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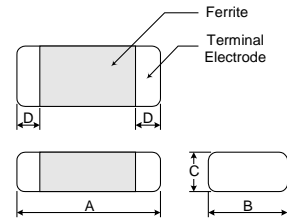
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# MULTILAYER FERRITE CHIP BEADS

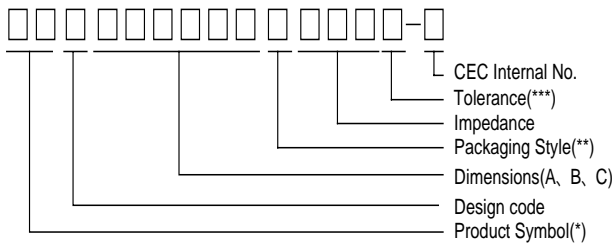
CLS offers hundreds of multi-layered ferrite chip beads with various sizes, frequency characteristics, and a board range of impedance values to provide a powerful solutions for EMI problems.

Three formulas of ferrite comprise several types of EMI suppression chip beads that are classified into six categories- SB, GB, PB, UP, NB and BA series.

## Shapes and Dimensions



## Product Identification



\* SB, PB, UP, NB, GB  
 \*\* T : Tape and Reel ; B : Bulk  
 \*\*\* Y = ± 25%      M = ± 20%

## Dimensions in mm

TYPE	A	B	C	D
①B100505	1.0±0.15	0.50±0.15	0.5±0.15	0.25±0.15
②B160808	1.6±0.20	0.80±0.15	0.8±0.15	0.3±0.2
②B201209	2.0±0.20	1.25±0.20	0.9±0.20	0.5±0.3
②B321611	3.2±0.20	1.60±0.20	1.1±0.20	0.5±0.3
③B321616	3.2±0.20	1.60±0.20	1.6±0.20	0.5±0.3
③B322513	3.2±0.20	2.50±0.20	1.3±0.20	0.5±0.3
④B451616	4.5±0.25	1.60±0.20	1.6±0.20	0.5±0.3
④B453215	4.5±0.25	3.20±0.20	1.5±0.20	0.5±0.3

① : S / P / N      ② : S / P / U / N / G  
 ③ : S / G          ④ : S / P / G

## SB series, for general use

### Features

- Standard type used to suppress lower-frequency, lower current signals.
- Impedance over a broad frequency range.
- Suitable for flow and reflow soldering
- Available in 8 sizes.

### Applications

- I/O ports, DC power lines, and Signal lines
- computer and peripheral products
- consumer electronic products

## Electrical Characteristics

Part Number	Test Frequency (MHz)	Impedance ( ±25%)	DC Resistance ( ) max.	Rated current (mA) max.
SBY100505T-060Y-S	100	6	0.05	500
SBY100505T-100Y-S	100	10	0.05	500
SBY100505T-400Y-S	100	40	0.30	300
SBY100505T-800Y-S	100	80	0.40	200
SBY100505T-121Y-S	100	120	0.50	200
SBY100505T-241Y-S	100	240	0.50	200
SBY100505T-481Y-S	100	480	0.80	100
SBY100505T-601Y-S	100	600	1.00	100

# MULTILAYER FERRITE CHIP BEADS

## Electrical Characteristics

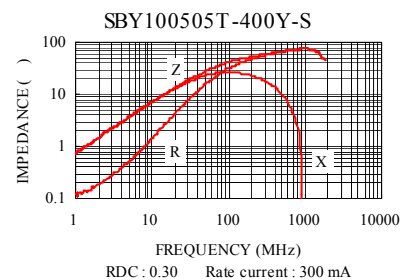
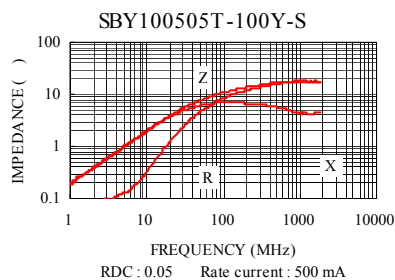
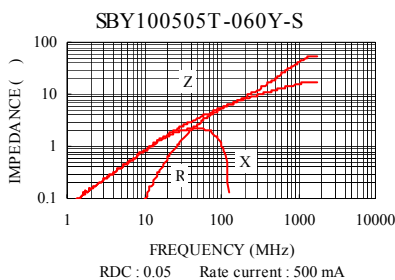
Part Number	Test Frequency (MHz)	Impedance ( ±25%)	DC Resistance ( ) max.	Rated current (mA) max.
SBK160808T-110Y-S	100	11	0.05	500
SBK160808T-190Y-S	100	19	0.08	500
SBK160808T-300Y-S	100	30	0.10	400
SBK160808T-400Y-S	100	40	0.10	400
SBK160808T-600Y-S	100	60	0.10	300
SBK160808T-800Y-S	100	80	0.15	300
SBK160808T-121Y-S	100	120	0.25	300
SBK160808T-221Y-S	100	220	0.30	200
SBK160808T-301Y-S	100	300	0.40	200
SBK160808T-451Y-S	100	450	0.50	200
SBK160808T-601Y-S	100	600	0.50	200
SBK160808T-751Y-S	100	750	0.70	200
SBK160808T-102Y-S	100	1000	0.70	200
SBK160808T-152Y-S	100	1500	1.00	50
SBK160808T-222Y-S	100	2200	1.20	50
SBK160808T-272T-S	100	2700	1.30	50
SBY201209T-070Y-S	100	7	0.10	600
SBY201209T-090Y-S	100	9	0.10	600
SBY201209T-110Y-S	100	11	0.10	600
SBY201209T-170Y-S	100	17	0.10	600
SBY201209T-320Y-S	100	32	0.10	600
SBK201209T-600Y-S	100	60	0.15	500
SBK201209T-700Y-S	100	70	0.15	500
SBK201209T-800Y-S	100	80	0.15	500
SBK201209T-121Y-S	100	120	0.25	300
SBK201209T-151Y-S	100	150	0.25	300
SBK201209T-221Y-S	100	220	0.30	300
SBK201209T-301Y-S	100	300	0.30	300
SBK201209T-401Y-S	100	400	0.30	300
SBK201209T-501Y-S	100	500	0.40	300
SBK201209T-601Y-S	100	600	0.40	300
SBK201209T-751Y-S	100	750	0.50	200
SBK201209T-102Y-S	100	1000	0.50	200
SBK201209T-152Y-S	100	1500	0.60	200
SBK201209T-202Y-S	100	2000	0.80	100
SBK201209T-222Y-S	100	2200	1.00	100
SBK201209T-252Y-S	100	2500	1.0	100
SBK201209T-272Y-S	100	2700	1.5	100
SBY321611T-190Y-S	100	19	0.05	600
SBY321611T-260Y-S	100	26	0.05	600
SBY321611T-320Y-S	100	32	0.05	600
SBY321611T-500Y-S	100	50	0.10	500

# MULTILAYER FERRITE CHIP BEADS

## Electrical Characteristics

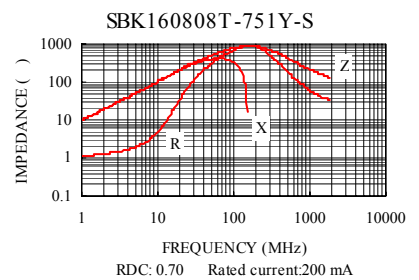
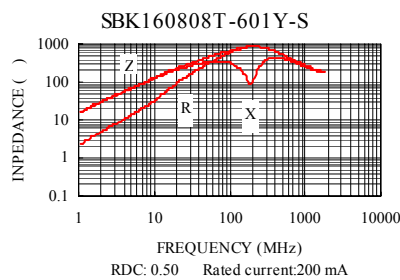
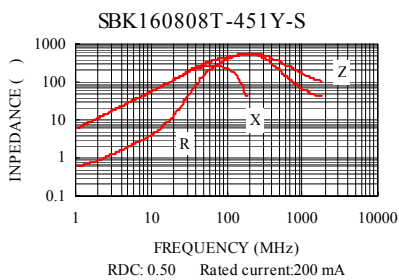
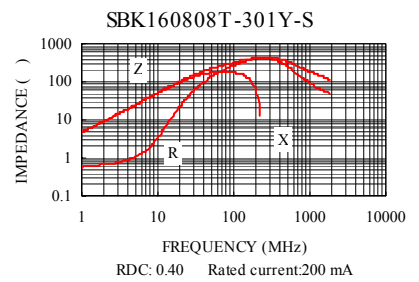
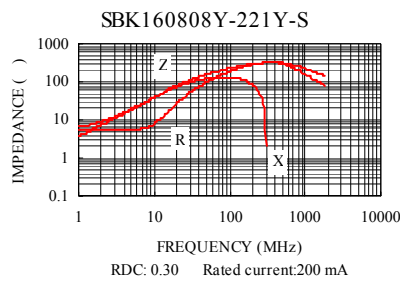
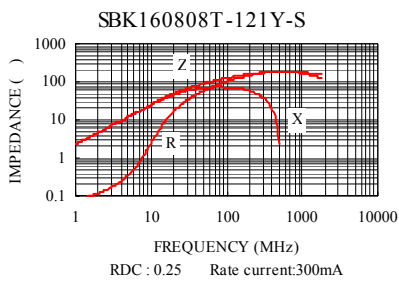
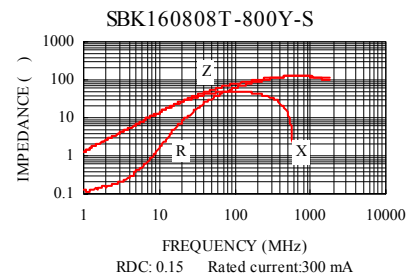
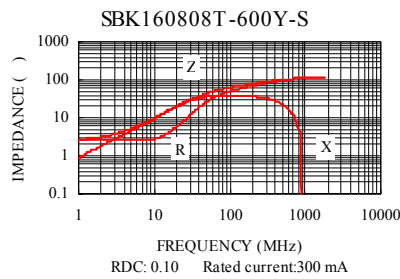
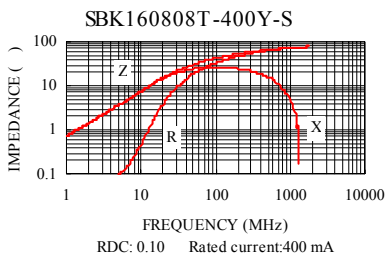
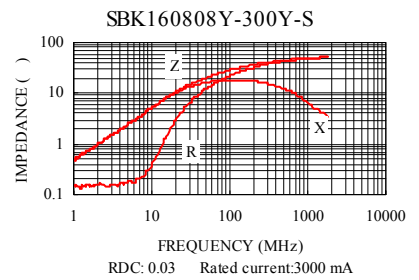
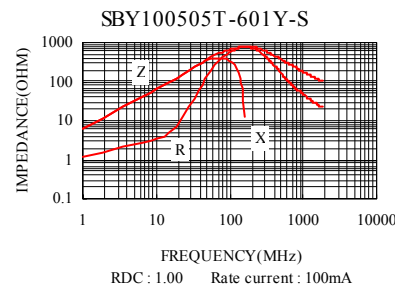
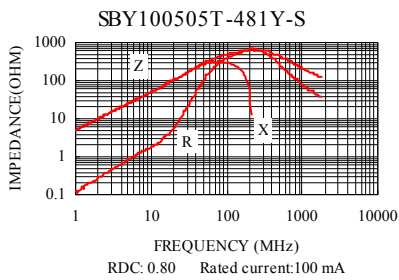
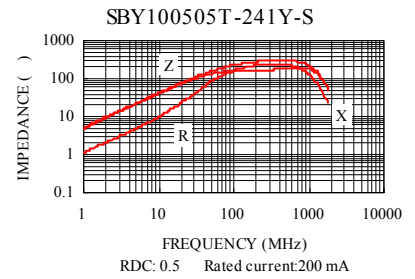
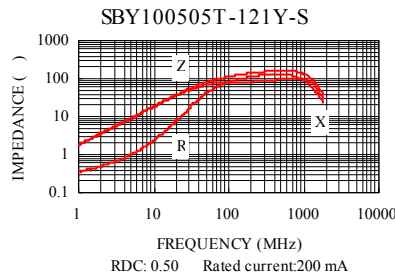
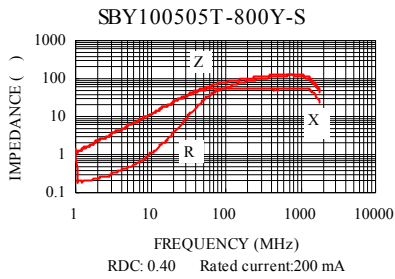
Part Number	Test Frequency (MHz)	Impedance ( ±25%)	DC Resistance ( ) max.	Rated current (mA) max.
SBY321611T-600Y-S	100	60	0.10	500
SBK321611T-700Y-S	100	70	0.10	500
SBK321611T-900Y-S	100	90	0.15	500
SBK321611T-121Y-S	100	120	0.15	500
SBK321611T-151Y-S	100	150	0.15	500
SBK321611T-201Y-S	100	200	0.20	400
SBK321611T-401Y-S	100	400	0.20	400
SBK321611T-501Y-S	100	500	0.20	400
SBK321611T-601Y-S	100	600	0.30	400
SBK321611T-102Y-S	50	1000	0.40	200
SBK321611T-122Y-S	50	1200	0.40	200
SBK321611T-152Y-S	50	1500	0.45	200
SBK321611T-202Y-S	30	2000	0.60	200
SBK321611T-272Y-S	30	2700	0.60	200
SBY321616T-250Y-S	100	25	0.10	500
SBY321616T-600Y-S	100	60	0.20	500
SBK321616T-700Y-S	100	70	0.20	500
SBY322513T-320Y-S	100	32	0.20	500
SBY322513T-600Y-S	100	60	0.20	500
SBY322513T-900Y-S	100	90	0.20	500
SBY451616T-500Y-S	100	50	0.20	600
SBY451616T-600Y-S	100	60	0.20	600
SBY451616T-800Y-S	100	80	0.20	600
SBY451616T-101Y-S	100	100	0.30	500
SBK451616T-151Y-S	100	150	0.30	500
SBK451616T-171Y-S	100	170	0.30	500
SBY453215T-700Y-S	100	70	0.30	500
SBY453215T-121Y-S	100	120	0.30	500

