

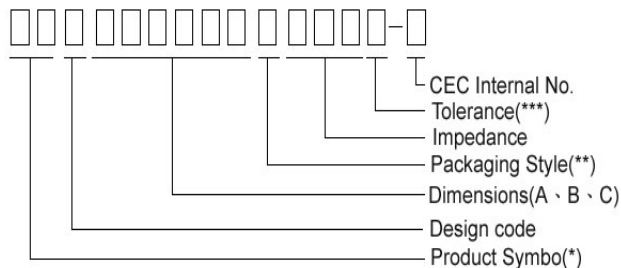
## Multilayer Ferrite Chip beads



Chilisin offers hundreds of multi-layered ferrite chip beads with various sizes, frequency characteristics, and a wide range of impedance values to provide powerful solutions for EMI problems.

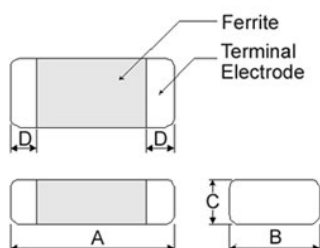
Three formulas of ferrite compose several types of EMI suppression chip beads that are classified into six categories- SB, GB, PB, UPB, NB, HF, and HP series.

### Product Identification



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

### Shapes and Dimensions



Dimensions in mm

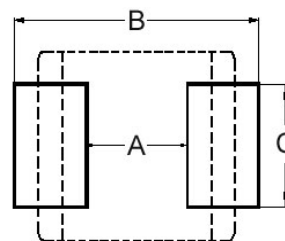
TYPE	A	B	C	D
①060303	0.6 $\pm$ 0.03	0.30 $\pm$ 0.03	0.3 $\pm$ 0.03	0.15 $\pm$ 0.05
②100505	1.0 $\pm$ 0.10	0.50 $\pm$ 0.10	0.5 $\pm$ 0.10	0.25 $\pm$ 0.10
③160808	1.6 $\pm$ 0.15	0.80 $\pm$ 0.15	0.8 $\pm$ 0.15	0.3 $\pm$ 0.2
④201209	2.0 $\pm$ 0.20	1.25 $\pm$ 0.20	0.9 $\pm$ 0.20	0.5 $\pm$ 0.3
⑤201212	2.0 $\pm$ 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    ② : SB / PB / NB / HF    ④ : SB / PB / NB / GB / UPB \*  
 ③ : SB / PB / NB / GB / UPB / HF / HP    ⑤ : UPB    ⑥ : SB / GB  
 ⑦ : SB / PB / GB    ⑧ : SB / PB / GB / UPB

### 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
321611	3.2x1.6x.1.1	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

### Recommended Pattern



Dimensions in mm

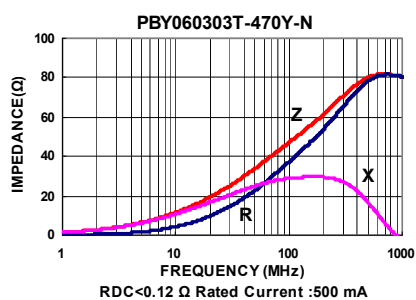
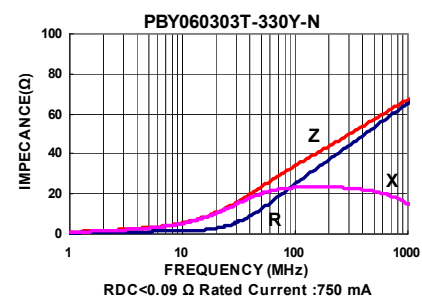
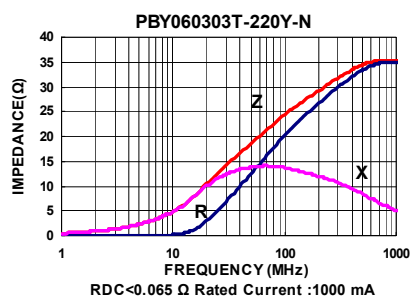
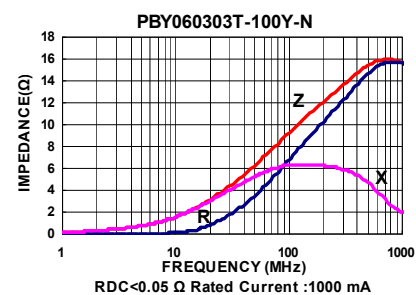
TYPE	A	B	C
①060303	0.2 ~ 0.3	0.75 ~ 1.05	0.3
②100505	0.4	1.2 ~ 1.4	0.5
③160808	0.7 ~ 0.8	1.8 ~ 2.0	0.6 ~ 0.8
④201209	1.0 ~ 1.2	2.6 ~ 4.0	1.0 ~ 1.2
⑤201212	1.0 ~ 1.2	2.6 ~ 4.0	1.0 ~ 1.2
④321611	2.0	4.2 ~ 5.2	1.2
⑥321616	2.0	4.2 ~ 5.2	1.2
⑦322513	2.0	5.5 ~ 6.5	1.8
⑧451616	3.0	5.5 ~ 6.5	1.2
⑧453215	3.0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

