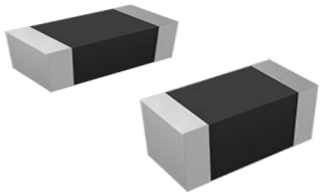
Multilayer Chip Ferrite Beads

APBE-D Series

FEATURES 特征

- Can be used in a wide range of frequency to suppress EMI.
  可在宽频率范围内用于抑制电磁干扰（EMI）
- Internal silver printed layers and magnetic shielded structures to minimize crosstalk.
  内部银浆印刷层及磁屏蔽结构，以最大限度减少串扰.
- Monolithic structure for excellent reliability.
  整体式结构，可靠性优异.
- Smaller DC resistance and larger rated current than APBD series.
  低直流电阻,比APBD系列更大的额定电流.
- Operating Temp：-55℃~+125℃(Including self heating)
  工作温度范围:-55~+125°℃(包括自身温度上升)



APPLICATIONS 用途

- Noise suppression in power lines or large current signal lines of electrical equipment such as communication equipment, computers and LCD TVs.
  适用于通信设备、计算机、液晶电视等电气设备的电源线或大电流信号线中的噪声抑制.

PART NUMBERING 产品型号

APBE	1608	-	221	W	T	D13
①	②		③	④	⑤	⑥

① Series Name	
APBE	Multilayer Chip Ferrite High Current Beads

② External Dimensions [inch]	(L×W) (mm)
0603 [0201]	0.6×0.3
1005 [0402]	1.0×0.5
1608 [0603]	1.6×0.8
2012 [0805]	2.0×1.2
3216 [1206]	3.2×1.6
3225 [1210]	3.2×2.5
4516 [1806]	4.5×1.6
4532 [1812]	4.5×3.2

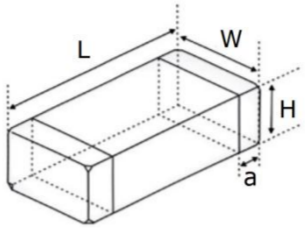
③ Impedance	
Code (example)	Impedance［Ω］
900	90
221	220
102	1000

⑤ Packaging	
T	Tape & Reel

④ Characteristics Code	
Stardard	W

⑥ Special Material Code
D13

DIMENSIONS 尺寸



Unit: mm [inch]

Dimensions				
Series	L	W	H	a
APBE0603 [0201]	0.6±0.03 [0.020±0.003]	0.3±0.03 [0.010±0.003]	0.3±0.03 [0.010±0.003]	0.15±0.05 [0.010±0.002]
APBE1005 [0402]	1.0± 0.15 [0.040± 0.006]	0.5± 0.15 [0.020± 0.006]	0.5± 0.15 [0.020± 0.006]	0.25± 0.1 [0.010± 0.004]
APBE1608 [0603]	1.6± 0.20 [0.063± 0.008]	0.8± 0.20 [0.031± 0.008]	0.8± 0.20 [0.031± 0.008]	0.3± 0.2 [0.01± 0.008]
APBE2012 [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± 0.3 [0.020± 0.012]
APBE3216 [1206]	3.2± 0.20 [0.126±0.008]	1.6± 0.20 [0.063± 0.008]	0.9± 0.20 [0.035± 0.008]	0.5± 0.3 [0.020± 0.012]
APBE3225 [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± 0.3 [0.020± 0.012]
APBE4516 [1806]	4.5±0.20 [0.186±0.008]	1.6±0.20 [0.063±0.008]	1.6±0.20 [0.063±0.008]	0.5± 0.3 [0.020± 0.012]
APBE4532 [1812]	4.5±0.20 [0.186±0.008]	3.2±0.20 [0.126±0.008]	1.5±0.20 [0.060±0.008]	0.5± 0.3 [0.020± 0.012]

ELECTRICAL CHARACTERISTICS 特性规格表

● APBE0603 Series

Part No.	Impedance	Tolerance	Test Frequency (MHz)	Max. DC Resistance (Ω)	Max. Rated Current (mA)
APBE0603-100WTD13	10	± 5 Ω	100	0.050	1100
APBE0603-330WTD13	33	±25%	100	0.150	800
APBE0603-800WTD13	80	±25%	100	0.180	550
APBE0603-121WTD13	120	±25%	100	0.230	470
APBE0603-241WTD13	240	±25%	100	0.380	370
APBE0603-601WTD13	600	±25%	100	0.850	270
APBE0603-102WTD13	1000	±25%	100	1.250	220

ELECTRICAL CHARACTERISTICS 特性规格表

APBE1005 Series

Part No.	Impedance	Tolerance	Test Frequency (MHz)	Max. DC Resistance (Ω)	Max. Rated Current (mA)
APBE1005-000WTD13	0	0～15Ω	100	0.040	1900
APBE1005-050WTD13	5	0～15Ω	100	0.040	1900
APBE1005-070WTD13	7	0～11Ω	100	0.040	1900
APBE1005-090WTD13	9	5～13Ω	100	0.040	1900
APBE1005-100WTD13	10	7～15Ω	100	0.040	1900
APBE1005-110WTD13	11	7～15Ω	100	0.040	1900
APBE1005-150WTD13	15	9～21Ω	100	0.040	1900
APBE1005-190WTD13	19	12～25Ω	100	0.060	1900
APBE1005-260WTD13	26	±25%	100	0.060	1900
APBE1005-300WTD13	30	±25%	100	0.080	1900
APBE1005-310WTD13	31	±25%	100	0.080	1900
APBE1005-360WTD13	36	±25%	100	0.130	1900
APBE1005-470WTD13	47	±25%	100	0.130	1100
APBE1005-600WTD13	60	±25%	100	0.130	1100
APBE1005-750WTD13	75	±25%	100	0.170	1100
APBE1005-800WTD13	80	±25%	100	0.170	1100
APBE1005-101WTD13	100	±25%	100	0.200	950
APBE1005-121WTD13	120	±25%	100	0.250	750
APBE1005-151WTD13	150	±25%	100	0.250	750
APBE1005-181WTD13	180	±25%	100	0.300	750
APBE1005-201WTD13	200	±25%	100	0.300	750
APBE1005-221WTD13	220	±25%	100	0.300	750
APBE1005-301WTD13	300	±25%	100	0.400	420
APBE1005-331WTD13	330	±25%	100	0.600	320
APBE1005-501WTD13	500	±25%	100	0.600	320
APBE1005-601WTD13	600	±25%	100	0.600	320
APBE1005-801WTD13	800	±25%	100	0.800	270
APBE1005-102WTD13	1000	±25%	100	0.900	270
APBE1005-122WTD13	1200	±25%	100	1.100	170

