500
CB160808T-150□	15	100 MHZ,200 mV	0.08	500
CB160808T-170□	17	100 MHZ,200 mV	0.08	500
CB160808T-190□	19	100 MHZ,200 mV	0.08	500
CB160808T-220□	22	100 MHZ,200 mV	0.1	400
CB160808T-250□	25	100 MHZ,200 mV	0.1	400
CB160808T-260□	26	100 MHZ,200 mV	0.1	400
CB160808T-300□	30	100 MHZ,200 mV	0.1	400
CB160808T-310□	31	100 MHZ,200 mV	0.1	400
CB160808T-400□	40	100 MHZ,200 mV	0.1	400
CB160808T-470□	47	100 MHZ,200 mV	0.1	300
CB160808T-500□	50	100 MHZ,200 mV	0.1	300
CB160808T-600□	60	100 MHZ,200 mV	0.1	300
CB160808T-680□	68	100 MHZ,200 mV	0.15	300
CB160808T-700□	70	100 MHZ,200 mV	0.15	300
CB160808T-750□	75	100 MHZ,200 mV	0.15	300

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### Electrical Characteristics (CB160808 TYPE)

Part No.	IMPEDANCE ( $\Omega \pm 25\%$ )	Test frequency	DCR ( $\Omega$ ) Max	Rated Current (mA) Max
CB160808T-800□	80	100 MHZ,200 mV	0.15	300
CB160808T-900□	90	100 MHZ,200 mV	0.2	300
CB160808T-101□	100	100 MHZ,200 mV	0.2	300
CB160808T-121□	120	100 MHZ,200 mV	0.25	400
CB160808T-151□	150	100 MHZ,200 mV	0.3	200
CB160808T-181□	180	100 MHZ,200 mV	0.3	200
CB160808T-201□	200	100 MHZ,200 mV	0.3	200
CB160808T-221□	220	100 MHZ,200 mV	0.3	200
CB160808T-241□	240	100 MHZ,200 mV	0.4	200
CB160808T-301□	300	100 MHZ,200 mV	0.4	200
CB160808T-331□	330	100 MHZ,200 mV	0.5	200
CB160808T-451□	450	100 MHZ,200 mV	0.5	200
CB160808T-471□	470	100 MHZ,200 mV	0.5	200
CB160808T-501□	500	100 MHZ,200 mV	0.5	200
CB160808T-601□	600	100 MHZ,200 mV	0.5	200
CB160808T-751□	750	100 MHZ,200 mV	0.7	200
CB160808T-102□	1000	100 MHZ,200 mV	0.7	200
CB160808T-122□	1200	100 MHZ,200 mV	1	50
CB160808T-152□	1500	100 MHZ,200 mV	1	50
CB160808T-202□	2000	100 MHZ,200 mV	1.2	50
CB160808T-222□	2200	100 MHZ,200 mV	1.2	50
CB160808T-252□	2500	100 MHZ,200 mV	1.3	50
CB160808T-272□	2700	100 MHZ,200 mV	1.3	50

### Electrical Characteristics (CB201209 TYPE)

Part No.	IMPEDANCE ( $\Omega \pm 25\%$ )	Test frequency	DCR ( $\Omega$ ) Max	Rated Current (mA) Max
CB201209T-600□	60	100 MHZ,200 mV	0.15	500
CB201209T-700□	70	100 MHZ,200 mV	0.15	500
CB201209T-750□	75	100 MHZ,200 mV	0.15	500
CB201209T-800□	80	100 MHZ,200 mV	0.15	500
CB201209T-900□	90	100 MHZ,200 mV	0.15	500
CB201209T-950□	95	100 MHZ,200 mV	0.15	500
CB201209T-101□	100	100 MHZ,200 mV	0.25	300
CB201209T-121□	120	100 MHZ,200 mV	0.25	300
CB201209T-151□	150	100 MHZ,200 mV	0.25	300
CB201209T-181□	180	100 MHZ,200 mV	0.3	300
CB201209T-201□	200	100 MHZ,200 mV	0.3	300
CB201209T-221□	220	100 MHZ,200 mV	0.3	300
CB201209T-241□	240	100 MHZ,200 mV	0.3	300
CB201209T-301□	300	100 MHZ,200 mV	0.3	300
CB201209T-331□	330	100 MHZ,200 mV	0.3	300

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### Electrical Characteristics (CB201209 TYPE)

