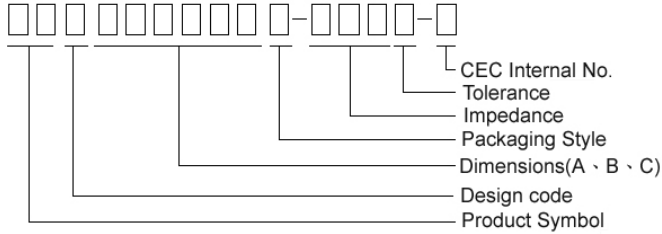


## Multilayer Ferrite Chip Beads



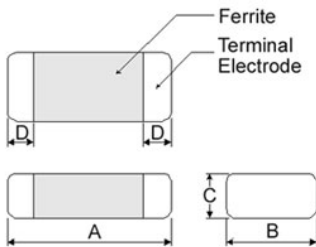
Chilisin offers a wide range of multi-layered ferrite chip beads with various sizes, frequency characteristics, and impedance values for EMI solutions. These ferrite formulas are used to compose seven types of EMI suppression chip beads: SB, GB, PB, UPB, NB, HF, and VPB series.

### Product Identification



- Product symbol: SB, GB, PB, UPB, NB, HF, VPB
- Packaging: T : Tape and Reel ; B : Bulk
- Tolerance: Y =  $\pm 25\%$ ; M =  $\pm 20\%$ ; T:  $\pm 30\%$
- Note: RoHS Compliant

### Shape and Dimensions

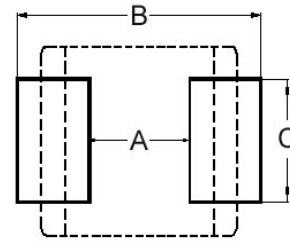


Dimensions in mm

TYPE	A	B	C	D
①060303	0.6 $\pm$ 0.03	0.30 $\pm$ 0.03	0.3 $\pm$ 0.03	0.15 $\pm$ 0.05
②100505	1.0 $\pm$ 0.10	0.50 $\pm$ 0.10	0.5 $\pm$ 0.10	0.25 $\pm$ 0.10
③160808	1.6 $\pm$ 0.15	0.80 $\pm$ 0.15	0.8 $\pm$ 0.15	0.3 $\pm$ 0.2
④201209	2.0 $\pm$ 0.20	1.25 $\pm$ 0.20	0.9 $\pm$ 0.20	0.5 $\pm$ 0.3
⑤201212	2.0 $\pm$ 0.20	1.25 $\pm$ 0.20	1.25 $\pm$ 0.20	0.5 $\pm$ 0.3
④321611	3.2 $\pm$ 0.20	1.60 $\pm$ 0.20	1.1 $\pm$ 0.20	0.5 $\pm$ 0.3
⑥321616	3.2 $\pm$ 0.20	1.60 $\pm$ 0.20	1.6 $\pm$ 0.20	0.5 $\pm$ 0.3
⑦322513	3.2 $\pm$ 0.20	2.50 $\pm$ 0.20	1.3 $\pm$ 0.20	0.5 $\pm$ 0.3
⑧451616	4.5 $\pm$ 0.25	1.60 $\pm$ 0.20	1.6 $\pm$ 0.20	0.5 $\pm$ 0.3
⑧453215	4.5 $\pm$ 0.25	3.20 $\pm$ 0.20	1.5 $\pm$ 0.20	0.5 $\pm$ 0.3

- ① : SB / PB / NB    ② : SB / PB / NB / HF    ⑦ : SB / PB  
 ③ : SB / PB / NB / GB / UPB / HF / VPB    ⑤ : UPB    ⑥ : SB  
 ④ : SB / PB / NB / GB / UPB    ⑧ : PB / UPB