APBE1608 Series

Part No.	Impedance	Tolerance	Test Frequency (MHz)	Max. DC Resistance (Ω)	Max. Rated Current (mA)
APBE1608-000WTD13	0	0～15Ω	100	0.020	3100
APBE1608-050WTD13	5	0~15Ω	100	0.020	3100
APBE1608-070WTD13	7	0~11Ω	100	0.020	3100
APBE1608-090WTD13	9	5~13Ω	100	0.020	3100
APBE1608-100WTD13	10	7~15Ω	100	0.020	3100
APBE1608-110WTD13	11	7~15Ω	100	0.020	3100
APBE1608-150WTD13	15	9~21Ω	100	0.030	3100

ELECTRICAL CHARACTERISTICS 特性规格表

APBE1608 Series

Part No.	Impedance	Tolerance	Test Frequency (MHz)	Max. DC Resistance (Ω)	Max. Rated Current (mA)
APBE1608-190WTD13	19	12~25Ω	100	0.030	3100
APBE1608-220WTD13	22	±25%	100	0.030	3100
APBE1608-300WTD13	30	±25%	100	0.030	3100
APBE1608-310WTD13	31	±25%	100	0.030	3100
APBE1608-330WTD13	33	±25%	100	0.030	3100
APBE1608-400WTD13	40	±25%	100	0.100	1600
APBE1608-500WTD13	50	±25%	100	0.100	1600
APBE1608-600WTD13	60	±25%	100	0.100	1600
APBE1608-700WTD13	70	±25%	100	0.100	1600
APBE1608-750WTD13	75	±25%	100	0.100	1600
APBE1608-800WTD13	80	±25%	100	0.100	1600
APBE1608-900WTD13	90	±25%	100	0.120	1500
APBE1608-101WTD13	100	±25%	100	0.120	1500
APBE1608-121WTD13	120	±25%	100	0.140	1400
APBE1608-151WTD13	150	±25%	100	0.150	1300
APBE1608-181WTD13	180	±25%	100	0.150	1300
APBE1608-201WTD13	200	±25%	100	0.180	1300
APBE1608-221WTD13	220	±25%	100	0.180	1300
APBE1608-301WTD13	300	±25%	100	0.200	1300
APBE1608-331WTD13	330	±25%	100	0.300	1100
APBE1608-471WTD13	470	±25%	100	0.300	1100
APBE1608-501WTD13	500	±25%	100	0.300	1100
APBE1608-601WTD13	600	±25%	100	0.300	1100
APBE1608-801WTD13	800	±25%	100	0.350	550
APBE1608-102WTD13	1000	±25%	100	0.400	550
APBE1608-122WTD13	1200	±25%	100	0.450	550
APBE1608-152WTD13	1500	±25%	100	0.550	420
APBE1608-182WTD13	1800	±25%	100	0.550	420
APBE1608-202WTD13	2000	±25%	100	0.600	420
APBE1608-252WTD13	2500	±25%	100	0.650	420

APBE2012 Series

Part No.	Impedance	Tolerance	Test Frequency (MHz)	Max. DC Resistance (Ω)	Max. Rated Current (mA)
APBE2012-000WTD13	0	0～15Ω	100	0.020	3100
APBE2012-050WTD13	5	0～15Ω	100	0.020	3100
APBE2012-070WTD13	7	0～11Ω	100	0.020	3100
APBE2012-090WTD13	9	5～13Ω	100	0.020	3100
APBE2012-100WTD13	10	7～15Ω	100	0.020	3100
APBE2012-110WTD13	11	7～15Ω	100	0.020	3100
APBE2012-150WTD13	15	9～21Ω	100	0.020	3100

ELECTRICAL CHARACTERISTICS 特性规格表

APBE2012 Series

Part No.	Impedance	Tolerance	Test Frequency (MHz)	Max. DC Resistance (Ω)	Max. Rated Current (mA)
APBE2012-190WTD13	19	12～25Ω	100	0.020	3100
APBE2012-220WTD13	22	±25%	100	0.040	3100
APBE2012-260WTD13	26	±25%	100	0.040	3100
APBE2012-300WTD13	30	±25%	100	0.040	3100
APBE2012-310WTD13	31	±25%	100	0.040	3100
APBE2012-330WTD13	33	±25%	100	0.040	3100
APBE2012-400WTD13	40	±25%	100	0.050	3100
APBE2012-500WTD13	50	±25%	100	0.050	3100
APBE2012-600WTD13	60	±25%	100	0.050	3100
APBE2012-700WTD13	70	±25%	100	0.060	3100
APBE2012-800WTD13	80	±25%	100	0.060	3100
APBE2012-900WTD13	90	±25%	100	0.080	2600
APBE2012-101WTD13	100	±25%	100	0.080	2600
APBE2012-121WTD13	120	±25%	100	0.080	2600
APBE2012-151WTD13	150	±25%	100	0.100	2600
APBE2012-181WTD13	180	±25%	100	0.120	2100
APBE2012-201WTD13	200	±25%	100	0.120	2100
APBE2012-221WTD13	220	±25%	100	0.130	2100
APBE2012-301WTD13	300	±25%	100	0.130	2100
APBE2012-331WTD13	330	±25%	100	0.150	2100
APBE2012-391WTD13	390	±25%	100	0.220	1600
APBE2012-471WTD13	470	±25%	100	0.220	1600
APBE2012-501WTD13	500	±25%	100	0.220	1600
APBE2012-601WTD13	600	±25%	100	0.220	1600
APBE2012-801WTD13	800	±25%	100	0.250	1100
APBE2012-102WTD13	1000	±25%	100	0.250	1100
APBE2012-122WTD13	1200	±25%	100	0.280	850
APBE2012-152WTD13	1500	±25%	100	0.400	750
APBE2012-202WTD13	2000	±25%	100	0.400	750
APBE2012-222WTD13	2200	±25%	100	0.400	750
APBE2012-252WTD13	2500	±25%	50	0.450	650

APBE3216 Series

Part No.	Impedance	Tolerance	Test Frequency (MHz)	Max. DC Resistance (Ω)	Max. Rated Current (mA)
APBE3216-000WTD13	0	0～15Ω	100	0.040	4200
APBE3216-050WTD13	5	0~15Ω	100	0.040	3100
APBE3216-070WTD13	7	0~11Ω	100	0.040	3100
APBE3216-090WTD13	9	5~13Ω	100	0.040	3100
APBE3216-100WTD13	10	7~15Ω	100	0.040	3100
APBE3216-110WTD13	11	7~15Ω	100	0.040	3100

