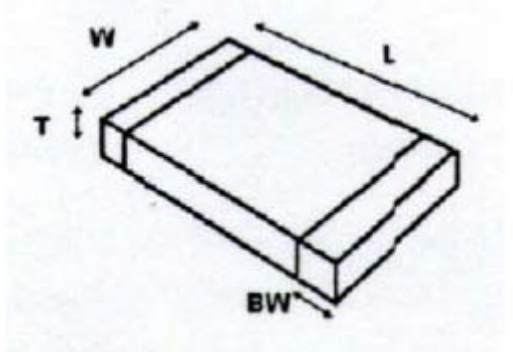


1. Product Identification

Multilayer Ferrite Chip Beads	Multilayer Ferrite Chip Inductors
<p>(1) Series code B: Multi-layer Ferrite Chip Bead</p> <p>(2) Dimensions: Lx Wx T(mm) The first two digits : length The second two digits : width The last two digits : thickness</p> <p>(3) Material Code: D, E, F, G, H, I, J, K, L, V</p> <p>(4) Value code: Impedance (at 100 MHz) The first two digits are significant. The last digit specifies the number of zeros to follow.</p> <p>(5) Tolerance code</p> <p>J = $\pm 5\%$</p> <p>K = $\pm 10\%$</p> <p>M = $\pm 20\%$</p> <p>T = $\pm 25\%$</p> <p>(6) Package code</p> <p>A = Bulk</p> <p>J = 1K</p> <p>K = 2K</p> <p>M = 3K</p> <p>T = 4K</p>	<p>(1) Series code L: Multi-layer Ferrite Chip Inductor</p> <p>(2) Dimensions: Lx Wx T(mm) The first two digits : length The second two digits : width The last two digits : thickness</p> <p>(3) Material Code: P, Q, R, S, U, T, V</p> <p>(4) Value Code: Inductance (μH) The first two digits are significant. The last digit specifies the number of zeros to follow.</p> <p>(5) Tolerance code</p> <p>S = $\pm 0.3 \eta\text{H}$</p> <p>J = $\pm 5\%$</p> <p>K = $\pm 10\%$</p> <p>M = $\pm 20\%$</p> <p>T = $\pm 25\%$</p> <p>(6) Package code</p> <p>A = Bulk</p> <p>J = 1K</p> <p>K = 2K</p> <p>M = 3K</p> <p>T = 4K</p>

2. Shape and Dimensions



SIZE	LENGTH (L) (mm)	WIDTH (W) (mm)	THICKNESS (T) (mm)	TERMINATION (BW) (mm)
1608	1.60 ± 0.15	0.80 ± 0.15	0.80 ± 0.15	0.36 ± 0.15
2012	2.00 ± 0.20	1.25 ± 0.20	0.90 ± 0.20	0.51 ± 0.25
3216	3.20 ± 0.20	1.60 ± 0.20	1.10 ± 0.20	0.51 ± 0.25