### Recommended Pattern



Dimensions in mm

TYPE	A	B	C
①060303	0.2 ~ 0.3	0.75 ~ 1.05	0.3
②100505	0.4	1.2 ~ 1.4	0.5
③160808	0.7 ~ 0.8	1.8 ~ 2.0	0.6 ~ 0.8
④201209	1.0 ~ 1.2	2.6 ~ 4.0	1.0 ~ 1.2
⑤201212	1.0 ~ 1.2	2.6 ~ 4.0	1.0 ~ 1.2
④321611	2.0	4.2 ~ 5.2	1.2
⑥321616	2.0	4.2 ~ 5.2	1.2
⑦322513	2.0	5.5 ~ 6.5	1.8
⑧451616	3.0	5.5 ~ 6.5	1.2
⑧453215	3.0	5.5 ~ 6.5	2.4

- \* Don't apply narrower pattern than listed above to PB and UPB. Narrow pattern might cause excessive heat or open circuit.

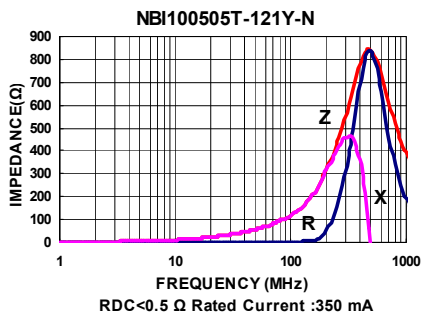
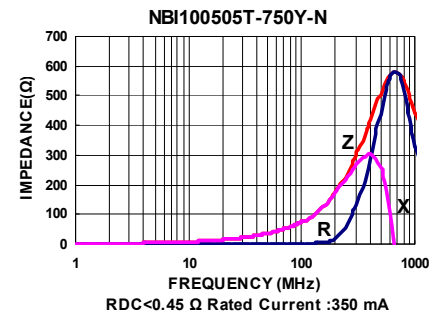
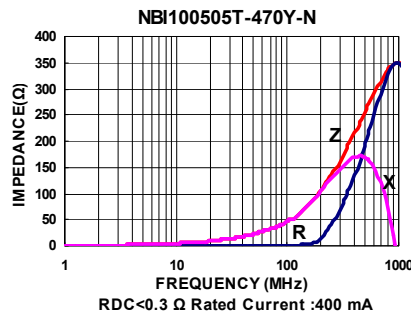
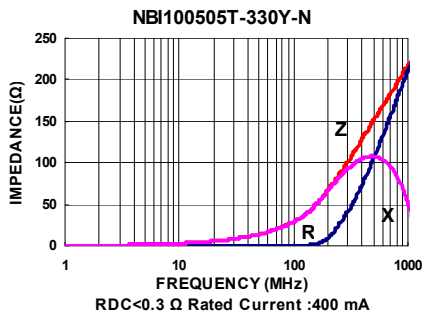
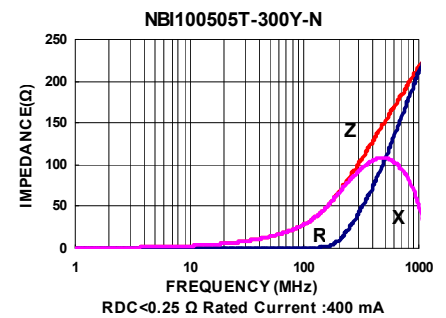
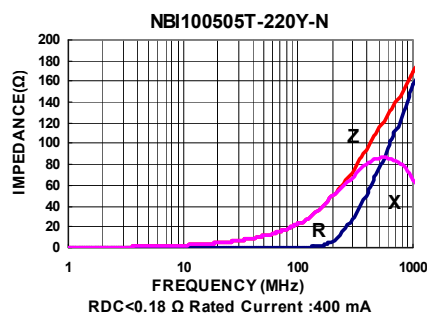
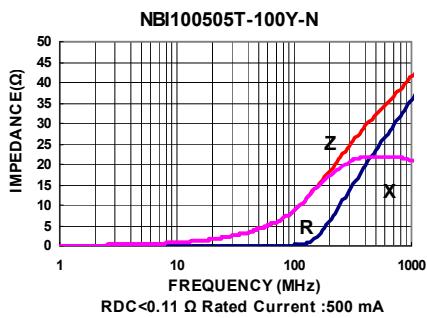
### Dimension Conversion