ELECTRICAL CHARACTERISTICS 特性规格表

● APBE3216 Series

Part No.	Impedance	Tolerance	Test Frequency (MHz)	Max. DC Resistance (Ω)	Max. Rated Current (mA)
APBE3216-150WTD13	15	9~21Ω	100	0.040	3100
APBE3216-190WTD13	19	12~25Ω	100	0.040	3100
APBE3216-220WTD13	22	±25%	100	0.040	3100
APBE3216-260WTD13	26	±25%	100	0.040	3100
APBE3216-300WTD13	30	±25%	100	0.040	3100
APBE3216-310WTD13	31	±25%	100	0.040	3100
APBE3216-400WTD13	40	±25%	100	0.040	3100
APBE3216-500WTD13	50	±25%	100	0.040	3100
APBE3216-600WTD13	60	±25%	100	0.040	3100
APBE3216-700WTD13	70	±25%	100	0.070	3100
APBE3216-800WTD13	80	±25%	100	0.070	3100
APBE3216-900WTD13	90	±25%	100	0.070	3100
APBE3216-101WTD13	100	±25%	100	0.070	3100
APBE3216-121WTD13	120	±25%	100	0.070	3100
APBE3216-151WTD13	150	±25%	100	0.100	2600
APBE3216-181WTD13	180	±25%	100	0.100	2600
APBE3216-221WTD13	220	±25%	100	0.110	2600
APBE3216-301WTD13	300	±25%	100	0.150	2100
APBE3216-331WTD13	330	±25%	100	0.200	2100
APBE3216-391WTD13	390	±25%	100	0.200	2100
APBE3216-501WTD13	500	±25%	100	0.200	2100
APBE3216-601WTD13	600	±25%	100	0.200	2100
APBE3216-801WTD13	800	±25%	100	0.250	2100
APBE3216-102WTD13	1000	±25%	100	0.250	2100
APBE3216-122WTD13	1200	±25%	100	0.350	1600
APBE3216-152WTD13	1500	±25%	50	0.450	550
APBE3216-182WTD13	1800	±25%	50	0.600	550
APBE3216-202WTD13	2000	±25%	50	0.700	320
APBE3216-252WTD13	2500	±25%	50	0.900	220
APBE3216-302WTD13	3000	±25%	50	0.900	220

● APBE3225 Series

Part No.	Impedance	Tolerance	Test Frequency (MHz)	Max. DC Resistance (Ω)	Max. Rated Current (mA)
APBE3225-000WTD13	0	0～15Ω	100	0.030	5200
APBE3225-100WTD13	10	7~15Ω	100	0.030	5200
APBE3225-110WTD13	11	7~15Ω	100	0.030	5200
APBE3225-190WTD13	19	12~25Ω	100	0.030	5200
APBE3225-260WTD13	26	±25%	100	0.030	5200
APBE3225-300WTD13	30	±25%	100	0.030	5200
APBE3225-310WTD13	31	±25%	100	0.030	5200

ELECTRICAL CHARACTERISTICS 特性规格表

● APBE3225 Series

Part No.	Impedance	Tolerance	Test Frequency (MHz)	Max. DC Resistance (Ω)	Max. Rated Current (mA)
APBE3225-400WTD13	40	±25%	100	0.030	5200
APBE3225-500WTD13	50	±25%	100	0.030	5200
APBE3225-600WTD13	60	±25%	100	0.030	5200
APBE3225-700WTD13	70	±25%	100	0.030	5200
APBE3225-800WTD13	80	±25%	100	0.030	5200
APBE3225-900WTD13	90	±25%	100	0.040	4200
APBE3225-101WTD13	100	±25%	100	0.060	4200
APBE3225-121WTD13	120	±25%	100	0.060	4200
APBE3225-151WTD13	150	±25%	100	0.080	4200
APBE3225-181WTD13	180	±25%	100	0.080	3100
APBE3225-221WTD13	220	±25%	100	0.080	3100
APBE3225-301WTD13	300	±25%	100	0.080	3100
APBE3225-501WTD13	500	±25%	100	0.120	3100
APBE3225-601WTD13	600	±25%	100	0.180	2100
APBE3225-801WTD13	800	±25%	100	0.230	2100
APBE3225-102WTD13	1000	±25%	100	0.280	2100

● APBE4516 Series

Part No.	Impedance	Tolerance	Test Frequency (MHz)	Max. DC Resistance (Ω)	Max. Rated Current (mA)
APBE4516-190WTD13	19	15～25Ω	100	0.015	6200
APBE4516-300WTD13	30	±25%	100	0.020	6200
APBE4516-310WTD13	31	±25%	100	0.020	6200
APBE4516-500WTD13	50	±25%	100	0.025	6200
APBE4516-600WTD13	60	±25%	100	0.025	6200
APBE4516-750WTD13	75	±25%	100	0.040	6200
APBE4516-800WTD13	80	±25%	100	0.050	3100
APBE4516-900WTD13	90	±25%	100	0.060	3100
APBE4516-101WTD13	100	±25%	100	0.060	3100
APBE4516-121WTD13	120	±25%	100	0.060	3100
APBE4516-151WTD13	150	±25%	100	0.060	3100
APBE4516-181WTD13	180	±25%	100	0.080	2100
APBE4516-221WTD13	220	±25%	100	0.080	2100
APBE4516-301WTD13	300	±25%	100	0.090	2100
APBE4516-501WTD13	500	±25%	100	0.200	1600
APBE4516-601WTD13	600	±25%	100	0.200	1600