## Electrical Characteristics

Part Number	Test Frequency (MHz)	Impedance ( $\Omega \pm 25\%$ )	D.C. Resistance ( $\Omega$ ) Max	Rated current (mA) Max
PBY060303T-100Y-N	100	10	0.050	1000
PBY060303T-220Y-N	100	22	0.065	1000
PBY060303T-330Y-N	100	33	0.090	750
PBY060303T-470Y-N	100	47	0.120	500

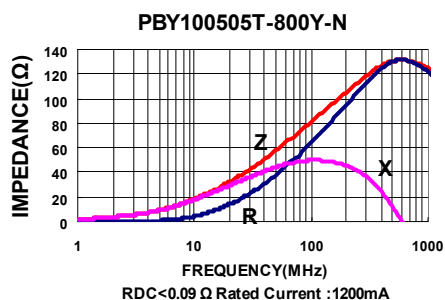
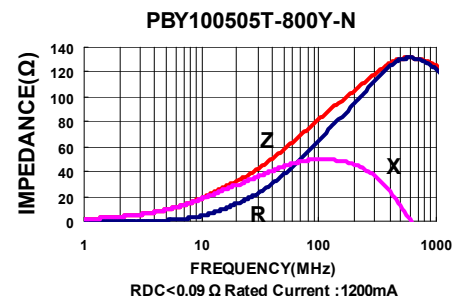
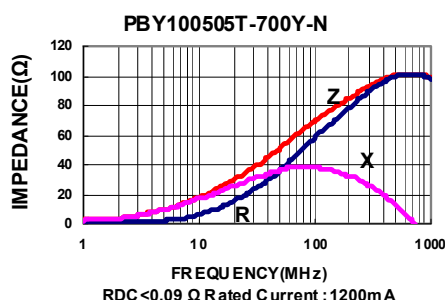
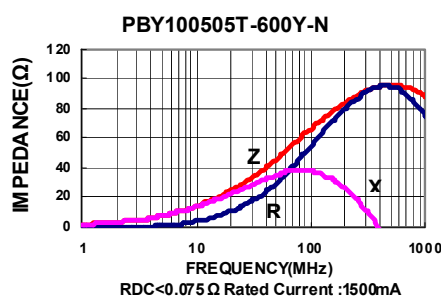
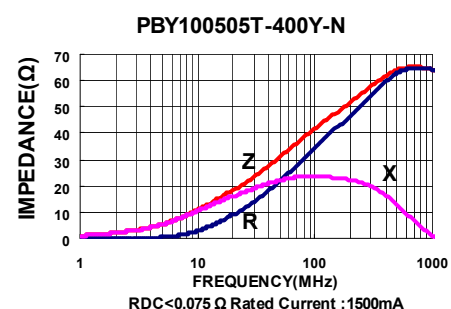
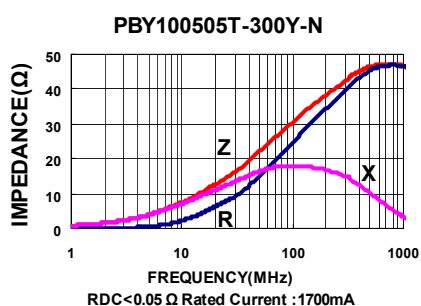
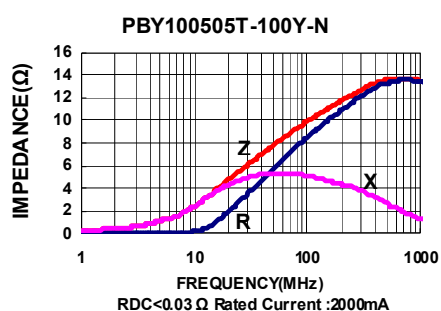
**Test Instruments :** HP4291A Impedance / Material Analyzer