## Test Instruments : HP4291A Impedance / Material Analyzer



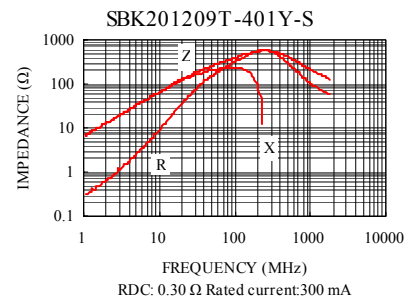
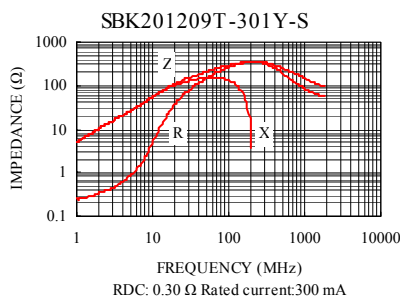
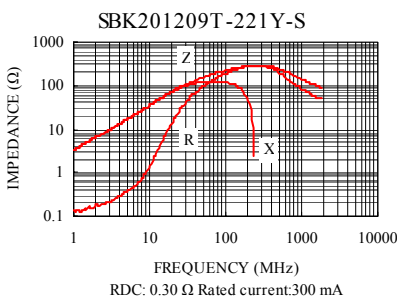
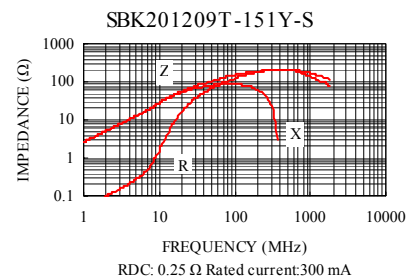
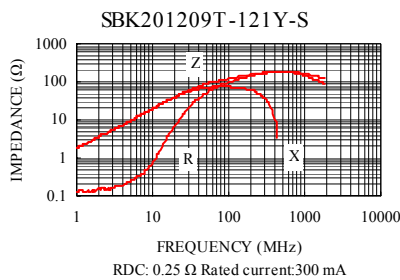
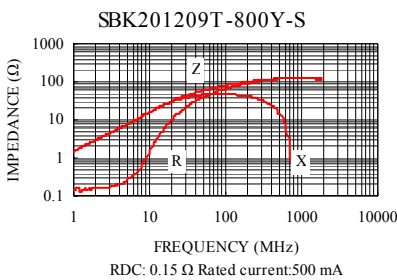
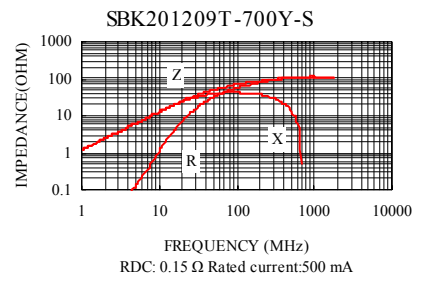
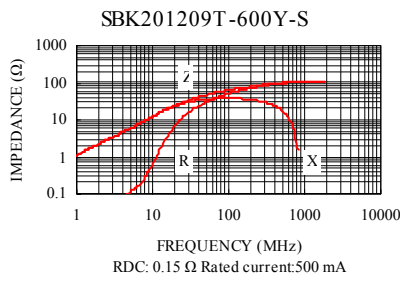
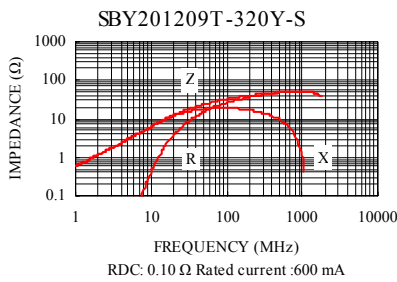
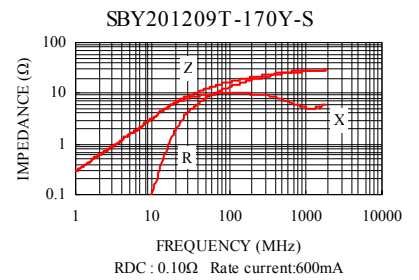
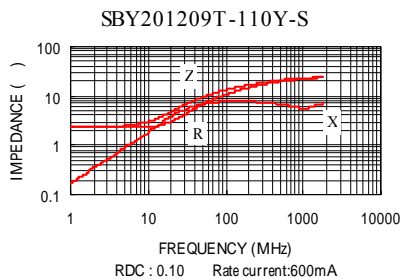
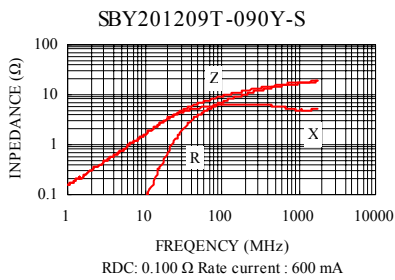
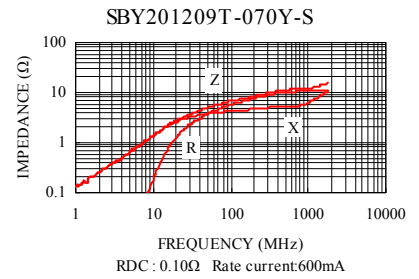
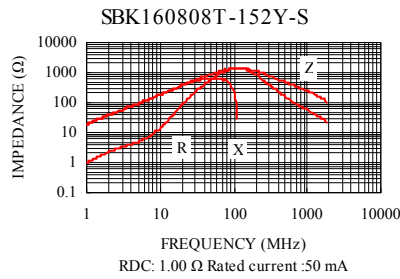
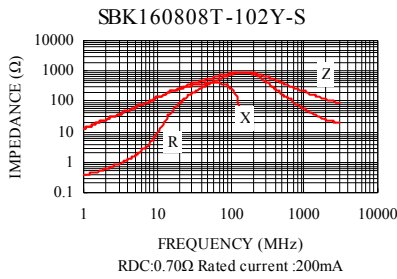
# MULTILAYER FERRITE CHIP BEADS