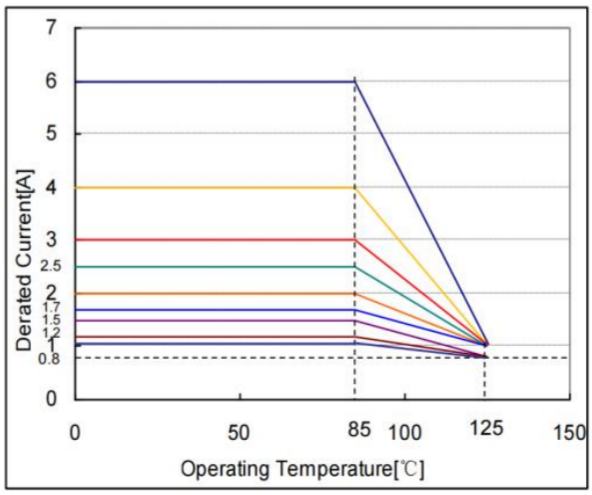
ELECTRICAL CHARACTERISTICS 特性规格表

● APBE4532 Series

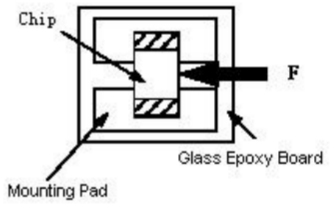
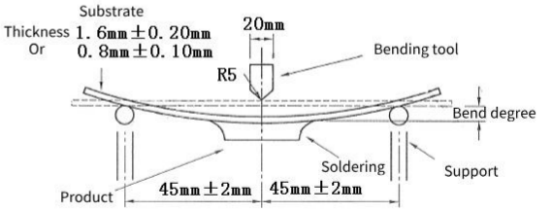
Part No.	Impedance	Tolerance	Test Frequency (MHz)	Max. DC Resistance (Ω)	Max. Rated Current (mA)
APBE4532-190WTD13	0	12~25 Ω	100	0.020	5200
APBE4532-260WTD13	26	±25%	100	0.020	5200
APBE4532-300WTD13	30	±25%	100	0.020	5200
APBE4532-310WTD13	31	±25%	100	0.020	5200
APBE4532-380WTD13	31	±25%	100	0.020	5200
APBE4532-500WTD13	50	±25%	100	0.020	4200
APBE4532-600WTD13	60	±25%	100	0.020	4200
APBE4532-700WTD13	70	±25%	100	0.020	4200
APBE4532-800WTD13	80	±25%	100	0.020	4200
APBE4532-900WTD13	90	±25%	100	0.020	4200
APBE4532-101WTD13	100	±25%	100	0.030	4200
APBE4532-121WTD13	120	±25%	100	0.030	4200
APBE4532-151WTD13	150	±25%	100	0.040	3700
APBE4532-181WTD13	180	±25%	100	0.060	3100
APBE4532-201WTD13	200	±25%	100	0.060	3100
APBE4532-221WTD13	220	±25%	100	0.060	2100
APBE4532-301WTD13	300	±25%	100	0.060	2100
APBE4532-501WTD13	500	±25%	100	0.100	1100
APBE4532-601WTD13	600	±25%	100	0.100	1100

- Impedance testing conditions: E4982A or equivalent, test voltage 50mV ± 5mV, Temperature 15℃~35℃,Humidity 25%~75%.
- Max. DC Resistance Testing conditions：RM3542A or equivalent, Temperature 15℃~35℃,Humidity 25%~75%.
- Rated current：Apply the rated current, and the surface temperature rise of the product shall not exceed 40℃ .

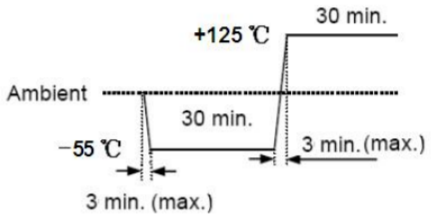
When operating temperatures exceed +85℃, derating of current is necessary for chip ferrite beads for which rated current is 1000mA and over. Please apply the derating curve shown in chart according to the operating temperature.



RELIABILITY TEST 可靠性测试

Items	Requirements	Test Methods and Remarks
Operating Temperature Range	-55℃~+ 125℃	Includes product surface temperature rise
1. Solder ability	No mechanical damage. 95% （75% for 0603 series） or more of electrode area shall be coated by new solder.	Preheating temperature:120℃ to 150℃ Preheating time: 60s Solder 96.5%Sn/3.0%Ag/0.5%Cu of the Sn solder. Solder temperature: 245±3℃ Immersion tin depth:10mm Duration ：3±0.3s Dip performance to a flux of about:3 ~ 5 s
2. Resistance to Soldering Heat	No mechanical damage. Inductance ： Impedance change: within ±30%	Preheating temperature: 120℃ to 150℃ Preheating time: 60s Solder 96.5%Sn/3.0%Ag/0.5%Cu of the Sn solder. Solder temperature: 260℃±5℃ Immersion tin depth:10mm Duration ：10±1s Dip performance to a flux of about:3～5 s
3. Adhesion of electrode	The termination and body should be no damage.	Applied force: 2N force for 0603 series ； 5N force for 1005 series ： 7N force for 1608 series ： 10N force for2012 、 3216 series. 15N force for 3225 、 4532 series. Keep time ： 10±1S 
4. Low temperature resistance	No mechanical damage. Impedance change: within ±30%	Temperature:-55±2℃ Testing time: 1000 h （+24h）
5. Bending strength	No mechanical damage.	Testing board: glass epoxy-resin substrate For （1±0.5） mm/s compression speed, curvature: 2mm, hold time20s±1s. 
6. Vibration	No mechanical damage. Impedance change: within ±30%	Amplitude modulation: 1.5mm Test time: A period of 2h in each of 3 mutually perpendicular directions. Frequency range: 10Hz to 55Hz to 10Hz for 1min.

RELIABILITY TEST 可靠性测试

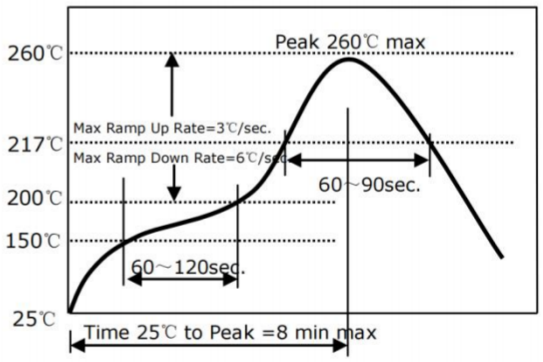
Items	Requirements	Test Methods and Remarks
7. High temperature resistance	No mechanical damage. Impedance change: within ±30%	Testing time: 1000 h （+24h） Temperature: 125±2℃
8. Static Humidity	No mechanical damage. Impedance change: within ±30%	Humidity: 90% to 95% RH Temperature: 60℃±2℃ Testing time: 1000 h （+24h）
9. High temperature load	No mechanical damage. Impedance change: within ±30%	impose current: at room Testing time: 1000 h （+24h） Temperature: 85±2℃
10. Temperature Shock	No mechanical damage. Impedance change: within ±30%	Temperature: -55℃ for 30±3min + 125℃ for 30±3min Number of cycles: 100 

Recommended Soldering Technologies 回流焊建议

Reflowing Profile

- Preheat condition: 150~200℃/60~120sec.
- Allowed time above 217℃: 60~90sec.
- Max temp: 260℃
- Max time at max temp: 10sec.
- Solder paste: Sn/3.0Ag/0.5Cu
- Allowed Reflow time: 2x max

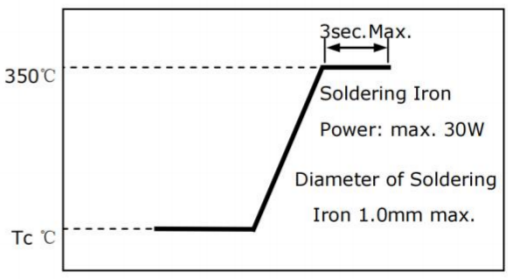
Note: The reflow profile in the above table is only for qualification and is not meant to specify board assembly profiles. Actual board assembly profiles must be based on the customer's specific board design, solder paste and process, and should not exceed the parameters as the Reflow profile shows.



