

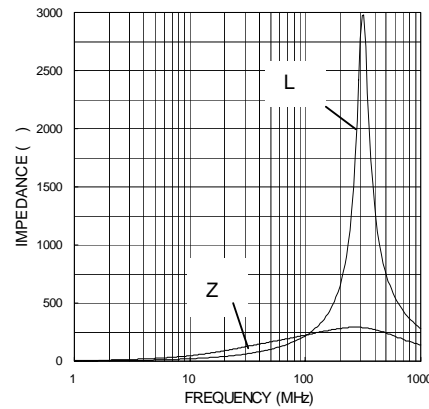
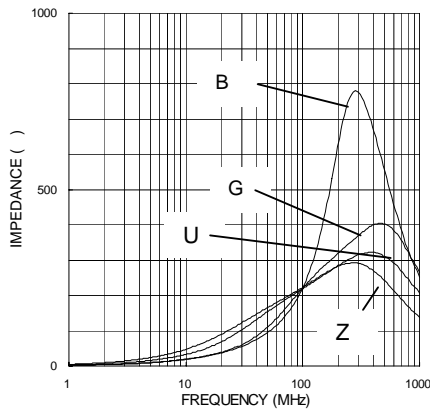


GENERAL DESCRIPTIONS

MATERIAL CHARACTERISTICS

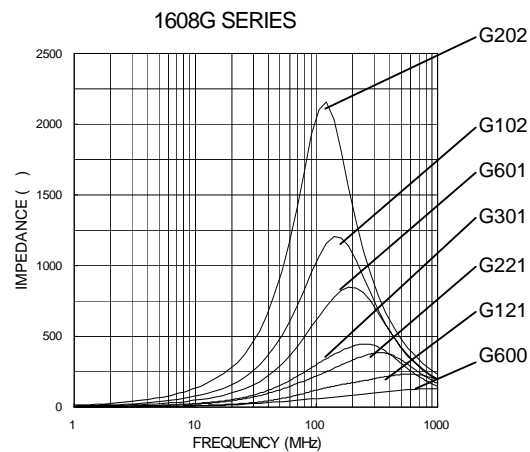
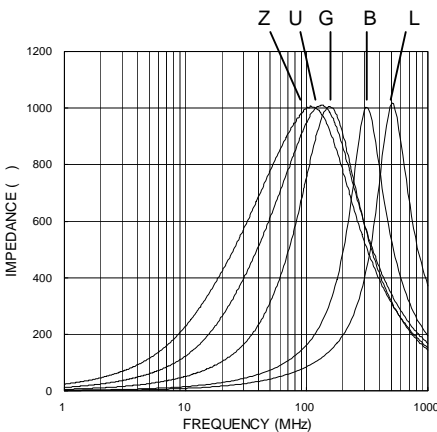
ITEM	UNIT	Material Code					
		L	B	G	U	Z	
Initial permeability	μ_{iac}	—	25	45	110	200	500
Maximum Permeability	μ_M	—	125	125	250	450	900
Saturation Flux Density at 10 Oe	Bs	Gauss	2000	2000	1700	1400	1500
Curie Temperature	Tc		>200	>200	>130	>130	>100
Volume Resistivity		-m	10^5	10^5	10^5	10^5	10^5
Temperature Coefficient (Inductance)	$10^{-4}/$		10	10	12	13	5
Density	g/cm^3		4.8	4.8	4.8	4.8	4.8

IMPEDANCE CHARACTERISTICS OF MATERIALS



- ◇ Z Material is for applications whose blocking region is near 100 MHz.
- ◇ L material, an improvement of B material, has sharp impedance characteristics at high frequency.
- ◇ G material is for application whose signal frequency is far from the cut off region. Suitable for application requires low insertion loss at high frequency.
- ◇ Please confirm the signal waveform to choose suitable products.

- ◇ Different materials are available for different application range.
- ◇ With one material, higher impedance has sharper characteristics.



MULTILAYER FERRITE CHIP BEADS

TB SERIES



FEATURES

- High density packaging with a pitch of 2.54 mm (0.1 inch) max. is possible. This series requires less space and has greater EMI suppression effects.
- Different types with the same shape are available.
- Excellent in physical properties, such as terminal strength, flexure strength, soldering resistance and solderability.
- Applicable to both flow and reflow soldering.
- High impedance cover wide frequency ranges.
- L material type can minimize attenuation of the signal waveform due to its sharp impedance characteristics.

APPLICATIONS

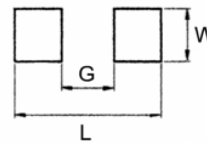
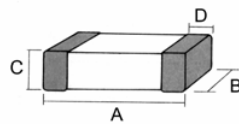
- Computers and peripheral devices, personal computers, VCR and cameras.
- Noise suppression in digital equipments, car stereo, car engines controllers and OA electronic instruments.
- Communication equipment.

PRODUCT IDENTIFICATION

TB	□□□□□□	□	□□□	□
(1)	(A) (B) (C)	(3)	(4)	(5)
	(2)			

- (1) Product Symbol: Multilayer Chip Beads
- (2) Dimensions: Length (A) × Width (B) × Thickness (C)
- (3) Material Code: Z, U, G, B, L
- (4) Impedance: $a b c = a b \times 10^c \Omega$
- (5) Packaging style: B = Bulk T = Tape & Reel

SHAPES AND DIMENSIONS / RECOMMENDED PC BOARD PATTERN



Dimensions in mm (inch)

TYPE	A	B	C	D	L	W	G
100505	1.0±0.1 (0.040±0.004)	0.5±0.1 (0.020±0.004)	0.5±0.1 (0.020±0.004)	0.1 (MIN.) (0.004)	1.4 (0.055)	0.5 (0.020)	0.5 (0.020)
160808	1.6±0.2 (0.063±0.008)	0.8±0.2 (0.031±0.008)	0.8±0.2 (0.031±0.008)	0.3±0.2 (0.012±0.008)	2.1 (0.083)	0.7 (0.028)	0.7 (0.028)
201209	2.0±0.2 (0.079±0.008)	1.2±0.2 (0.047±0.008)	0.9±0.2 (0.035±0.008)	0.5±0.3 (0.020±0.012)	2.6 (0.102)	1.0 (0.039)	1.0 (0.039)
321611	3.2±0.2 (0.126±0.008)	1.6±0.2 (0.063±0.008)	1.1±0.2 (0.043±0.008)	0.5±0.3 (0.020±0.012)	4.4 (0.173)	1.4 (0.055)	2.2 (0.087)
322513	3.2±0.2 (0.126±0.008)	2.5±0.2 (0.098±0.008)	1.3±0.2 (0.051±0.008)	0.5±0.3 (0.020±0.012)	4.4 (0.173)	2.3 (0.091)	2.2 (0.087)
451616	4.5±0.2 (0.177±0.008)	1.6±0.2 (0.063±0.008)	1.6±0.2 (0.063±0.008)	0.5±0.3 (0.020±0.012)	6.0 (0.236)	1.5 (0.059)	1.5 (0.059)
453215	4.5±0.2 (0.177±0.008)	3.2±0.2 (0.126±0.008)	1.5±0.2 (0.059±0.008)	0.5±0.3 (0.020±0.012)	6.0 (0.236)	3.0 (0.118)	3.0 (0.118)



