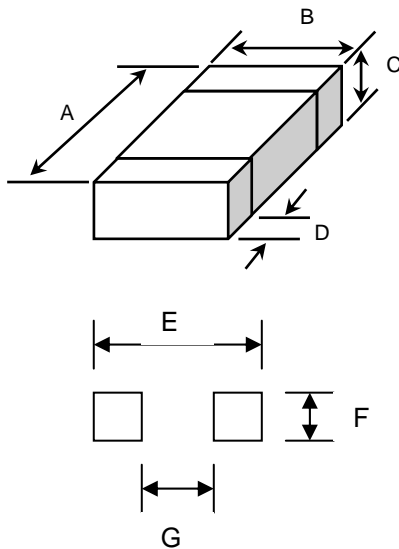


**MB TYPE****PRODUCT IDENTIFICATION**

MB - 160808 - 0600 N P
1 2 3 4 5

1. PRODUCT SYMBOLE
2. DIMENSION
3. IMPEDANCE
4. TYPE (N: GENERAL CURRENT)
5. MATERIAL (D, E, F, P, R, S)

**SHAPES, DIMENSIONS & RECOMMENDED PATTERN**

Dimension in mm (inch)

PART NO.	DIMENSIONS				RECOMMENDED PATTERN		
	A	B	C	D	E	F	G
MB-100505 (0402)	1.0 ± 0.10 (0.040±0.004)	0.5 ± 0.10 (0.020±0.004)	0.5 ± 0.10 (0.020±0.004)	0.2 ± 0.10 (0.008±0.004)	1.4 (0.055)	0.5 (0.020)	0.5 (0.020)
MB-160808 (0603)	1.6 ± 0.15 (0.063±0.006)	0.8 ± 0.15 (0.031±0.006)	0.8 ± 0.15 (0.031±0.006)	0.3 ± 0.20 (0.012±0.008)	2.1 (0.083)	0.7 (0.028)	0.7 (0.028)
MB-201209 (0805)	2.0 ± 0.20 (0.079±0.008)	1.2 ± 0.20 (0.047±0.008)	0.9 ± 0.20 (0.035±0.008)	0.5 ± 0.30 (0.020±0.012)	2.6 (0.102)	1.0 (0.039)	1.0 (0.039)
MB-321611 (1206)	3.2 ± 0.20 (0.126±0.008)	1.6 ± 0.20 (0.063±0.008)	1.1 ± 0.20 (0.043±0.008)	0.5 ± 0.30 (0.020±0.012)	4.4 (0.173)	1.4 (0.055)	2.2 (0.087)
MB-322513 (1210)	3.2 ± 0.20 (0.126±0.008)	2.5 ± 0.20 (0.098±0.008)	1.3 ± 0.20 (0.051±0.008)	0.5 ± 0.30 (0.020±0.012)	4.4 (0.173)	2.3 (0.091)	2.2 (0.087)
MB-451616 (1806)	4.5 ± 0.20 (0.177±0.008)	1.6 ± 0.20 (0.063±0.008)	1.6 ± 0.20 (0.063±0.008)	0.5 ± 0.30 (0.020±0.012)	6.0 (0.236)	1.5 (0.059)	1.5 (0.059)
MB-453215 (1812)	4.5 ± 0.20 (0.177±0.008)	3.2 ± 0.20 (0.126±0.008)	1.5 ± 0.20 (0.059±0.008)	0.5 ± 0.30 (0.020±0.012)	6.0 (0.236)	3.0 (0.118)	3.0 (0.118)



Part Number	Impedance ( $\Omega$ )	Tolerance	Test Frequency (MHz)	DC Resistance ( $\Omega$ ) Max.	Rated Current (mA) Max.	Page Number
MB-100505-0040NF	40	$\pm 25\%$	100	0.3	500	A-8
MB-100505-0040NP	40	$\pm 25\%$	100	0.3	500	A-8
MB-100505-0070NE	70	$\pm 25\%$	100	0.6	100	A-8
MB-100505-0080NF	80	$\pm 25\%$	100	0.4	200	A-8
MB-100505-0080NP	80	$\pm 25\%$	100	0.4	200	A-8
MB-100505-0120NE	120	$\pm 25\%$	100	0.8	100	A-8
MB-100505-0120NP	120	$\pm 25\%$	100	0.5	200	A-8
MB-100505-0140NF	140	$\pm 25\%$	100	0.5	200	A-8
MB-100505-0200NE	200	$\pm 25\%$	100	0.9	100	A-8
MB-100505-0220NP	220	$\pm 25\%$	100	0.7	100	A-8
MB-100505-0250NF	250	$\pm 25\%$	100	0.7	100	A-8
MB-100505-0300NF	300	$\pm 25\%$	100	0.8	100	A-8
MB-100505-0300NP	300	$\pm 25\%$	100	0.8	100	A-9
MB-100505-0450NF	450	$\pm 25\%$	100	0.9	100	A-9
MB-100505-0450NP	450	$\pm 25\%$	100	0.9	100	A-9
MB-100505-0600NF	600	$\pm 25\%$	100	1.0	100	A-9



Part Number	Impedance ( $\Omega$ )	Tolerance	Test Frequency (MHz)	DC Resistance ( $\Omega$ ) Max.	Rated Current (mA) Max.	Page Number
MB-160808-0005NS	5	$\pm 25\%$	100	0.10	400	<a href="#">▶ A-10</a>
MB-160808-0030NP	30	$\pm 25\%$	100	0.20	400	<a href="#">▶ A-10</a>
MB-160808-0030NS	30	$\pm 25\%$	100	0.20	250	<a href="#">▶ A-10</a>
MB-160808-0040NP	40	$\pm 25\%$	100	0.20	400	<a href="#">▶ A-10</a>
MB-160808-0060NP	60	$\pm 25\%$	100	0.30	300	<a href="#">▶ A-10</a>
MB-160808-0070NP	70	$\pm 25\%$	100	0.30	300	<a href="#">▶ A-10</a>
MB-160808-0080NP	80	$\pm 25\%$	100	0.35	300	<a href="#">▶ A-10</a>
MB-160808-0100NP	100	$\pm 25\%$	100	0.35	300	<a href="#">▶ A-10</a>
MB-160808-0100NR	100	$\pm 25\%$	100	0.35	300	<a href="#">▶ A-10</a>
MB-160808-0100NS	100	$\pm 25\%$	100	0.40	200	<a href="#">▶ A-10</a>
MB-160808-0120NP	120	$\pm 25\%$	100	0.35	300	<a href="#">▶ A-10</a>
MB-160808-0120NS	120	$\pm 25\%$	100	0.40	200	<a href="#">▶ A-10</a>
MB-160808-0180NP	180	$\pm 25\%$	100	0.40	200	<a href="#">▶ A-11</a>
MB-160808-0220NP	220	$\pm 25\%$	100	0.40	200	<a href="#">▶ A-11</a>
MB-160808-0240NP	240	$\pm 25\%$	100	0.40	200	<a href="#">▶ A-11</a>
MB-160808-0240NS	240	$\pm 25\%$	100	0.50	200	<a href="#">▶ A-11</a>
MB-160808-0300NP	300	$\pm 25\%$	100	0.45	200	<a href="#">▶ A-11</a>
MB-160808-0300NS	300	$\pm 25\%$	100	0.60	200	<a href="#">▶ A-11</a>
MB-160808-0400NS	400	$\pm 25\%$	100	0.65	200	<a href="#">▶ A-11</a>
MB-160808-0420NS	420	$\pm 25\%$	100	0.65	200	<a href="#">▶ A-11</a>
MB-160808-0450NP	450	$\pm 25\%$	100	0.50	210	<a href="#">▶ A-11</a>
MB-160808-0600ND	600	$\pm 25\%$	100	0.60	150	<a href="#">▶ A-11</a>
MB-160808-0600NP	600	$\pm 25\%$	100	0.55	210	<a href="#">▶ A-11</a>
MB-160808-0600NS	600	$\pm 25\%$	100	0.80	200	<a href="#">▶ A-11</a>
MB-160808-1000NF	1000	$\pm 25\%$	100	0.65	300	<a href="#">▶ A-12</a>
MB-160808-1000NP	1000	$\pm 25\%$	100	0.65	100	<a href="#">▶ A-12</a>
MB-160808-1000NR	1000	$\pm 25\%$	100	0.65	50	<a href="#">▶ A-12</a>
MB-160808-1500NF	1500	$\pm 25\%$	100	0.70	50	<a href="#">▶ A-12</a>



Part Number	Impedance ( $\Omega$ )	Tolerance	Test Frequency (MHz)	DC Resistance ( $\Omega$ ) Max.	Rated Current (mA) Max.	Page Number
MB-201209-0007NS	7	$\pm 25\%$	100	0.20	300	<a href="#">▶ A-13</a>
MB-201209-0010ND	10	$\pm 25\%$	100	0.15	600	<a href="#">▶ A-13</a>
MB-201209-0010NS	10	$\pm 25\%$	100	0.20	600	<a href="#">▶ A-13</a>
MB-201209-0011NP	11	$\pm 25\%$	100	0.10	600	<a href="#">▶ A-13</a>
MB-201209-0017ND	17	$\pm 25\%$	100	0.20	600	<a href="#">▶ A-13</a>
MB-201209-0017NP	17	$\pm 25\%$	100	0.20	600	<a href="#">▶ A-13</a>
MB-201209-0030ND	30	$\pm 25\%$	100	0.70	200	<a href="#">▶ A-13</a>
MB-201209-0030NS	30	$\pm 25\%$	100	0.40	300	<a href="#">▶ A-13</a>
MB-201209-0040ND	40	$\pm 25\%$	100	0.70	200	<a href="#">▶ A-13</a>
MB-201209-0060ND	60	$\pm 25\%$	100	0.40	400	<a href="#">▶ A-13</a>
MB-201209-0060NP	60	$\pm 25\%$	100	0.40	400	<a href="#">▶ A-13</a>
MB-201209-0060NR	60	$\pm 25\%$	100	0.40	400	<a href="#">▶ A-13</a>
MB-201209-0060NS	60	$\pm 25\%$	100	0.50	200	<a href="#">▶ A-14</a>
MB-201209-0070NP	70	$\pm 25\%$	100	0.30	250	<a href="#">▶ A-14</a>
MB-201209-0070NR	70	$\pm 25\%$	100	0.40	400	<a href="#">▶ A-14</a>
MB-201209-0070NS	70	$\pm 25\%$	100	0.40	400	<a href="#">▶ A-14</a>
MB-201209-0075NP	75	$\pm 25\%$	100	0.50	200	<a href="#">▶ A-14</a>
MB-201209-0075NS	75	$\pm 25\%$	100	0.50	200	<a href="#">▶ A-14</a>
MB-201209-0080ND	80	$\pm 25\%$	100	0.30	250	<a href="#">▶ A-14</a>
MB-201209-0080NP	80	$\pm 25\%$	100	0.30	250	<a href="#">▶ A-14</a>
MB-201209-0080NR	80	$\pm 25\%$	100	0.20	300	<a href="#">▶ A-14</a>
MB-201209-0100ND	100	$\pm 25\%$	100	0.60	200	<a href="#">▶ A-14</a>
MB-201209-0100NS	100	$\pm 25\%$	100	0.50	200	<a href="#">▶ A-14</a>
MB-201209-0120ND	120	$\pm 25\%$	100	0.40	200	<a href="#">▶ A-14</a>
MB-201209-0120NR	120	$\pm 25\%$	100	0.25	300	<a href="#">▶ A-15</a>
MB-201209-0120NS	120	$\pm 25\%$	100	0.50	200	<a href="#">▶ A-15</a>
MB-201209-0125ND	125	$\pm 25\%$	100	0.50	200	<a href="#">▶ A-15</a>
MB-201209-0150ND	150	$\pm 25\%$	100	0.60	200	<a href="#">▶ A-15</a>
MB-201209-0150NR	150	$\pm 25\%$	100	0.25	300	<a href="#">▶ A-15</a>
MB-201209-0150NS	150	$\pm 25\%$	100	0.50	200	<a href="#">▶ A-15</a>
MB-201209-0200ND	200	$\pm 25\%$	100	0.20	800	<a href="#">▶ A-15</a>
MB-201209-0220ND	220	$\pm 25\%$	100	0.20	200	<a href="#">▶ A-15</a>
MB-201209-0220NR	220	$\pm 25\%$	100	0.50	200	<a href="#">▶ A-15</a>



Part Number	Impedance ( $\Omega$ )	Tolerance	Test Frequency (MHz)	DC Resistance ( $\Omega$ ) Max.	Rated Current (mA) Max.	Page Number
MB-201209-0240NS	240	$\pm 25\%$	100	0.35	200	<a href="#">➤ A-15</a>
MB-201209-0300ND	300	$\pm 25\%$	100	0.30	200	<a href="#">➤ A-15</a>
MB-201209-0300NP	300	$\pm 25\%$	100	0.30	200	<a href="#">➤ A-15</a>
MB-201209-0300NS	300	$\pm 25\%$	100	0.40	200	<a href="#">➤ A-16</a>
MB-201209-0350NP	350	$\pm 25\%$	100	0.40	200	<a href="#">➤ A-16</a>
MB-201209-0400NP	400	$\pm 25\%$	100	0.50	200	<a href="#">➤ A-16</a>
MB-201209-0450NS	450	$\pm 25\%$	100	0.50	200	<a href="#">➤ A-16</a>
MB-201209-0470NP	470	$\pm 25\%$	100	0.25	700	<a href="#">➤ A-16</a>
MB-201209-0600ND	600	$\pm 25\%$	100	0.60	200	<a href="#">➤ A-16</a>
MB-201209-0600NF	600	$\pm 25\%$	100	0.60	200	<a href="#">➤ A-16</a>
MB-201209-0600NR	600	$\pm 25\%$	100	0.35	200	<a href="#">➤ A-16</a>
MB-201209-0600NS	600	$\pm 25\%$	100	0.50	200	<a href="#">➤ A-16</a>
MB-201209-0750NR	750	$\pm 25\%$	100	0.40	200	<a href="#">➤ A-16</a>
MB-201209-0750NS	750	$\pm 25\%$	100	0.70	200	<a href="#">➤ A-16</a>
MB-201209-0800NR	800	$\pm 25\%$	100	0.70	200	<a href="#">➤ A-16</a>
MB-201209-1000ND	1000	$\pm 25\%$	100	0.70	200	<a href="#">➤ A-17</a>
MB-201209-1000NF	1000	$\pm 25\%$	100	1.00	100	<a href="#">➤ A-17</a>
MB-201209-1000NR	1000	$\pm 25\%$	100	1.00	100	<a href="#">➤ A-17</a>
MB-201209-1000NS	1000	$\pm 25\%$	100	1.00	100	<a href="#">➤ A-17</a>
MB-201209-1200NR	1200	$\pm 25\%$	100	1.00	100	<a href="#">➤ A-17</a>
MB-201209-1500NR	1500	$\pm 25\%$	100	1.00	100	<a href="#">➤ A-17</a>
MB-201209-2000NR	2000	$\pm 25\%$	100	0.60	200	<a href="#">➤ A-17</a>
MB-201209-2200NR	2200	$\pm 25\%$	100	1.00	100	<a href="#">➤ A-17</a>
MB-201209-2500NR	2500	$\pm 25\%$	100	1.00	100	<a href="#">➤ A-17</a>



Part Number	Impedance ( $\Omega$ )	Tolerance	Test Frequency (MHz)	DC Resistance ( $\Omega$ ) Max.	Rated Current (mA) Max.	Page Number
MB-321611-0019NS	19	$\pm 25\%$	100	0.10	600	A-18
MB-321611-0026ND	26	$\pm 25\%$	100	0.10	600	A-18
MB-321611-0031NP	31	$\pm 25\%$	100	0.20	500	A-18
MB-321611-0050NP	50	$\pm 25\%$	100	0.50	200	A-18
MB-321611-0052ND	52	$\pm 25\%$	100	0.20	500	A-18
MB-321611-0060ND	60	$\pm 25\%$	100	0.50	200	A-18
MB-321611-0060NP	60	$\pm 25\%$	100	0.50	200	A-18
MB-321611-0070ND	70	$\pm 25\%$	100	0.50	200	A-18
MB-321611-0070NP	70	$\pm 25\%$	100	0.50	200	A-18
MB-321611-0080NR	80	$\pm 25\%$	100	0.20	500	A-18
MB-321611-0090NP	90	$\pm 25\%$	100	0.10	500	A-18
MB-321611-0100NR	100	$\pm 25\%$	100	0.10	500	A-18
MB-321611-0120ND	120	$\pm 25\%$	100	0.10	500	A-19
MB-321611-0120NP	120	$\pm 25\%$	100	0.10	500	A-19
MB-321611-0120NR	120	$\pm 25\%$	100	0.40	500	A-19
MB-321611-0120NS	120	$\pm 25\%$	100	0.40	200	A-19
MB-321611-0150ND	150	$\pm 25\%$	100	0.15	300	A-19
MB-321611-0150NR	150	$\pm 25\%$	100	0.40	100	A-19
MB-321611-0220NR	220	$\pm 25\%$	100	0.50	500	A-19
MB-321611-0300ND	300	$\pm 25\%$	100	0.40	300	A-19
MB-321611-0300NR	300	$\pm 25\%$	100	0.30	300	A-19
MB-321611-0400NR	400	$\pm 25\%$	100	0.60	100	A-19
MB-321611-0500ND	500	$\pm 25\%$	100	0.50	100	A-19
MB-321611-0600ND	600	$\pm 25\%$	100	0.20	200	A-19
MB-321611-0600NP	600	$\pm 25\%$	100	0.30	200	A-20
MB-321611-0600NR	600	$\pm 25\%$	100	0.30	200	A-20
MB-321611-0600NS	600	$\pm 25\%$	100	0.30	200	A-20
MB-321611-1000NP	1000	$\pm 25\%$	100	0.90	150	A-20
MB-321611-1000NR	1000	$\pm 25\%$	100	0.90	150	A-20
MB-321611-1200NP	1200	$\pm 25\%$	50	1.00	100	A-20
MB-321611-1500NR	1500	$\pm 25\%$	50	0.60	100	A-20
MB-321611-2000ND	2000	$\pm 25\%$	30	2.10	100	A-20
MB-321611-2000NP	2000	$\pm 25\%$	30	2.10	100	A-20
MB-321611-2000NR	2000	$\pm 25\%$	100	1.00	100	A-20