## Test Instruments : HP4291A Impedance / Material Analyzer



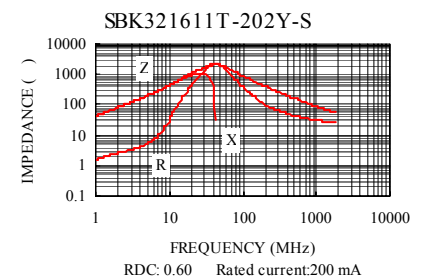
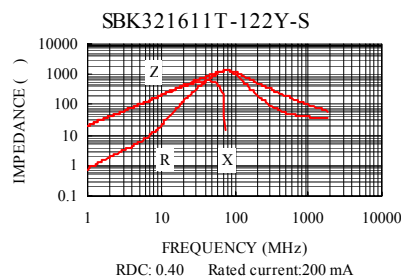
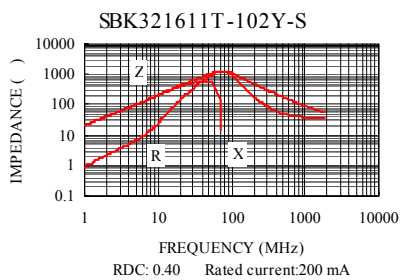
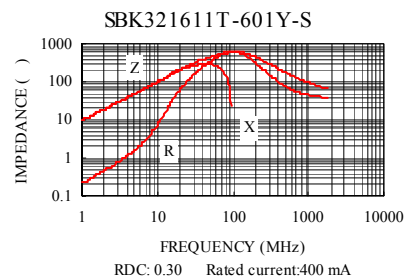
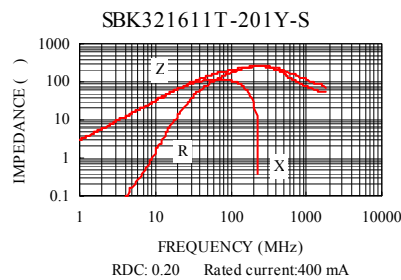
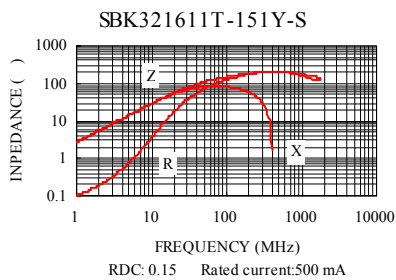
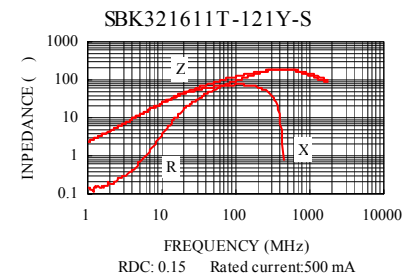
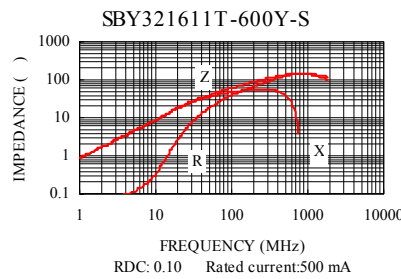
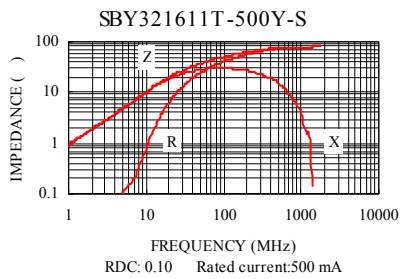
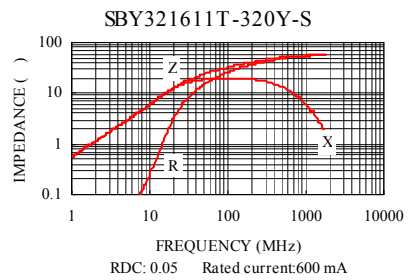
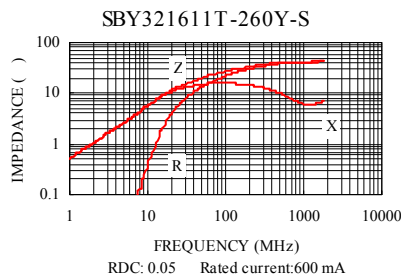
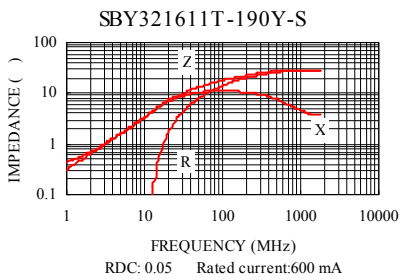
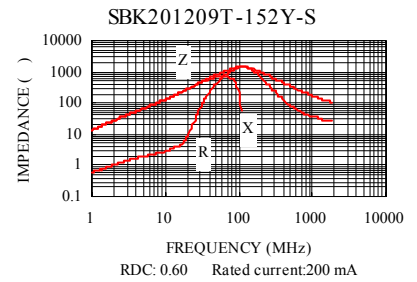
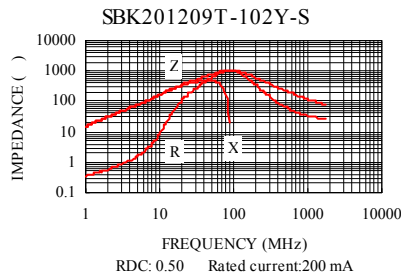
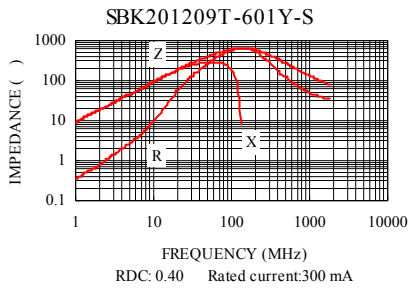
# MULTILAYER FERRITE CHIP BEADS

## Test Instruments : HP4291A Impedance / Material Analyzer



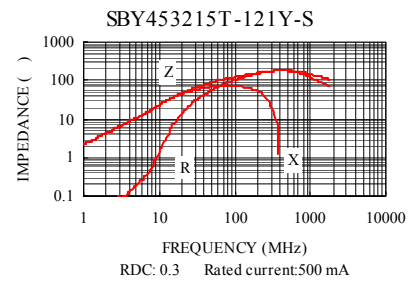
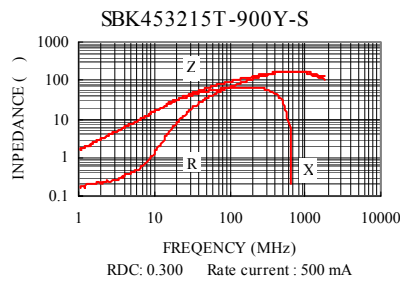
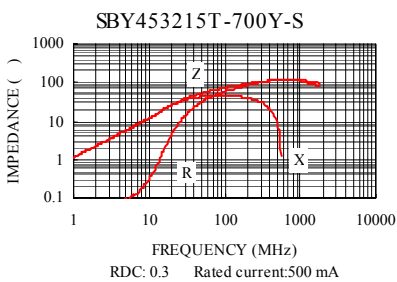
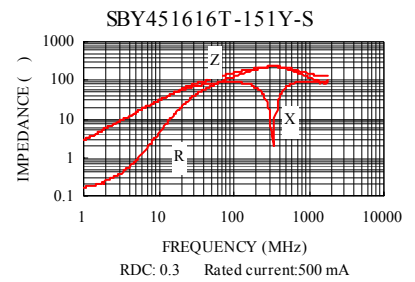
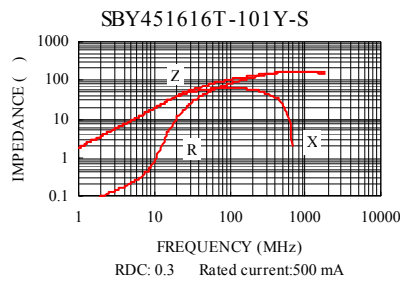
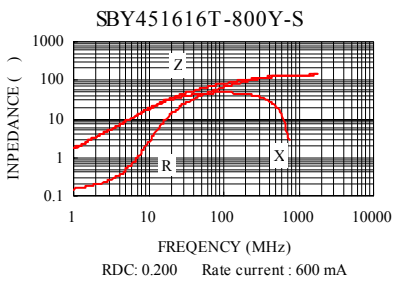
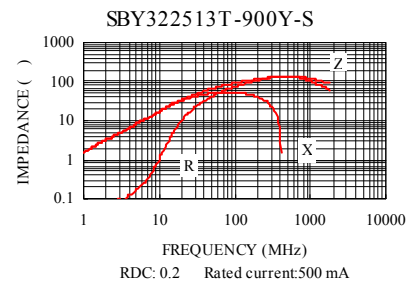
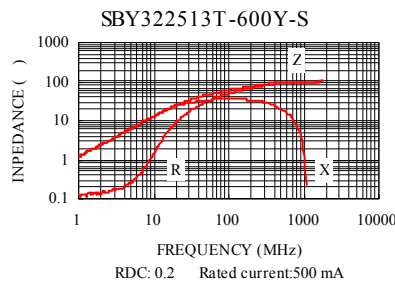
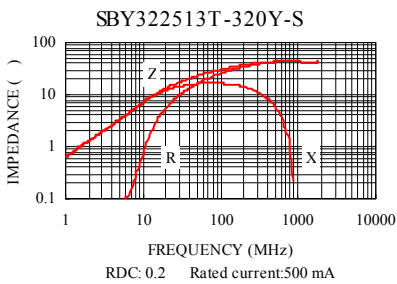
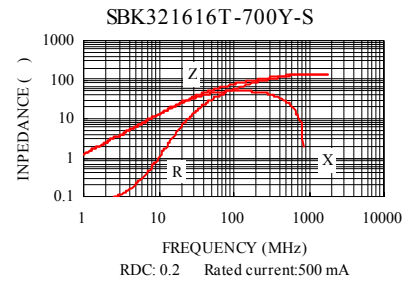
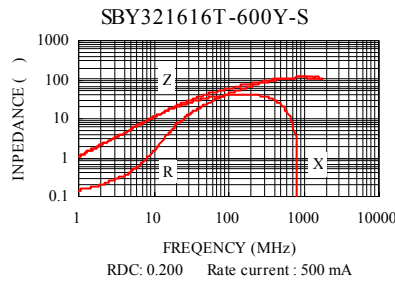
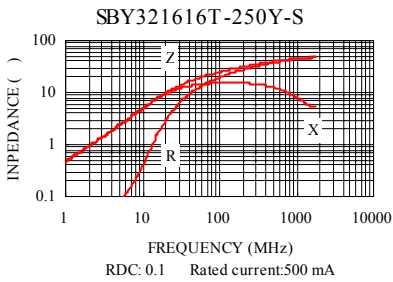
# MULTILAYER FERRITE CHIP BEADS

## Test Instruments : HP4291A Impedance / Material Analyzer



# MULTILAYER FERRITE CHIP BEADS

## Test Instruments : HP4291A Impedance / Material Analyzer





# MULTILAYER FERRITE CHIP BEADS / GB SERIES

## GB series, for mid current use

### Features

- This series exhibits a low DC resistance across a wide range of impedances.
- Low DC resistance characteristics make the chip beads suitable for use on signal lines handling larger currents.