Code	Dimension in mm (AxBxC)	EIA
060303	0.6X0.3X0.3	0201
100505	1.0X0.5X0.5	0402
160808	1.6x0.8x0.8	0603
201209	2.0x1.2x0.9	0805
201212	2.0x1.2x1.25	0805
321611	3.2x1.6x1.1	1206
321616	3.2x1.6x1.6	1206
322513	3.2x2.5x1.3	1210
451616	4.5x1.6x1.6	1806
453215	4.5x3.2x1.5	1812

## Electrical Characteristics

Part Number	Test Frequency (MHz)	Impedance ( $\Omega \pm 25\%$ )	DC Resistance ( $\Omega$ ) Max	Rated current (mA) Max
NBI100505T-100Y-N	100	10 $\pm$ 30%	0.11	500
NBI100505T-220Y-N	100	22	0.18	400
NBI100505T-300Y-N	100	30	0.25	400
NBI100505T-330Y-N	100	33	0.30	400
NBI100505T-470Y-N	100	47	0.30	400
NBI100505T-750Y-N	100	75	0.45	350
NBI100505T-121Y-N	100	120	0.50	350
NBI100505T-241Y-N	100	240	0.70	250

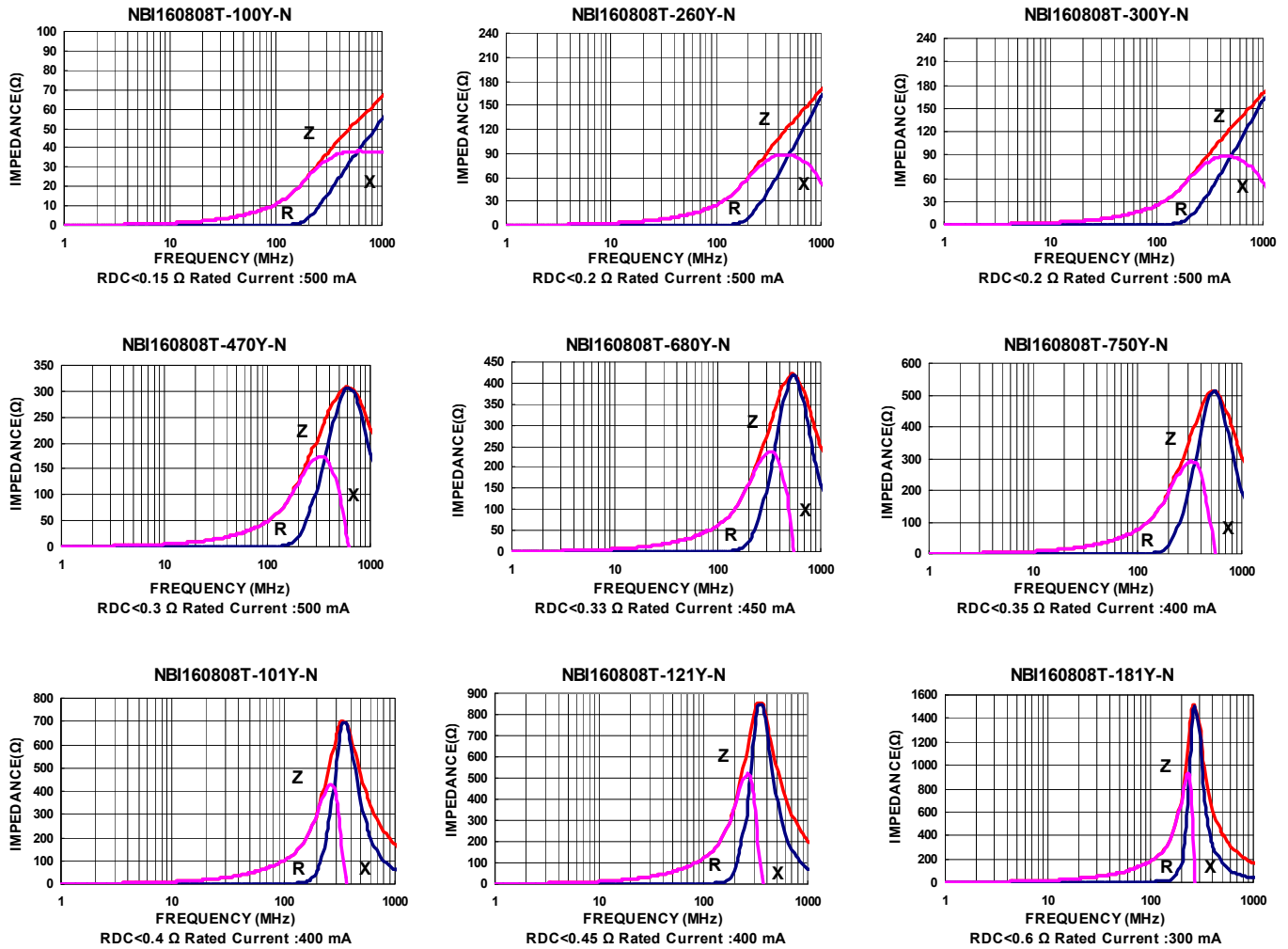
## Test Instruments : Agilent E4991A Impedance / Material Analyzer