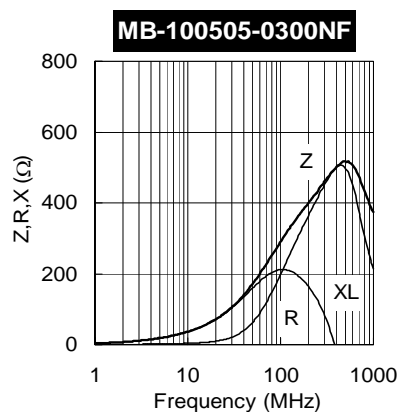
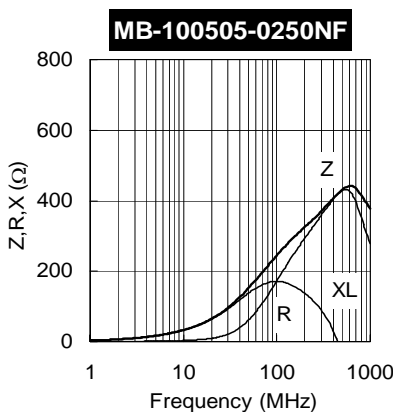
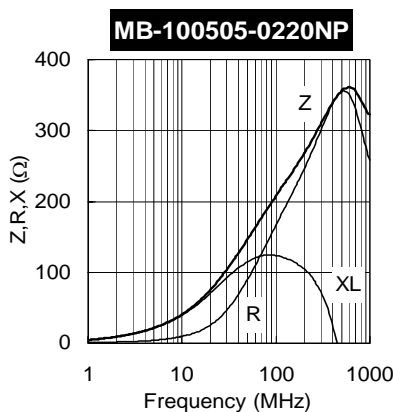
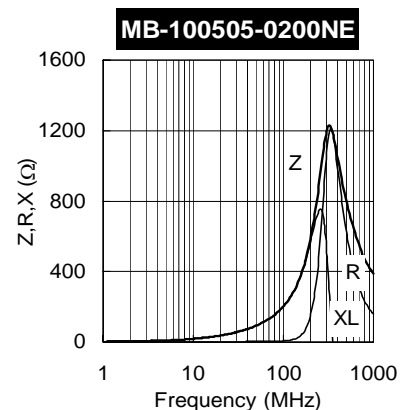
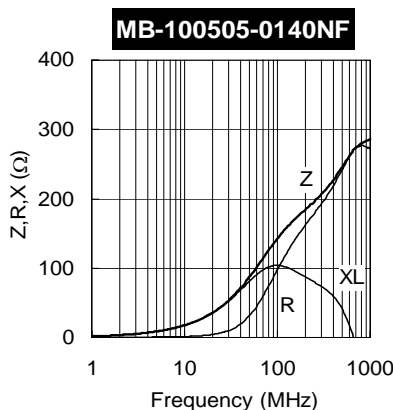
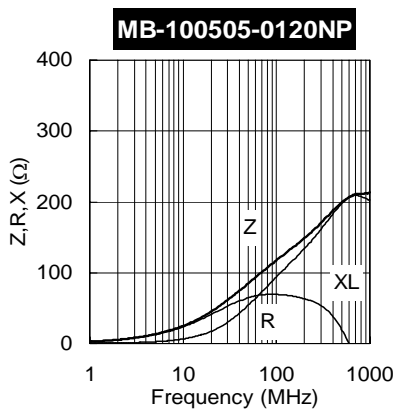
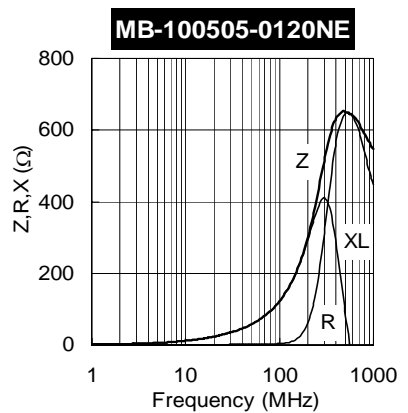
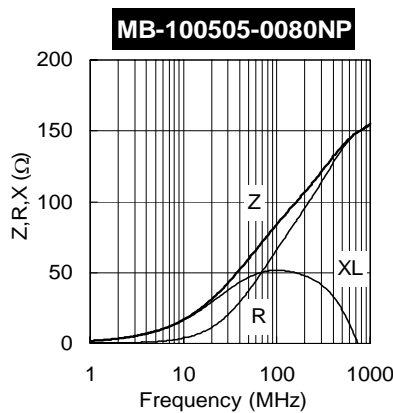
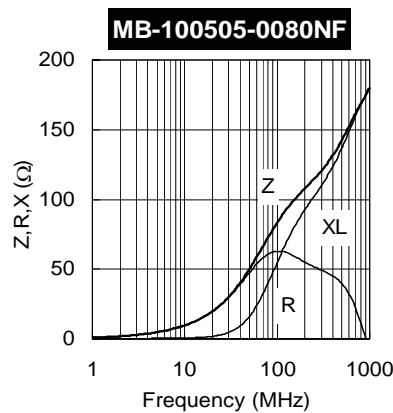
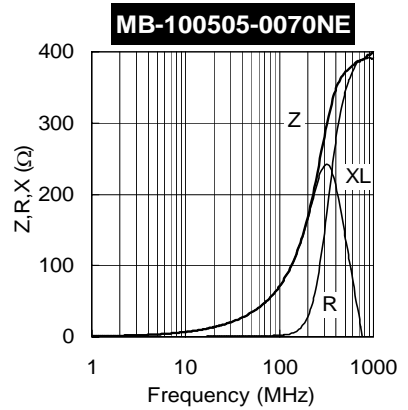
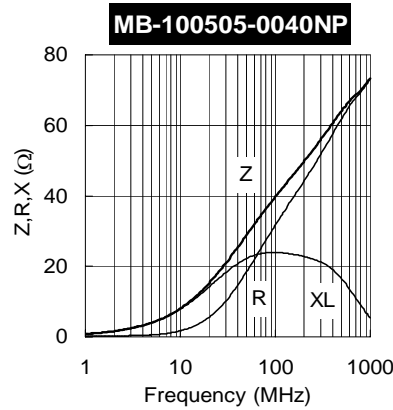
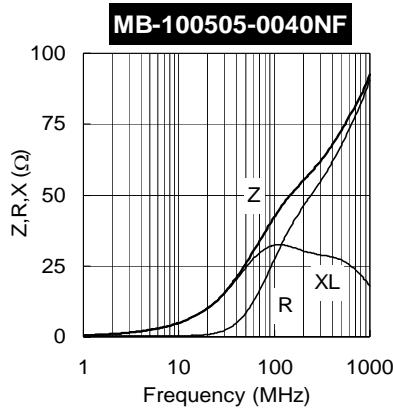
Part Number	Impedance ( $\Omega$ )	Tolerance	Test Frequency (MHz)	DC Resistance ( $\Omega$ ) Max.	Rated Current (mA) Max.	Page Number
MB-322513-0031NS	31	$\pm 25\%$	100	0.20	400	<a href="#">▶ A-21</a>
MB-322513-0052ND	52	$\pm 25\%$	100	0.30	500	<a href="#">▶ A-21</a>
MB-322513-0060ND	60	$\pm 25\%$	100	0.30	200	<a href="#">▶ A-21</a>
MB-322513-0060NP	60	$\pm 25\%$	100	0.30	200	<a href="#">▶ A-21</a>
MB-322513-0070NP	70	$\pm 25\%$	100	0.50	200	<a href="#">▶ A-21</a>
MB-322513-0600NP	600	$\pm 25\%$	100	0.30	300	<a href="#">▶ A-21</a>

Part Number	Impedance ( $\Omega$ )	Tolerance	Test Frequency (MHz)	DC Resistance ( $\Omega$ ) Max.	Rated Current (mA) Max.	Page Number
MB-451616-0052ND	52	$\pm 25\%$	100	0.70	300	<a href="#">▶ A-22</a>
MB-451616-0060ND	60	$\pm 25\%$	100	0.70	300	<a href="#">▶ A-22</a>
MB-451616-0060NP	60	$\pm 25\%$	100	0.70	300	<a href="#">▶ A-22</a>
MB-451616-0080ND	80	$\pm 25\%$	100	0.70	200	<a href="#">▶ A-22</a>
MB-451616-0125NP	125	$\pm 25\%$	100	0.70	200	<a href="#">▶ A-22</a>
MB-451616-0150ND	150	$\pm 25\%$	100	0.30	300	<a href="#">▶ A-22</a>
MB-451616-0150NP	150	$\pm 25\%$	100	0.70	200	<a href="#">▶ A-22</a>

Part Number	Impedance ( $\Omega$ )	Tolerance	Test Frequency (MHz)	DC Resistance ( $\Omega$ ) Max.	Rated Current (mA) Max.	Page Number
MB-453215-0070NS	70	$\pm 25\%$	100	0.40	300	<a href="#">▶ A-23</a>
MB-453215-0120ND	120	$\pm 25\%$	100	0.40	300	<a href="#">▶ A-23</a>
MB-453215-0125NP	125	$\pm 25\%$	100	0.40	300	<a href="#">▶ A-23</a>
MB-453215-0130NP	130	$\pm 25\%$	100	0.30	300	<a href="#">▶ A-23</a>



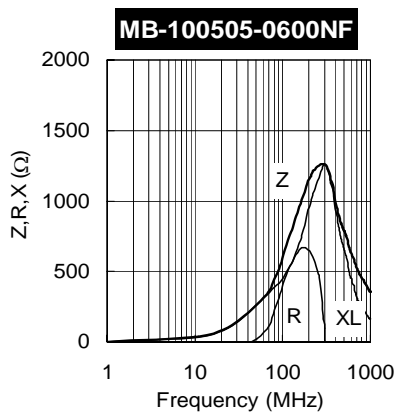
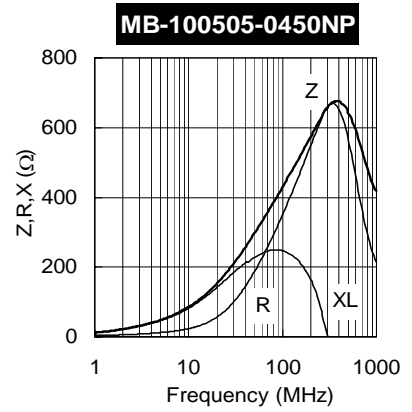
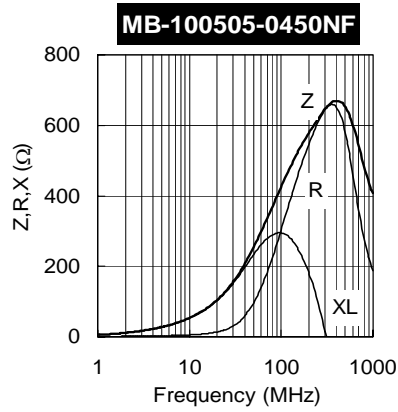
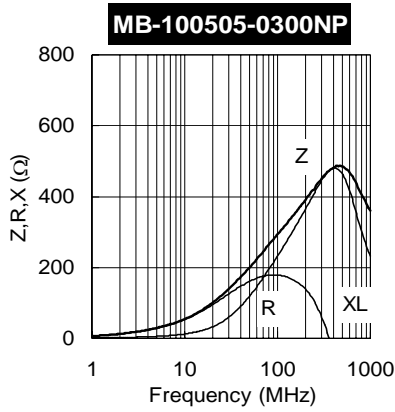
ELECTRIC CHARACTERISTICS CURVES (MB-100505 N SERIES)