3. Reliability and Test Conditions

Chip Inductor		Chip Beads																						
ITEM	REQUIREMENTS 1608 2012 3216	REQUIREMENTS 1608 2012 3216 4516 4532	TEST CONDITIONS																					
Operating Temp. Range		-40 °C to ± 125 °C	-40 °C to ± 125 °C																					
Resistance to Solder Heat	(1) No damage such as cracks should be caused in the chip element (2) More than 75% of the terminal electrode shall be covered with new solder.	(1) No damage such as cracks should be caused in the chip element (2) More than 75% of the terminal electrode shall be covered with new solder.	Preheat temp: 100 °C to 150 °C Preheat time: 1 minute Solder temp: 260 °C ± 10 °C Dipping time: 10 ± 0.5 sec																					
Solderability	(1) More than 75% of the terminal electrode shall be covered with new solder	(1) More than 75% of the terminal electrode shall be covered with new solder	Preheat temp: 100 °C to 150 °C Preheat time: 1 minute Solder temp: 230 °C ± 10 °C Dipping time: 3 ± 1 sec																					
Bending Strength	(1) The ferrite shall not be damaged by forces applies on the right. <table border="1"> <tr> <td>d</td> <td>1.3</td> <td>1.3</td> <td>2.0</td> </tr> <tr> <td>w</td> <td>1.0</td> <td>1.0</td> <td>2.0</td> </tr> </table>	d	1.3	1.3	2.0	w	1.0	1.0	2.0	(1) The ferrite shall not be damaged by forces applies on the right. <table border="1"> <tr> <td>d</td> <td>1.3</td> <td>1.3</td> <td>2.0</td> <td>2.8</td> <td>2.8</td> </tr> <tr> <td>w</td> <td>1.0</td> <td>1.0</td> <td>2.0</td> <td>2.5</td> <td>2.5</td> </tr> </table>	d	1.3	1.3	2.0	2.8	2.8	w	1.0	1.0	2.0	2.5	2.5		
d	1.3	1.3	2.0																					
w	1.0	1.0	2.0																					
d	1.3	1.3	2.0	2.8	2.8																			
w	1.0	1.0	2.0	2.5	2.5																			
Thermal Shock (Temperature Cycle)	(1) No mechanical damage. (2) Inductance change: ± within 5% (3) Quality factor change: ± within 30%	(1) No mechanical damage. (2) Impedance change: ± within 30%	Temperature -40 °C ± 85 °C for 30 minutes each 100 cycles. Measured after being at room temperature for 24 hours.																					
Humidity resistance	(1) No mechanical damage. (2) Inductance change: within ±5% (3) Quality factor change: within ±30%	(1) No mechanical damage. (2) Impedance change: ± within 30%	Temperature 40 °C ± 2 °C Humidity 90 to 95%RH Time 500 ± 12 hours Applied Current 200mA or rated current																					

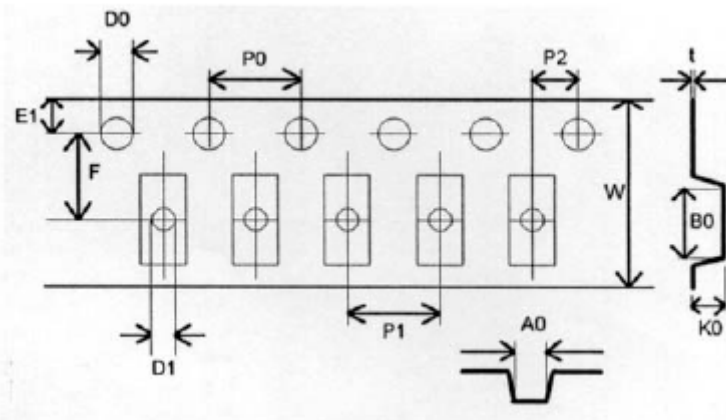
4. Packaging

TYEE's multi-layer components are provided on tape-and-reel for use in pick-and place machines or in bulk for special applications. Both tape-and-reel and bulk products are sealed in plastic bags with desiccant. The reel size can be 7 inch or 13 inch, depending on customers' preference.

Dimensions of Plastic Embossed Tape (mm)			
Tape	Ao	Bo	Ko
1608	1.1 + 0.1	1.9 + 0.1	1.1 + 0.1
2012	1.6 + 0.1	2.4 + 0.1	1.2 + 0.1
3216	1.8 + 0.1	3.5 + 0.1	1.2 + 0.1

Other sizes can be provided upon customer's request.

Tape	E1	F	W	P1	P0	P2	D0	D1	t
1608									
2012	(1.75+0.10)	(3.50+0.05)	(8.1+0.1)	(4.0+0.1)	(4.0+0.1)	(2.00+0.05)	(1.5+0.1/-0.0)	(1.0min)	(0.23+0.02)
3216									



5.Storage Requirements

The maximum ambient temperature should not exceed 40°C. Storage temperatures, higher than 40°C could result in the deformation of packaging materials. The maximum relative humidity recommended for storage is 70%. High humidity with high temperature can accelerate the oxidation of the tin-lead plating on the termination and reduce the solderability of the tin-lead plating on the termination and reduce the solderability of the components. Sealed plastic bags with desiccant shall be used to reduce the oxidation of the termination and shall only be opened prior to use. The products shall not be stored in areas where harmful gases containing sulfur or chlorine are present.