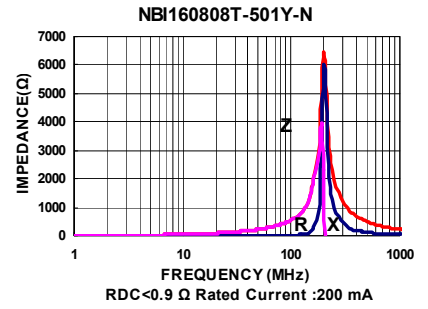
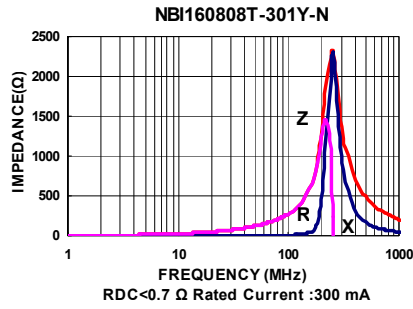
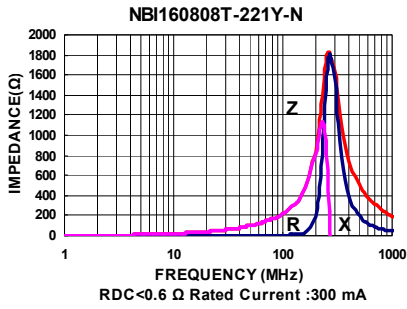
## Electrical Characteristics

Part Number	Test Frequency (MHz)	Impedance ( $\Omega \pm 25\%$ )	DC Resistance ( $\Omega$ ) Max	Rated current (mA) Max
NBI160808T-100Y-N	100	10 $\pm$ 30%	0.15	500
NBI160808T-260Y-N	100	26	0.20	500
NBI160808T-300Y-N	100	30	0.20	500
NBI160808T-470Y-N	100	47	0.30	500
NBI160808T-680Y-N	100	68	0.33	450
NBI160808T-750Y-N	100	75	0.35	400
NBI160808T-101Y-N	100	100	0.40	400
NBI160808T-121Y-N	100	120	0.45	400
NBI160808T-181Y-N	100	180	0.60	300
NBI160808T-221Y-N	100	220	0.60	300
NBI160808T-241Y-N	100	240	0.60	300
NBI160808T-301Y-N	100	300	0.70	300
NBI160808T-501Y-N	100	500	0.90	200