MULTILAYER FERRITE CHIP BEADS

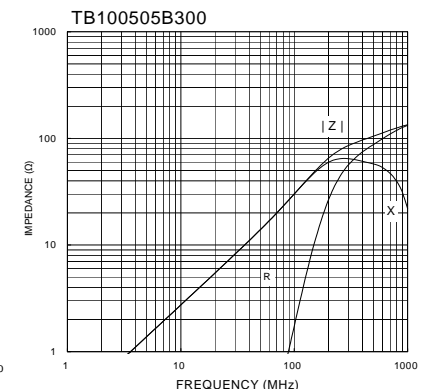
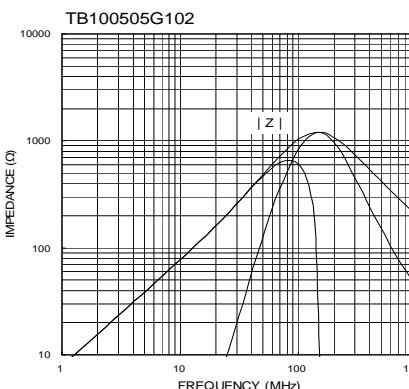
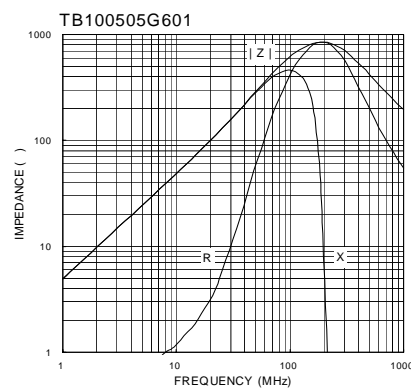
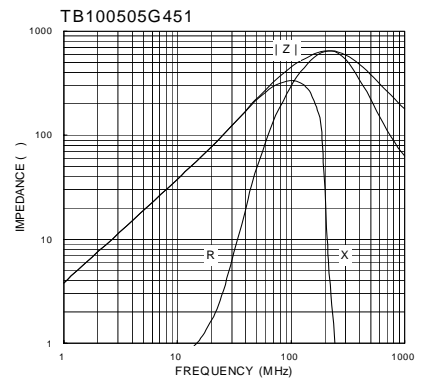
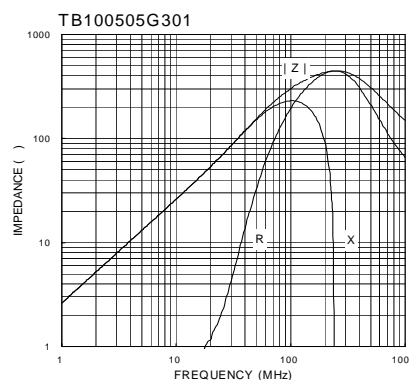
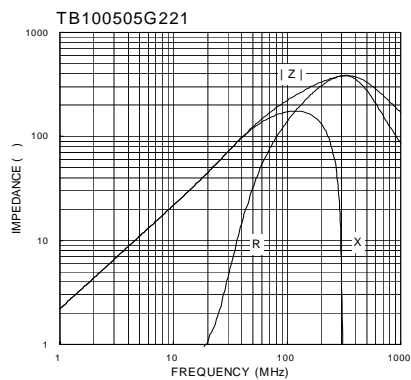
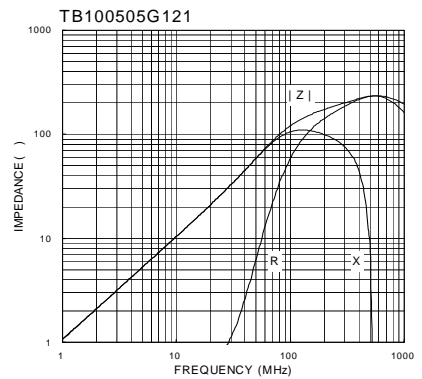
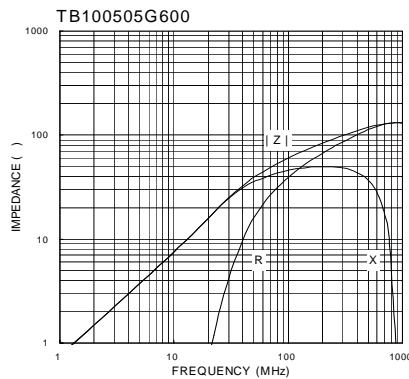
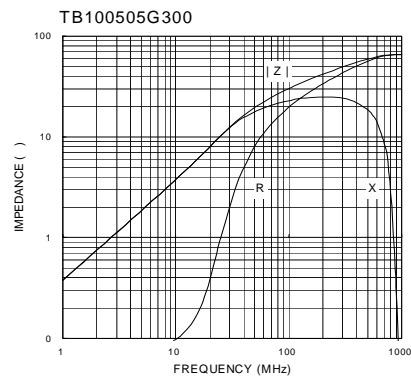
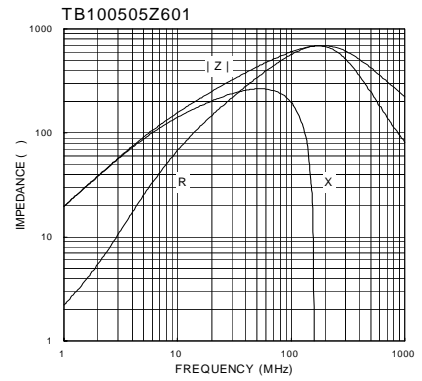
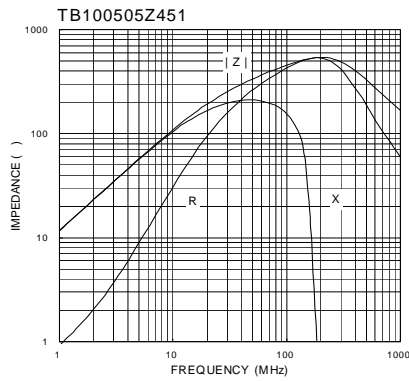
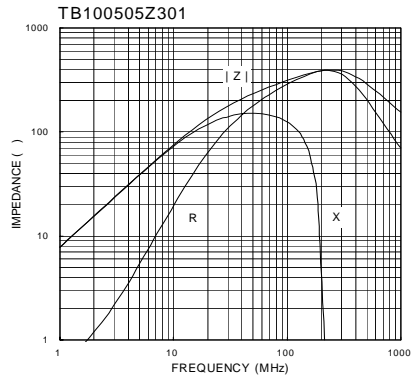
ELECTRICAL CHARACTERISTICS

100505 TYPE

Part Number	Impedance () $\pm 25\%$ At 100MHz	DC Resistance () MAX.	Rated Current (mA) MAX.
TB100505U300	30	0.30	500
TB100505U600	60	0.40	200
TB100505U121	120	0.50	200
TB100505U221	220	0.70	100
TB100505U301	300	0.80	100
TB100505U451	450	0.90	100
TB100505U601	600	1.00	100
TB100505U102	1000	1.50	50
TB100505Z300	30	0.30	500
TB100505Z600	60	0.40	200
TB100505Z121	120	0.50	200
TB100505Z221	220	0.70	100
TB100505Z301	300	0.80	100
TB100505Z451	450	0.90	100
TB100505Z601	600	1.00	100
TB100505G300	30	0.30	500
TB100505G600	60	0.40	200
TB100505G121	120	0.50	200
TB100505G221	220	0.70	100
TB100505G301	300	0.80	100
TB100505G451	450	0.90	100
TB100505G601	600	1.00	100
TB100505G102	1000	1.30	100
TB100505B300	30	0.40	200
TB100505B600	60	0.50	200
TB100505B121	120	0.70	100
TB100505B221	220	0.90	100
TB100505B301	300	1.00	100

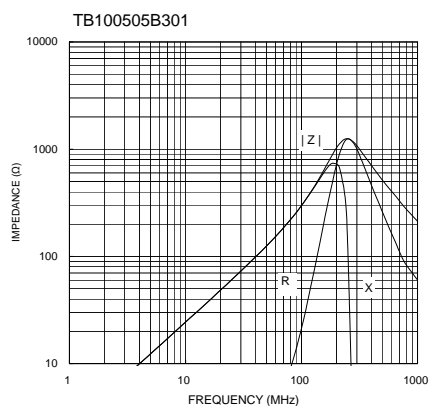
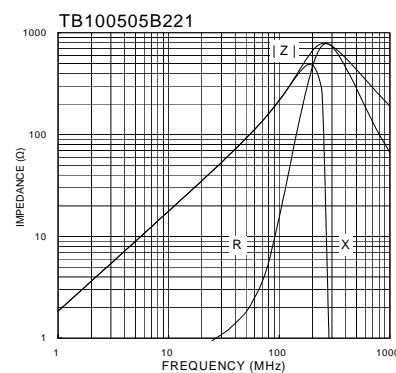
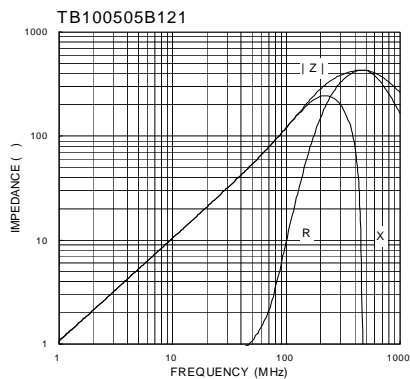
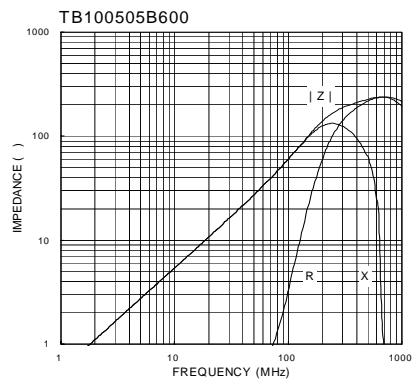