Part No.	IMPEDANCE ( $\Omega \pm 25\%$ )	Test frequency	DCR ( $\Omega$ ) Max	Rated Current (mA) Max
CB201209T-401□	400	100 MHZ,200 mV	0.3	300
CB201209T-421□	420	100 MHZ,200 mV	0.3	300
CB201209T-431□	430	100 MHZ,200 mV	0.4	300
CB201209T-451□	450	100 MHZ,200 mV	0.4	300
CB201209T-471□	470	100 MHZ,200 mV	0.4	300
CB201209T-501□	500	100 MHZ,200 mV	0.4	300
CB201209T-601□	600	100 MHZ,200 mV	0.4	300
CB201209T-681□	680	100 MHZ,200 mV	0.4	300
CB201209T-751□	750	100 MHZ,200 mV	0.5	200
CB201209T-102□	1000	100 MHZ,200 mV	0.5	200
CB201209T-122□	1200	100 MHZ,200 mV	0.6	200
CB201209T-152□	1500	100 MHZ,200 mV	0.6	200
CB201209T-202□	2000	100 MHZ,200 mV	0.8	100
CB201209T-222□	2200	100 MHZ,200 mV	1	100
CB201209T-252□	2500	100 MHZ,200 mV	1	100
CB201209T-272□	2700	100 MHZ,200 mV	1.5	100

### Electrical Characteristics (CB321611 TYPE)

Part No.	IMPEDANCE ( $\Omega \pm 25\%$ )	Test frequency	DCR ( $\Omega$ ) Max	Rated Current (mA) Max
CB321611T-700□	70	100 MHZ,200 mV	0.1	500
CB321611T-750□	75	100 MHZ,200 mV	0.15	500
CB321611T-800□	80	100 MHZ,200 mV	0.15	500
CB321611T-900□	90	100 MHZ,200 mV	0.15	500
CB321611T-101□	100	100 MHZ,200 mV	0.15	500
CB321611T-121□	120	100 MHZ,200 mV	0.15	500
CB321611T-151□	150	100 MHZ,200 mV	0.15	500
CB321611T-181□	180	100 MHZ,200 mV	0.2	400
CB321611T-201□	200	100 MHZ,200 mV	0.2	400
CB321611T-221□	220	100 MHZ,200 mV	0.2	400
CB321611T-241□	240	100 MHZ,200 mV	0.2	400
CB321611T-301□	300	100 MHZ,200 mV	0.2	400
CB321611T-401□	400	100 MHZ,200 mV	0.2	400
CB321611T-471□	470	100 MHZ,200 mV	0.2	400
CB321611T-501□	500	100 MHZ,200 mV	0.2	400
CB321611T-601□	600	100 MHZ,200 mV	0.3	400
CB321611T-701□	700	100 MHZ,200 mV	0.4	200
CB321611T-102□	1000	50 MHZ,200 mV	0.4	200
CB321611T-122□	1200	50 MHZ,200 mV	0.4	200
CB321611T-152□	1500	50 MHZ,200 mV	0.45	200
CB321611T-202□	2000	30 MHZ,200 mV	0.6	200

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### Electrical Characteristics (CB451616 TYPE)

Part No.	IMPEDANCE ( $\Omega \pm 25\%$ )	Test frequency	DCR ( $\Omega$ ) Max	Rated Current (mA) Max
CB451616T-500□	50	100 MHz, 200 mV	0.2	600
CB451616T-600□	60	100 MHz, 200 mV	0.2	600
CB451616T-800□	80	100 MHz, 200 mV	0.2	600
CB451616T-900□	90	100 MHz, 200 mV	0.3	500
CB451616T-101□	100	100 MHz, 200 mV	0.3	500

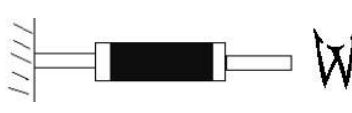
#### NOTE:

1. Operating temperature range : - 55°C ~ 125°C
2. Storage Temperature : Under 25°C , Humidity 40% ~ 65%
3. Standard Testing Condition :
  - a. Temperature : Ordinary Temperature (15 to 35°C)
  - b. Humidity : Ordinary Humidity (25 to 85% RH)
4. Rate Current : Applied the current to coils, the temperature rise shall not be more than 30°C
5. □Tolerance : M=20% ; Y=25% ; N=30%