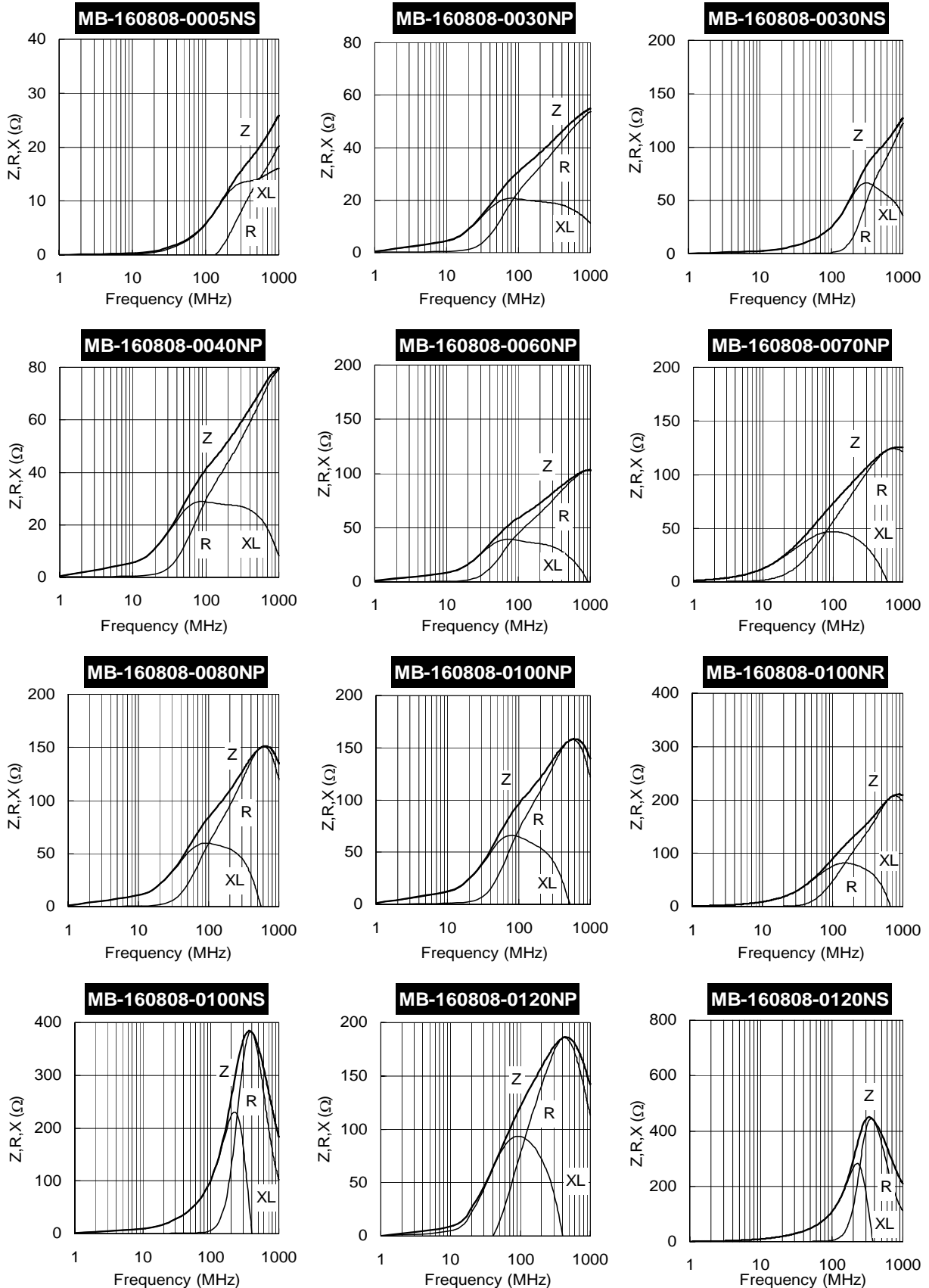


**ELECTRIC CHARACTERISTICS CURVES (MB-100505 N SERIES)**



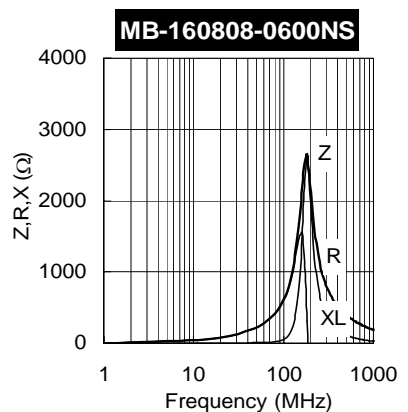
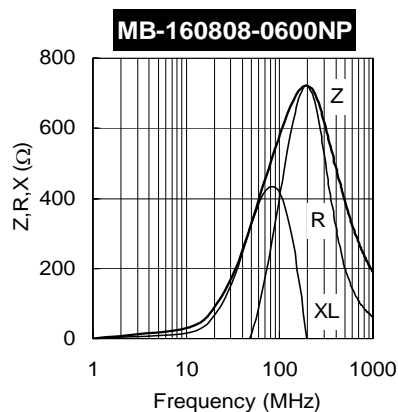
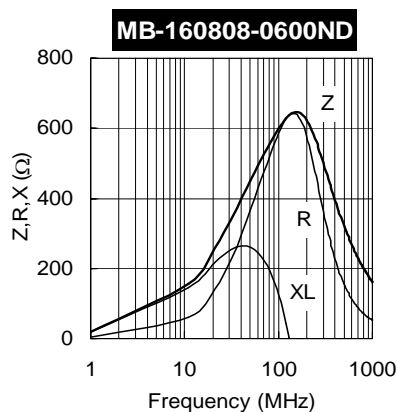
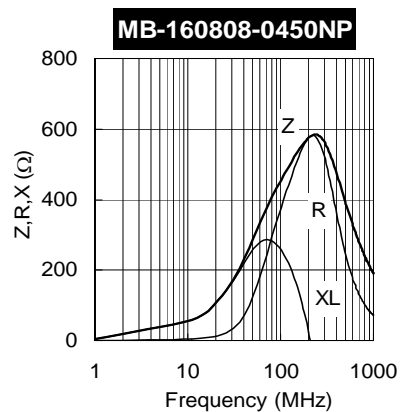
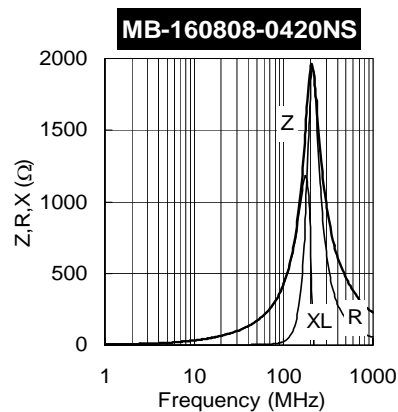
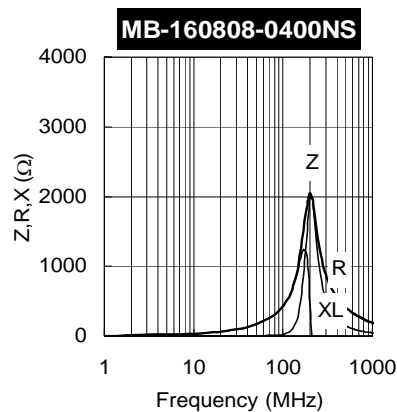
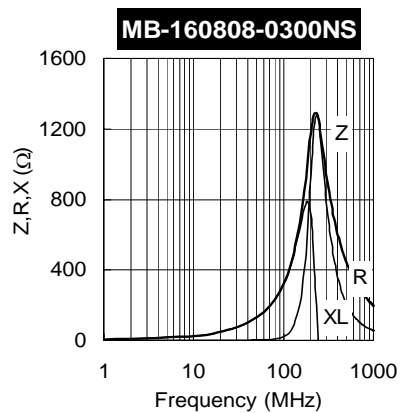
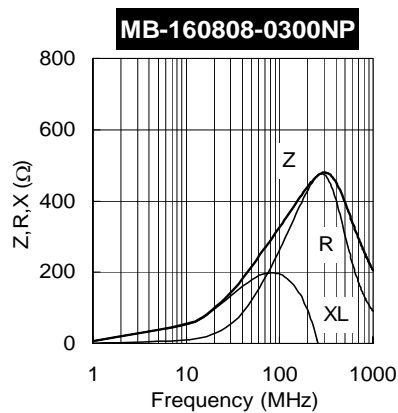
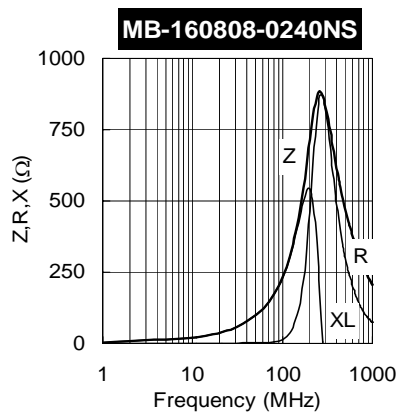
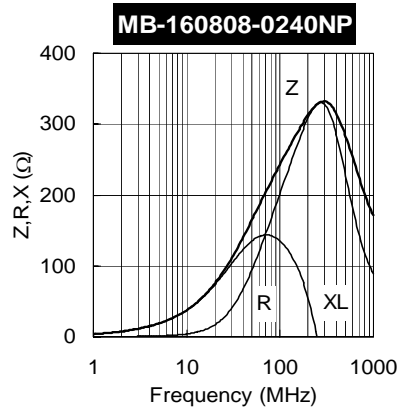
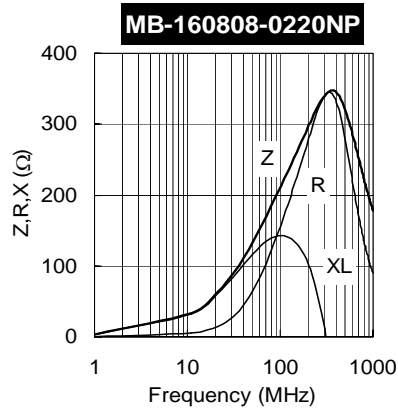
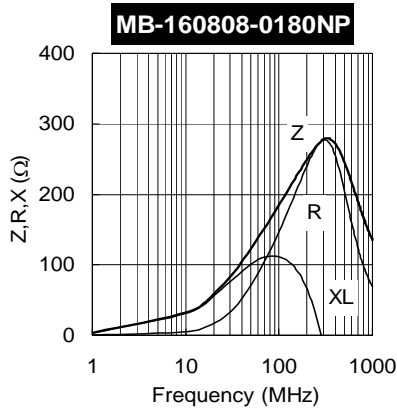


ELECTRIC CHARACTERISTICS CURVES (MB-160808 N SERIES)



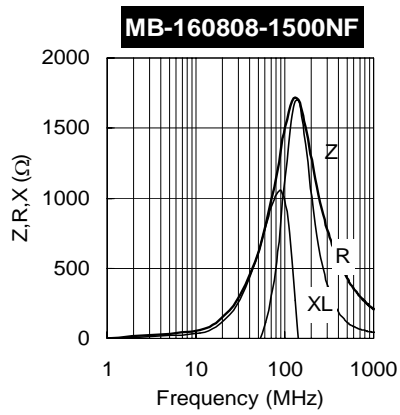
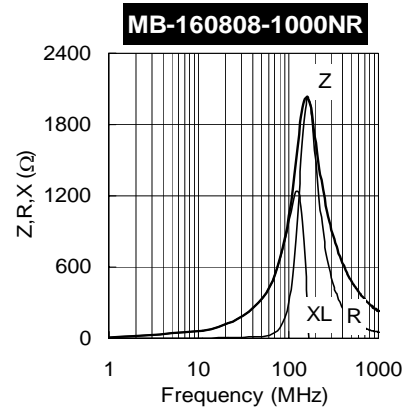
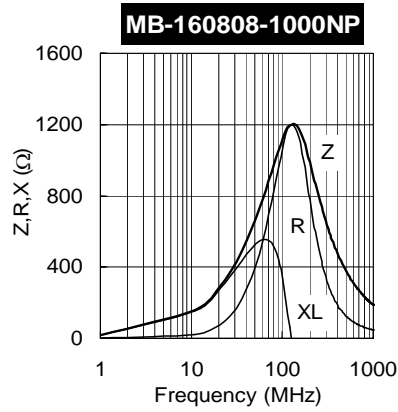
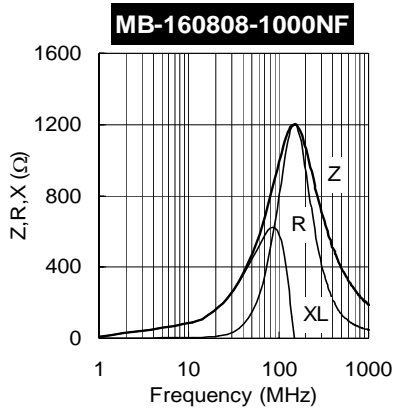


ELECTRIC CHARACTERISTICS CURVES (MB-160808 N SERIES)



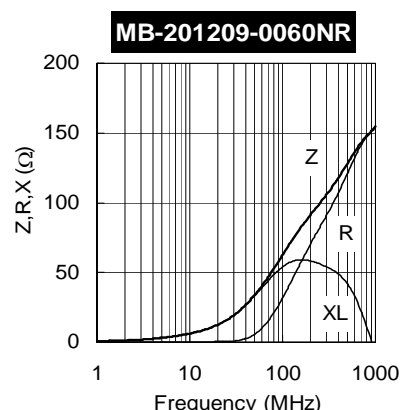
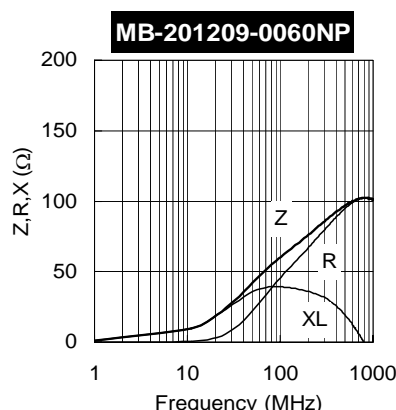
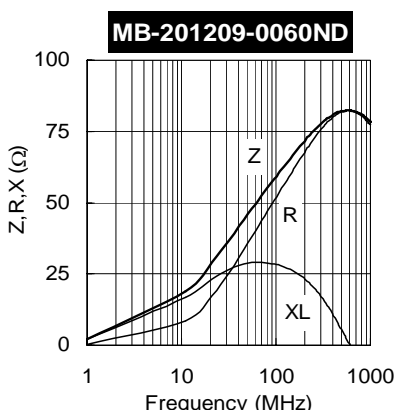
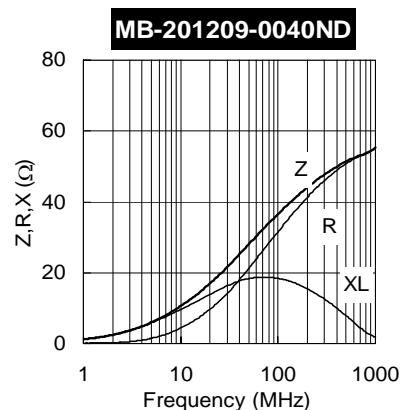
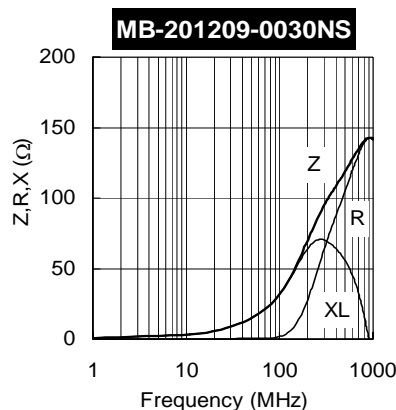
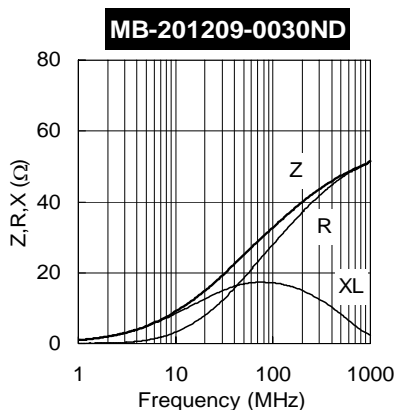
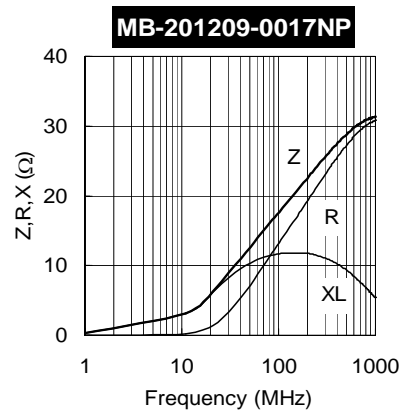
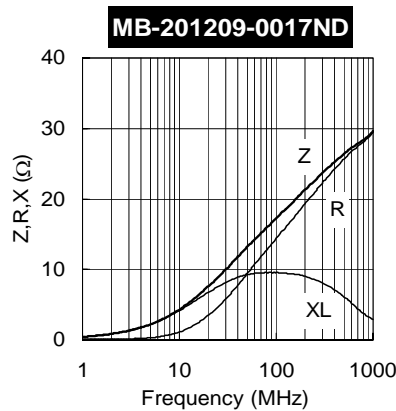
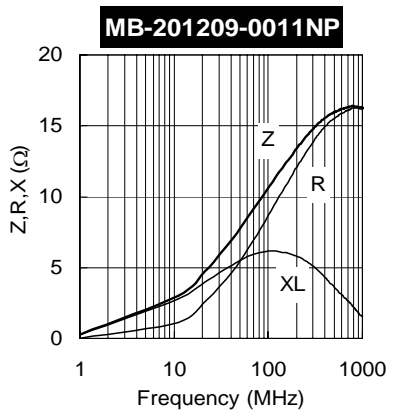
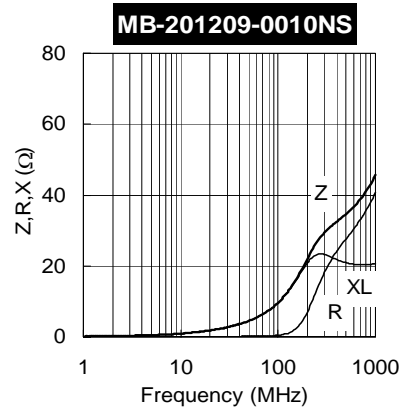
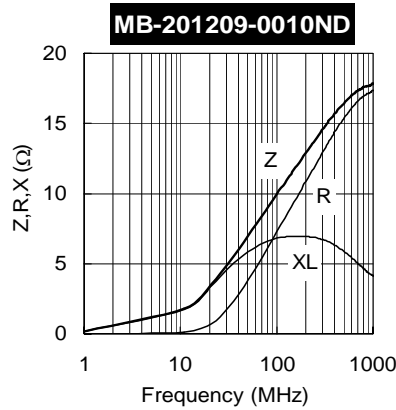
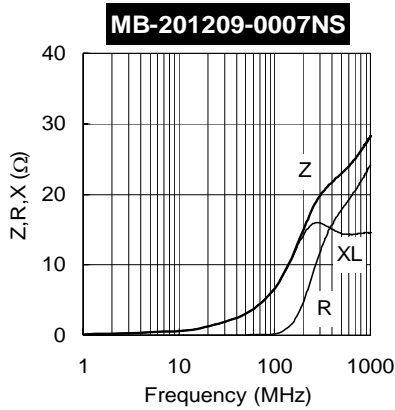