## Electrical Characteristics

Part Number	Test Frequency (MHz)	Impedance ( $\Omega \pm 25\%$ )	D.C. Resistance ( $\Omega$ ) Max	Rated current (mA) Max
PBY100505T-070Y-N	100	7	0.03	2000
PBY100505T-100Y-N	100	10	0.03	2000
PBY100505T-300Y-N	100	30	0.05	1700
PBY100505T-400Y-N	100	40	0.075	1500
PBY100505T-600Y-N	100	60	0.075	1500
PBY100505T-700Y-N	100	70	0.09	1200
PBY100505T-800Y-N	100	80	0.09	1200
PBY100505T-121Y-N	100	120	0.09	1200

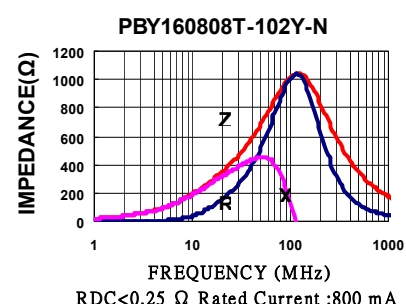
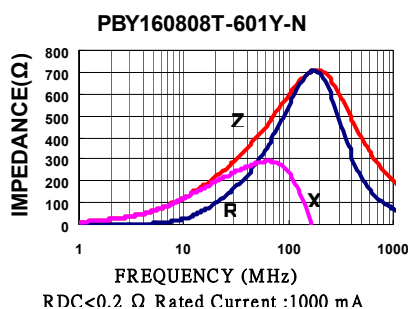
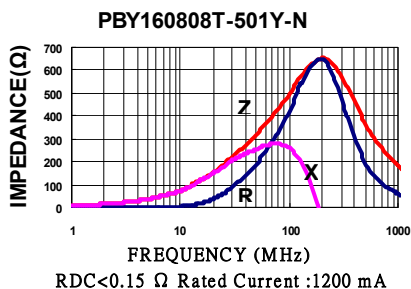
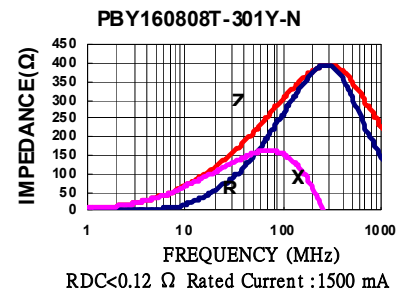
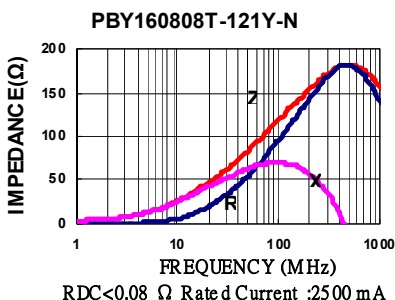
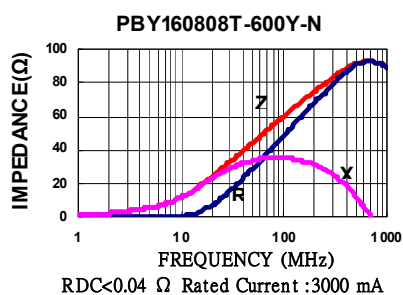
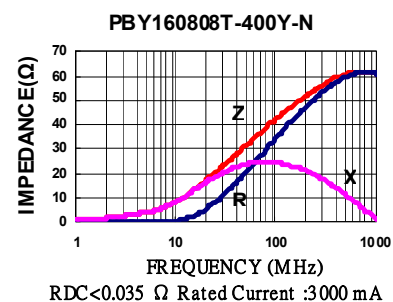
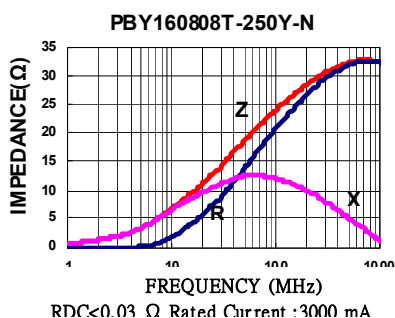
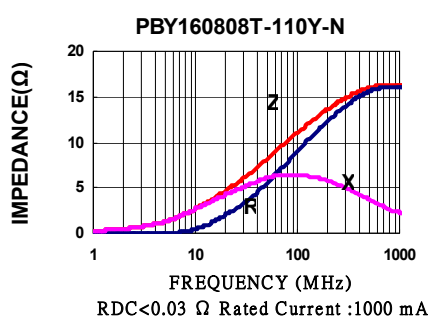
## Test Instruments : HP4291A Impedance / Material Analyzer