## Multilayer Chip Beads / CB Series

### 1. Reliability and Test Conditions(可靠性測試條件)

#### 1-1.Mechanical Performance

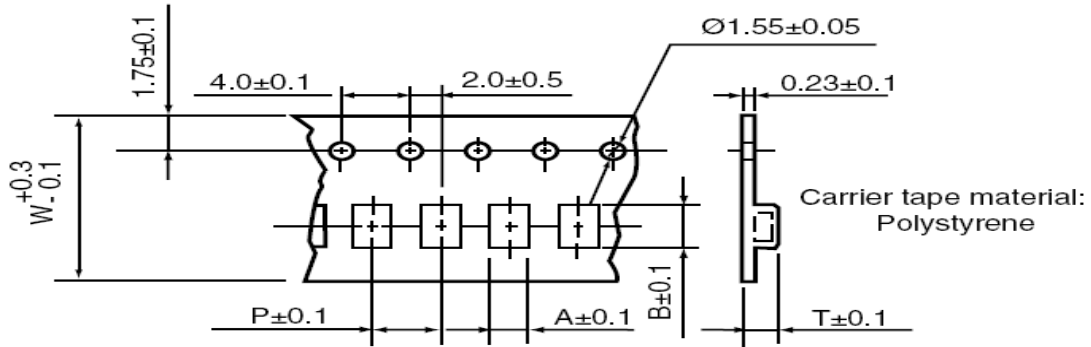
Item	Specification	Test Method
Flexure Strength	The forces applied on the right conditions must not damage the terminal electrode and the ferrite	Test device shall be soldered on the substrate Substrate Dimension: 100x40x1.6mm Deflection: 2.0mm Keeping Time: 30sec *For 100505, substrate dimension is 100x40x0.8mm
Vibration		Test device shall be soldered on the substrate Oscillation Frequency: 10 to 55 to 10Hz for 1min Amplitude: 1.5mm Time: 2hrs for each axis (X, Y & Z), total 6hrs
Resistance to Soldering Heat	Appearance: No damage More than 75% of the terminal electrode should be covered with solder. Impedance : within $\pm 30\%$ of initial value	Pre-heating: 150°C, 1min Solder Composition: Sn/Pb = 63/37 Solder Composition: Sn/Ag3.0/Cu0.5(Pb-Free) Solder Temperature: 260 $\pm$ 5°C Immersion Time: 10 $\pm$ 1sec
Solder ability	The electrodes shall be at least 90% covered with new solder coating	Pre-heating: 150°C, 1min Solder Composition: Sn/Pb = 63/37 Solder Temperature: 220 $\pm$ 5°C Solder Composition: Sn/Ag3.0/Cu0.5(Pb-Free) Solder Temperature: 245 $\pm$ 5°C (Pb-Free) Immersion Time: 4 $\pm$ 1sec
Terminal Strength Test	100505 series : $\geq 0.2$ kg 160808 series : $\geq 0.5$ kg 201209 series : $\geq 1.0$ kg other series : $\geq 2.0$ kg	Test device shall be soldered on the substrate 

#### 1-2.Environmental Performance

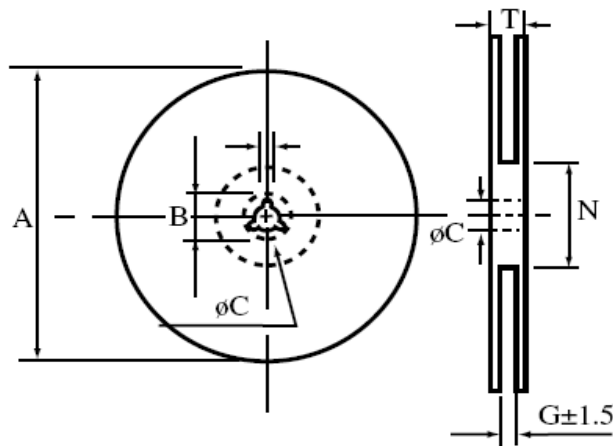
Item	Specification	Test Method															
Temperature Cycle	Appearance: No damage Impedance: within $\pm 30\%$ of initial value	One cycle: <table border="1"> <thead> <tr> <th>Step</th> <th>Temperature (°C)</th> <th>Time (min)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-55<math>\pm</math>3</td> <td>30</td> </tr> <tr> <td>2</td> <td>25<math>\pm</math>2</td> <td>3</td> </tr> <tr> <td>3</td> <td>125<math>\pm</math>3</td> <td>30</td> </tr> <tr> <td>4</td> <td>25<math>\pm</math>2</td> <td>3</td> </tr> </tbody> </table>	Step	Temperature (°C)	Time (min)	1	-55 $\pm$ 3	30	2	25 $\pm$ 2	3	3	125 $\pm$ 3	30	4	25 $\pm$ 2	3
Step		Temperature (°C)	Time (min)														
1		-55 $\pm$ 3	30														
2		25 $\pm$ 2	3														
3	125 $\pm$ 3	30															
4	25 $\pm$ 2	3															
Humidity Resistance	Temperature: 40 $\pm$ 2°C Relative Humidity: 90 ~ 95% / Time: 1000hrs Measured after exposure in the room condition for 24hrs																
High Temperature Resistance	Temperature: 125 $\pm$ 3°C / Relative Humidity: 0% Applied Current: Rated Current /Time: 1000hrs Measured after exposure in the room condition for 24hrs																
Low Temperature Resistance	Temperature: -55 $\pm$ 3°C Relative Humidity: 0% / Time: 1000hrs Measured after exposure in the room condition for 24hrs																

## Multilayer Chip Beads / CB Series

### 4 .Packing Specifications



TYPE	Packaging Quantity		Tape Dimension(mm)				
	Pcs / Reel	Inner box	A	B	W	P	T
CB100505	10000	50000	1.08	1.88	8	4	1.05
CB160808	4000	20000	1.42	2.24	8	4	1.04
CB201209	4000	20000	1.88	3.5	8	4	1.27
CB321611	3000	15000	1.93	4.95	12	4	1.93
CB451616	2000	10000	3.66	4.95	12	8	1.83



TYPE	Reel Dimension(mm)					
	A	B	C	G	N	T
8mm	178±2	21.0±0.8	13.0±0.8	10	75	12.5
12mm	178±2	21.0±0.8	13.0±0.8	14	75	16.5