Iron Soldering Profile

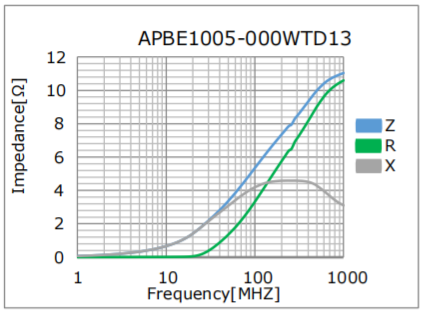
- Iron soldering power: Max.30W
- Pre-heating: 150 ℃ / 60sec.
- Soldering Tip temperature: 350℃Max.
- Soldering time: 3sec Max.
- Solder paste: Sn/3.0Ag/0.5Cu
- Max.1 times for iron soldering

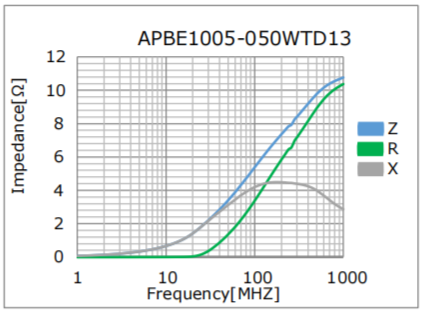
Note: Take care not to apply the tip of the soldering iron to the terminal electrodes.

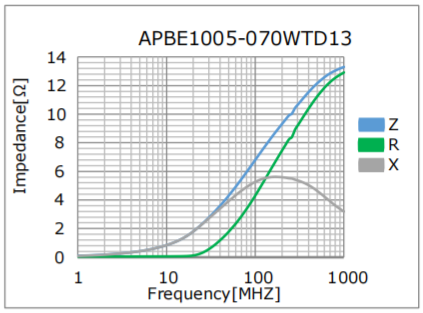


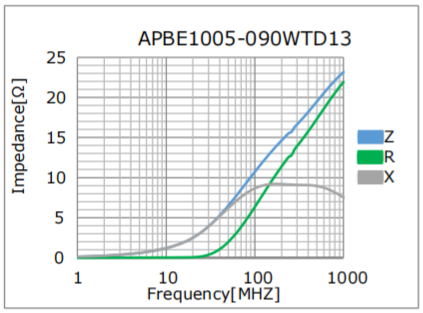
PRODUCT CHARACTERISTIC CURVE 电气特性

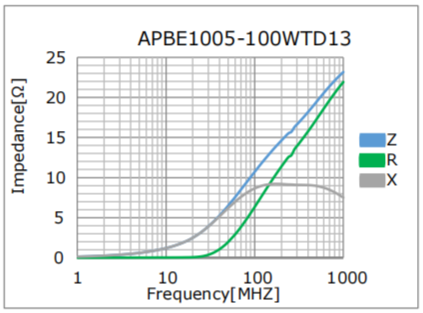
APBE1005 Series

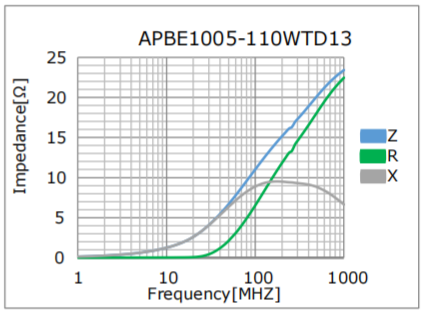


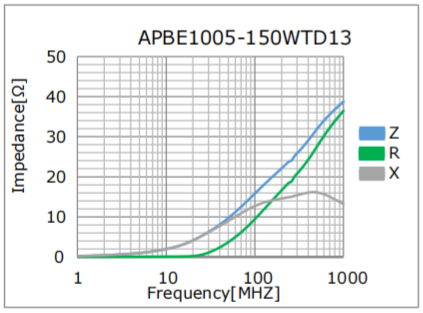


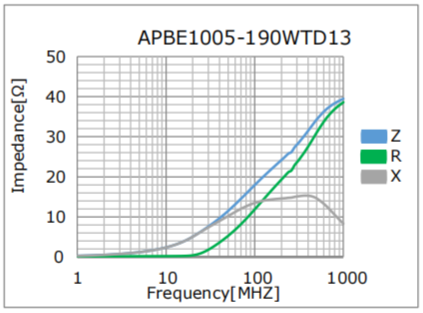


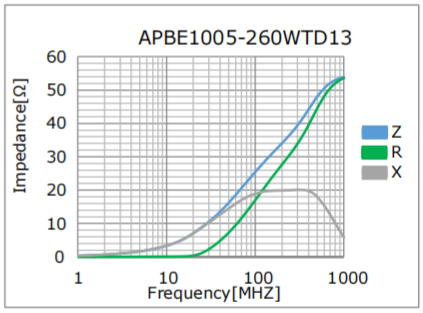


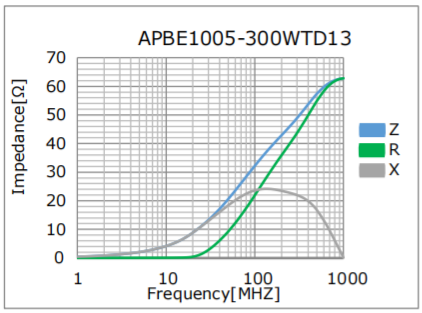


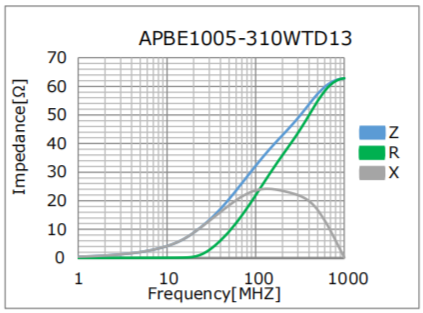


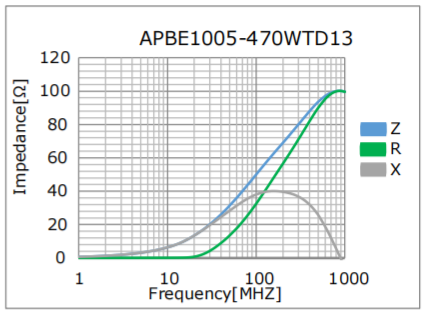


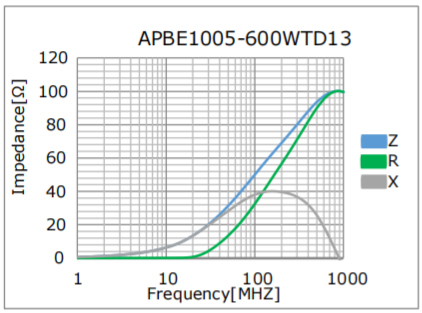


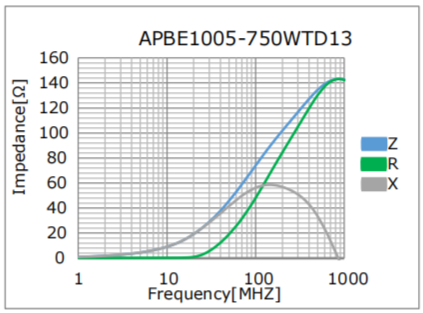



APBE1005-300WTD13
Impedance[Ω]
70
60
50
40
30
20
10
0
1
10
100
1000
Frequency[MHZ]
Z
R
X