## Electrical Characteristics

Part Number	Test Frequency (MHz)	Impedance ( $\Omega \pm 25\%$ )	D.C. Resistance ( $\Omega$ ) Max	Rated current (mA) Max
PBY160808T-060Y-N	100	6	0.080	2500
PBY160808T-070Y-N	100	7	0.085	2000
PBY160808T-110Y-N	100	11	0.020	4000
PBY160808T-250Y-N	100	25	0.030	3000
PBY160808T-400Y-N	100	40	0.035	3000
PBY160808T-600Y-N	100	60	0.040	3000
PBY160808T-121Y-N	100	120	0.080	2500
PBY160808T-151Y-N	100	150	0.085	2000
PBY160808T-181Y-N	100	180	0.090	2000
PBY160808T-201Y-N	100	200	0.095	2000
PBY160808T-301Y-N	100	300	0.120	1500
PBY160808T-501Y-N	100	500	0.150	1200
PBY160808T-601Y-N	100	600	0.200	1000
PBY160808T-102Y-N	100	1000	0.250	800
PBY160808T-122Y-N	100	1200	0.250	800
PBY160808T-152Y-N	100	1500	0.400	500

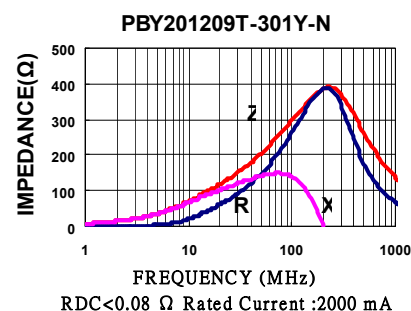
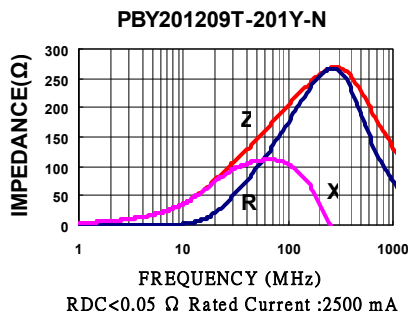
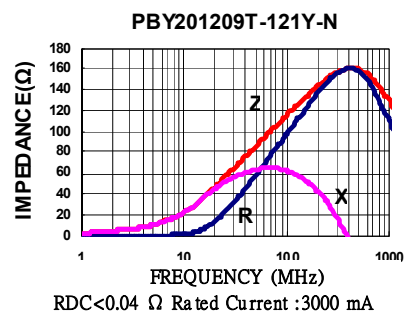
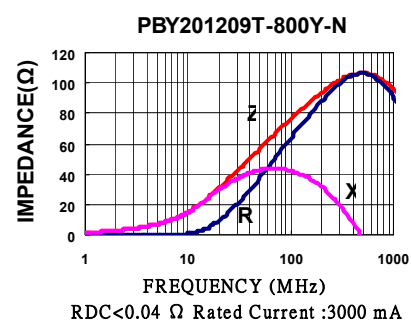
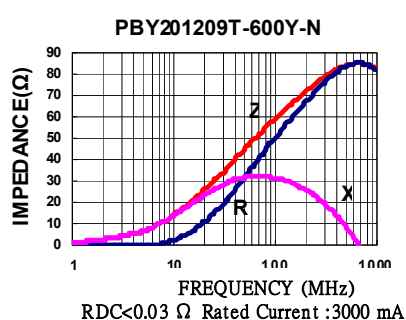
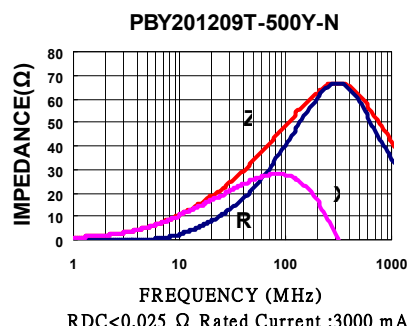
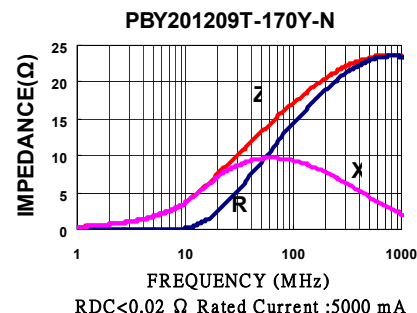
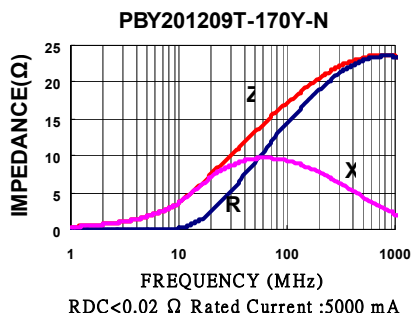
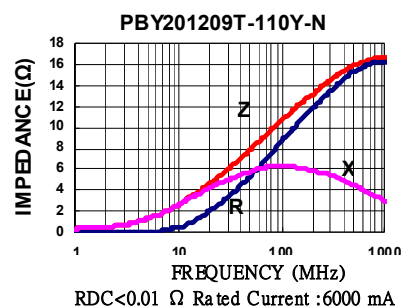
Test Instruments : HP4291A Impedance / Material Analyzer