MULTILAYER FERRITE CHIP BEADS





MULTILAYER FERRITE CHIP BEADS





MULTILAYER FERRITE CHIP BEADS

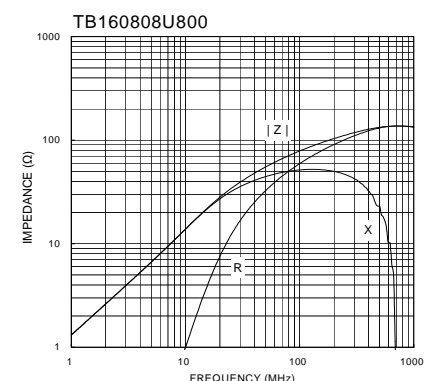
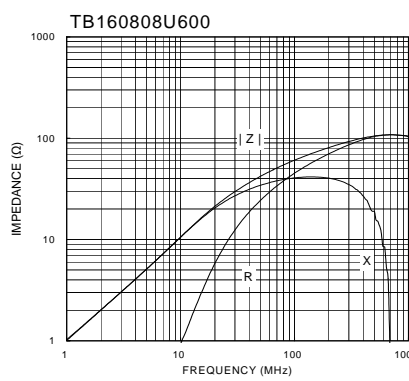
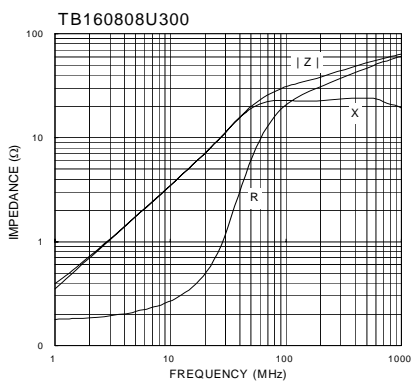
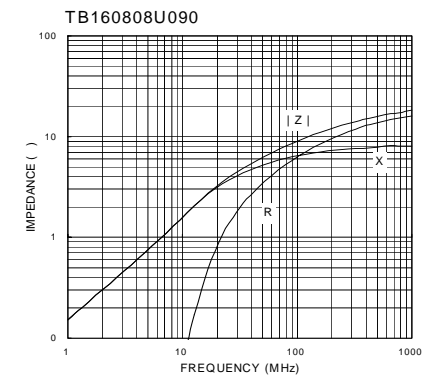
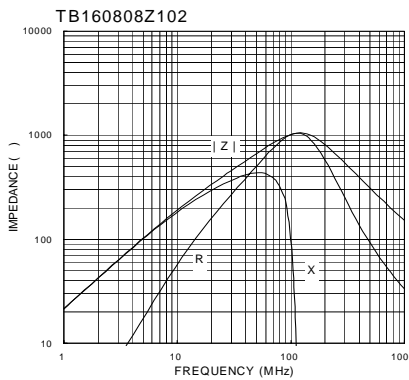
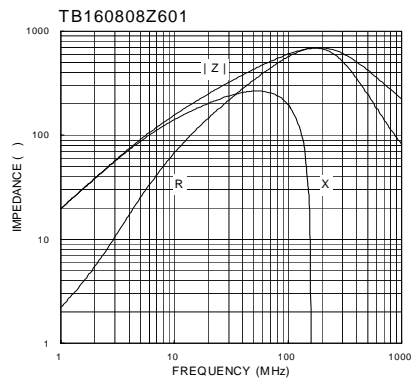
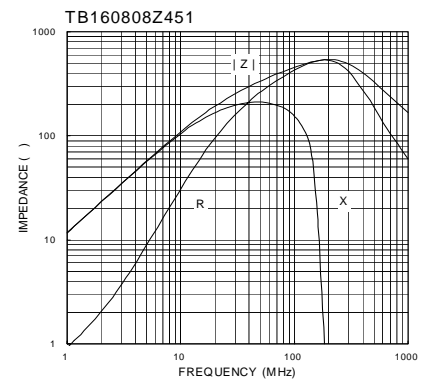
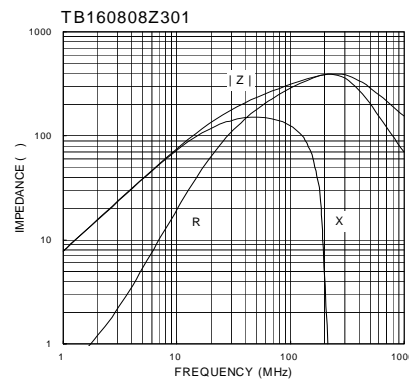
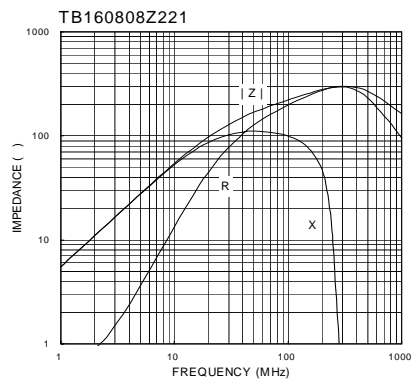
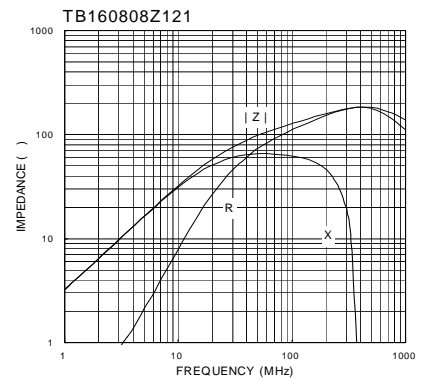
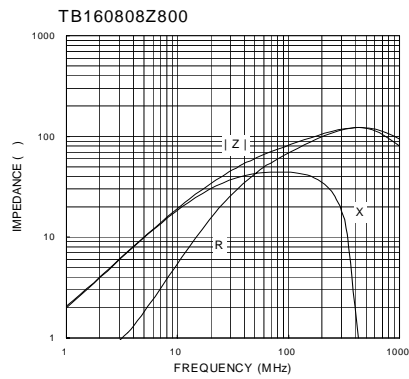
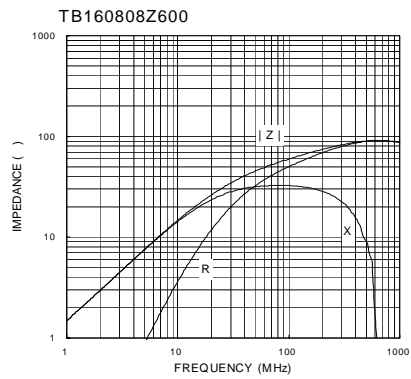
ELECTRICAL CHARACTERISTICS

160808 TYPE

Part Number	Impedance () $\pm 25\%$ At 100MHz	DC Resistance () MAX.	Rated Current (mA) MAX.
TB160808Z600	60	0.20	300
TB160808Z800	80	0.20	300
TB160808Z121	120	0.20	200
TB160808Z221	220	0.20	200
TB160808Z301	300	0.35	200
TB160808Z451	450	0.40	250
TB160808Z601	600	0.45	200
TB160808Z102	1000	0.60	100
TB160808U090	9	0.20	500
TB160808U300	30	0.20	400
TB160808U600	60	0.20	300
TB160808U800	80	0.20	300
TB160808U121	120	0.20	200
TB160808U221	220	0.20	200
TB160808U301	300	0.35	200
TB160808U451	450	0.40	200
TB160808U601	600	0.45	200
TB160808U102	1000	0.60	100
TB160808G600	60	0.20	300
TB160808G800	80	0.20	300
TB160808G121	120	0.20	200
TB160808G221	220	0.20	200
TB160808G301	300	0.35	200
TB160808G451	450	0.40	200
TB160808G601	600	0.45	200
TB160808G102	1000	0.60	100
TB160808G152	1500	0.70	50
TB160808G202	2000	0.80	50
TB160808G252	2500	1.00	50
TB160808B050	5	0.20	600
TB160808B400	40	0.30	300
TB160808B600	60	0.30	300
TB160808B800	80	0.30	200
TB160808B121	120	0.30	200
TB160808B181	180	0.35	200
TB160808B221	220	0.40	200
TB160808B301	300	0.45	200
TB160808B601	600	0.65	200
TB160808B102	1000	0.80	50
TB160808L150	15	0.30	200
TB160808L300	30	0.30	200
TB160808L600	60	0.30	200
TB160808L800	80	0.40	150
TB160808L121	120	0.40	150
TB160808L221	220	0.45	150
TB160808L301	300	0.60	100