APBE1005-310WTD13
Impedance[Ω]
70
60
50
40
30
20
10
0
1
10
100
1000
Frequency[MHZ]
Z
R
X


APBE1005-470WTD13
Impedance[Ω]
120
100
80
60
40
20
0
1
10
100
1000
Frequency[MHZ]
Z
R
X


APBE1005-600WTD13
Impedance[Ω]
120
100
80
60
40
20
0
1
10
100
1000
Frequency[MHZ]
Z
R
X


APBE1005-750WTD13
Impedance[Ω]
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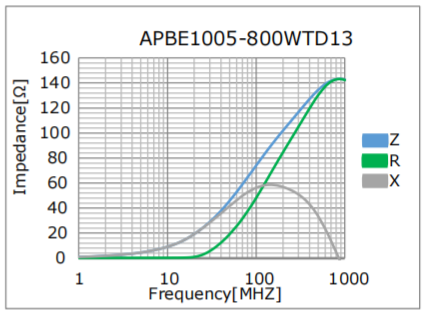
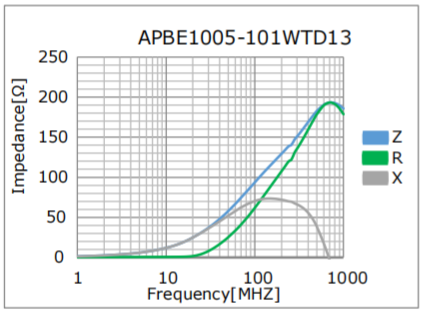
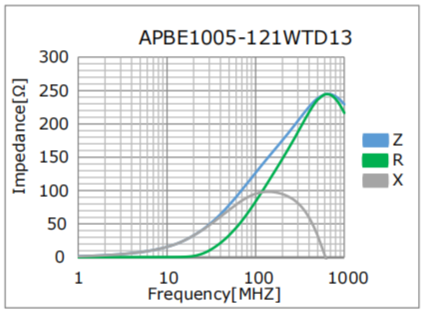
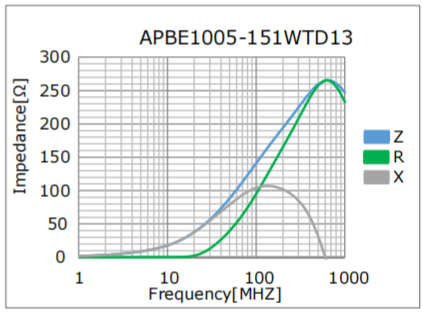
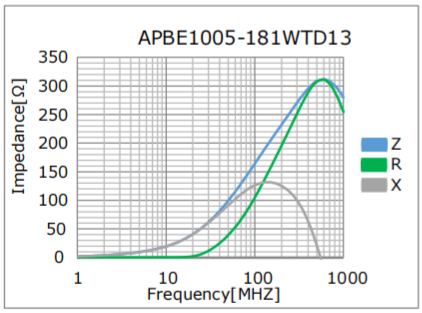
140
120
100
80
60
40
20
0
1
10
100
1000
Frequency[MHZ]
Z
R
X

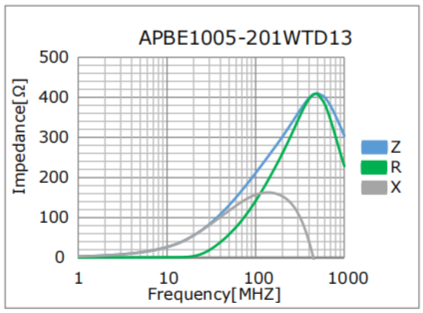

APBE1005-800WTD13
Impedance[Ω]
160
140
120
100
80
60
40
20
0
1
10
100
1000
Frequency[MHZ]
Z
R
X

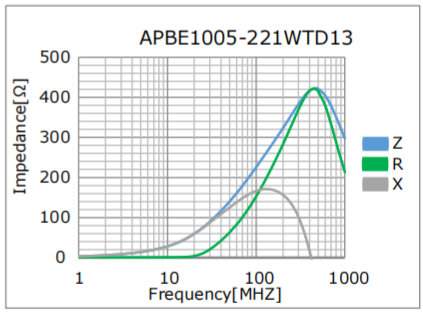

APBE1005-101WTD13
Impedance[Ω]
250
200
150
100
50
0
1
10
100
1000
Frequency[MHZ]
Z
R
X


APBE1005-121WTD13
Impedance[Ω]
300
250
200
150
100
50
0
1
10
100
1000
Frequency[MHZ]
Z
R
X


APBE1005-151WTD13
Impedance[Ω]
300
250
200
150
100
50
0
1
10
100
1000
Frequency[MHZ]
Z
R
X


APBE1005-181WTD13
Impedance[Ω]
350
300
250
200
150
100
50
0
1
10
100
1000
Frequency[MHZ]
Z
R
X


APBE1005-201WTD13
Impedance[Ω]
500
400
300
200
100
0
1
10
100
1000
Frequency[MHZ]
Z
R
X


APBE1005-221WTD13
Impedance[Ω]
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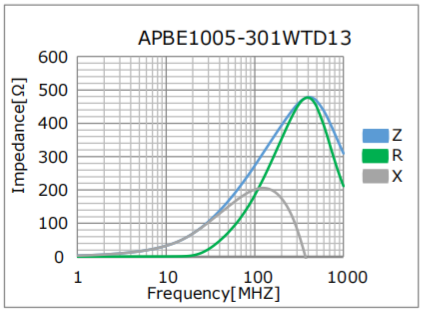
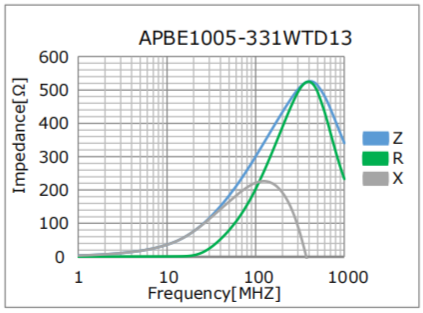
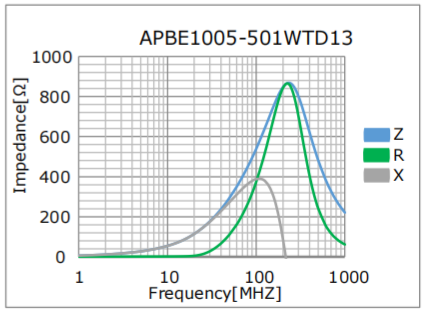
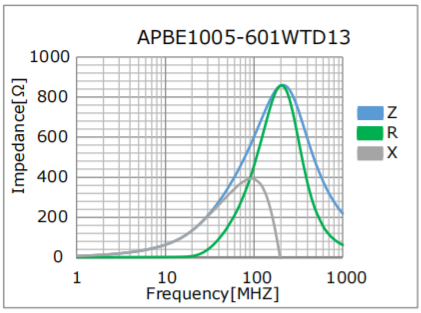
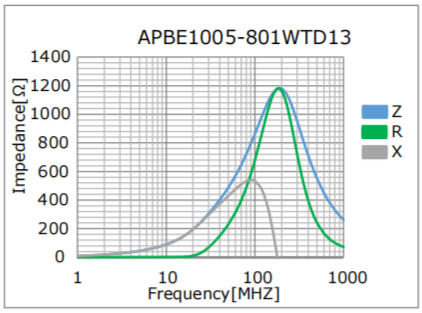
400
300
200
100
0
1
10
100
1000
Frequency[MHZ]
Z
R
X