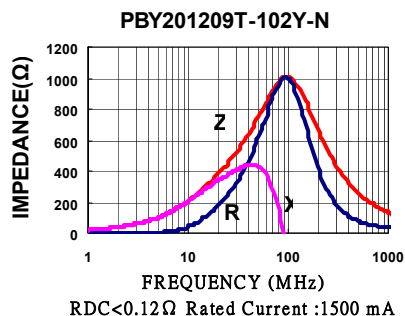
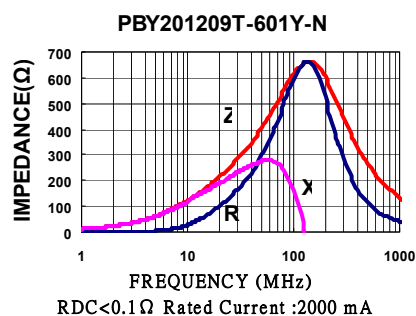
## Electrical Characteristics

Part Number	Test Frequency (MHz)	Impedance ( $\Omega \pm 25\%$ )	D.C. Resistance ( $\Omega$ ) Max	Rated current (mA) Max
PBY201209T-070Y-N	100	7	0.01	6000
PBY201209T-110Y-N	100	11	0.01	6000
PBY201209T-170Y-N	100	17	0.02	5000
PBY201209T-300Y-N	100	30	0.015	4000
PBY201209T-500Y-N	100	50	0.025	3000
PBY201209T-600Y-N	100	60	0.03	3000
PBY201209T-800Y-N	100	80	0.04	3000
PBY201209T-121Y-N	100	120	0.04	3000
PBY201209T-201Y-N	100	200	0.05	2500
PBY201209T-301Y-N	100	300	0.08	2000
PBY201209T-401Y-N	100	400	0.10	2000
PBY201209T-601Y-N	100	600	0.10	2000
PBY201209T-751Y-N	100	750	0.12	1500
PBY201209T-102Y-N	100	1000	0.12	1500
PBY201209T-152Y-N	100	1500	0.30	1000

## Test Instruments : HP4291A Impedance / Material Analyzer



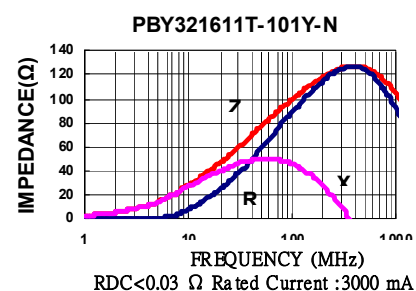
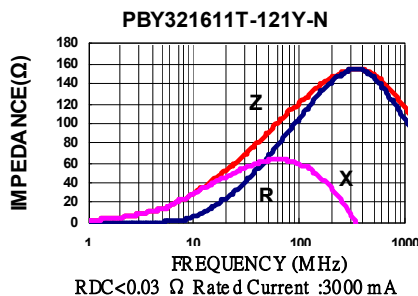
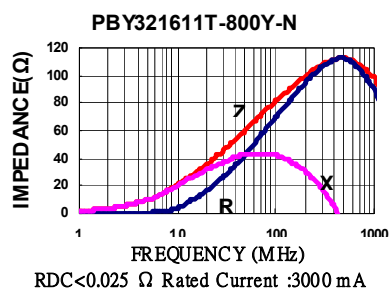
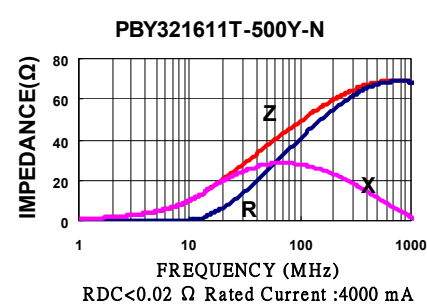
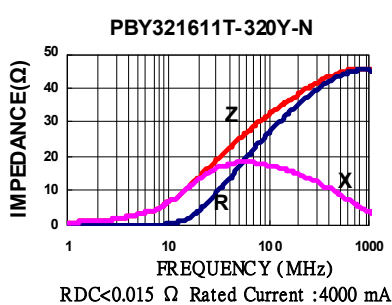
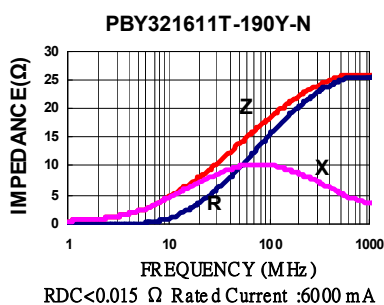
**Test Instruments :** HP4291A Impedance / Material Analyzer