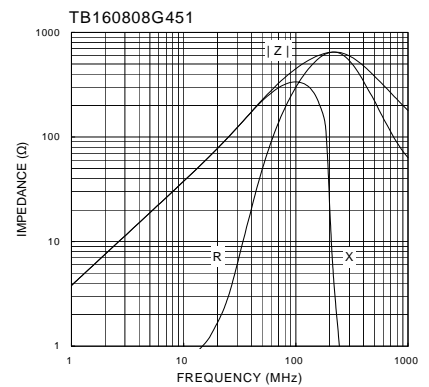
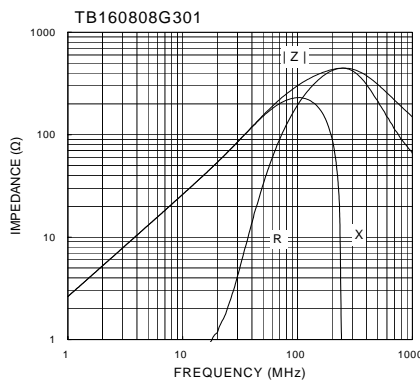
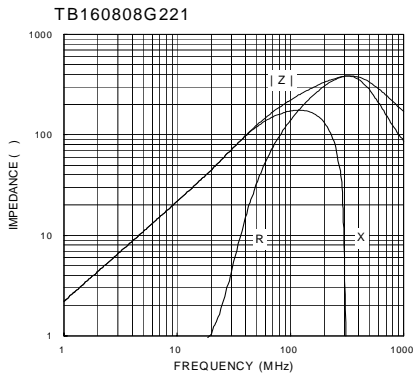
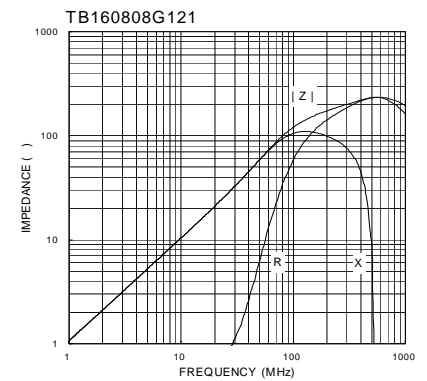
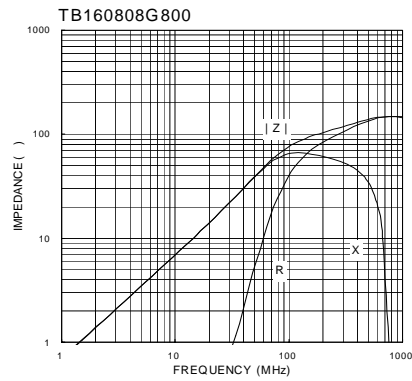
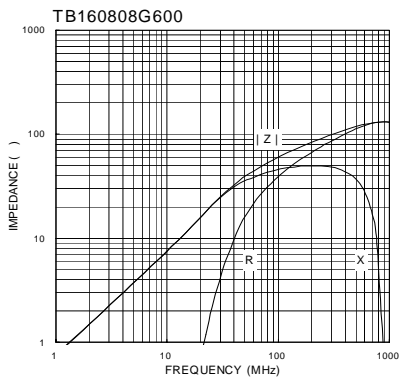
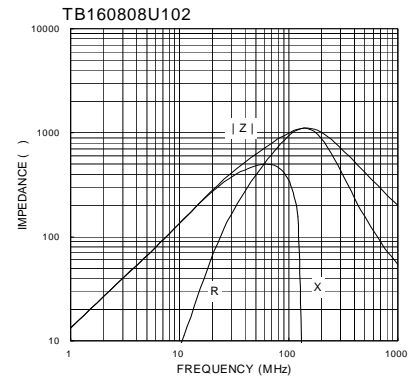
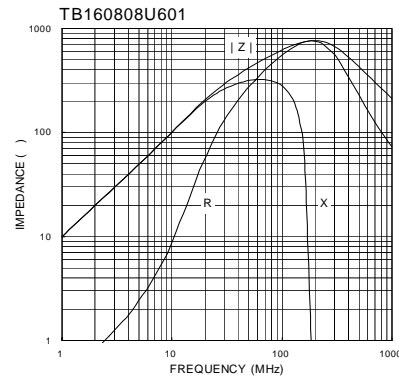
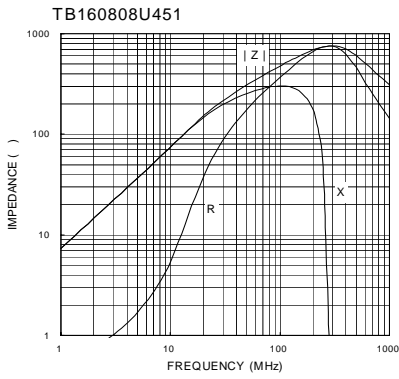
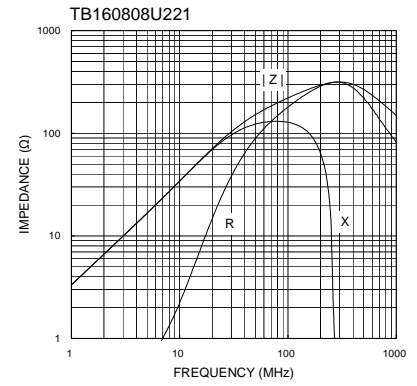
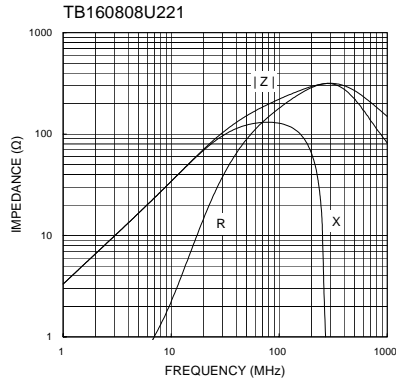
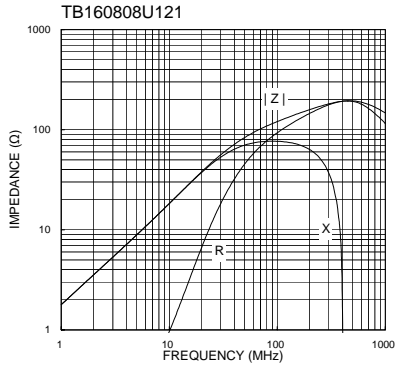


MULTILAYER FERRITE CHIP BEADS



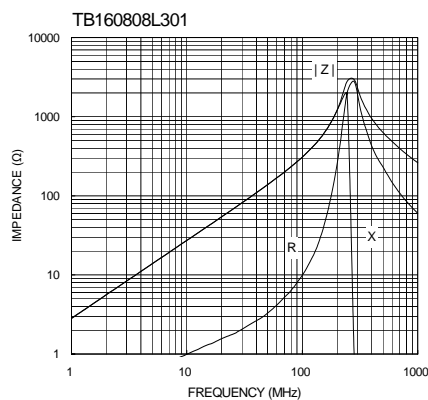
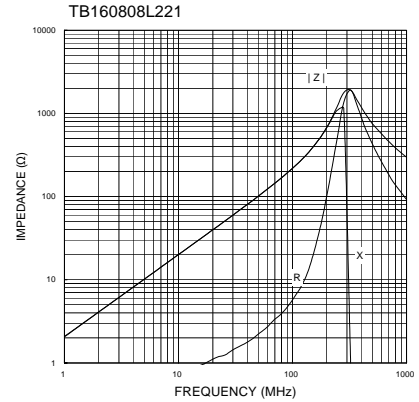
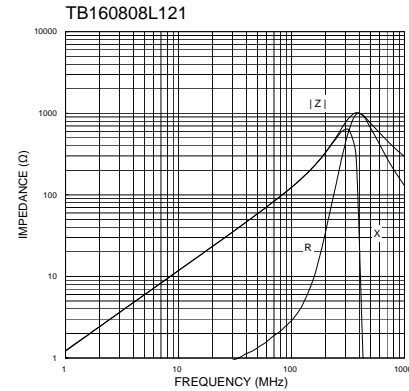
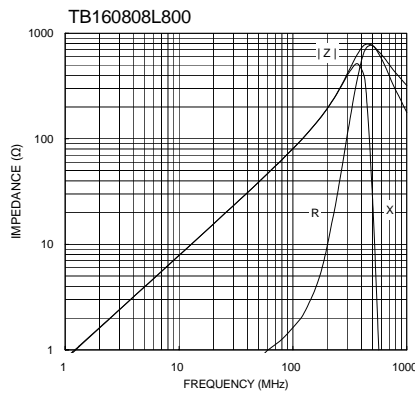
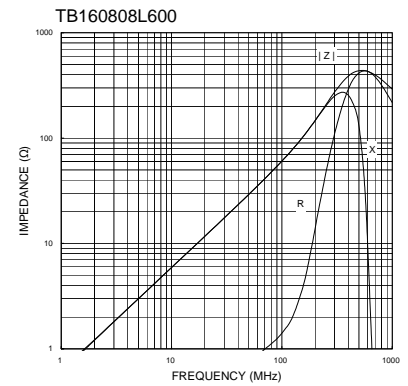
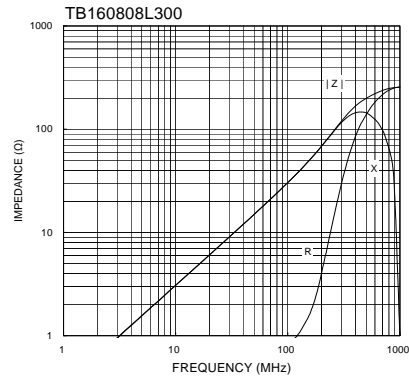
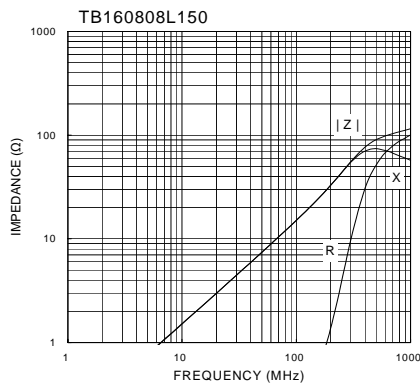
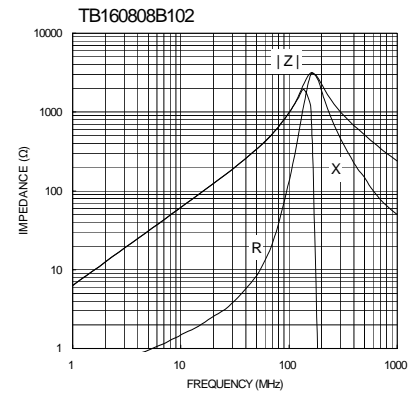
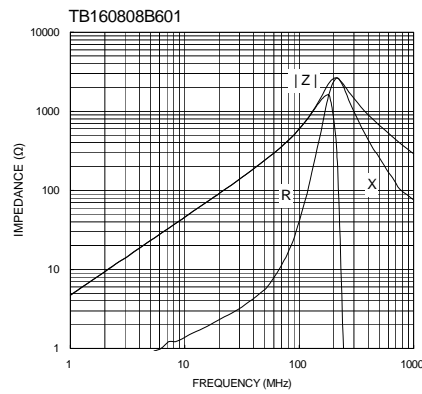
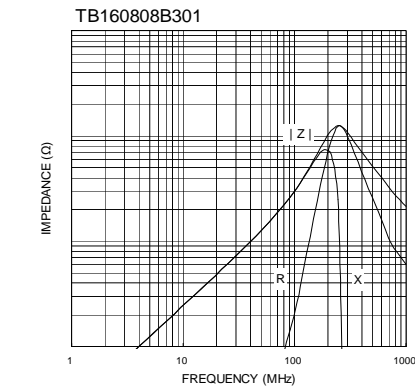