### Applications

- Computers
- Modems
- CD-ROMs
- Hard Drives
- Televisions
- Wireless Device

### Electrical Characteristics

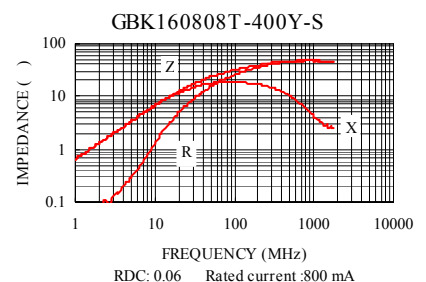
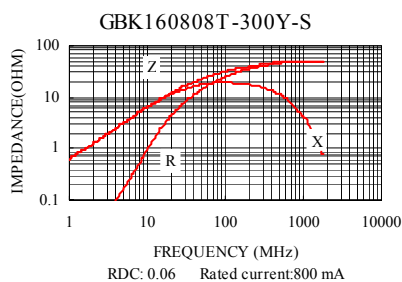
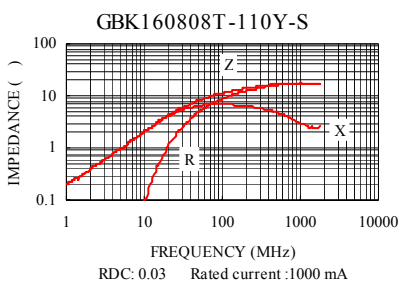
Part Number	Test Frequency (MHz)	Impedance ( ±25%)	D.C. Resistance ( ) max.	Rated current (mA) max.
GBK160808T-110Y-S	100	11	0.03	1000
GBK160808T-190Y-S	100	19	0.05	1000
GBK160808T-300Y-S	100	30	0.06	800
GBK160808T-400Y-S	100	40	0.06	800
GBK160808T-600Y-S	100	60	0.06	600
GBK160808T-800Y-S	100	80	0.10	600
GBK160808T-121Y-S	100	120	0.15	600
GBK160808T-221Y-S	100	220	0.18	400
GBK160808T-301Y-S	100	300	0.25	400
GBK160808T-451Y-S	100	450	0.30	400
GBK160808T-601Y-S	100	600	0.30	400
GBK160808T-751Y-S	100	750	0.45	300
GBK160808T-102Y-S	100	1000	0.45	300
GBY201209T-070Y-S	100	7	0.06	1000
GBY201209T-090Y-S	100	9	0.06	1000
GBY201209T-110Y-S	100	11	0.06	1000
GBY201209T-170Y-S	100	17	0.06	1000
GBY201209T-320Y-S	100	32	0.06	1000
GBK201209T-600Y-S	100	60	0.10	800
GBK201209T-700Y-S	100	70	0.10	800
GBK201209T-800Y-S	100	80	0.10	800
GBK201209T-121Y-S	100	120	0.15	600
GBK201209T-151Y-S	100	150	0.15	600
GBK201209T-221Y-S	100	220	0.18	600
GBK201209T-301Y-S	100	300	0.18	600
GBK201209T-401Y-S	100	400	0.18	600
GBK201209T-501Y-S	100	500	0.25	500
GBK201209T-601Y-S	100	600	0.25	500
GBK201209T-751Y-S	100	750	0.30	400
GBK201209T-102Y-S	100	1000	0.30	400
GBK201209T-152Y-S	100	1500	0.40	300
GBK201209T-202Y-S	100	2000	0.55	200

# MULTILAYER FERRITE CHIP BEADS / GB SERIES

## Electrical Characteristics

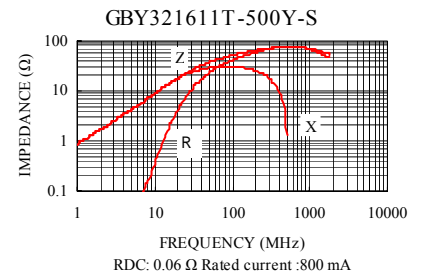
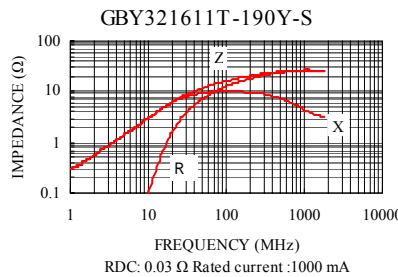
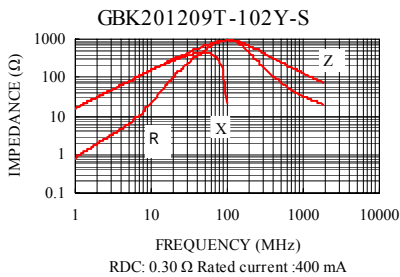
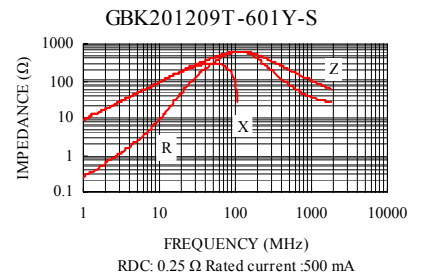
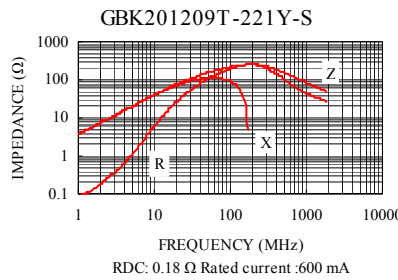
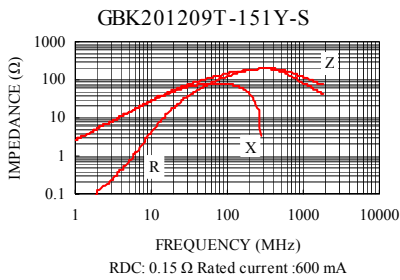
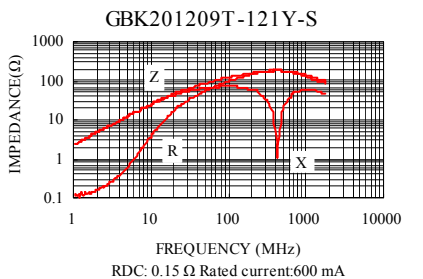
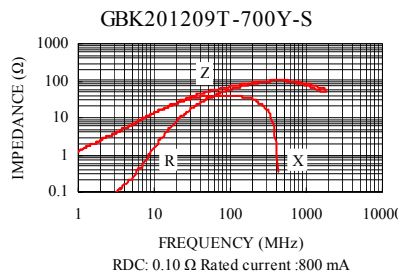
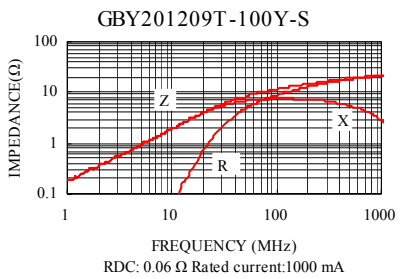
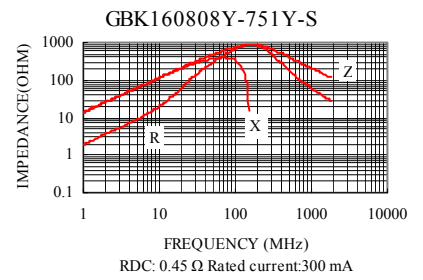
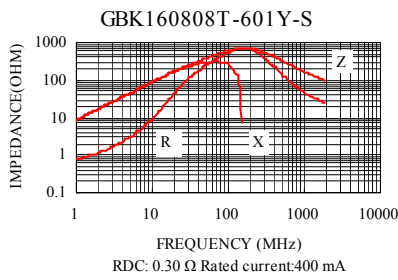
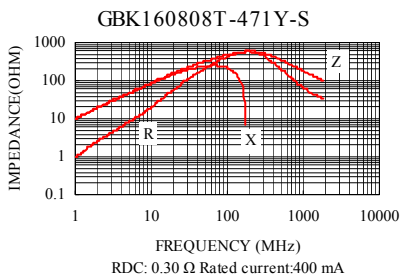
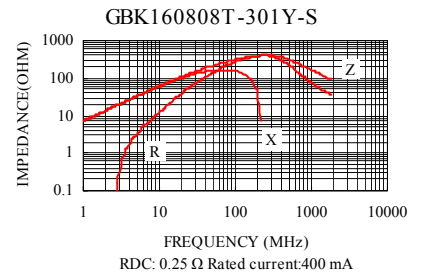
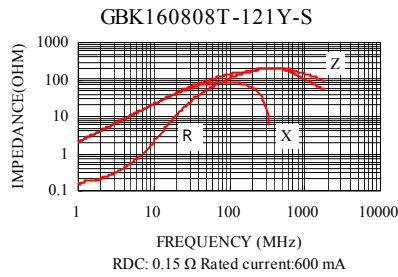
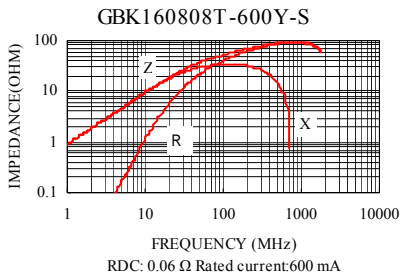
Part Number	Test Frequency (MHz)	Impedance ( ±25%)	D.C. Resistance ( ) max.	Rated current (mA) max.
GBY321611T-190Y-S	100	19	0.03	1000
GBY321611T-260Y-S	100	26	0.03	1000
GBY321611T-320Y-S	100	32	0.03	1000
GBY321611T-500Y-S	100	50	0.06	800
GBY321611T-600Y-S	100	60	0.06	800
GBK321611T-700Y-S	100	70	0.06	800
GBK321611T-900Y-S	100	90	0.10	800
GBK321611T-121Y-S	100	120	0.10	800
GBK321611T-151Y-S	100	150	0.10	800
GBK321611T-201Y-S	100	200	0.15	600
GBK321611T-401Y-S	100	400	0.15	600
GBK321611T-501Y-S	100	500	0.15	600
GBK321611T-601Y-S	100	600	0.20	500
GBK321611T-102Y-S	50	1000	0.25	400
GBK321611T-122Y-S	50	1200	0.25	400
GBK321611T-202Y-S	30	2000	0.35	400
GBY321616T-250Y-S	100	25	0.10	1000
GBY321616T-600Y-S	100	60	0.10	1000
GBK321616T-700Y-S	100	70	0.10	1000
GBY322513T-320Y-S	100	32	0.10	1000
GBY322513T-600Y-S	100	60	0.10	1000
GBY322513T-900Y-S	100	90	0.10	1000
GBY451616T-500Y-S	100	50	0.10	1000
GBY451616T-600Y-S	100	60	0.10	1000
GBY451616T-800Y-S	100	80	0.10	1000
GBY451616T-101Y-S	100	100	0.18	800
GBK451616T-151Y-S	100	150	0.18	800
GBK451616T-171Y-S	100	170	0.18	800
GBY453215T-700Y-S	100	70	0.18	800
GBY453215T-121Y-S	100	120	0.18	800