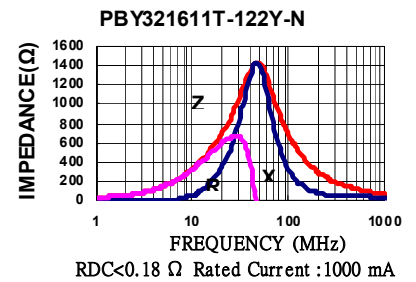
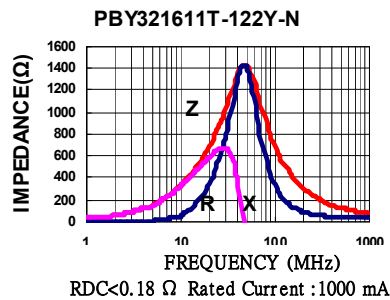
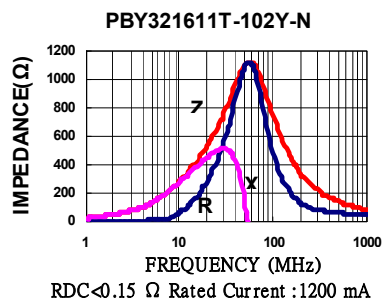
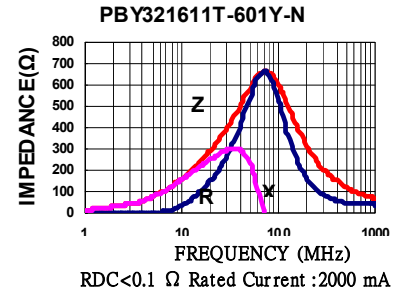
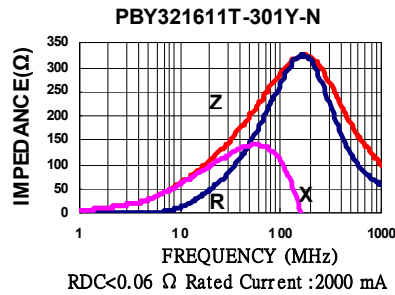
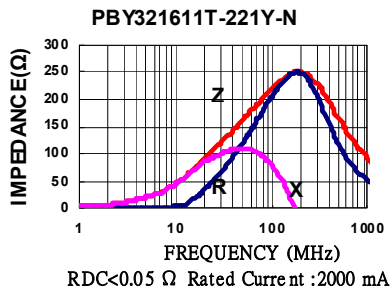
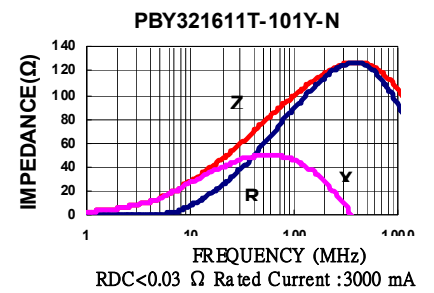
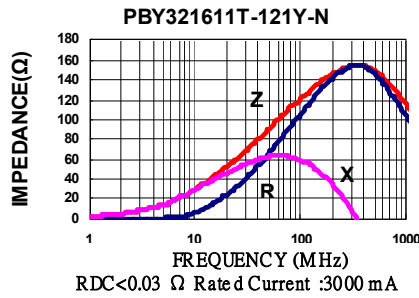
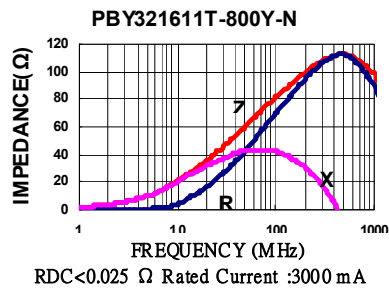
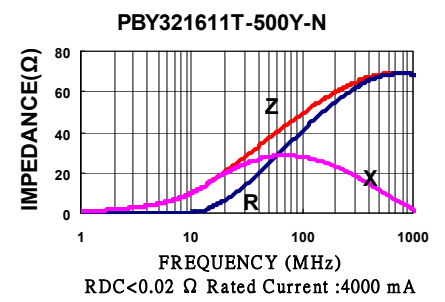
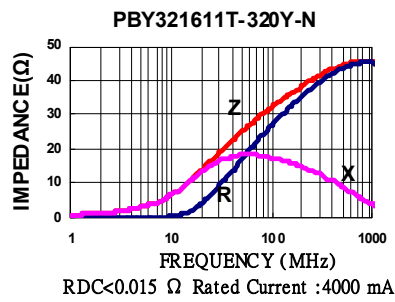
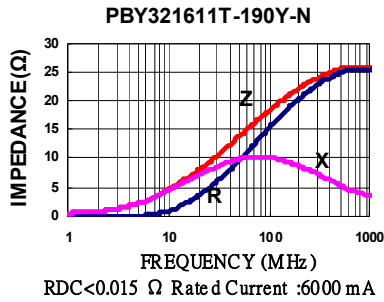
## Electrical Characteristics