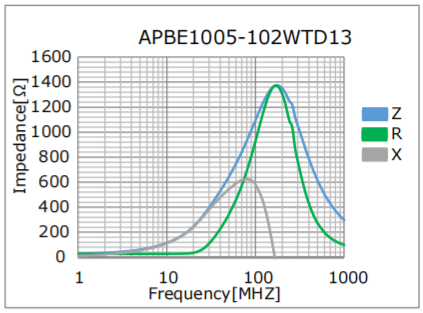

APBE1005-301WTD13
Impedance[Ω]
600
500
400
300
200
100
0
1
10
100
1000
Frequency[MHZ]
Z
R
X

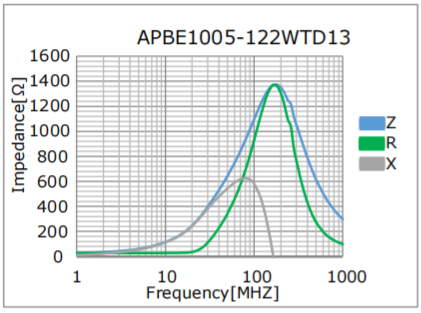

APBE1005-331WTD13
Impedance[Ω]
600
500
400
300
200
100
0
1
10
100
1000
Frequency[MHZ]
Z
R
X


APBE1005-501WTD13
Impedance[Ω]
1000
800
600
400
200
0
1
10
100
1000
Frequency[MHZ]
Z
R
X