**ELECTRIC CHARACTERISTICS CURVES (MB-160808 N SERIES)**



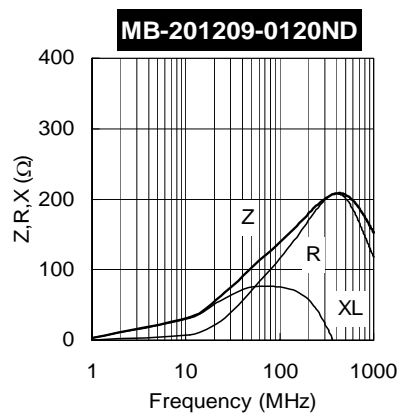
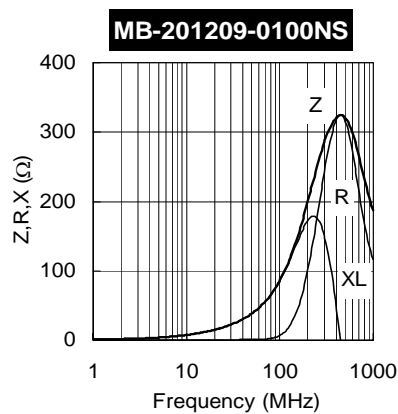
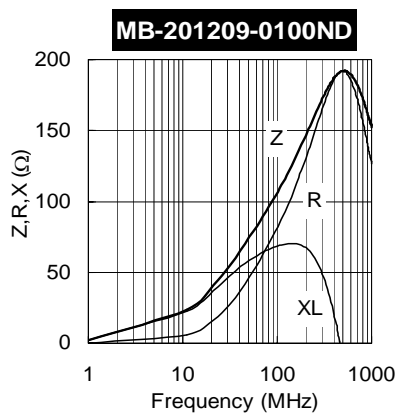
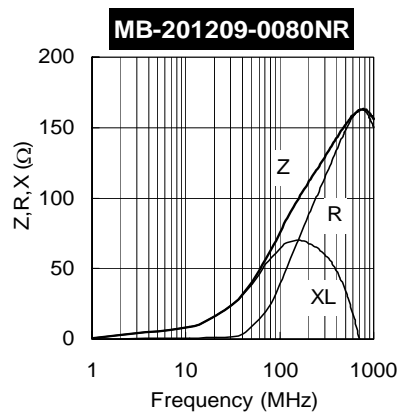
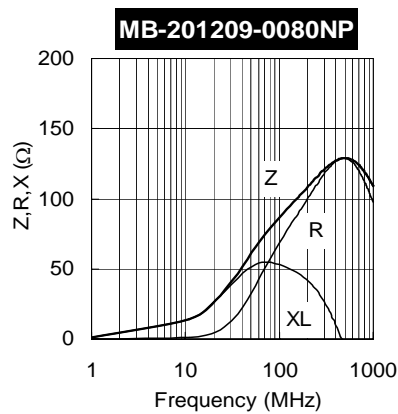
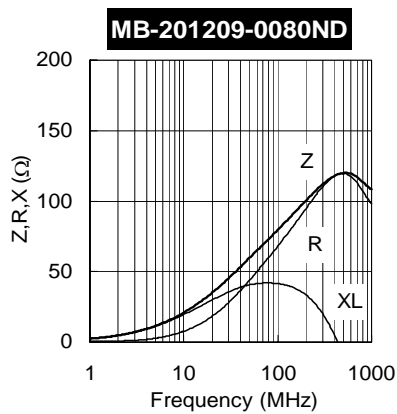
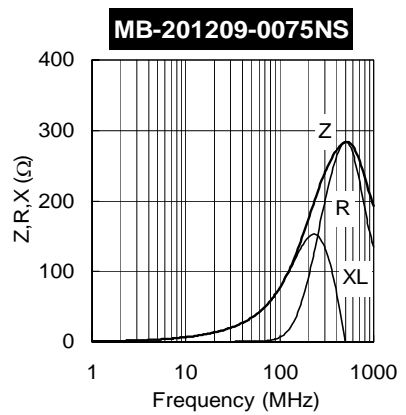
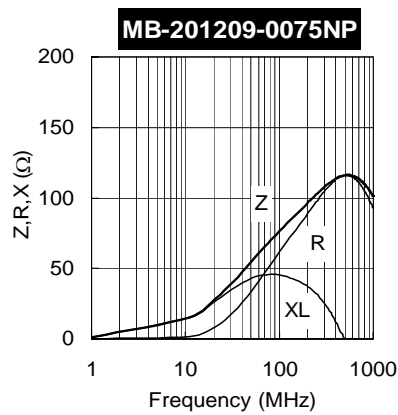
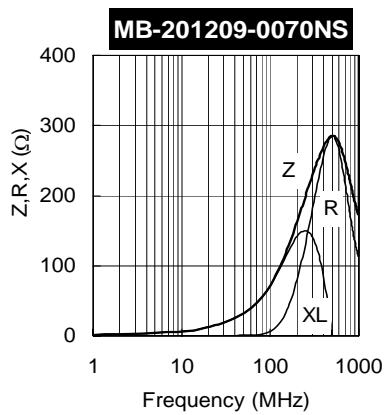
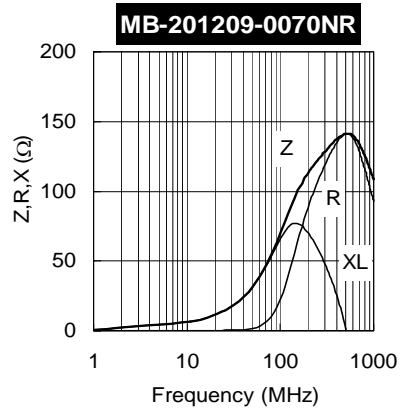
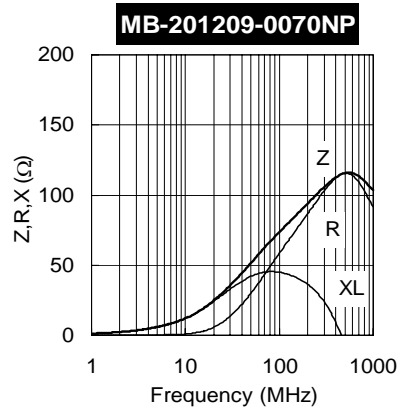
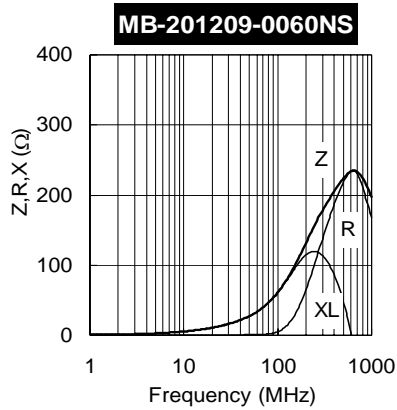


ELECTRIC CHARACTERISTICS CURVES (MB-201209 N SERIES)



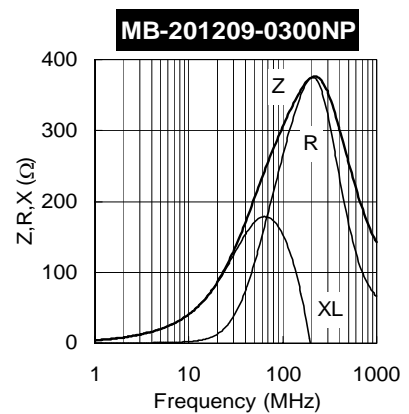
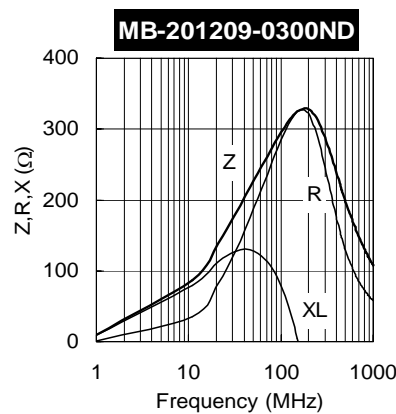
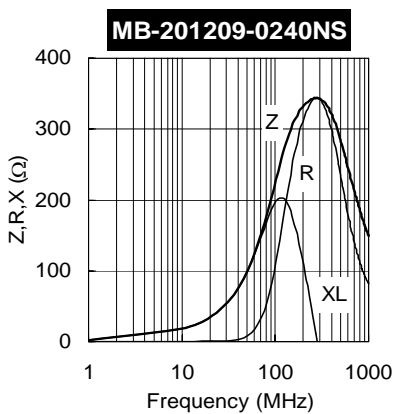
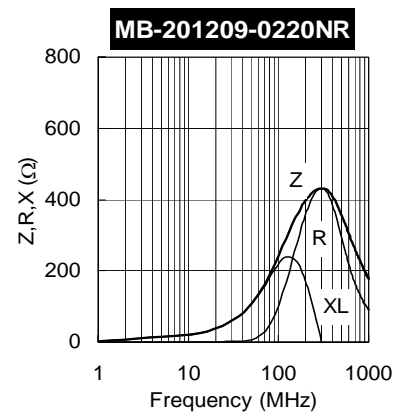
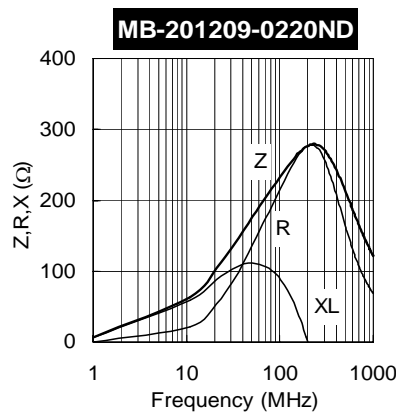
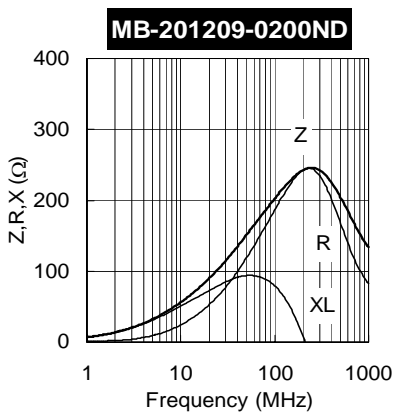
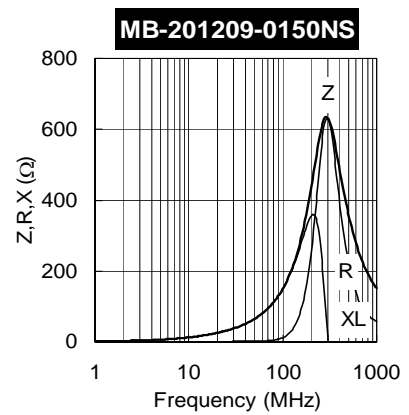
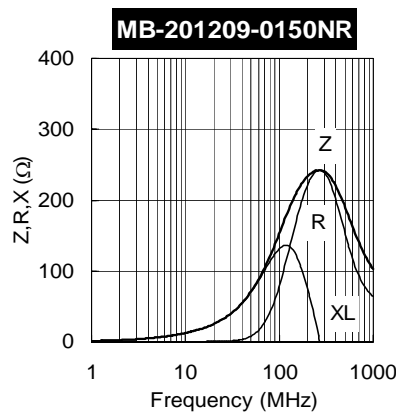
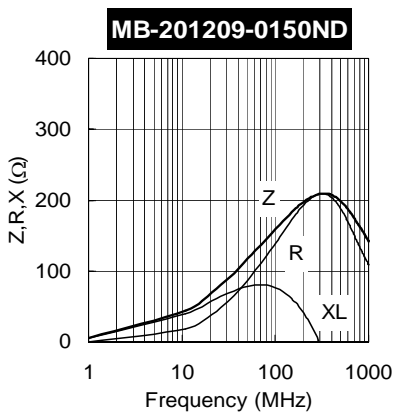
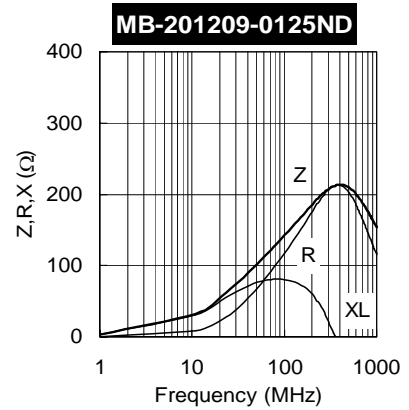
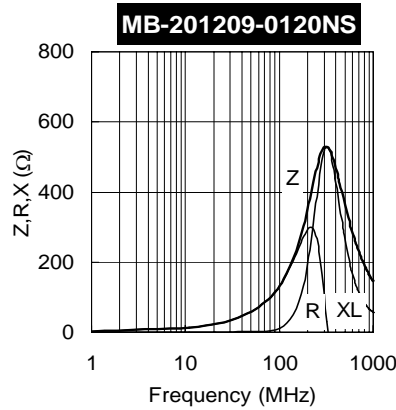
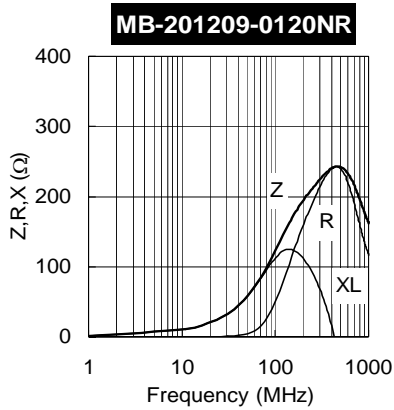


ELECTRIC CHARACTERISTICS CURVES (MB-201209 N SERIES)



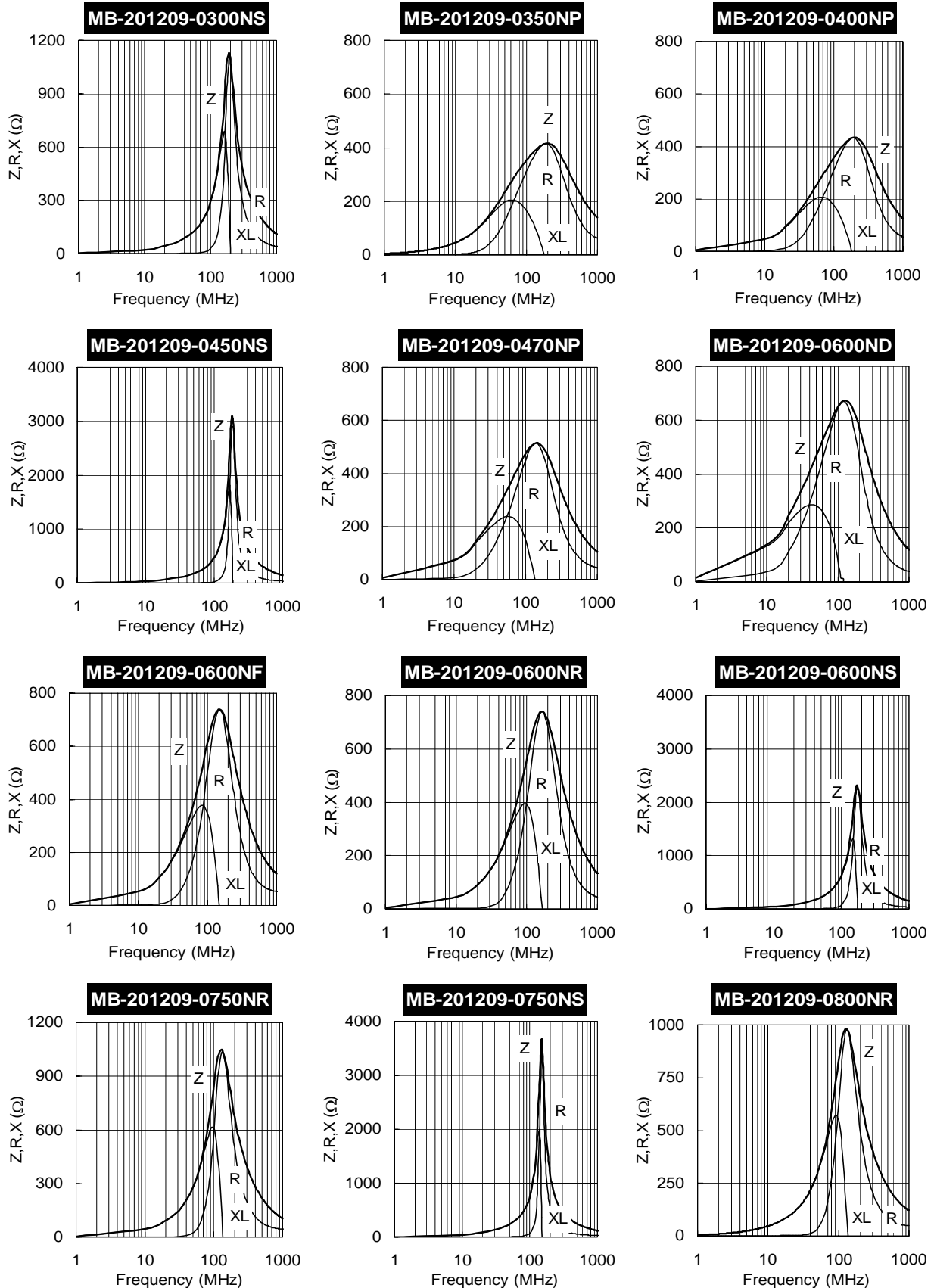


ELECTRIC CHARACTERISTICS CURVES (MB-201209 N SERIES)





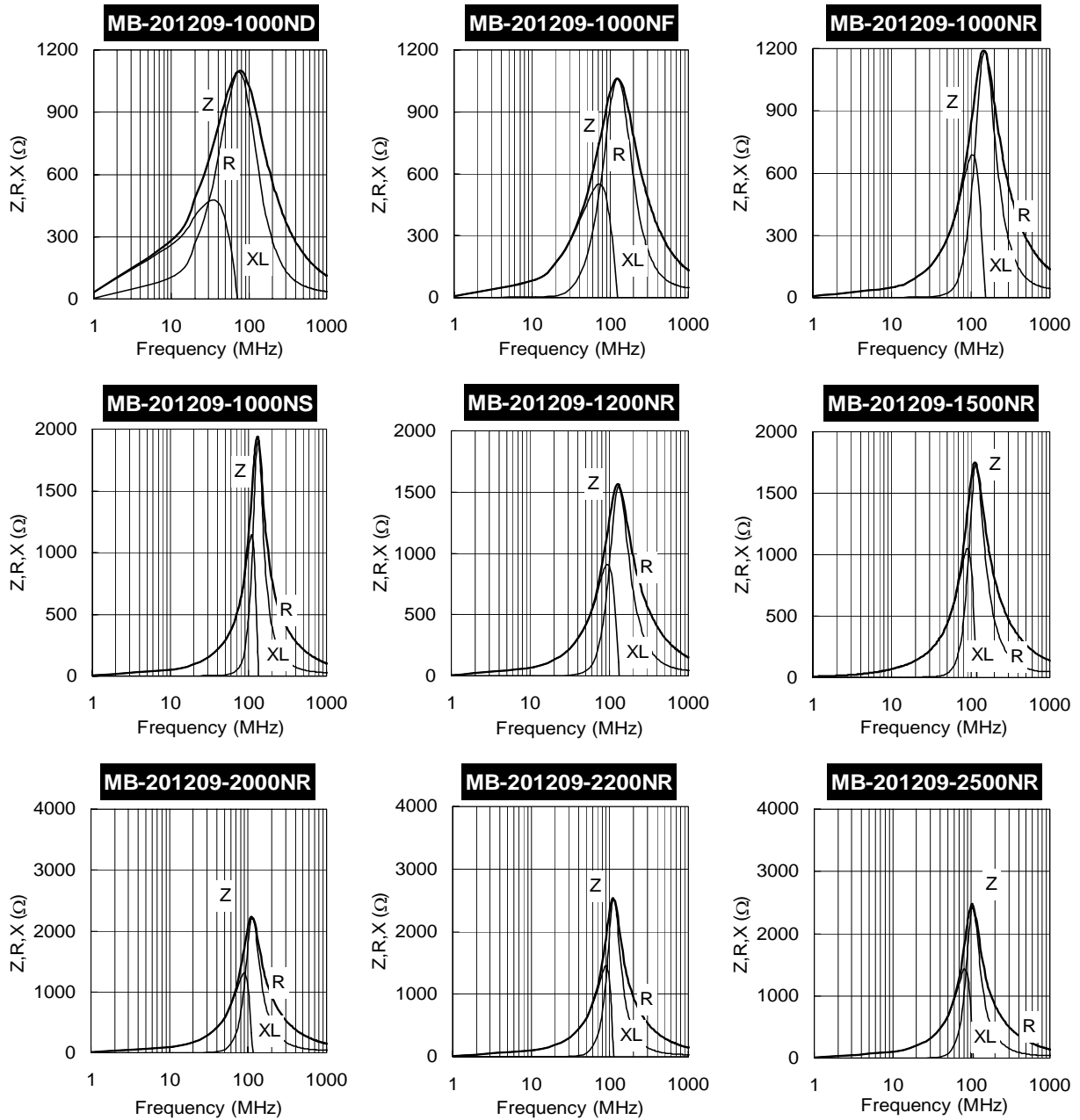
ELECTRIC CHARACTERISTICS CURVES (MB-201209 N SERIES)