Part Number	Test Frequency (MHz)	Impedance (Ω±25%)	DC Resistance (Ω) Max	Rated current (mA) Max
PBX321611T-080Y-N	100	8	0.015	6000
PBX321611T-110Y-N	100	11	0.015	6000
PBX321611T-190Y-N	100	19	0.015	6000
PBX321611T-320Y-N	100	32	0.015	4000
PBX321611T-500Y-N	100	50	0.020	4000
PBX321611T-800Y-N	100	80	0.025	3000
PBX321611T-101Y-N	100	100	0.030	3000
PBX321611T-121Y-N	100	120	0.030	3000
PBX321611T-221Y-N	100	220	0.050	2000
PBX321611T-301Y-N	100	300	0.060	2000
PBX321611T-601Y-N	100	600	0.100	2000
PBX321611T-102Y-N	50	1000	0.150	1200
PBX321611T-122Y-N	50	1200	0.180	1000
PBX321611T-152Y-N	50	1500	0.200	800

**Test Instruments :** HP4291A Impedance / Material Analyzer



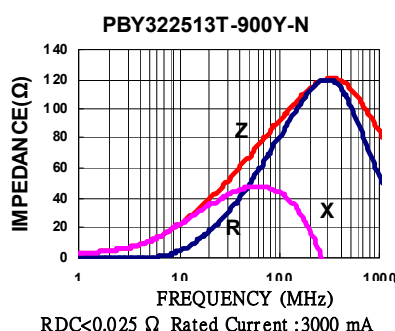
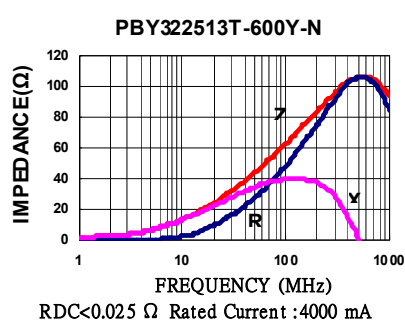
**Test Instruments :** HP4291A Impedance / Material Analyzer



## Electrical Characteristics

Part Number	Test Frequency (MHz)	Impedance ( $\Omega \pm 25\%$ )	D.C. Resistance ( $\Omega$ ) Max	Rated current (mA) Max
PBY322513T-190Y-N	100	19	0.025	4000
PBY322513T-300Y-N	100	30	0.025	4000
PBY321611T-320Y-N	100	32	0.025	4000
PBY321611T-500Y-N	100	50	0.025	4000
PBY322513T-600Y-N	100	60	0.025	4000
PBY322513T-900Y-N	100	90	0.025	3000
PBY322513T-121Y-N	100	120	0.030	2500

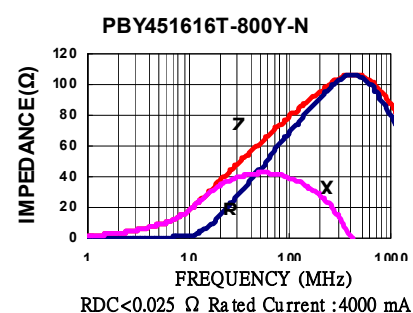
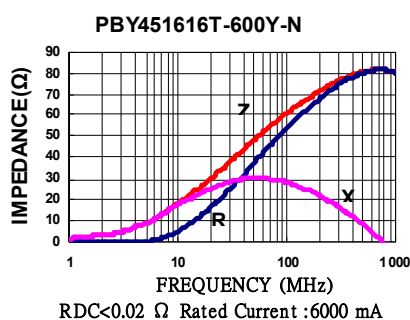
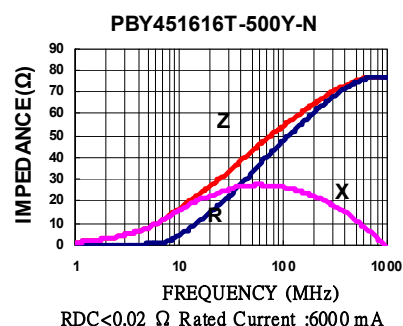
## Test Instruments : HP4291A Impedance / Material Analyzer