## Test Instruments : HP4291A Impedance / Material Analyzer



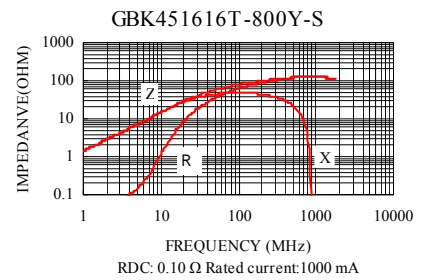
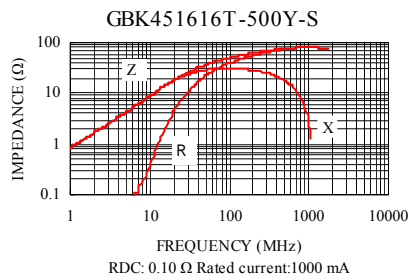
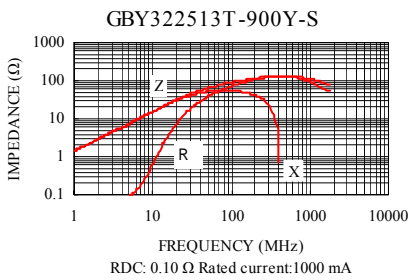
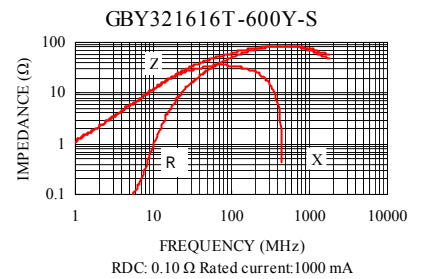
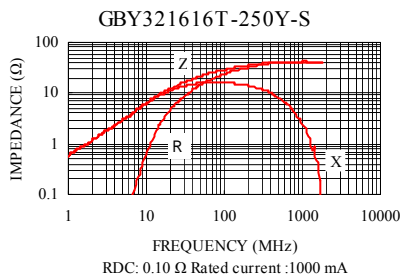
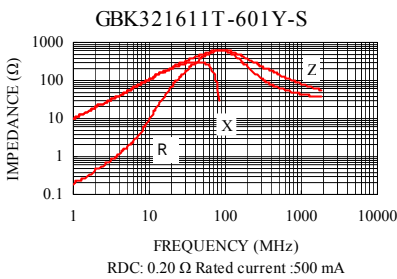
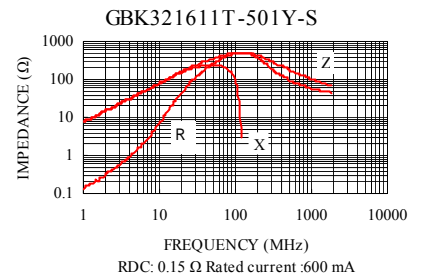
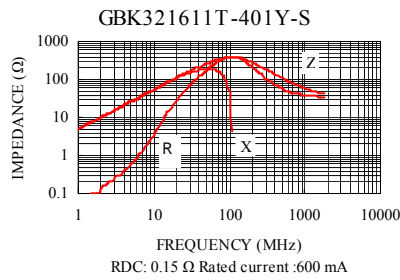
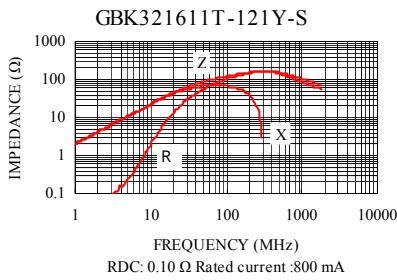
# MULTILAYER FERRITE CHIP BEADS / GB SERIES

## Test Instruments : HP4291A Impedance / Material Analyzer



# MULTILAYER FERRITE CHIP BEADS / GB SERIES

## Test Instruments : HP4291A Impedance / Material Analyzer



# MULTILAYER FERRITE CHIP BEADS / PB SERIES

## PB series, for high current use

### Features

- Suitable for high current applications
- Small package size—EIA STD 0402/0603/0805/1206/1806 and 1812
- Nickel barrier terminations provide excellent solder heat resistance
- Current rating up to 6 AMPS ( max ) ( high current handling capacity)
- Low DCR
- Suitable for flow and reflow soldering
- Available in 6 sizes

### Applications

- High current DC power lines for USB interface circuitry, personal computers, electronic games, hard disk drives, and other general electronic equipment.

### Electrical Characteristics

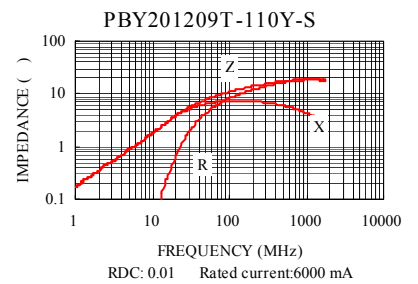
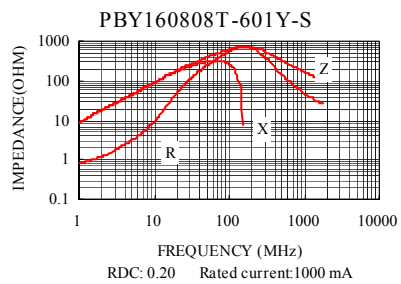
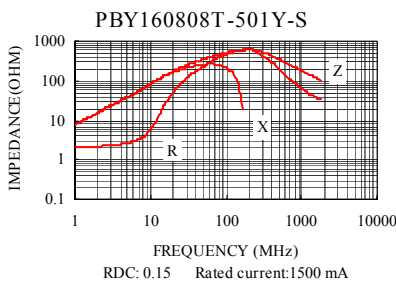
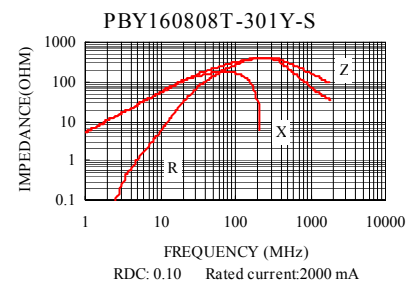
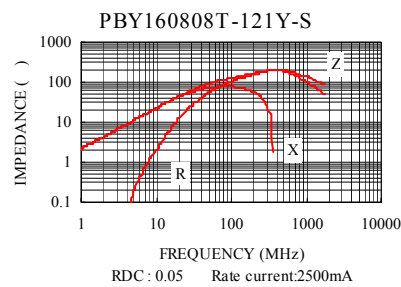
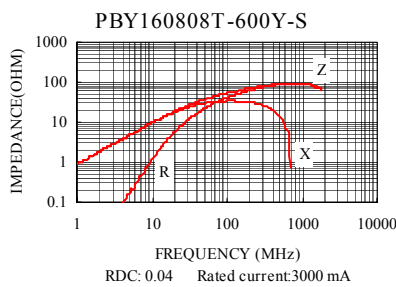
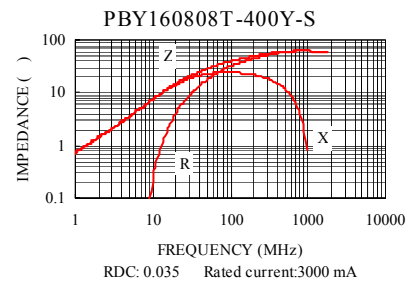
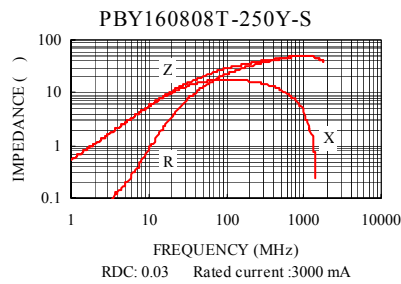
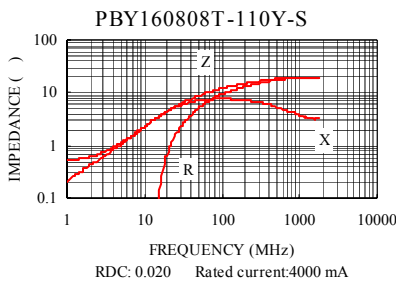
Part Number	Test Frequency (MHz)	Impedance ( $\pm 25\%$ )	D.C. Resistance ( ) max.	Rated current (mA) max.
PBY100505T-100Y-S	100	10	0.03	1000
PBY160808T-110Y-S	100	11	0.02	4000
PBY160808T-250Y-S	100	25	0.03	3000
PBY160808T-400Y-S	100	40	0.035	3000
PBY160808T-600Y-S	100	60	0.04	3000
PBY160808T-121Y-S	100	120	0.08	2500
PBY160808T-301Y-S	100	300	0.10	2000
PBY160808T-501Y-S	100	500	0.15	1500
PBY160808T-601Y-S	100	600	0.20	1000
PBY160808T-102Y-S	100	1000	0.25	800
PBY201209T-110Y-S	100	11	0.01	6000
PBY201209T-170Y-S	100	17	0.02	5000
PBY201209T-300Y-S	100	30	0.02	4000
PBY201209T-500Y-S	100	50	0.025	3000
PBY201209T-600Y-S	100	60	0.03	3000
PBY201209T-800Y-S	100	80	0.04	3000
PBY201209T-121Y-S	100	120	0.04	3000
PBY201209T-201Y-S	100	200	0.05	2500
PBY201209T-301Y-S	100	300	0.08	2000
PBY201209T-601Y-S	100	600	0.10	2000
PBY201209T-102Y-S	100	1000	0.12	1500
PBY321611T-190Y-S	100	19	0.015	6000
PBY321611T-320Y-S	100	32	0.015	4000
PBY321611T-500Y-S	100	50	0.02	4000
PBY321611T-800Y-S	100	80	0.025	3000
PBY321611T-101Y-S	100	100	0.03	2500
PBY321611T-301Y-S	100	300	0.06	2000