MULTILAYER FERRITE CHIP BEADS





MULTILAYER FERRITE CHIP BEADS





MULTILAYER FERRITE CHIP BEADS

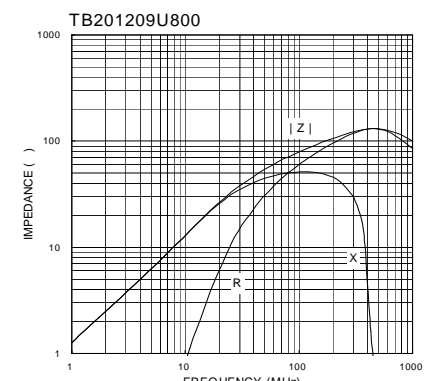
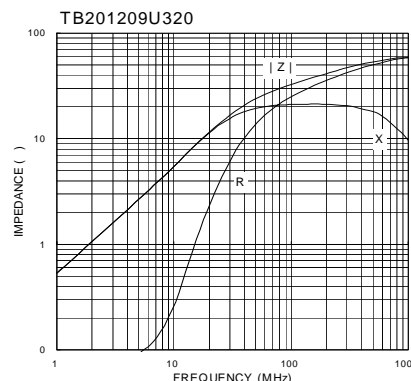
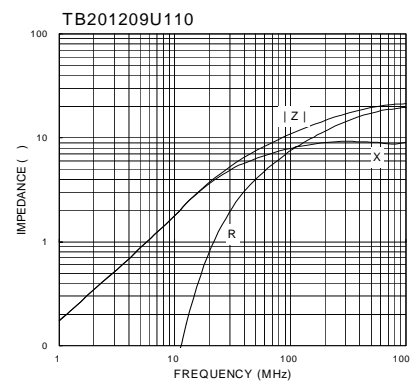
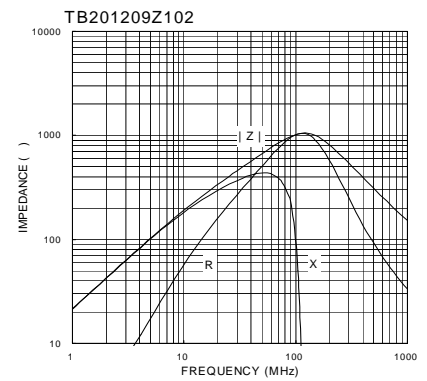
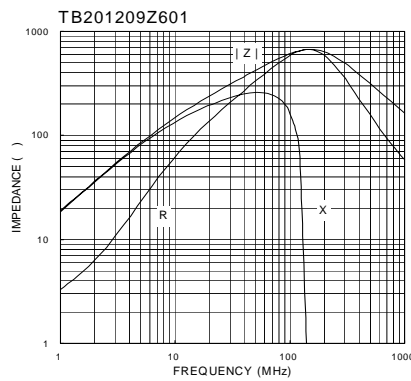
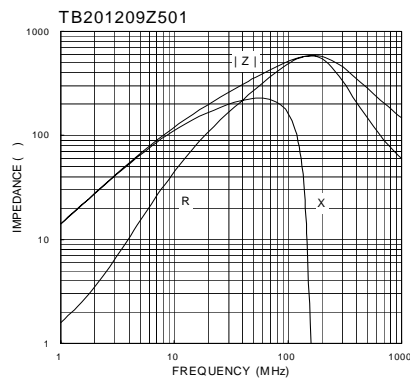
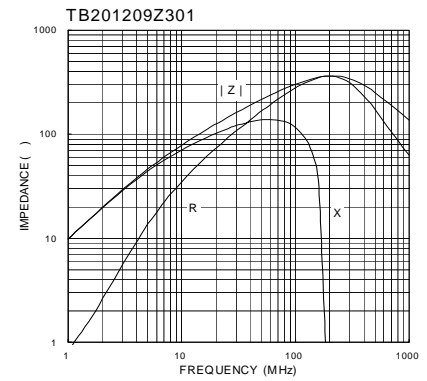
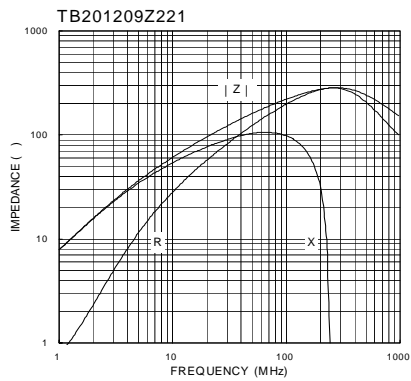
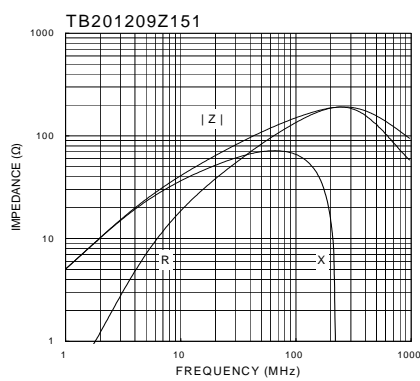
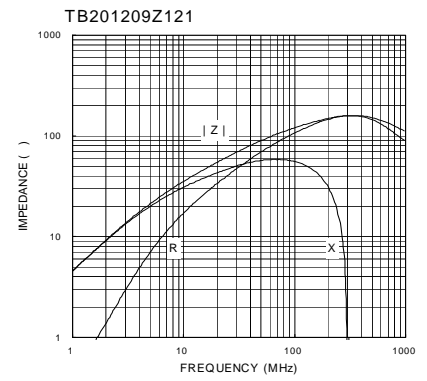
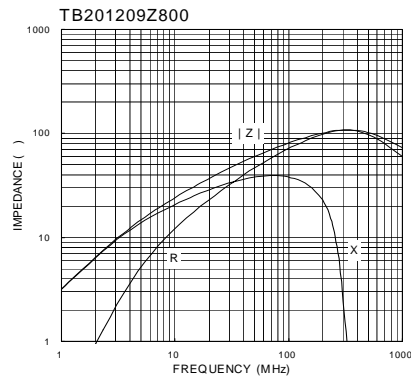
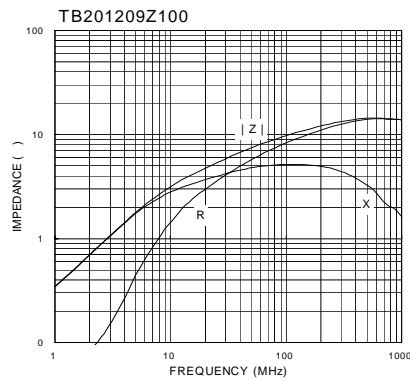
ELECTRICAL CHARACTERISTICS

201209 TYPE

Part Number	Impedance () \pm 25% At 100MHz	DC Resistance () MAX.	Rated Current (mA) MAX.
TB201209Z100	10	0.15	600
TB201209Z800	80	0.15	300
TB201209Z121	120	0.25	300
TB201209Z151	150	0.25	300
TB201209Z221	220	0.30	200
TB201209Z301	300	0.30	200
TB201209Z501	500	0.30	200
TB201209Z601	600	0.35	200
TB201209Z102	1000	0.45	200
TB201209U110	11	0.15	600
TB201209U320	32	0.15	400
TB201209U800	80	0.15	300
TB201209U121	120	0.25	300
TB201209U151	150	0.25	300
TB201209U221	220	0.30	200
TB201209U301	300	0.30	200
TB201209U501	500	0.30	200
TB201209U601	600	0.35	200
TB201209U102	1000	0.45	200
TB201209G800	80	0.15	300
TB201209G121	120	0.25	300
TB201209G151	150	0.25	300
TB201209G221	220	0.30	200
TB201209G301	300	0.30	200
TB201209G501	500	0.30	200
TB201209G601	600	0.35	200
TB201209G102	1000	0.45	200
TB201209G152	1500	0.55	200
TB201209G202	2000	0.60	200
TB201209G222	2200	0.80	200
TB201209G272	2700	0.80	200
TB201209B070	7	0.15	600
TB201209B400	40	0.20	300
TB201209B800	80	0.20	300
TB201209B121	120	0.25	200
TB201209B221	220	0.35	200
TB201209B301	300	0.40	200
TB201209B601	600	0.50	200
TB201209B102	1000	0.60	200