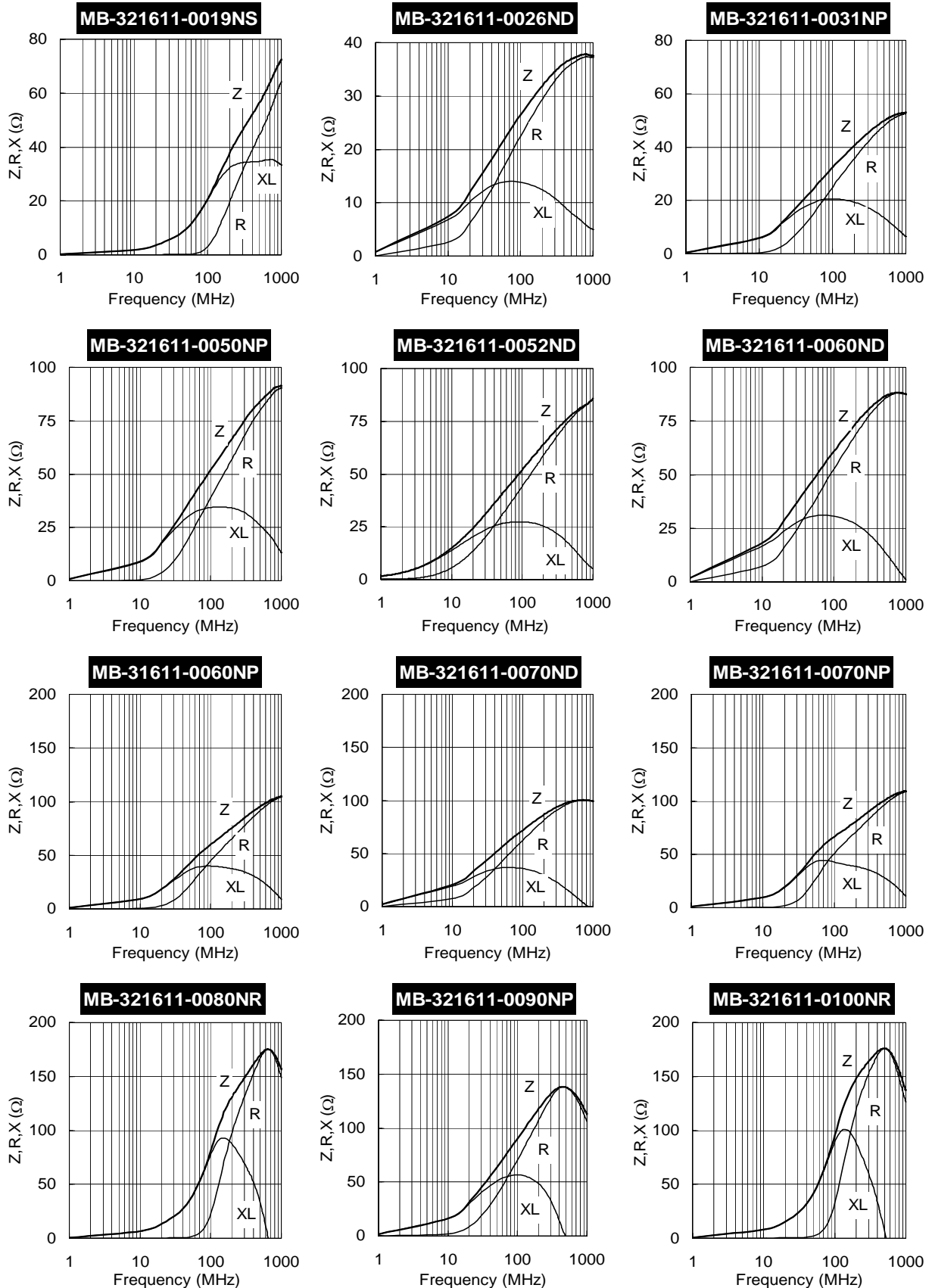


ELECTRIC CHARACTERISTICS CURVES (MB-201209 N SERIES)



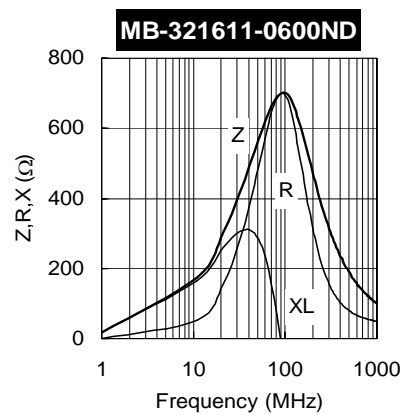
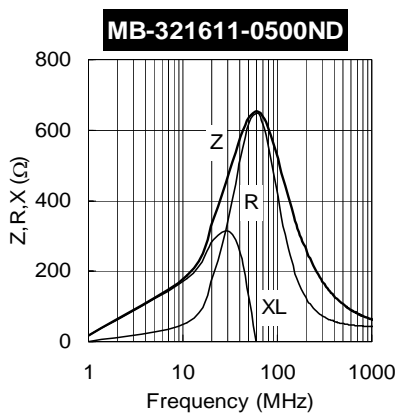
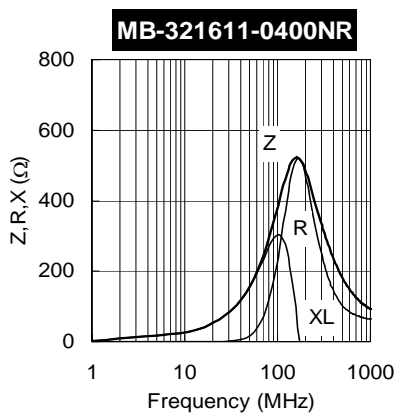
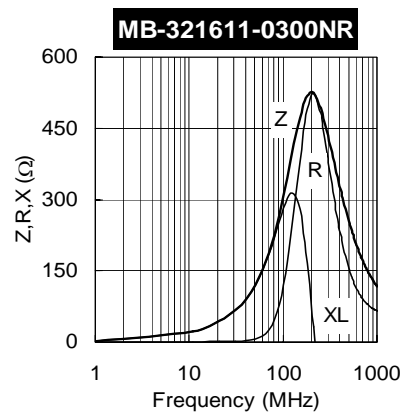
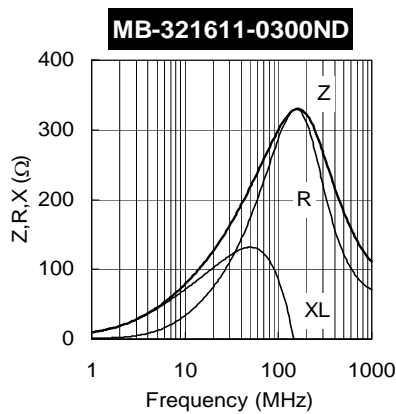
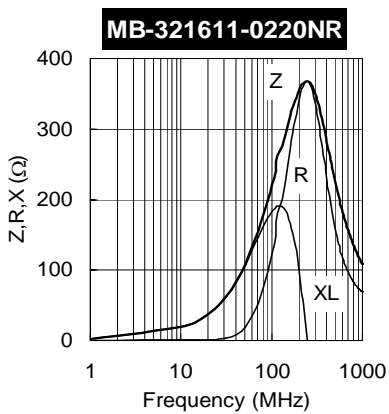
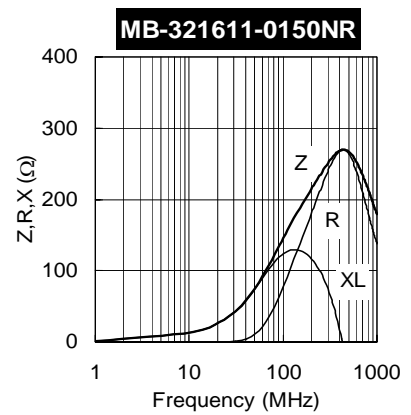
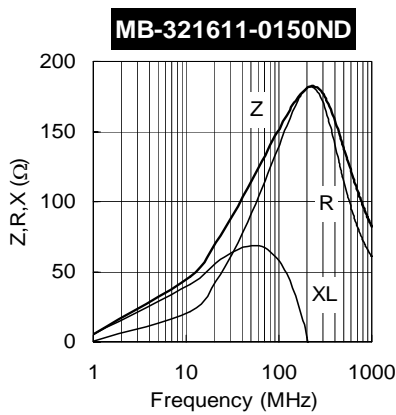
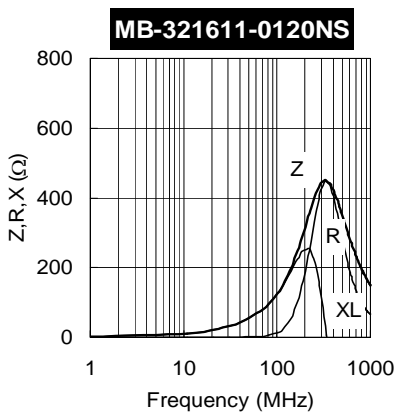
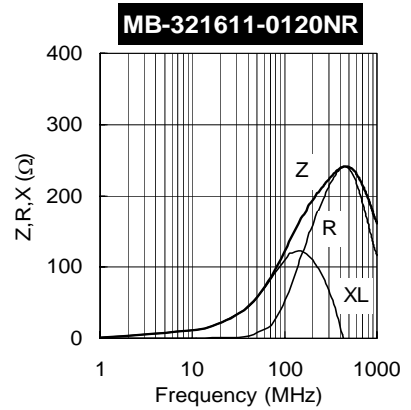
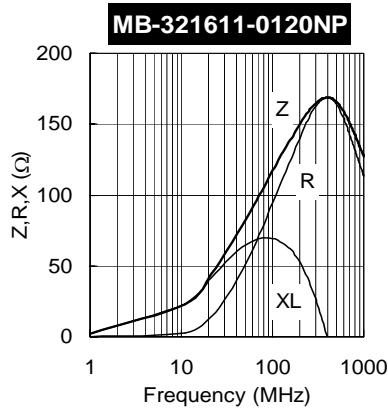
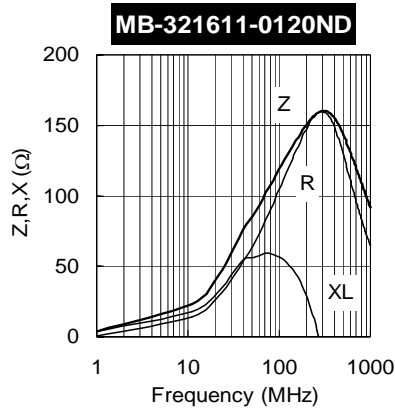


ELECTRIC CHARACTERISTICS CURVES (MB-321611 N SERIES)



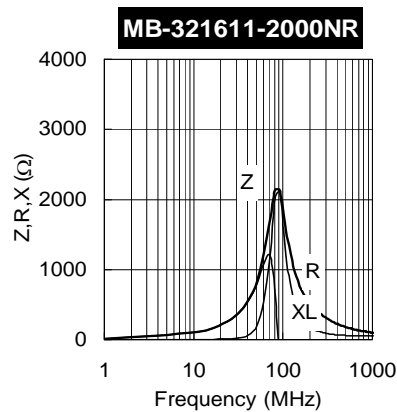
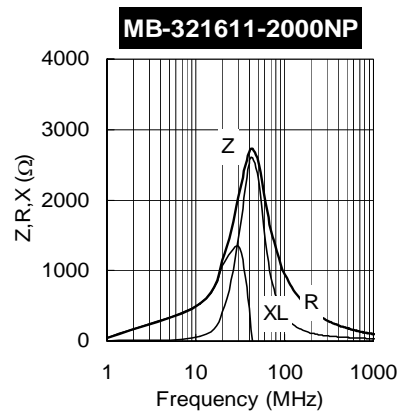
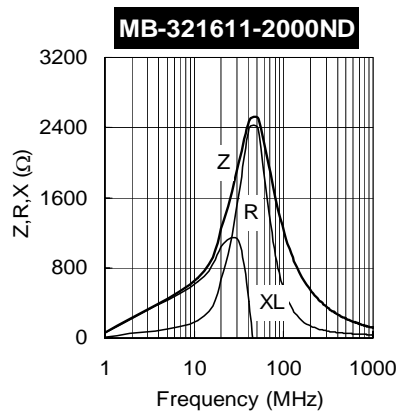
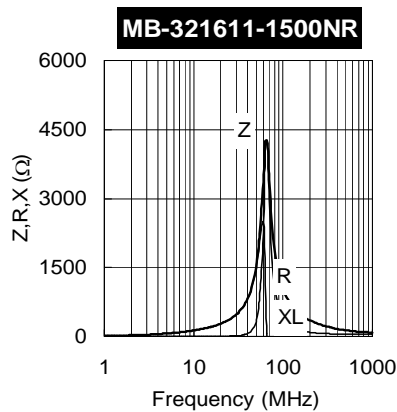
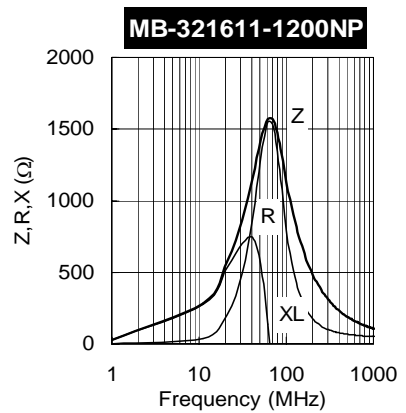
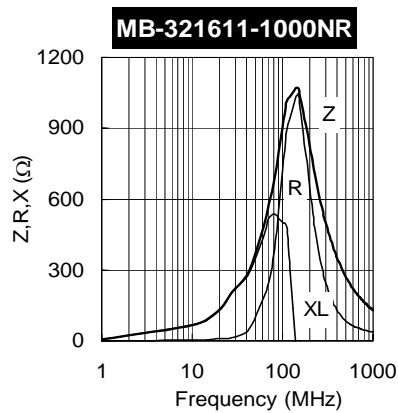
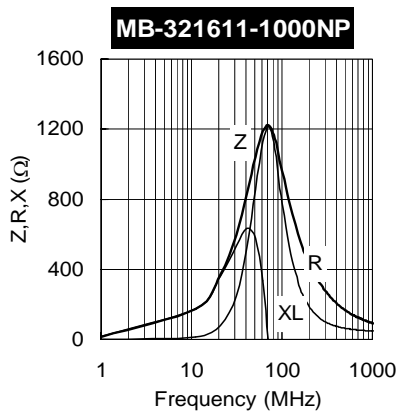
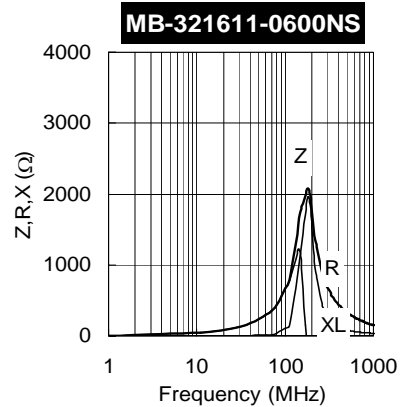
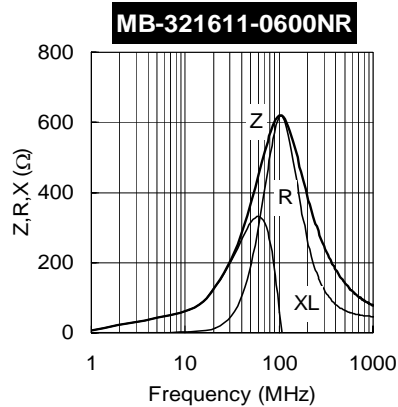
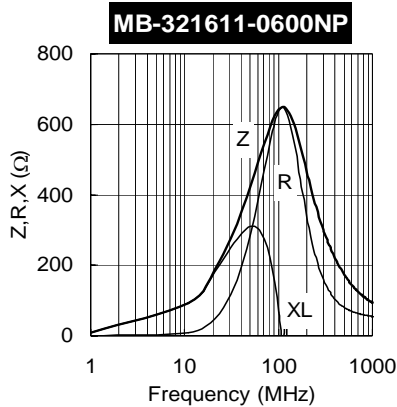