# MULTILAYER FERRITE CHIP BEADS / PB SERIES

## Electrical Characteristics

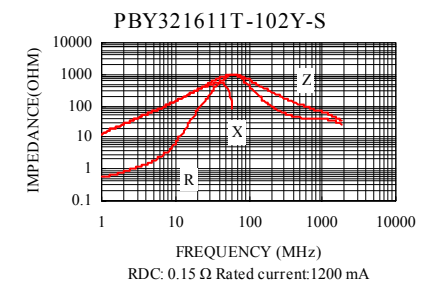
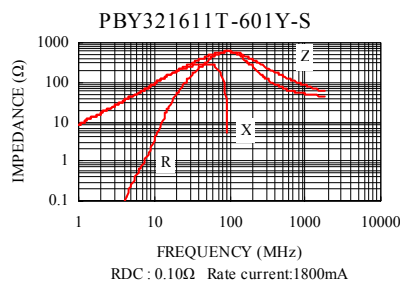
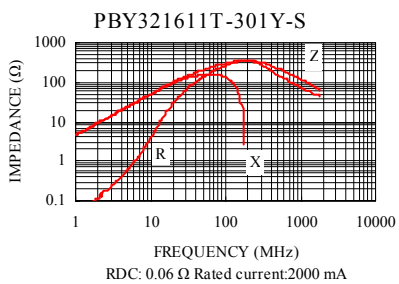
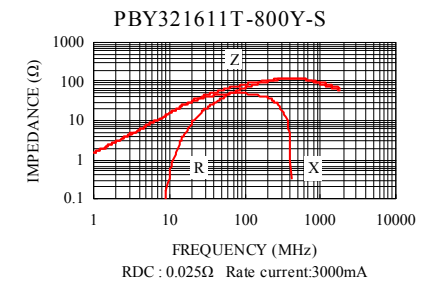
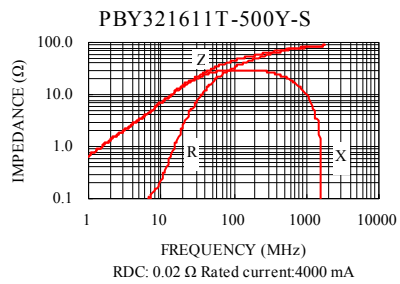
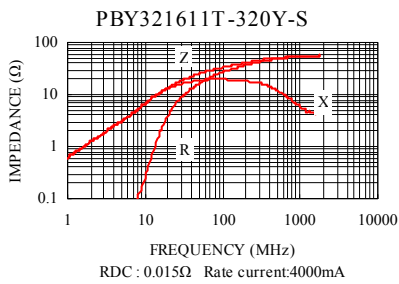
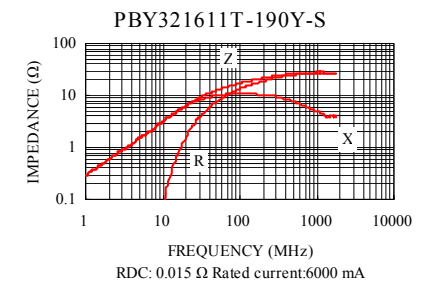
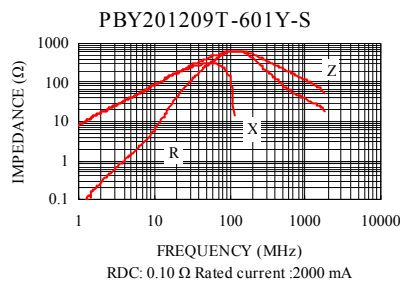
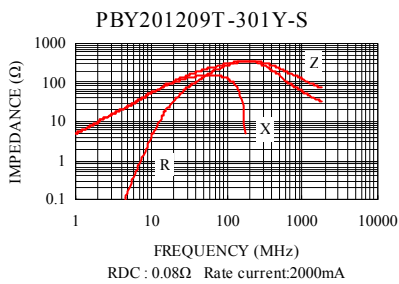
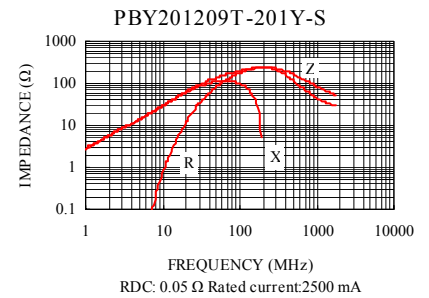
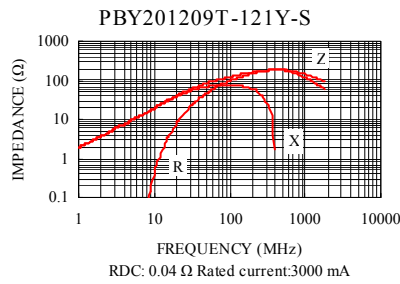
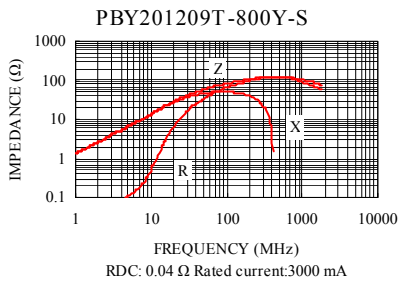
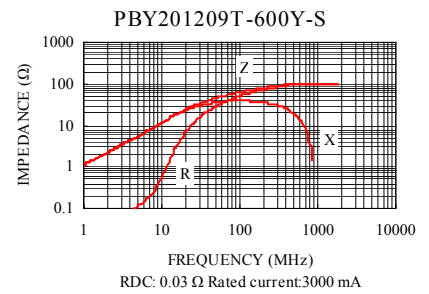
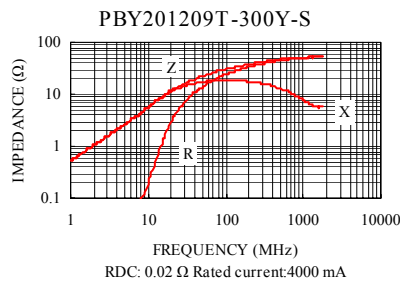
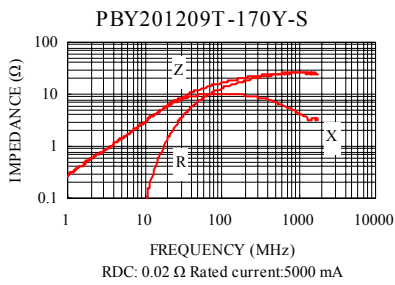
Part Number	Test Frequency (MHz)	Impedance ( ±25%)	D.C. Resistance ( ) max.	Rated current (mA) max.
PBY321611T-601Y-S	100	600	0.10	1800
PBY321611T-102Y-S	50	1000	0.15	1200
PBY321611T-122Y-S	50	1200	0.18	1000
PBY321611T-152Y-S	50	1500	0.20	800
PBY322513T-600Y-S	100	60	0.025	4000
PBY322513T-900Y-S	100	90	0.025	3000
PBY451616T-500Y-S	100	50	0.020	6000
PBY451616T-600Y-S	100	60	0.020	5000
PBY451616T-800Y-S	100	80	0.025	4000
PBY451616T-151Y-S	100	150	0.100	2000
PBY453215T-700Y-S	100	70	0.03	6000
PBY453215T-121Y-S	100	120	0.03	4000

## Test Instruments : HP4291A Impedance / Material Analyzer



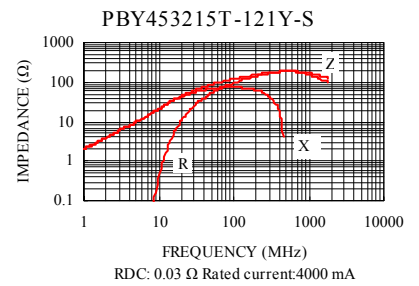
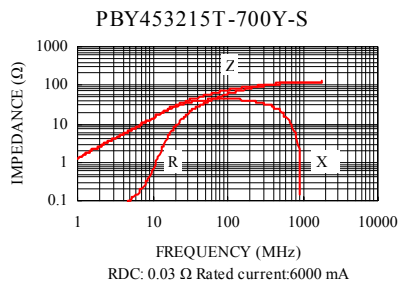
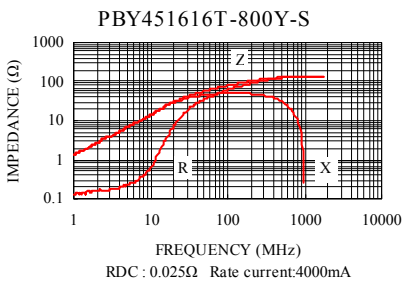
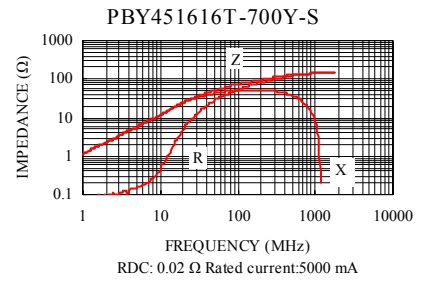
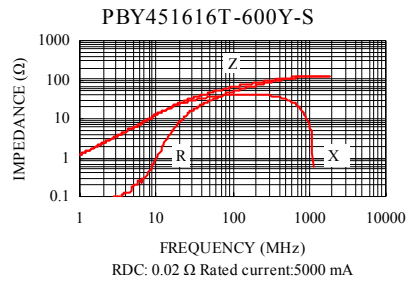
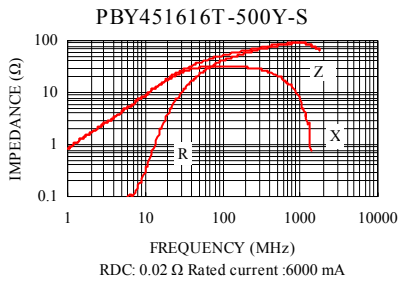
# MULTILAYER FERRITE CHIP BEADS / PB SERIES

## Test Instruments : HP4291A Impedance / Material Analyzer



# MULTILAYER FERRITE CHIP BEADS / PB SERIES

## Test Instruments : HP4291A Impedance / Material Analyzer





# MULTILAYER FERRITE CHIP BEADS / UPB SERIES

## UPB series, for ultra high current use

### Features

- High current performance.
- Low D.C. resistance minute mΩ typically.
- Impedance character of broad frequency.

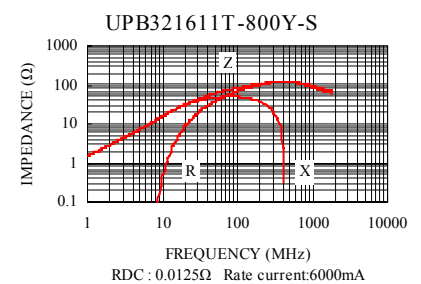
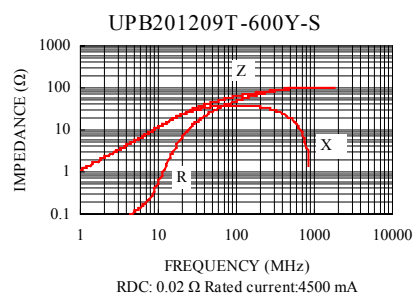
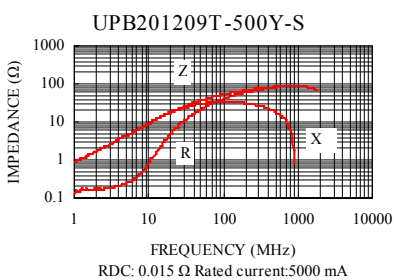
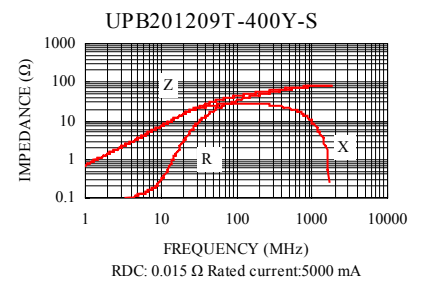
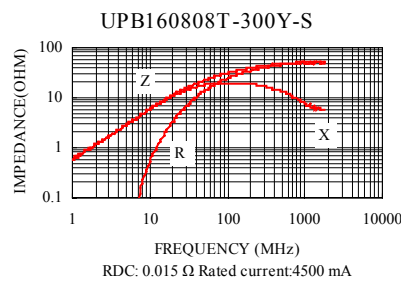
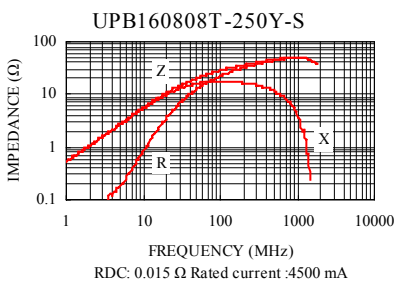
### Applications

- Preventing of electronics magnet interference in power line of PC, Printer, & CD ROM.
- High frequency filtering of medium speed clocks and video signals.