## Electrical Characteristics

Part Number	Test Frequency (MHz)	Impedance ( $\Omega \pm 25\%$ )	D.C. Resistance ( $\Omega$ ) Max	Rated current (mA) Max
PBY451616T-190Y-N	100	19	0.020	6000
PBY451616T-400Y-N	100	40	0.020	6000
PBY451616T-500Y-N	100	50	0.020	6000
PBY451616T-600Y-N	100	60	0.020	5000
PBY451616T-800Y-N	100	80	0.025	4000
PBY451616T-900Y-N	100	90	0.100	2000
PBY451616T-151Y-N	100	150	0.100	2000
PBY451616T-301Y-N	100	300	0.100	2000
PBY451616T-471Y-N	100	470	0.100	2000
PBY451616T-601Y-N	100	600	0.100	2000
PBY451616T-102Y-N	100	1000	0.100	2000
PBY451616T-132Y-N	100	1300	0.100	2000

## Test Instruments : HP4291A Impedance / Material Analyzer

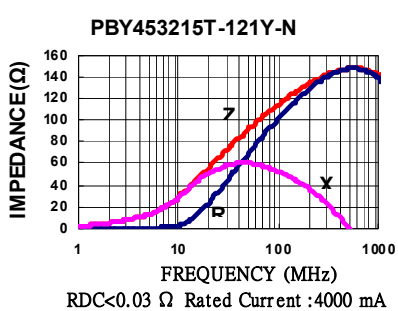
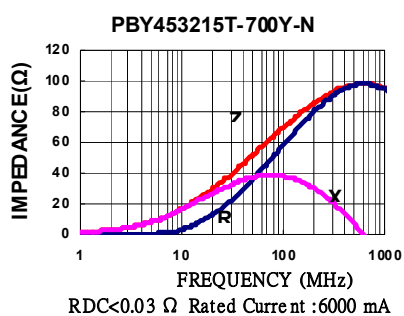




## Electrical Characteristics

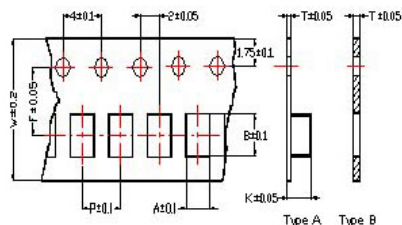
Part Number	Test Frequency (MHz)	Impedance ( $\Omega \pm 25\%$ )	D.C. Resistance ( $\Omega$ ) Max	Rated current (mA) Max
PBY453215T-190Y-N	100	19	0.030	6000
PBY453215T-300Y-N	100	30	0.030	6000
PBY453215T-500Y-N	100	50	0.030	6000
PBY453215T-600Y-N	100	60	0.030	6000
PBY453215T-700Y-N	100	70	0.030	6000
PBY453215T-121Y-N	100	120	0.030	4000
PBY453215T-151Y-N	100	150	0.030	4000
PBY453215T-601Y-N	100	600	0.028	4000
PBY453215T-132Y-N	100	1300	0.150	1500

**Test Instruments :** HP4291A Impedance / Material Analyzer

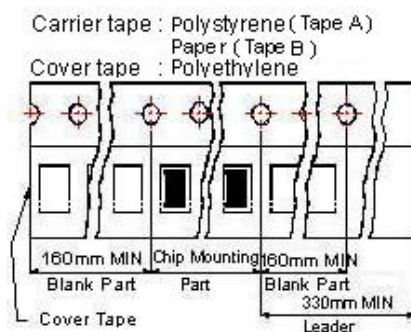


## Packaging Specifications

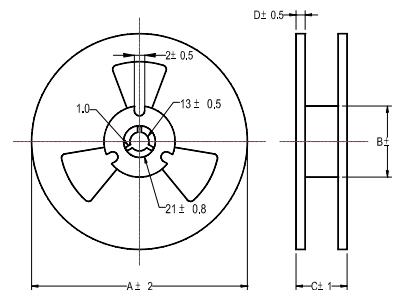
Tape Dimensions



Tape Material



Reel Dimensions



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

## Dimensions in mm

TYPE	Tape Dimensions								Reel Dimensions				Quantity PCS / REEL
	A	B	T	W	P	F	K	Tape Type.	A	B	C	D	
①060303	0.38	0.67	0.45	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
⑧453215	3.66	4.95	0.24	12	8.0	5.5	1.85	A	178	60	14	2	1000