ELECTRIC CHARACTERISTICS CURVES (MB-321611 N SERIES)



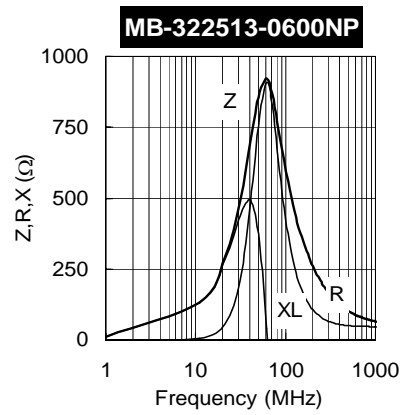
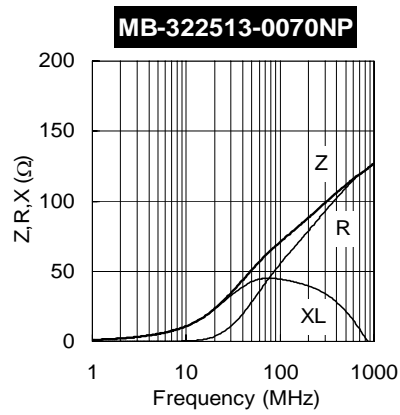
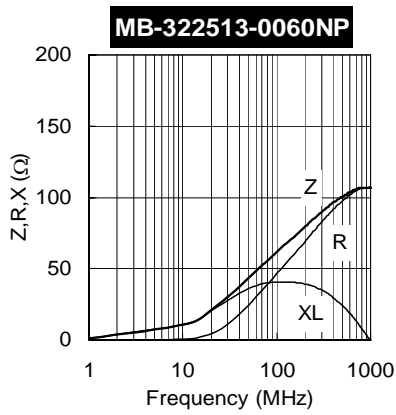
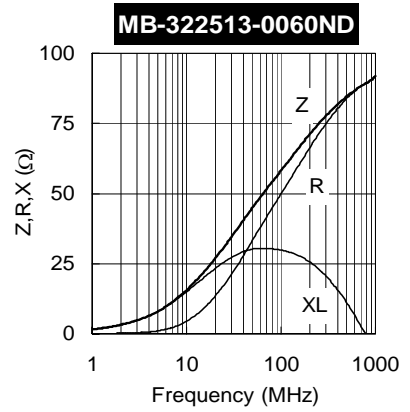
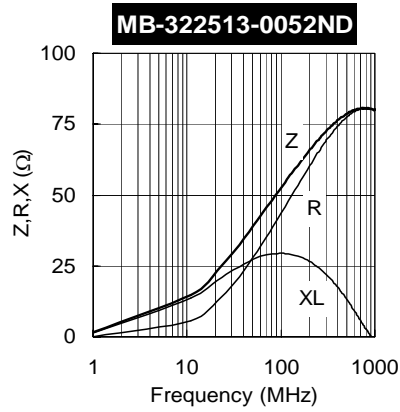
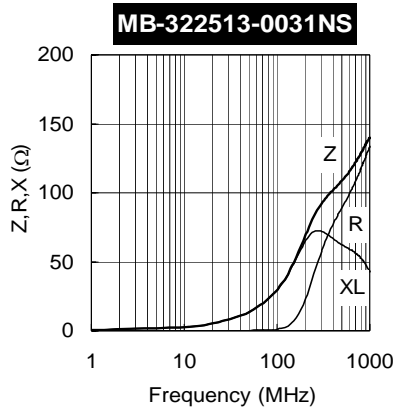


ELECTRIC CHARACTERISTICS CURVES (MB-321611 N SERIES)



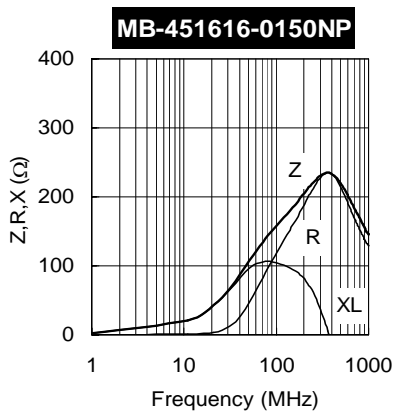
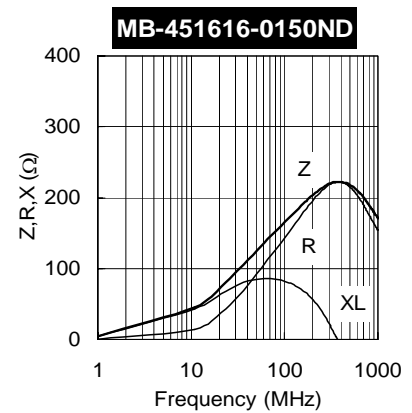
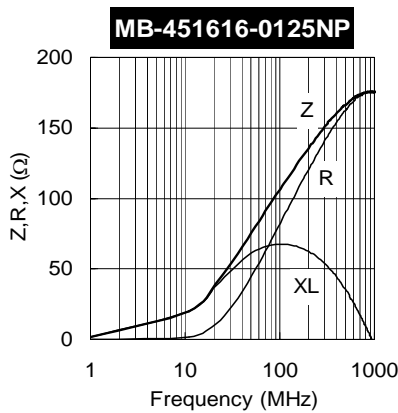
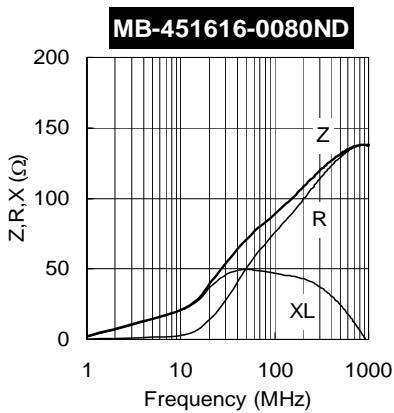
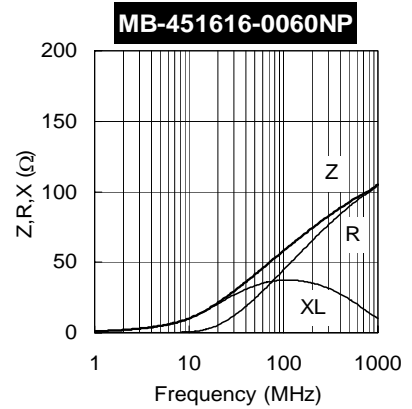
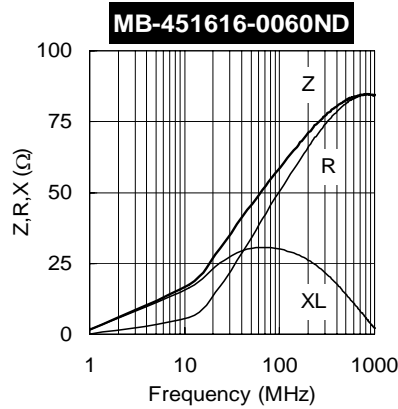
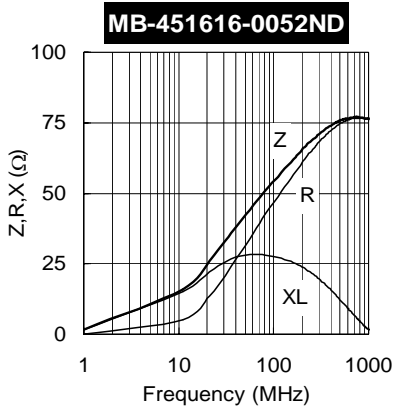


**ELECTRIC CHARACTERISTICS CURVES (MB-322513 N SERIES)**



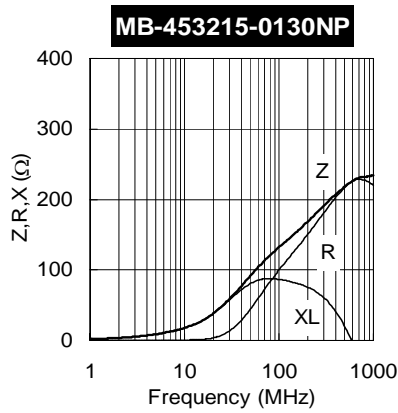
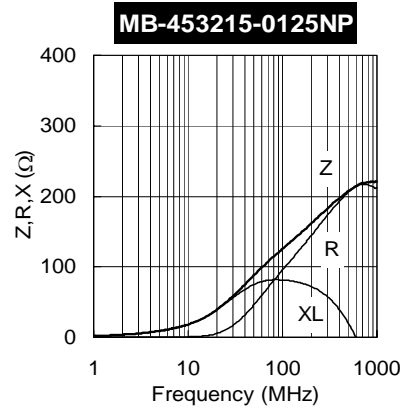
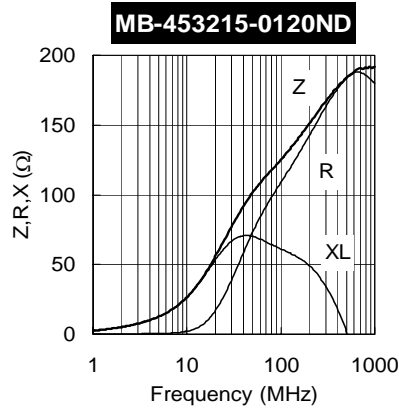
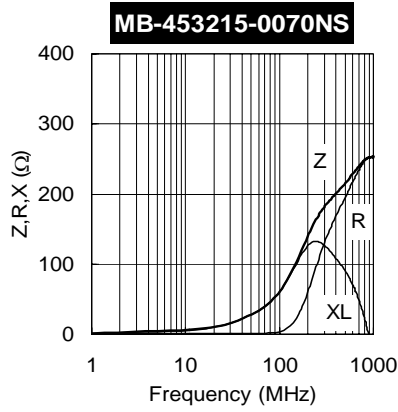


**ELECTRIC CHARACTERISTICS CURVES ( MB-451616 N SERIES)**





**ELECTRIC CHARACTERISTICS CURVES (MB-453215 N SERIES)**



**MECHANICAL PERFORMANCE TEST (MULTILAYER CHIP BEADS)**

ITEM	SPECIFICATION	TEST CONDITION																														
SOLDERABILITY	MORE THAN 90% OF THE TERMINAL ELECTRODE SHALL BE COVERED WITH FRESH SOLDER.	SOLDER: H63A (EUTECTIC SOLDER) SOLDER TEMPERATURE: 240 °C±5°C FLUX: ROSIN DIP TIME: 3 ± 1 SECONDS																														
SOLDERING HEAT RESISTANCE	THE CHIP SHALL NOT CRACK. MORE THAN 75% OF THE TERMINAL ELECTRODE SHALL BE COVERED WITH SOLDER.	SOLDER: H63A (EUTECTIC SOLDER) SOLDER TEMPERATURE: 260 °C±5°C FLUX: ROSIN DIP TIME: 10 ± 1 SECONDS																														
TERMINAL STRENGTH	THE TERMINAL ELECTRODE SHALL NOT BREAK OFF NOR THE FERRITE DAMAGE.	<table border="1"> <thead> <tr> <th>TYPE</th> <th>KGF</th> <th>TIME (sec)</th> </tr> </thead> <tbody> <tr> <td>MB-100505</td> <td>0.3</td> <td>30±5</td> </tr> <tr> <td>MB-160808</td> <td>0.6</td> <td>30±5</td> </tr> <tr> <td>MB-201209</td> <td>0.6</td> <td>30±5</td> </tr> <tr> <td>MB-321611</td> <td>1.0</td> <td>30±5</td> </tr> <tr> <td>MB-321616</td> <td>1.0</td> <td>30±5</td> </tr> <tr> <td>MB-322513</td> <td>1.0</td> <td>30±5</td> </tr> <tr> <td>MB-451616</td> <td>1.0</td> <td>30±5</td> </tr> <tr> <td>MB-453215</td> <td>1.5</td> <td>30±5</td> </tr> <tr> <td>MB-3216-A</td> <td>0.5</td> <td>30±5</td> </tr> </tbody> </table>	TYPE	KGF	TIME (sec)	MB-100505	0.3	30±5	MB-160808	0.6	30±5	MB-201209	0.6	30±5	MB-321611	1.0	30±5	MB-321616	1.0	30±5	MB-322513	1.0	30±5	MB-451616	1.0	30±5	MB-453215	1.5	30±5	MB-3216-A	0.5	30±5
TYPE	KGF	TIME (sec)																														
MB-100505	0.3	30±5																														
MB-160808	0.6	30±5																														
MB-201209	0.6	30±5																														
MB-321611	1.0	30±5																														
MB-321616	1.0	30±5																														
MB-322513	1.0	30±5																														
MB-451616	1.0	30±5																														
MB-453215	1.5	30±5																														
MB-3216-A	0.5	30±5																														
BENDING STRENGTH	THE FERRITE SHALL NOT BE DAMAGED BY FORCES APPLIED ON THE RIGHT CONDITION.	<table border="1"> <thead> <tr> <th>TYPE</th> <th>A (MM)</th> <th>KGF</th> </tr> </thead> <tbody> <tr> <td>MB-160808</td> <td>1.0</td> <td>0.6</td> </tr> <tr> <td>MB-201209</td> <td>1.4</td> <td>1.0</td> </tr> <tr> <td>MB-321611</td> <td>2.0</td> <td>2.0</td> </tr> <tr> <td>MB-321616</td> <td>2.0</td> <td>2.5</td> </tr> <tr> <td>MB-322513</td> <td>2.0</td> <td>2.5</td> </tr> <tr> <td>MB-451616</td> <td>2.5</td> <td>2.5</td> </tr> <tr> <td>MB-453215</td> <td>2.7</td> <td>2.5</td> </tr> <tr> <td>MB-3216-A</td> <td>1.4</td> <td>1.0</td> </tr> </tbody> </table>	TYPE	A (MM)	KGF	MB-160808	1.0	0.6	MB-201209	1.4	1.0	MB-321611	2.0	2.0	MB-321616	2.0	2.5	MB-322513	2.0	2.5	MB-451616	2.5	2.5	MB-453215	2.7	2.5	MB-3216-A	1.4	1.0			
TYPE	A (MM)	KGF																														
MB-160808	1.0	0.6																														
MB-201209	1.4	1.0																														
MB-321611	2.0	2.0																														
MB-321616	2.0	2.5																														
MB-322513	2.0	2.5																														
MB-451616	2.5	2.5																														
MB-453215	2.7	2.5																														
MB-3216-A	1.4	1.0																														

**CLIMATIC TEST**

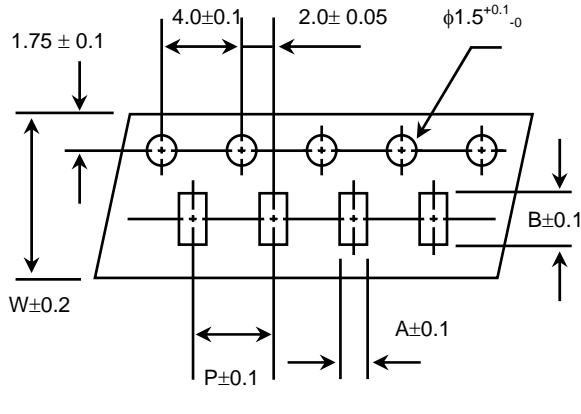
ITEM	SPECIFICATION	TEST CONDITION
THERMAL SHOCK (TEMPERATURE CYCLE)	IMPEDANCE SHALL BE WITHIN ± 20% OF THE INITIAL VALUE.	TEMPERATURE: -55 °C, +125 °C FOR 30 MINUTIES EACH, 50 CYCLES
HUMIDITY RESISTANCE		TEMPERATURE: + 60 °C HUMIDITY: 90% RH APPLIED CURRENT: RATED CURRENT TIME: 1000 ± 12 HOURS
HIGH TEMPERATURE RESISTANCE		TEMPERATURE: + 80 °C APPLIED CURRENT: RATED CURRENT TIME: 1000 ± 12 HOURS





**STANDARD PACKAGING (MULTILAYER CHIP BEADS)**

● TAPE DIMENSION

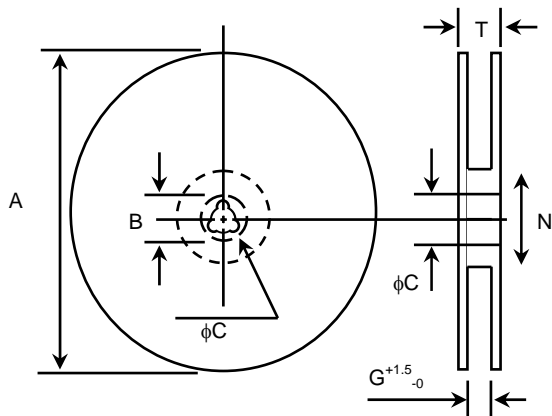


Dimension in mm

TYPE	A	B	W	P	T
MB-100505	0.7	1.2	8	2	0.8
MB-160808	1.1	1.9	8	4	1.1
MB-201209	1.5	2.3	8	4	1.3
MB-321611	1.9	3.5	8	4	1.5
MB-321616	1.9	3.5	8	4	2.0
MB-322513	2.9	3.6	8	4	1.7
MB-451616	1.9	4.9	12	4	2.0
MB-453215	3.6	4.9	12	8	1.9
MB-3216-A	1.9	3.5	8	4	1.4