### Electrical Characteristics

Part Number	Test Frequency (MHz)	Impedance (Ω)	D.C. Resistance (Ω) max.	Rated current (mA) max.
UPB160808T-250Y-S	100	25	0.015	4500
UPB160808T-300Y-S	100	30	0.015	4500
UPB201209T-400Y-S	100	40	0.015	5000
UPB201209T-500Y-S	100	50	0.015	5000
UPB201209T-600Y-S	100	60	0.020	4500
UPB321611T-600Y-S	100	60	0.012	6000
UPB321611T-800Y-S	100	80	0.012	6000
UPB321611T-101Y-S	100	100	0.012	6000
UPB321611T-121Y-S	100	120	0.012	6000
UPB321611T-151Y-S	100	150	0.020	4500

### Test Instruments : HP4291A Impedance / Material Analyzer



# MULTILAYER FERRITE CHIP BEADS / NB SERIES

**NB series, for high speed signals use**

## Features

- Exhibiting high impedance with sharp increase at high speed signal frequencies with minimal diminishing the desired wave form.
- Suitable for flow and reflow soldering
- Available in 4 sizes

## Applications

- High speed circuits for computer & peripheral equipments and communication devices.
- Cellular phone
- Suitable for circuits with unstable ground

## Electrical Characteristics

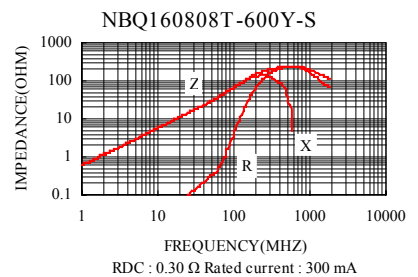
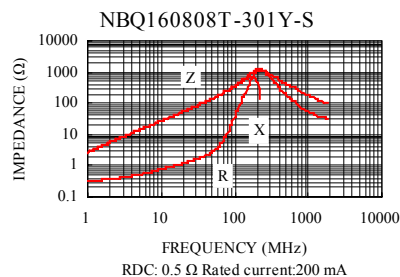
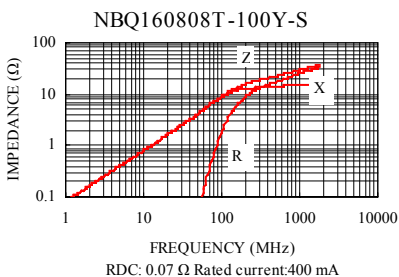
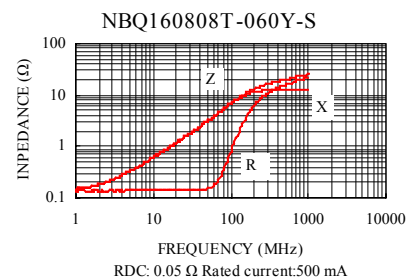
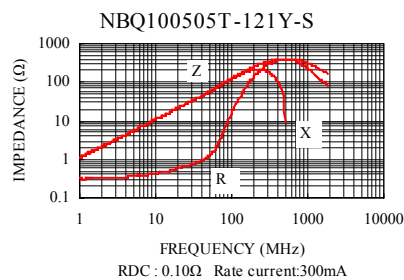
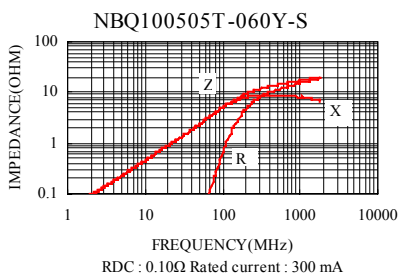
Part Number	Test Frequency (MHz)	Impedance ( ±25%)	D.C. Resistance ( ) max.	Rated current (mA) max.
NBQ100505T-060Y-S	100	6	0.10	300
NBQ100505T-100Y-S	100	10	0.20	200
NBQ100505T-400Y-S	100	40	0.40	150
NBQ100505T-800Y-S	100	80	0.60	100
NBQ100505T-121Y-S	100	120	0.80	50
NBQ160808T-060Y-S	100	6	0.05	500
NBQ160808T-100Y-S	100	10	0.07	400
NBQ160808T-400Y-S	100	40	0.30	300
NBQ160808T-600Y-S	100	60	0.30	300
NBQ160808T-800Y-S	100	80	0.40	300
NBQ160808T-121Y-S	100	120	0.40	300
NBQ160808T-241Y-S	100	240	0.40	200
NBQ160808T-301Y-S	100	300	0.50	200
NBQ160808T-481Y-S	100	480	0.60	150
NBQ160808T-601Y-S	100	600	0.60	100
NBQ160808T-102Y-S	100	1000	0.70	100
NBQ160808T-122Y-S	100	1200	0.70	100
NBQ160808T-152Y-S	100	1500	0.80	100
NBQ160808T-182Y-S	100	1800	0.95	100
NBQ201209T-060Y-S	100	6	0.07	800
NBQ201209T-110Y-S	100	11	0.10	700
NBQ201209T-260Y-S	100	26	0.20	600
NBQ201209T-320Y-S	100	32	0.20	600
NBQ201209T-600Y-S	100	60	0.30	500
NBQ201209T-750Y-S	100	75	0.30	500
NBQ201209T-900Y-S	100	90	0.30	500
NBQ201209T-121Y-S	100	120	0.40	400
NBQ201209T-151Y-S	100	150	0.40	400
NBQ201209T-171Y-S	100	170	0.50	400
NBQ201209T-221Y-S	100	220	0.50	300
NBQ201209T-301Y-S	100	300	0.50	300

# MULTILAYER FERRITE CHIP BEADS / NB SERIES

## Electrical Characteristics

Part Number	Test Frequency (MHz)	Impedance ( ±25%)	D.C. Resistance ( ) max.	Rated current (mA) max.
NBQ201209T-401Y-S	100	400	0.50	300
NBQ201209T-501Y-S	100	500	0.50	200
NBQ201209T-601Y-S	100	600	0.50	200
NBQ201209T-102Y-S	100	1000	0.60	100
NBQ201209T-122Y-S	100	1200	0.70	100
NBQ201209T-152Y-S	100	1500	0.70	100
NBQ201209T-222Y-S	100	2200	0.75	100
NBQ201209T-272Y-S	100	2700	0.85	100
NBQ321611T-320Y-S	100	32	0.20	600
NBQ321611T-600Y-S	100	60	0.30	500
NBQ321611T-800Y-S	100	80	0.30	500
NBQ321611T-900Y-S	100	90	0.30	500
NBQ321611T-121Y-S	100	120	0.40	400
NBQ321611T-151Y-S	100	150	0.40	400
NBQ321611T-201Y-S	100	200	0.50	300
NBQ321611T-221Y-S	100	220	0.50	300
NBQ321611T-351Y-S	100	350	0.60	300
NBQ321611T-401Y-S	100	400	0.60	300
NBQ321611T-601Y-S	100	600	0.80	300
NBQ321611T-122Y-S	100	1200	1.00	200
NBQ321611T-152Y-S	100	1500	1.20	150

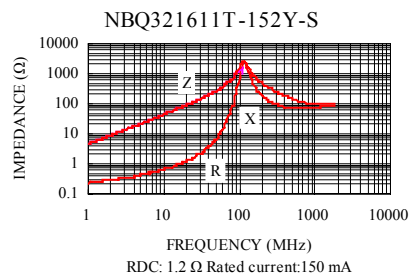
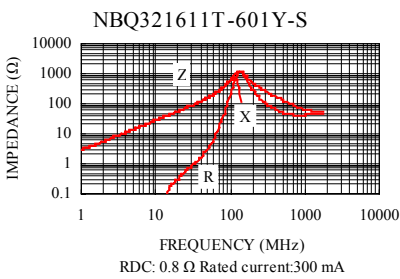
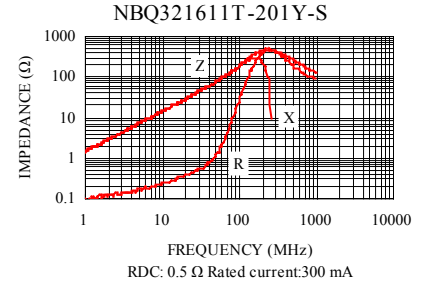
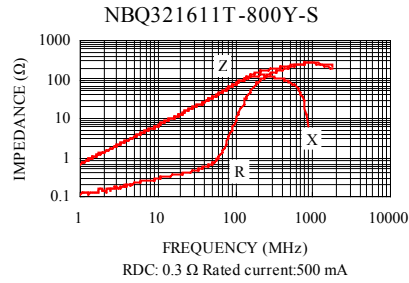
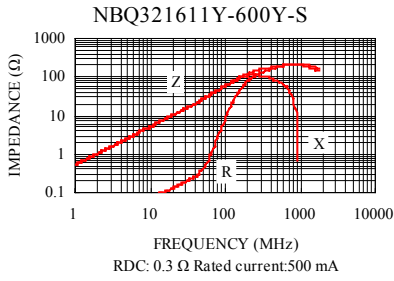
## Test Instruments : HP4291A Impedance / Material Analyzer





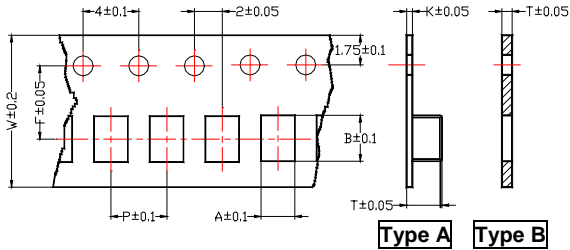
# MULTILAYER FERRITE CHIP BEADS / NB SERIES