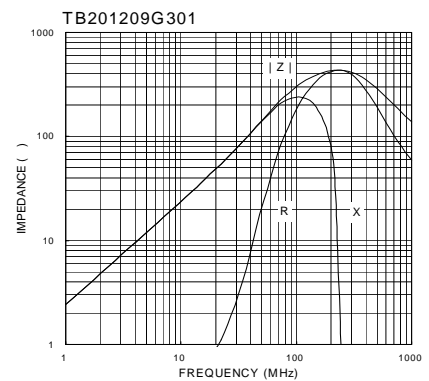
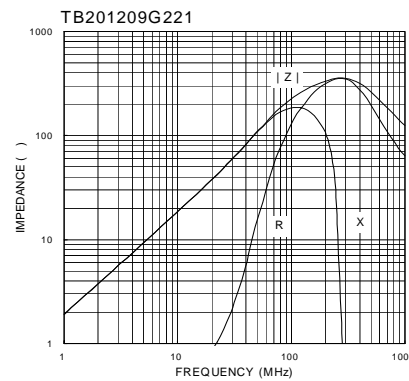
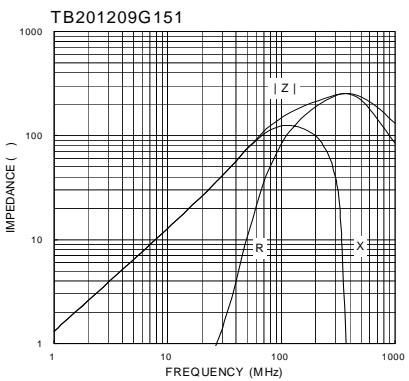
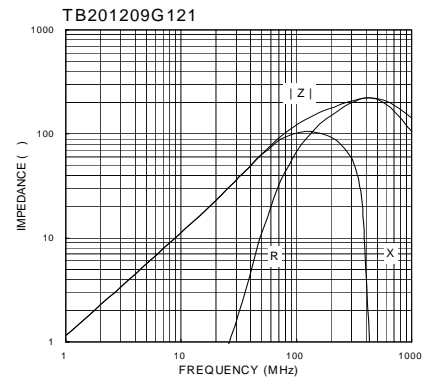
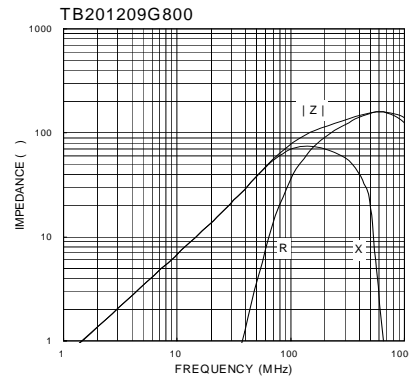
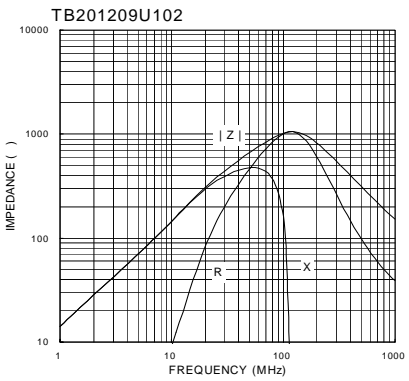
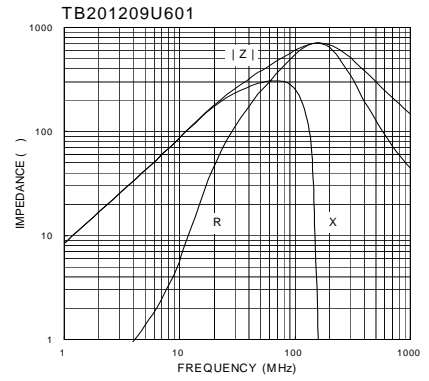
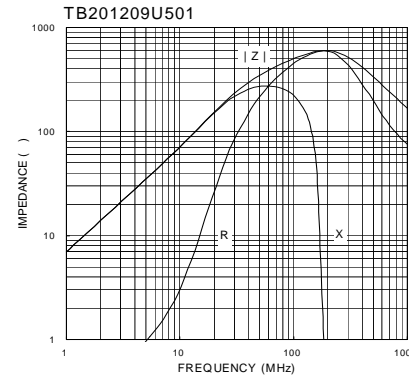
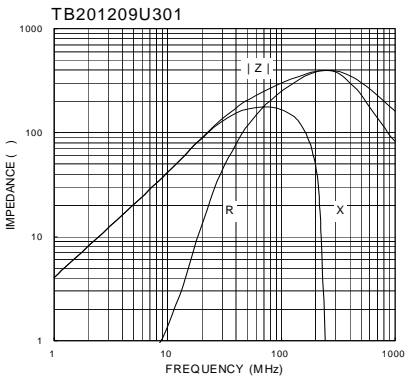
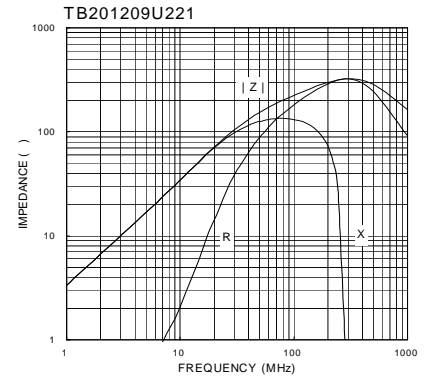
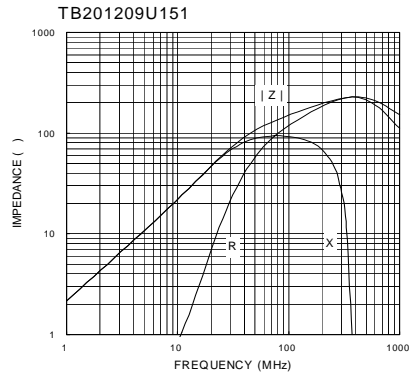
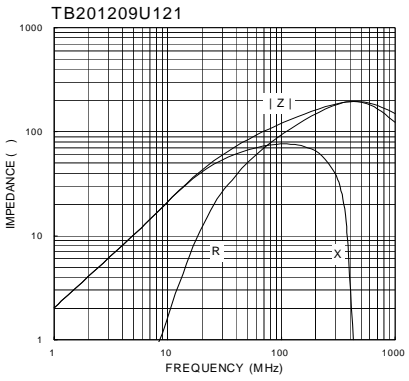


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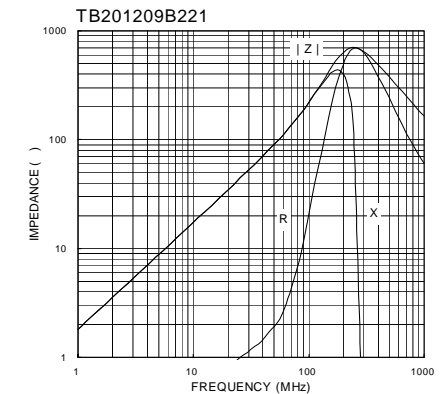
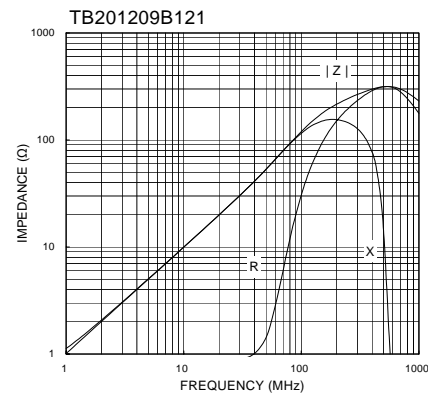
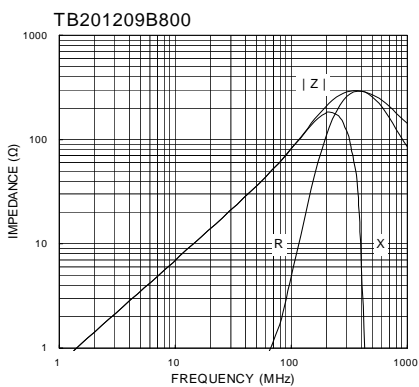
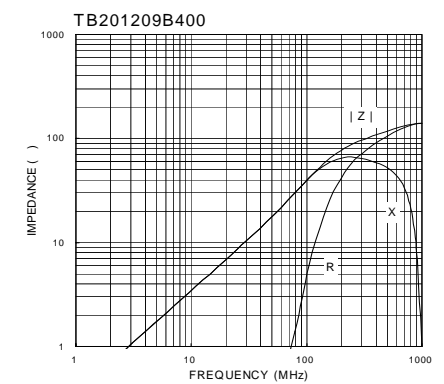
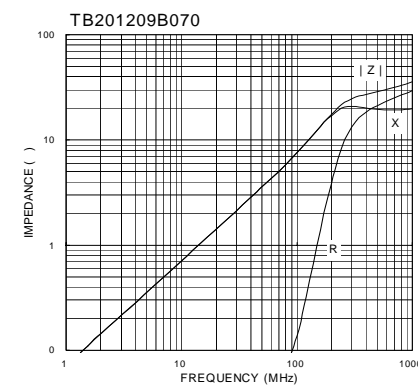
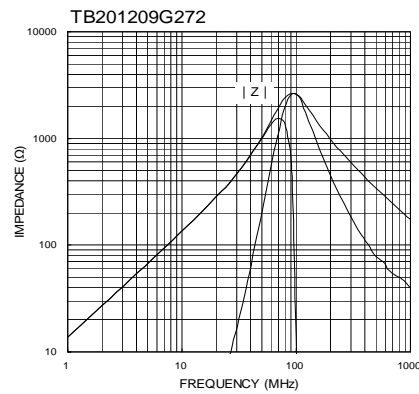
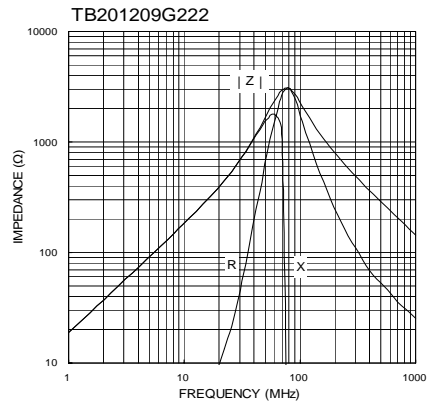
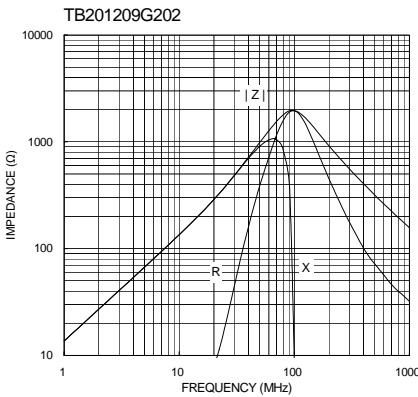
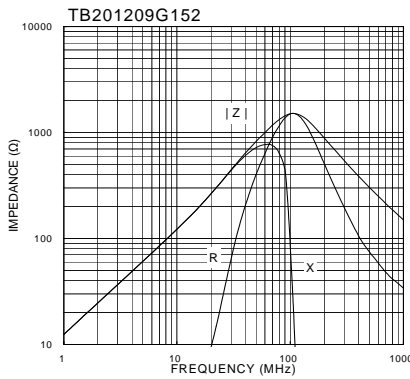
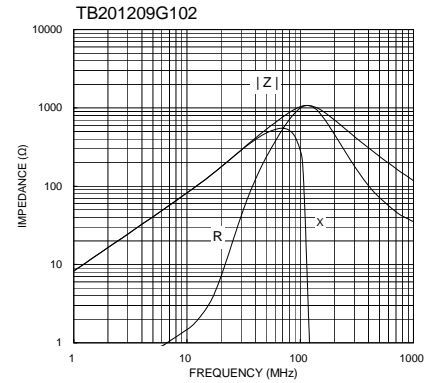
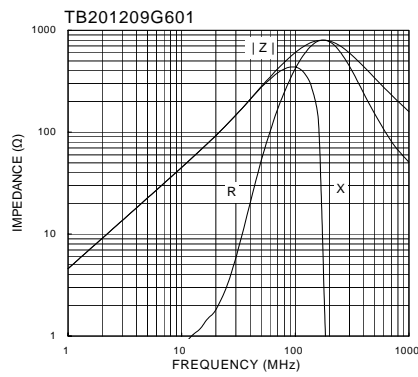
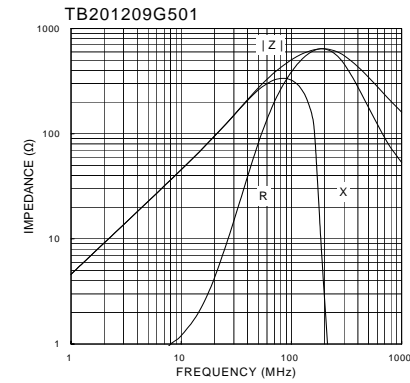