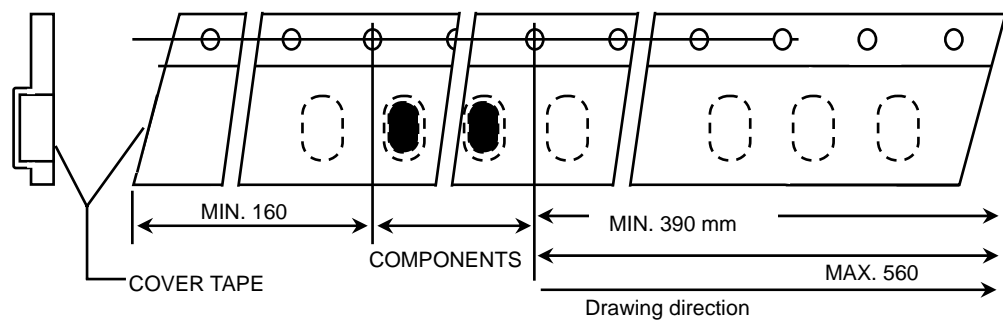
CARRIER TAPE MATERIAL: POLYSTYRENE

● REEL DIMENSION



Dimension in mm

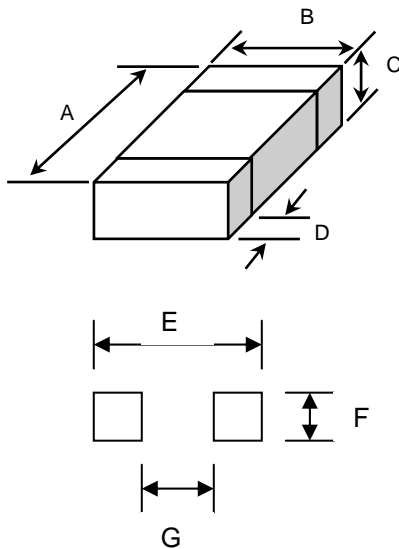
TYPE	Q'TY	A	B	C	G	N	T
MB-100505	10000 PCS	178	21.0	13.0	12.4	55	16.4
MB-160808	4000 PCS	178	21.0	13.0	12.4	55	16.4
MB-201209	4000 PCS	178	21.0	13.0	12.4	55	16.4
MB-321611	3000 PCS	178	21.0	13.0	8.4	55	12.4
MB-321616	2500 PCS	178	21.0	13.0	8.4	55	12.4
MB-322513	2000 PCS	178	21.0	13.0	8.4	55	12.4
MB-451616	2000 PCS	178	21.0	13.0	8.4	55	12.4
MB-453215	1000 PCS	178	21.0	13.0	8.4	55	12.4
MB-3216-A	3000 PCS	178	21.0	13.0	8.4	55	12.4



**MB LARGE CURRENT TYPE****PRODUCT IDENTIFICATION**

MB - 160808 - 0600 H P
1      2      3      4      5

1. PRODUCT SYMBOLE
2. DIMENSION
3. IMPEDANCE
4. TYPE (H: HIGH CURRENT)
5. MATERIAL (D, E, F, P, R, S)

**SHAPES, DIMENSIONS & RECOMMENDED PATTERN**

Dimension in mm (inch)

PART NO.	DIMENSIONS				RECOMMENDED PATTERN		
	A	B	C	D	E	F	G
MB-160808 (0603)	1.6 ± 0.15 (0.063±0.006)	0.8 ± 0.15 (0.031±0.006)	0.8 ± 0.15 (0.031±0.006)	0.3 ± 0.20 (0.012±0.008)	2.1 (0.083)	0.7 (0.028)	0.7 (0.028)
MB-201209 (0805)	2.0 ± 0.20 (0.079±0.008)	1.2 ± 0.20 (0.047±0.008)	0.9 ± 0.20 (0.035±0.008)	0.5 ± 0.30 (0.020±0.012)	2.6 (0.102)	1.0 (0.039)	1.0 (0.039)
MB-321611 (1206)	3.2 ± 0.20 (0.126±0.008)	1.6 ± 0.20 (0.063±0.008)	1.1 ± 0.20 (0.043±0.008)	0.5 ± 0.30 (0.020±0.012)	4.4 (0.173)	1.4 (0.055)	2.2 (0.087)
MB-322513 (1210)	3.2 ± 0.20 (0.126±0.008)	2.5 ± 0.20 (0.098±0.008)	1.3 ± 0.20 (0.051±0.008)	0.5 ± 0.30 (0.020±0.012)	4.4 (0.173)	2.3 (0.091)	2.2 (0.087)
MB-451616 (1806)	4.5 ± 0.20 (0.177±0.008)	1.6 ± 0.20 (0.063±0.008)	1.6 ± 0.20 (0.063±0.008)	0.5 ± 0.30 (0.020±0.012)	6.0 (0.236)	1.5 (0.059)	1.5 (0.059)
MB-453215 (1812)	4.5 ± 0.20 (0.177±0.008)	3.2 ± 0.20 (0.126±0.008)	1.5 ± 0.20 (0.059±0.008)	0.5 ± 0.30 (0.020±0.012)	6.0 (0.236)	3.0 (0.118)	3.0 (0.118)



## MB-160808- -H SERIES

Part Number	Impedance ( $\Omega$ )	Tolerance	Test Frequency (MHz)	DC Resistance (m $\Omega$ ) Max.	Rated Current (A) Max.	Page Number
MB-160808-0010HD	10	$\pm 25\%$	100	30	4	<a href="#">▶ B-4</a>
MB-160808-0010HP	10	$\pm 25\%$	100	30	4	<a href="#">▶ B-4</a>
MB-160808-0025HD	25	$\pm 25\%$	100	40	3	<a href="#">▶ B-4</a>
MB-160808-0030HP	30	$\pm 25\%$	100	30	3	<a href="#">▶ B-4</a>
MB-160808-0120HP	120	$\pm 25\%$	100	70	2.5	<a href="#">▶ B-4</a>

## MB-201209- -H SERIES

Part Number	Impedance ( $\Omega$ )	Tolerance	Test Frequency (MHz)	DC Resistance (m $\Omega$ ) Max.	Rated Current (A) Max.	Page Number
MB-201209-0010HD	10	$\pm 25\%$	100	10	6	<a href="#">▶ B-5</a>
MB-201209-0020HD	20	$\pm 25\%$	100	30	4	<a href="#">▶ B-5</a>
MB-201209-0028HD	28	$\pm 25\%$	100	50	3	<a href="#">▶ B-5</a>
MB-201209-0030HD	30	$\pm 25\%$	100	30	4	<a href="#">▶ B-5</a>
MB-201209-0040HD	40	$\pm 25\%$	100	30	4	<a href="#">▶ B-5</a>
MB-201209-0040HP	40	$\pm 25\%$	100	30	4	<a href="#">▶ B-5</a>
MB-201209-0050HP	50	$\pm 25\%$	100	25	4	<a href="#">▶ B-5</a>
MB-201209-0060HP	60	$\pm 25\%$	100	25	4	<a href="#">▶ B-5</a>
MB-201209-0220HF	220	$\pm 25\%$	100	50	2	<a href="#">▶ B-5</a>

## MB-321611- -H SERIES

Part Number	Impedance ( $\Omega$ )	Tolerance	Test Frequency (MHz)	DC Resistance (m $\Omega$ ) Max.	Rated Current (A) Max.	Page Number
MB-321611-0030HD	30	$\pm 25\%$	100	30	4	<a href="#">▶ B-6</a>
MB-321611-0050HD	50	$\pm 25\%$	100	30	4	<a href="#">▶ B-6</a>
MB-321611-0050HP	50	$\pm 25\%$	100	25	3	<a href="#">▶ B-6</a>
MB-321611-0080HD	80	$\pm 25\%$	100	30	4	<a href="#">▶ B-6</a>
MB-321611-0080HR	80	$\pm 25\%$	100	30	4	<a href="#">▶ B-6</a>
MB-321611-0100HD	100	$\pm 25\%$	100	30	4	<a href="#">▶ B-6</a>
MB-321611-0100HR	100	$\pm 25\%$	100	30	3	<a href="#">▶ B-6</a>
MB-321611-0120HD	120	$\pm 25\%$	100	30	4	<a href="#">▶ B-6</a>
MB-321611-0120HP	120	$\pm 25\%$	100	40	3	<a href="#">▶ B-6</a>
MB-321611-0125HP	125	$\pm 25\%$	100	40	3	<a href="#">▶ B-6</a>



## MB-451616- -H SERIES

Part Number	Impedance ( $\Omega$ )	Tolerance	Test Frequency (MHz)	DC Resistance ( $m\Omega$ ) Max.	Rated Current (A) Max.	Page Number
MB-451616-0052HD	52	$\pm 25\%$	100	30	4	<a href="#">▶ B-7</a>
MB-451616-0060HD	60	$\pm 25\%$	100	30	4	<a href="#">▶ B-7</a>
MB-451616-0060HP	60	$\pm 25\%$	100	30	6	<a href="#">▶ B-7</a>

## MB-451616- -H SERIES

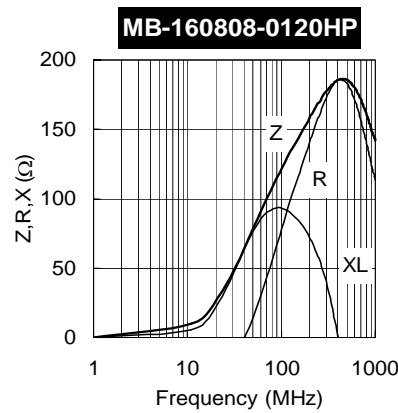
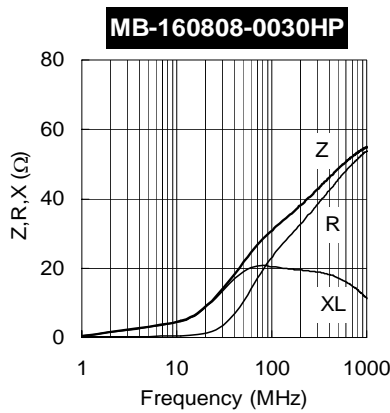
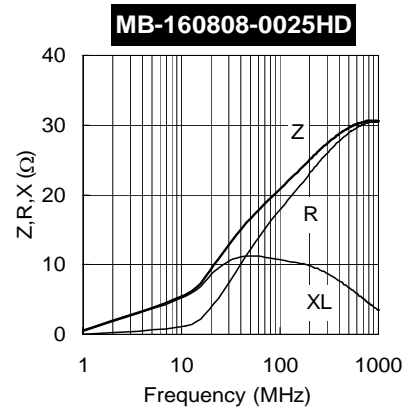
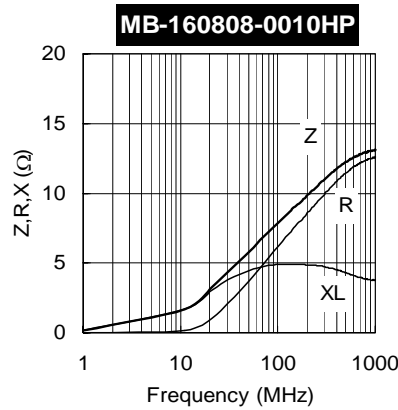
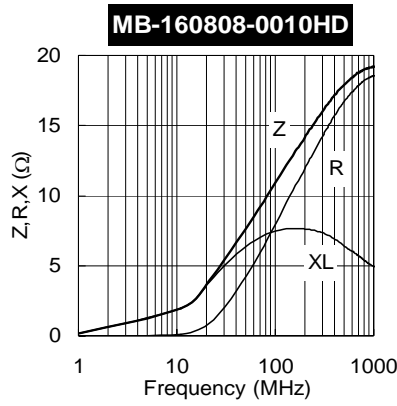
Part Number	Impedance ( $\Omega$ )	Tolerance	Test Frequency (MHz)	DC Resistance ( $m\Omega$ ) Max.	Rated Current (A) Max.	Page Number
MB-451616-0052HD	52	$\pm 25\%$	100	30	4	<a href="#">▶ B-7</a>
MB-451616-0060HD	60	$\pm 25\%$	100	30	4	<a href="#">▶ B-7</a>
MB-451616-0060HP	60	$\pm 25\%$	100	30	6	<a href="#">▶ B-7</a>
MB-451616-0080HD	80	$\pm 25\%$	100	30	4	<a href="#">▶ B-7</a>

## MB-453215- -H SERIES

Part Number	Impedance ( $\Omega$ )	Tolerance	Test Frequency (MHz)	DC Resistance ( $m\Omega$ ) Max.	Rated Current (A) Max.	Page Number
MB-453215-0070HP	70	$\pm 25\%$	100	30	6	<a href="#">▶ B-7</a>
MB-453215-0120HD	120	$\pm 25\%$	100	50	3	<a href="#">▶ B-7</a>
MB-453215-0120HP	120	$\pm 25\%$	100	50	3	<a href="#">▶ B-7</a>
MB-453215-0125HP	125	$\pm 25\%$	100	40	3	<a href="#">▶ B-7</a>