## Test Instruments : Agilent E4991A Impedance / Material Analyzer



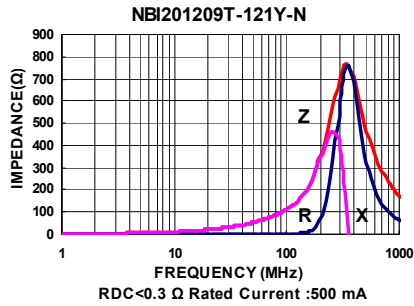
Test Instruments : Agilent E4991A Impedance / Material Analyzer



## Electrical Characteristics

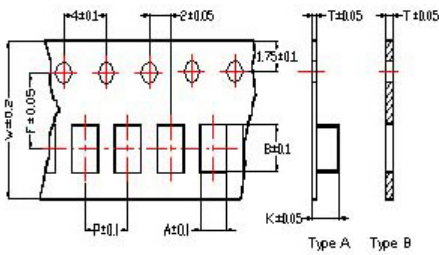
Part Number	Test Frequency (MHz)	Impedance ( $\Omega \pm 25\%$ )	DC Resistance ( $\Omega$ ) Max	Rated current (mA) Max
NBI201209T-800Y-N	100	80	0.30	500
NBI201209T-121Y-N	100	120	0.30	500
NBI201209T-301Y-N	100	300	0.50	400

**Test Instruments :** Agilent E4991A Impedance / Material Analyzer



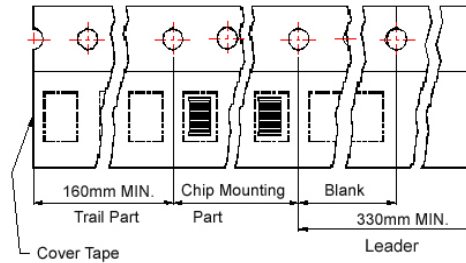
## Packaging Specifications

### Tape Dimensions

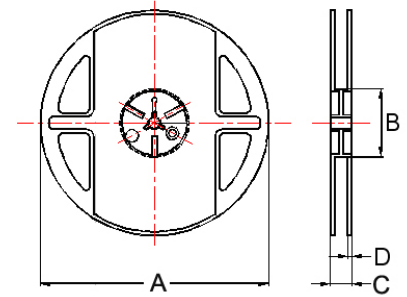


### Tape Material

Carrier Tape: Polycarbonate (Tape A)  
Carrier Tape: Paper (Tape B)  
Cover Tape: Polystyrene



### Reel Dimensions



- ① : SB / PB / NB ② : SB / PB / NB / HF ③ : SB / PB
- ④ : SB / PB / NB / GB / UPB / HF / VPB ⑤ : UPB
- ⑥ : SB / PB / NB / GB / UPB ⑦ : SB ⑧ : PB / UPB

## Dimensions in mm

TYPE	Tape Dimensions								Reel Dimensions				Quantity PCS / REEL
	A	B	T	W	P	F	K	Tape	A	B	C	D	
①060303	0.37	0.67	0.42	8.0	2.0	3.5	-	B	178	60	10	2	15000
②100505	0.65	1.15	0.60	8.0	2.0	3.5	-	B	178	60	12	2	10000
③160808	1.05	1.85	0.95	8.0	4.0	3.5	-	B	178	60	12	2	4000
④201209	1.50	2.30	0.97	8.0	4.0	3.5	-	B	178	60	12	2	4000
⑤201212	1.35	2.25	0.22	8.0	4.0	3.5	1.35	A	178	60	12	2	3000
④321611	1.88	3.50	0.22	8.0	4.0	3.5	1.27	A	178	60	12	2	3000
⑥321616	1.88	3.53	0.22	8.0	4.0	3.5	1.80	A	178	60	12	2	2000
⑦322513	2.77	3.42	0.22	8.0	4.0	3.5	1.55	A	178	60	12	2	2500
⑧451616	1.93	4.95	0.24	12	4.0	5.5	1.93	A	178	60	14	2	2000
⑨453215	3.66	4.95	0.24	12	8.0	5.5	1.85	A	178	60	14	2	1000