MULTILAYER FERRITE CHIP BEADS



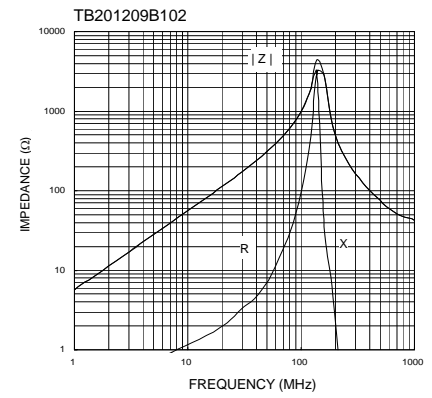
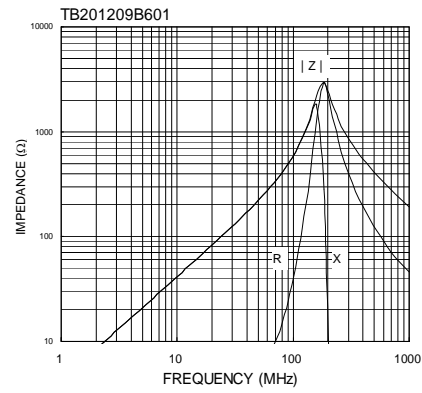
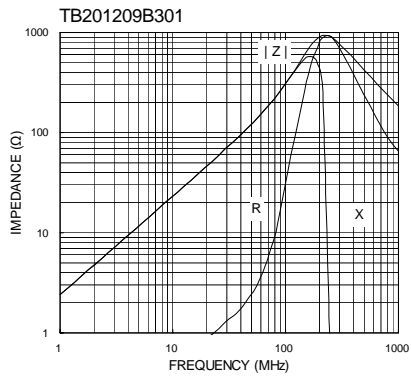


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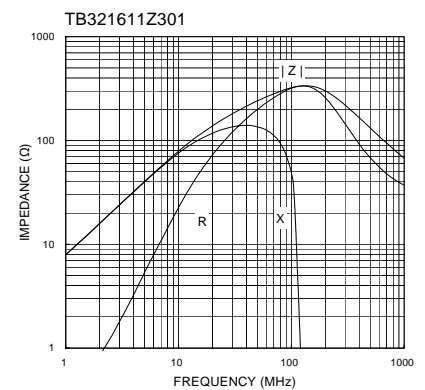
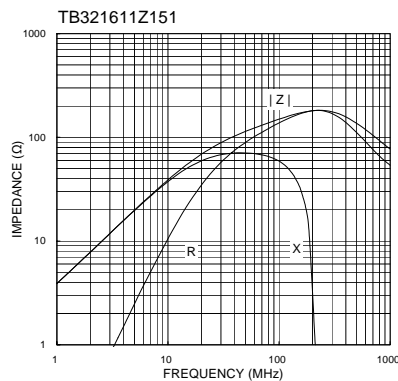
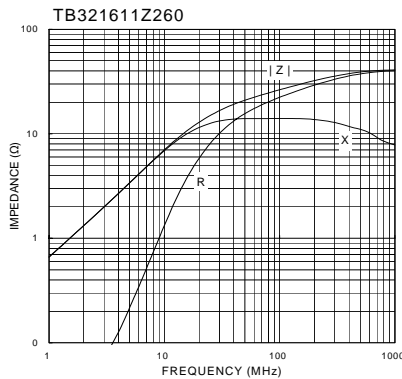
TB Series



ELECTRICAL CHARACTERISTICS

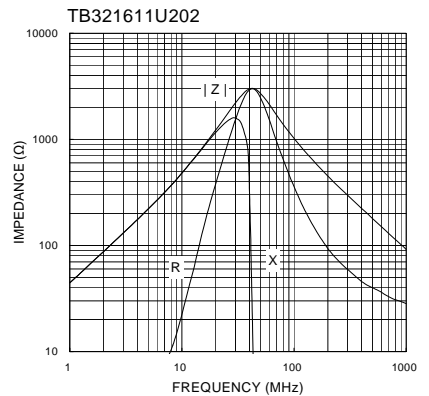
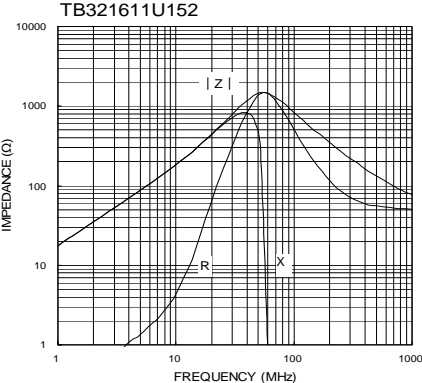
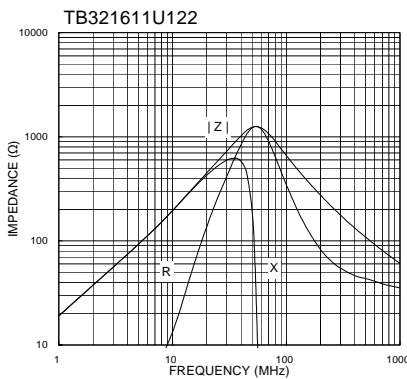
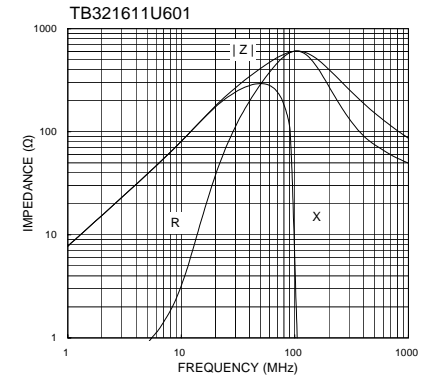
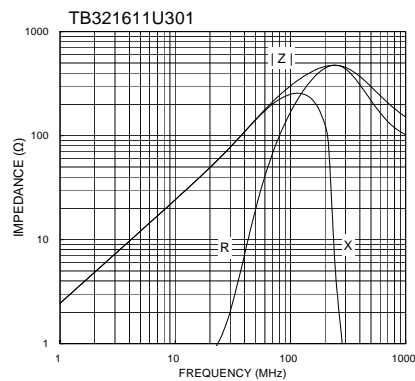
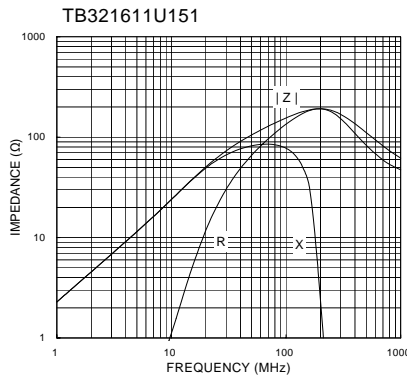
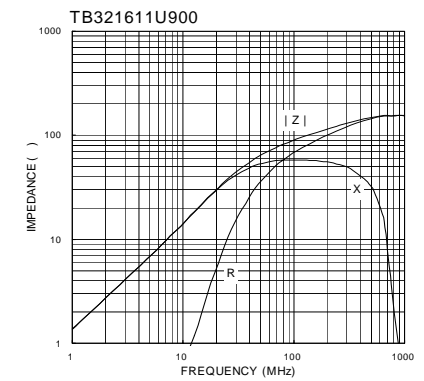
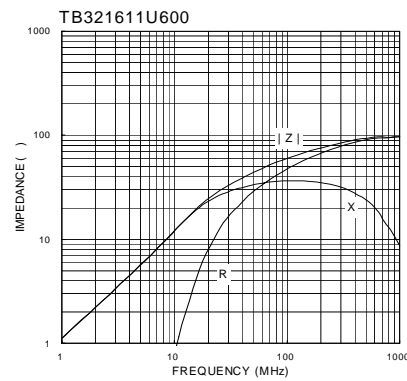
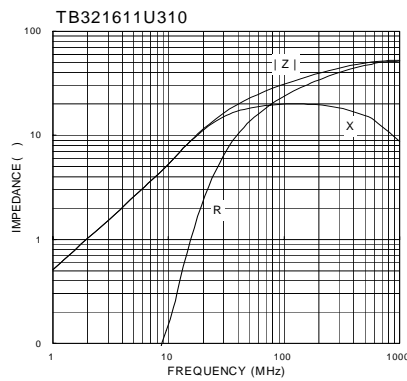
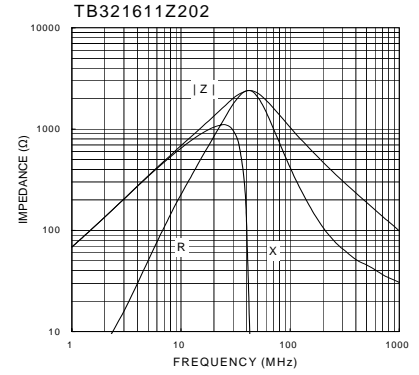
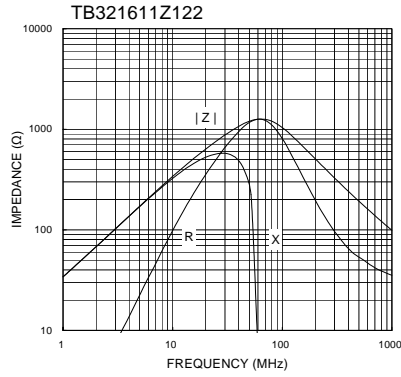
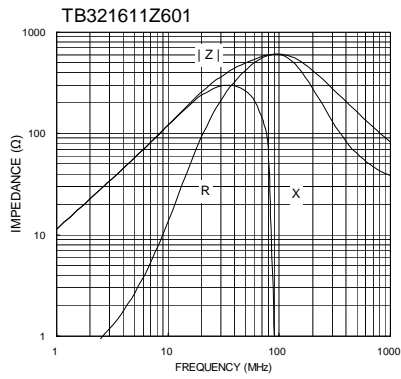
321611 TYPE