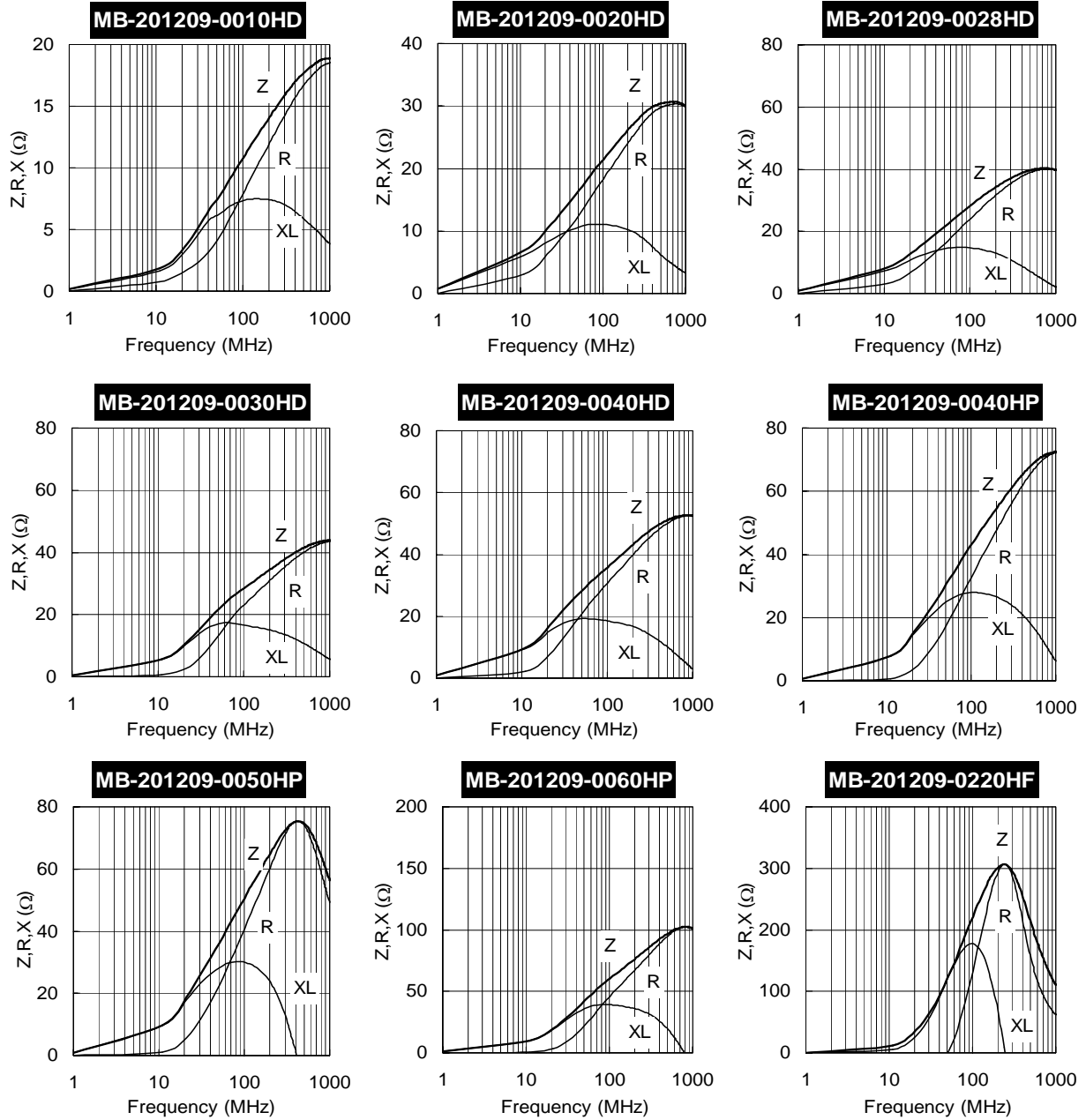


**ELECTRIC CHARACTERISTICS CURVES (MB-160808 H SERIES)**



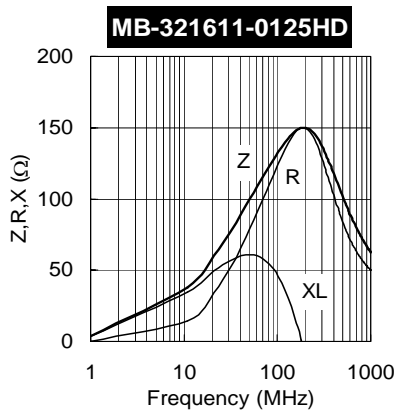
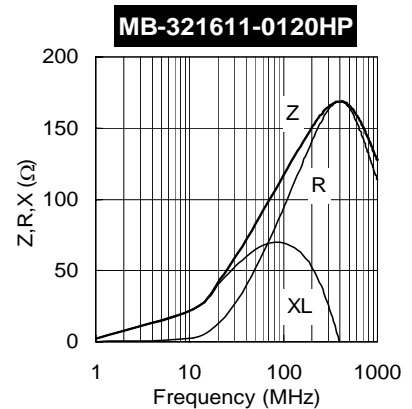
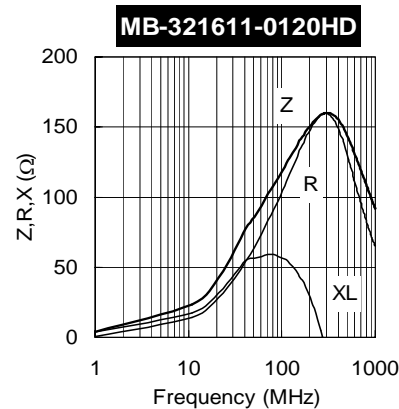
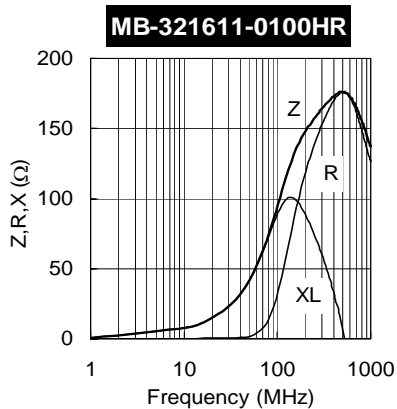
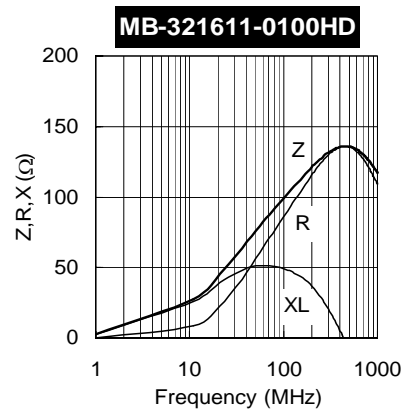
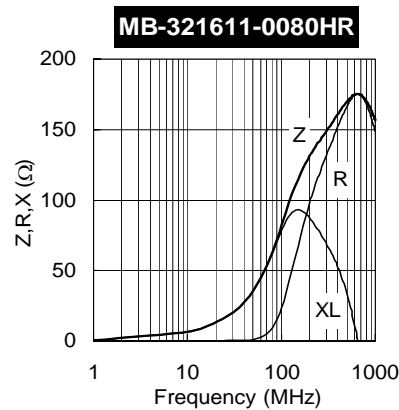
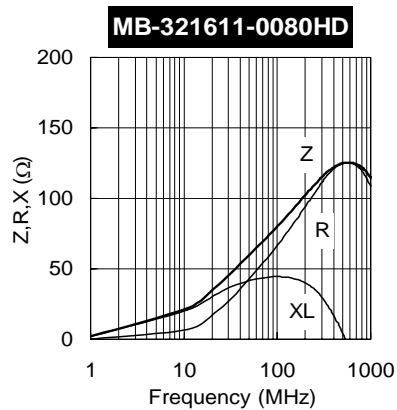
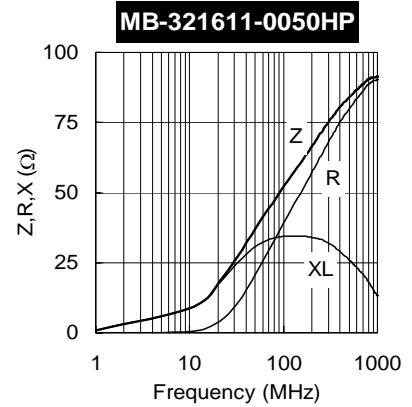
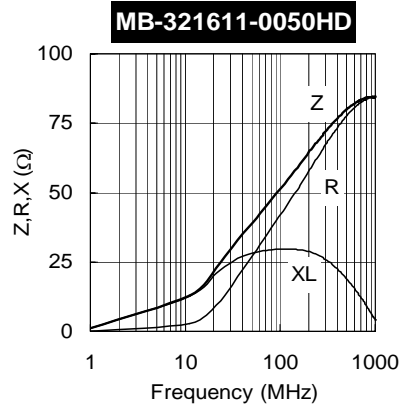
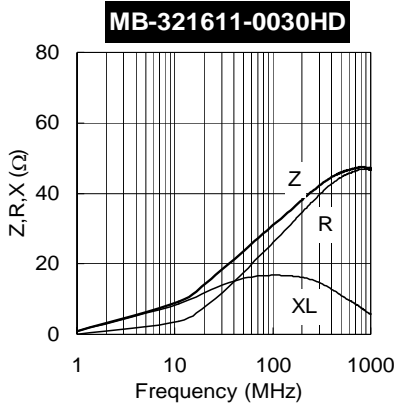


**ELECTRIC CHARACTERISTICS CURVES (MB-201209 H SERIES)**



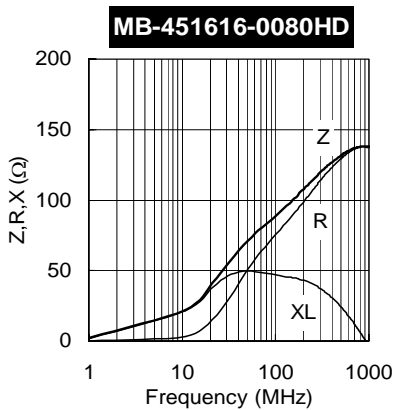
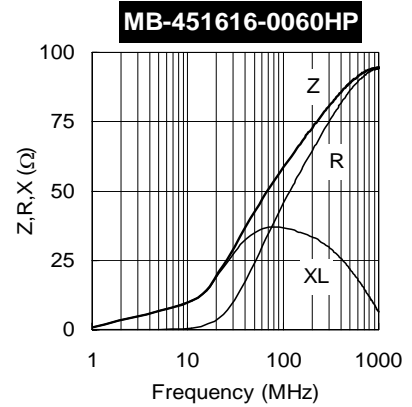
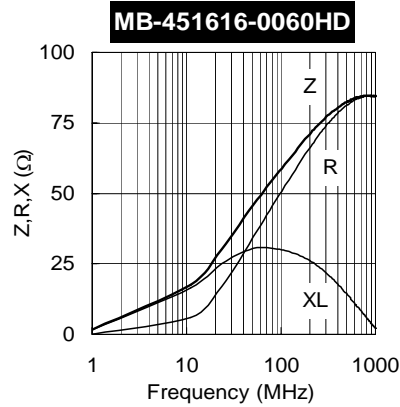
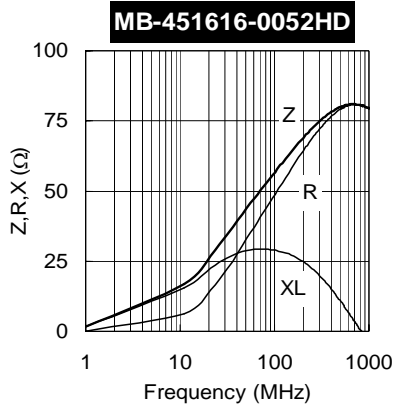


**ELECTRIC CHARACTERISTICS CURVES (MB-321611 H SERIES)**

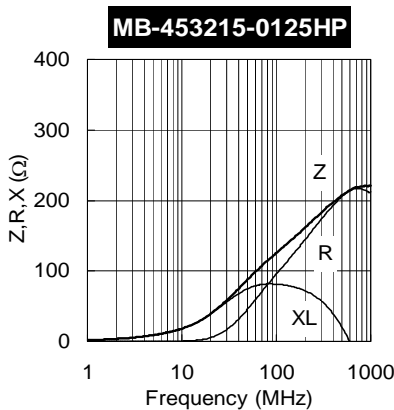
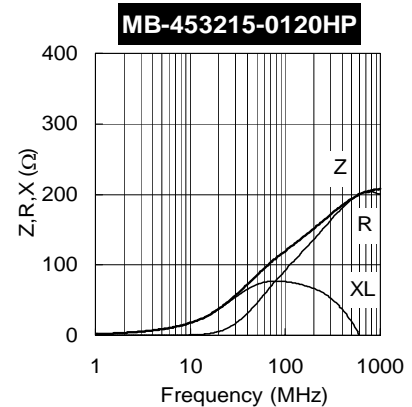
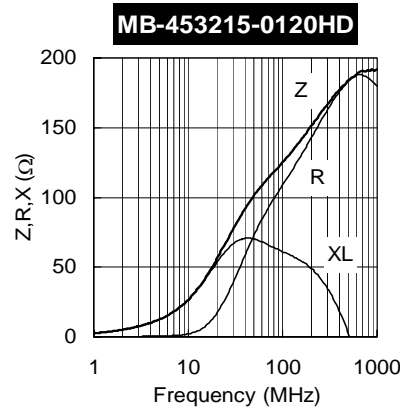
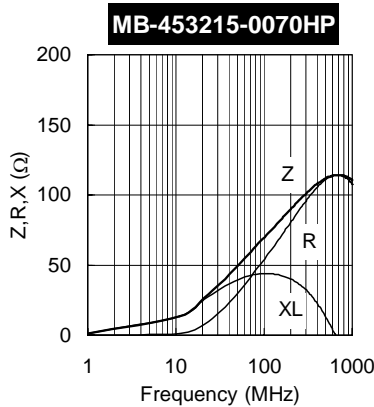




**ELECTRIC CHARACTERISTICS CURVES (MB-451616 H SERIES)**



**ELECTRIC CHARACTERISTICS CURVES (MB-453215 H SERIES)**





**MECHANICAL PERFORMANCE TEST (MULTILAYER CHIP BEADS)**

ITEM	SPECIFICATION	TEST CONDITION																														
SOLDERABILITY	MORE THAN 90% OF THE TERMINAL ELECTRODE SHALL BE COVERED WITH FRESH SOLDER.	SOLDER: H63A (EUTECTIC SOLDER) SOLDER TEMPERATURE: 240 °C±5°C FLUX: ROSIN DIP TIME: 3 ± 1 SECONDS																														
SOLDERING HEAT RESISTANCE	THE CHIP SHALL NOT CRACK. MORE THAN 75% OF THE TERMINAL ELECTRODE SHALL BE COVERED WITH SOLDER.	SOLDER: H63A (EUTECTIC SOLDER) SOLDER TEMPERATURE: 260 °C±5°C FLUX: ROSIN DIP TIME: 10 ± 1 SECONDS																														
TERMINAL STRENGTH	THE TERMINAL ELECTRODE SHALL NOT BREAK OFF NOR THE FERRITE DAMAGE.	<table border="1"> <thead> <tr> <th>TYPE</th> <th>KG F</th> <th>T I M E (sec)</th> </tr> </thead> <tbody> <tr><td>MB-100505</td><td>0.3</td><td>30±5</td></tr> <tr><td>MB-160808</td><td>0.6</td><td>30±5</td></tr> <tr><td>MB-201209</td><td>0.6</td><td>30±5</td></tr> <tr><td>MB-321611</td><td>1.0</td><td>30±5</td></tr> <tr><td>MB-321616</td><td>1.0</td><td>30±5</td></tr> <tr><td>MB-322513</td><td>1.0</td><td>30±5</td></tr> <tr><td>MB-451616</td><td>1.0</td><td>30±5</td></tr> <tr><td>MB-453215</td><td>1.5</td><td>30±5</td></tr> <tr><td>MB-3216-A</td><td>0.5</td><td>30±5</td></tr> </tbody> </table>	TYPE	KG F	T I M E (sec)	MB-100505	0.3	30±5	MB-160808	0.6	30±5	MB-201209	0.6	30±5	MB-321611	1.0	30±5	MB-321616	1.0	30±5	MB-322513	1.0	30±5	MB-451616	1.0	30±5	MB-453215	1.5	30±5	MB-3216-A	0.5	30±5
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BENDING STRENGTH	THE FERRITE SHALL NOT BE DAMAGED BY FORCES APPLIED ON THE RIGHT CONDITION.	<table border="1"> <thead> <tr> <th>TYPE</th> <th>A (MM)</th> <th>KG F</th> </tr> </thead> <tbody> <tr><td>MB-160808</td><td>1.0</td><td>0.6</td></tr> <tr><td>MB-201209</td><td>1.4</td><td>1.0</td></tr> <tr><td>MB-321611</td><td>2.0</td><td>2.0</td></tr> <tr><td>MB-321616</td><td>2.0</td><td>2.5</td></tr> <tr><td>MB-322513</td><td>2.0</td><td>2.5</td></tr> <tr><td>MB-451616</td><td>2.5</td><td>2.5</td></tr> <tr><td>MB-453215</td><td>2.7</td><td>2.5</td></tr> <tr><td>MB-3216-A</td><td>1.4</td><td>1.0</td></tr> </tbody> </table>	TYPE	A (MM)	KG F	MB-160808	1.0	0.6	MB-201209	1.4	1.0	MB-321611	2.0	2.0	MB-321616	2.0	2.5	MB-322513	2.0	2.5	MB-451616	2.5	2.5	MB-453215	2.7	2.5	MB-3216-A	1.4	1.0			
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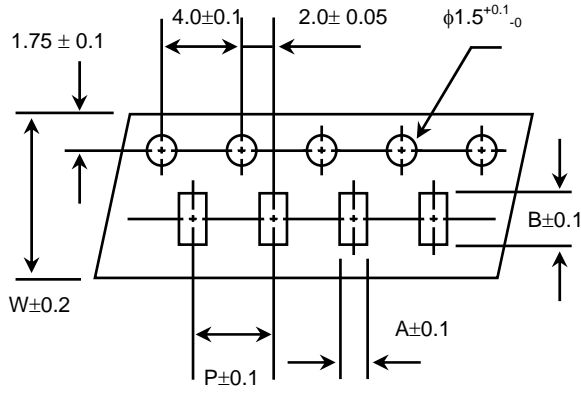
**CLIMATIC TEST**

ITEM	SPECIFICATION	TEST CONDITION
THERMAL SHOCK (TEMPERATURE CYCLE)	IMPEDANCE SHALL BE WITHIN ± 20% OF THE INITIAL VALUE.	TEMPERATURE: -55 °C, +125 °C FOR 30 MINUTIES EACH, 50 CYCLES
HUMIDITY RESISTANCE		TEMPERATURE: + 60 °C HUMIDITY: 90% RH APPLIED CURRENT: RATED CURRENT TIME: 1000 ± 12 HOURS
HIGH TEMPERATURE RESISTANCE		TEMPERATURE: + 80 °C APPLIED CURRENT: RATED CURRENT TIME: 1000 ± 12 HOURS



**STANDARD PACKAGING (MULTILAYER CHIP BEADS)**

● TAPE DIMENSION

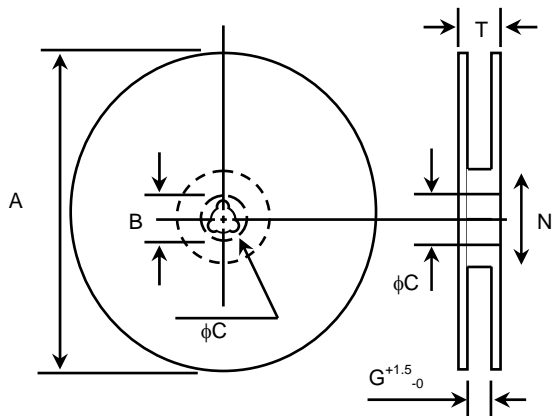


Dimension in mm

TYPE	A	B	W	P	T
MB-100505	0.7	1.2	8	2	0.8
MB-160808	1.1	1.9	8	4	1.1
MB-201209	1.5	2.3	8	4	1.3
MB-321611	1.9	3.5	8	4	1.5
MB-321616	1.9	3.5	8	4	2.0
MB-322513	2.9	3.6	8	4	1.7
MB-451616	1.9	4.9	12	4	2.0
MB-453215	3.6	4.9	12	8	1.9
MB-3216-A	1.9	3.5	8	4	1.4

CARRIER TAPE MATERIAL: POLYSTYRENE

● REEL DIMENSION



Dimension in mm

TYPE	Q'TY	A	B	C	G	N	T
MB-100505	10000 PCS	178	21.0	13.0	12.4	55	16.4
MB-160808	4000 PCS	178	21.0	13.0	12.4	55	16.4
MB-201209	4000 PCS	178	21.0	13.0	12.4	55	16.4
MB-321611	3000 PCS	178	21.0	13.0	8.4	55	12.4
MB-321616	2500 PCS	178	21.0	13.0	8.4	55	12.4
MB-322513	2000 PCS	178	21.0	13.0	8.4	55	12.4
MB-451616	2000 PCS	178	21.0	13.0	8.4	55	12.4
MB-453215	1000 PCS	178	21.0	13.0	8.4	55	12.4
MB-3216-A	3000 PCS	178	21.0	13.0	8.4	55	12.4