Test Instruments : HP4291A Impedance / Material Analyzer

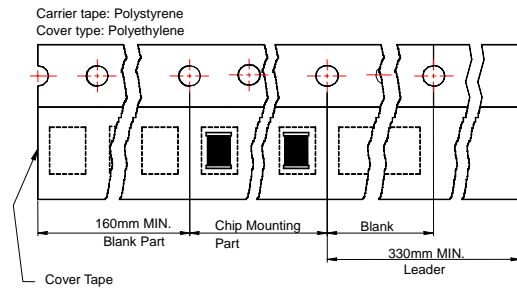


# MULTILAYER FERRITE CHIP BEADS

## Tape Dimensions

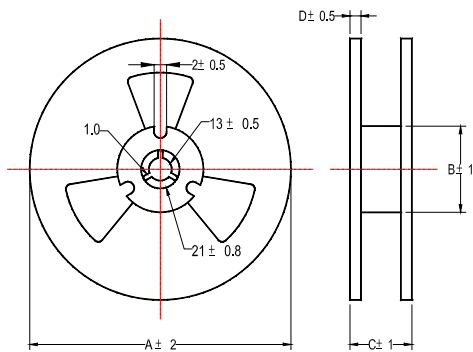


## Tape Material

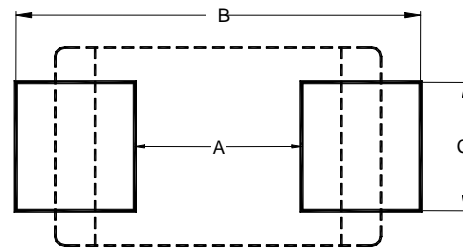


- ① : S/P/N    ② : S/P/U/N/G  
③ : S/G      ④ : S/P/G

## Reel Dimensions



## Recommended Pattern



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

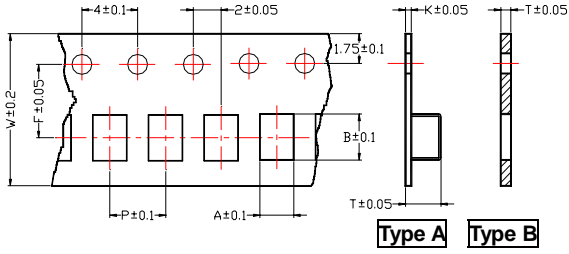
Dimensions in mm

TYPE	Tape Dimensions								Reel Dimensions				Recommended Pattern			Quantity /Reel
	A	B	T	W	P	F	K	TapeTyp.	A	B	C	D	A	B	C	
①B100505	0.62	1.15	0.7	8.0	2.0	3.5	-	B	178	60	10	2	0.4	1.2 ~ 1.4	0.4	10000
②B160808	1.05	1.80	0.95	8.0	4.0	3.5	-	B	178	60	10	2	0.8	2.4 ~ 3.4	0.6	4000
③B201209	1.42	2.30	1.05	8.0	4.0	3.5	0.2	A	178	60	10	2	1.2	3.0 ~ 4.0	1.0	4000
④B321611	1.88	3.50	1.27	8.0	4.0	3.5	0.2	A	178	60	10	2	2.0	4.2 ~ 5.2	1.2	3000
⑤B321616	1.88	3.64	1.90	8.0	4.0	3.5	0.2	A	178	60	10	2	2.0	4.2 ~ 5.2	1.2	2000
⑥B322513	2.77	3.42	1.65	8.0	4.0	3.5	0.2	A	178	60	10	2	2.0	5.5 ~ 6.5	1.8	2500
⑦B451616	1.88	4.95	1.90	12	4.0	5.5	0.3	A	178	60	14	2	3.0	5.5 ~ 6.5	1.2	2000
⑧B453215	3.66	4.95	1.85	12	8.0	5.5	0.3	A	178	60	14	2	3.0	5.5 ~ 6.5	2.4	1000

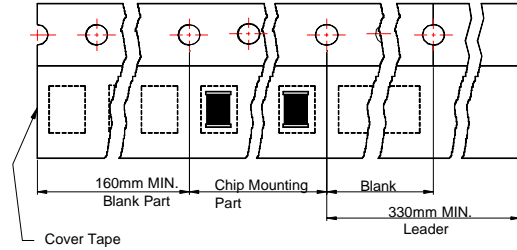


# MULTILAYER FERRITE CHIP BEADS ARRAY

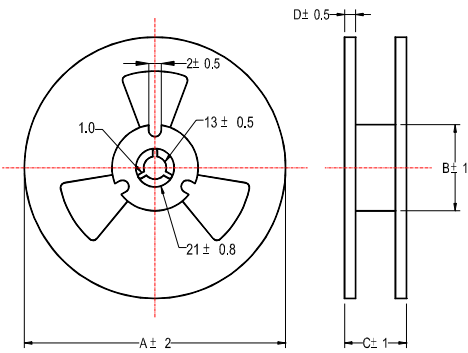
## Tape Dimensions



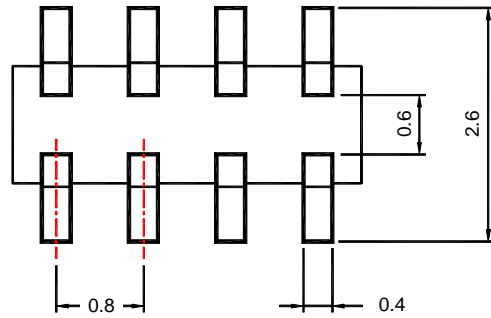
## Tape Material



## Reel Dimensions



## Recommended Pattern



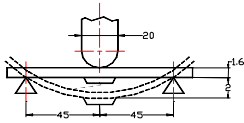
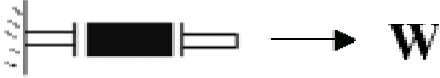
Dimensions in mm

TYPE	Tape Dimensions							Reel Dimensions				Quantity /Reel
	A	B	T	W	P	F	K	A	B	C	D	
B321609	1.94	3.54	1.29	8.0	4.0	3.5	0.2	178	60	10	2	3000



# MULTILAYER FERRITE CHIP BEADS ARRAY

## 1-1.Mechanical Performance

No	Item	Specification	Test Method
1-1-1	Flexure Strength		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
1-1-2	Vibration	Appearance: No damage Z change: within±20% RDC: within specification	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
1-1-3	Resistance to Soldering Heat	Appearance: No damage	Pre-heating: 150 , 1min Solder Composition: Sn/Pb = 63/37 Solder Temperature: 260±5 Immersion Time: 10±1sec
1-1-4	Solderability	The electrodes shall be at least 90% covered with new solder coating	Pre-heating: 150 , 1min Solder Composition: Sn/Pb = 63/37 Solder Temperature: 230±5 Immersion Time: 4±1sec
1-1-5	Terminal Strength Test	100505 series : 0.2 kg 160808 series : 0.5 kg 201209 series : 1.0 kg other series : 2.0 kg	Test device shall be soldered on the substrate 

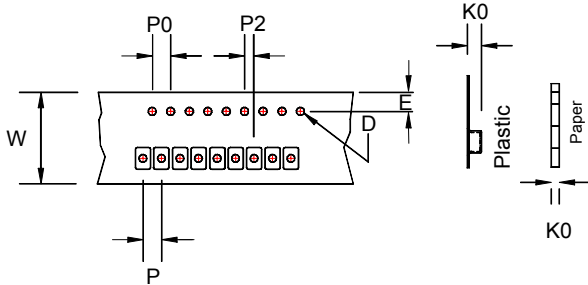
# MULTILAYER FERRITE CHIP BEADS ARRAY

## 1-2.Environmental Performance

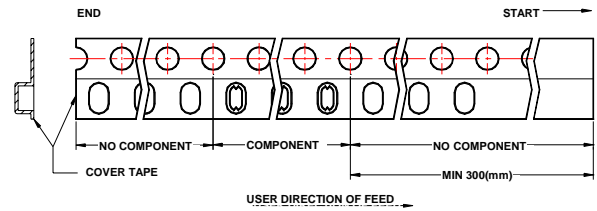
No	Item	Specification	Test Method															
Temperature Cycle	Appearance: No damage Z change: within $\pm 20\%$ RDC: within specification		One cycle: <table border="1"> <thead> <tr> <th>Step</th> <th>Temperature ( )</th> <th>Time (min)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-55<math>\pm 3</math></td> <td>30</td> </tr> <tr> <td>2</td> <td>25<math>\pm 2</math></td> <td>3</td> </tr> <tr> <td>3</td> <td>125<math>\pm 3</math></td> <td>30</td> </tr> <tr> <td>4</td> <td>25<math>\pm 2</math></td> <td>3</td> </tr> </tbody> </table> Total: 100cycles Measured after exposure in the room condition for 24hrs	Step	Temperature ( )	Time (min)	1	-55 $\pm 3$	30	2	25 $\pm 2$	3	3	125 $\pm 3$	30	4	25 $\pm 2$	3
Step	Temperature ( )	Time (min)																
1	-55 $\pm 3$	30																
2	25 $\pm 2$	3																
3	125 $\pm 3$	30																
4	25 $\pm 2$	3																
1-2-2	Humidity Resistance		Temperature: 40 $\pm 2$ Relative Humidity: 90 ~ 95% Time: 1000hrs Measured after exposure in the room condition for 24hrs															
1-2-3	High Temperature Resistance		Temperature: 125 $\pm 3$ Relative Humidity: 0% Applied Current: Rated Current Time: 1000hrs Measured after exposure in the room condition for 24hrs															
1-2-4	Low Temperature Resistance		Temperature: -55 $\pm 3$ Relative Humidity: 0% Time: 1000hrs Measured after exposure in the room condition for 24hrs															

# SURFACE MOUNT TIP / RING FILTERS

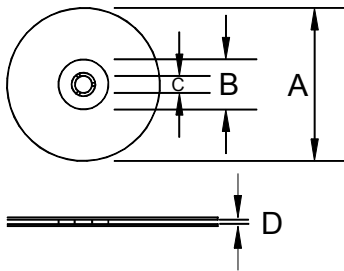
## Tape Dimensions



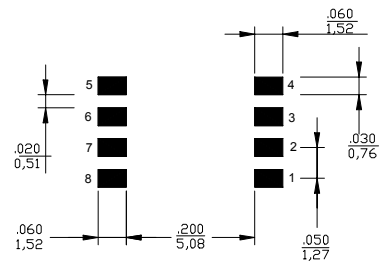
## Tape Material



## Reel Dimensions



## Recommended Pattern



Dimensions in mm

TYPE	Tape Dimensions							Reel Dimensions				Quantity ( PCS / REEL )
	K0	D	E	W	P	P0	P2	A	B	C	D	330mm
CEC RF 2000	6	1.55	1.75	16	8	4	2	330	100	13	24.4	2200
CEC RF 4000	6	1.55	1.75	16	8	4	2	330	100	13	24.4	2200