Part Number	Impedance () $\pm 25\%$ At 100MHz	DC Resistance () MAX.	Rated Current (mA) MAX.
TB321611Z260	26	0.20	500
TB321611Z151	150	0.30	300
TB321611Z301	300	0.30	300
TB321611Z601	600	0.30	200
TB321611Z122	1200 (at 50 MHz)	0.50	100
TB321611Z202	2000 (at 30 MHz)	0.60	100
TB321611U310	31	0.20	500
TB321611U600	60	0.30	400
TB321611U900	90	0.30	300
TB321611U151	150	0.30	300
TB321611U301	300	0.30	300
TB321611U601	600	0.30	200
TB321611U122	1200 (at 50 MHz)	0.50	100
TB321611U152	1500 (at 50 MHz)	0.50	100
TB321611U202	2000 (at 30 MHz)	0.60	100
TB321611G151	150	0.30	300
TB321611G301	300	0.30	300
TB321611G601	600	0.30	200
TB321611B190	19	0.20	500



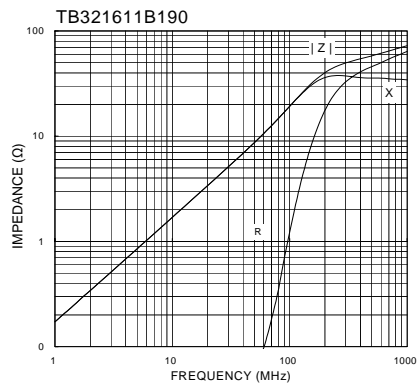
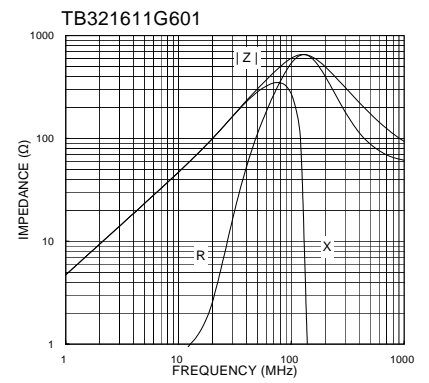
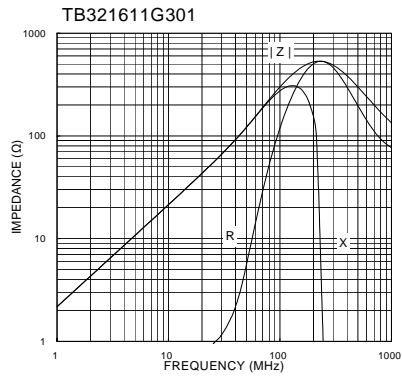
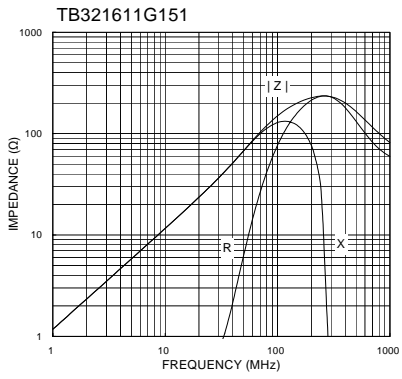
MULTILAYER FERRITE CHIP BEADS

TB Series



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TB Series



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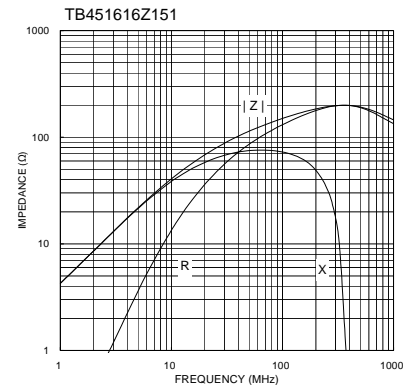
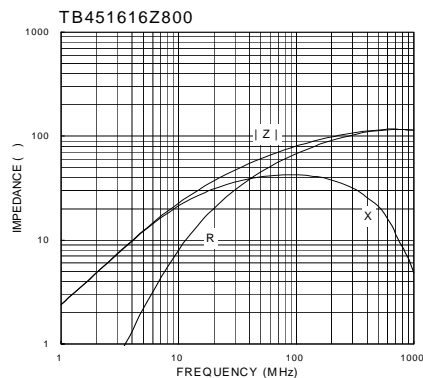
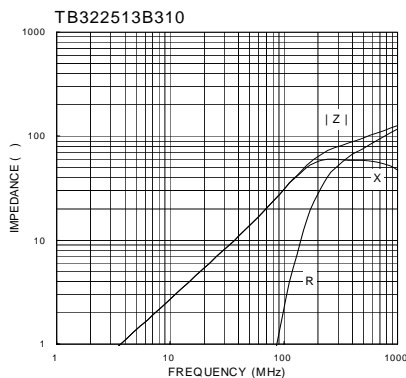
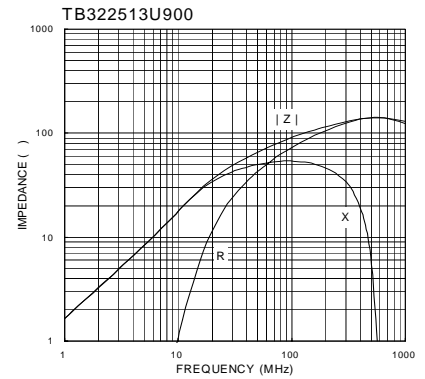
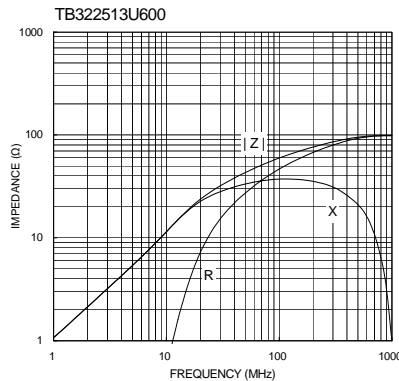
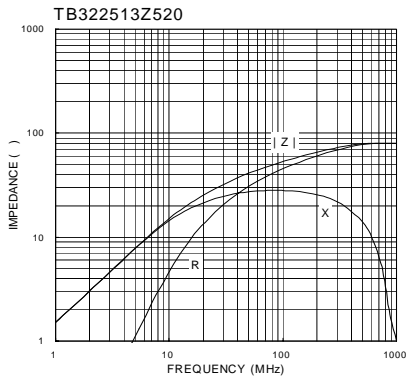
TB Series



ELECTRICAL CHARACTERISTICS

322513, 451616, 453225 TYPE

Part Number	Impedance (Ω) $\pm 25\%$ At 100MHz	DC Resistance (Ω) MAX.	Rated Current (mA) MAX.
TB322513Z520	52	0.30	400
TB322513U600	60	0.30	400
TB322513U900	90	0.30	300
TB322513B310	31	0.30	400
TB451616Z800	80	0.10	500
TB451616Z151	150	0.30	300
TB451616U600	60	0.10	500
TB451616U151	150	0.30	300
TB453215Z121	120	0.30	300
TB453215U131	130	0.30	300
TB453215B700	70	0.30	300



MULTILAYER FERRITE CHIP BEADS

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