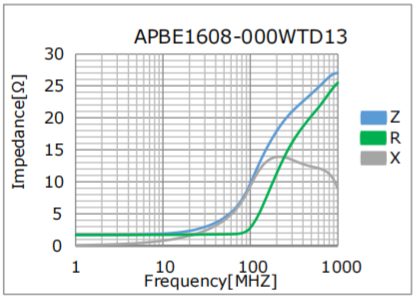


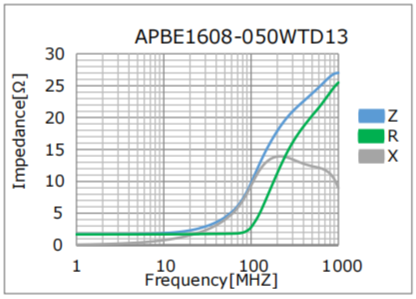


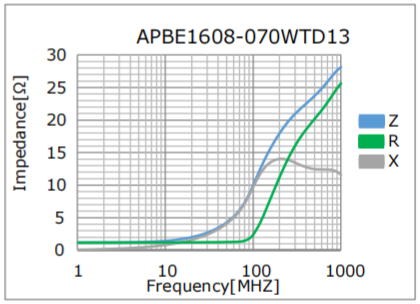


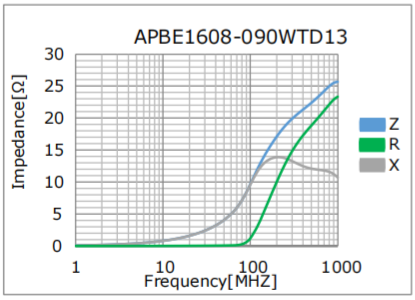


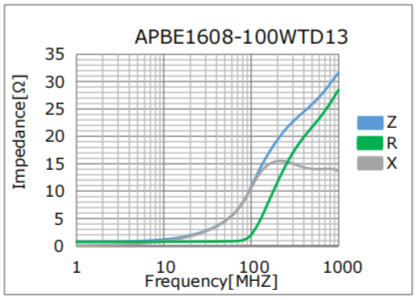
APBE1608 Series

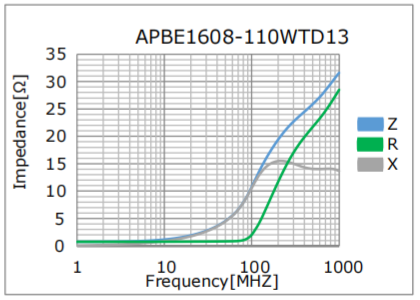


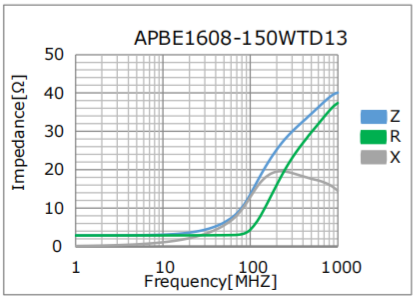


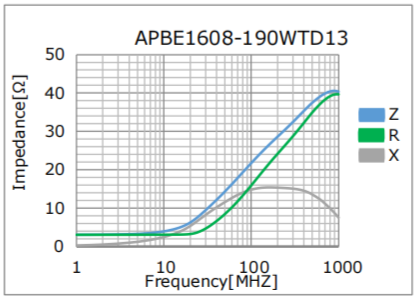


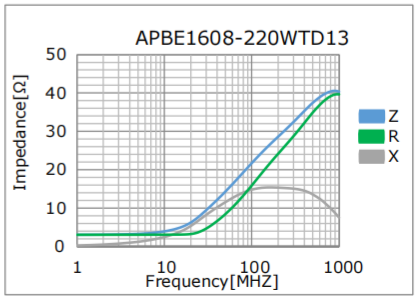


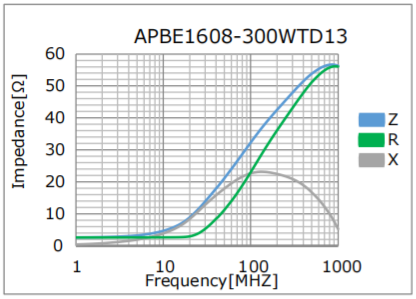


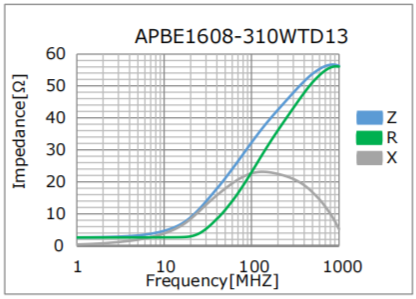


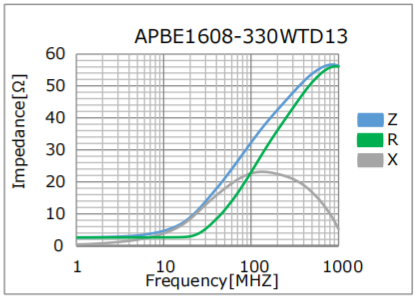


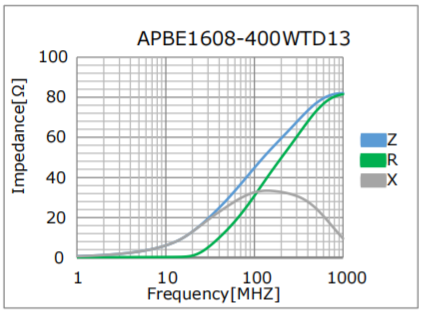


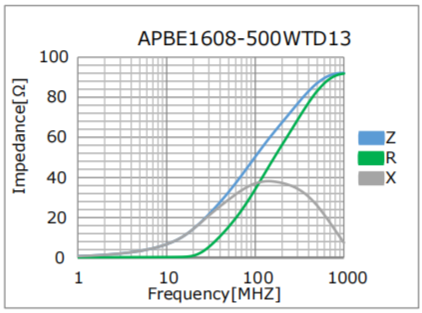



APBE1608-300WTD13
Impedance[Ω]
60
50
40
30
20
10
0
1
10
100
1000
Frequency[MHZ]
Z
R
X


APBE1608-310WTD13
Impedance[Ω]
60
50
40
30
20
10
0
1
10
100
1000
Frequency[MHZ]
Z
R
X


APBE1608-330WTD13
Impedance[Ω]
60
50
40
30
20
10
0
1
10
100
1000
Frequency[MHZ]
Z
R
X


APBE1608-400WTD13
Impedance[Ω]
100
80
60
40
20
0
1
10
100
1000
Frequency[MHZ]
Z
R
X


APBE1608-500WTD13
Impedance[Ω]
100
80
60
40
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100
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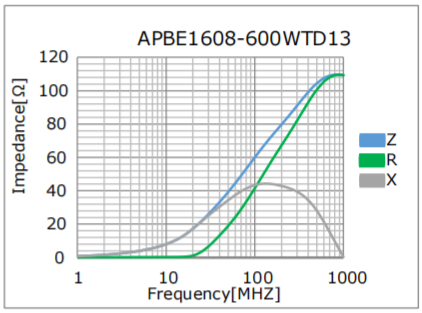
Frequency[MHZ]
Z
R
X


APBE1608-600WTD13
Impedance[Ω]
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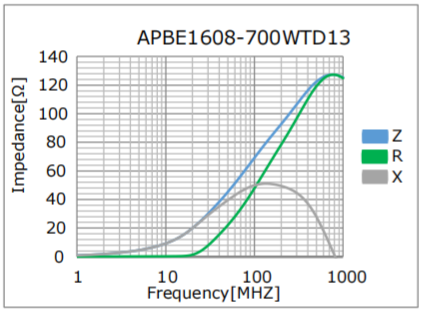
10
100
1000
Frequency[MHZ]
Z
R
X


APBE1608-700WTD13
Impedance[Ω]
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80
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40
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0
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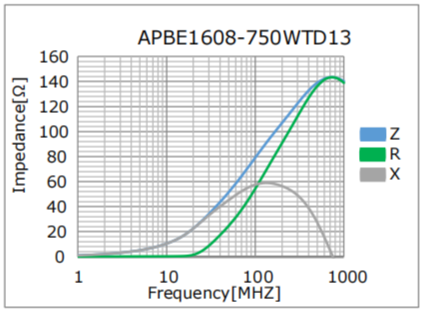
10
100
1000
Frequency[MHZ]
Z
R
X


APBE1608-750WTD13
Impedance[Ω]
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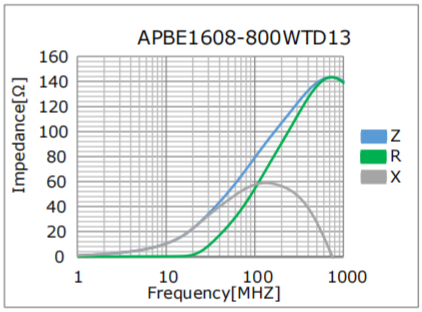
120
100
80
60
40
20
0
1
10
100
1000
Frequency[MHZ]
Z
R
X


APBE1608-800WTD13
Impedance[Ω]
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120
100
80
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40
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0
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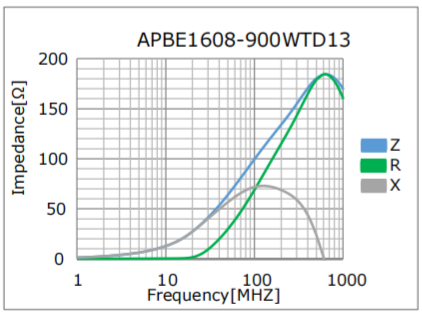
10
100
1000
Frequency[MHZ]
Z
R
X


APBE1608-900WTD13
Impedance[Ω]
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100
1000
Frequency[MHZ]
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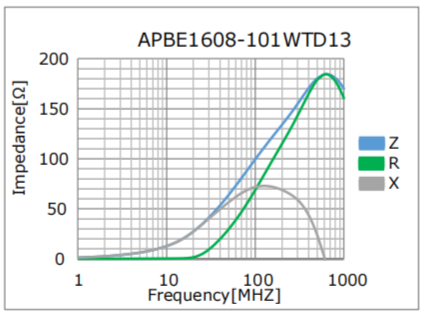
R
X


APBE1608-101WTD13
Impedance[Ω]
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1000
Frequency[MHZ]
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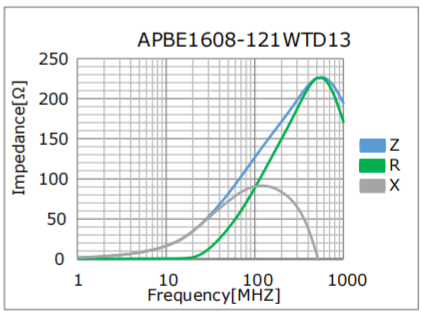
R
X


APBE1608-121WTD13
Impedance[Ω]
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100
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0
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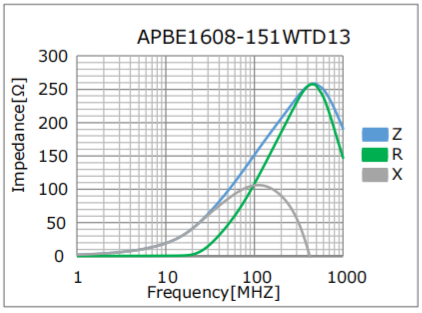
10
100
1000
Frequency[MHZ]
Z
R
X


APBE1608-151WTD13
Impedance[Ω]
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250
200
150
100
50
0
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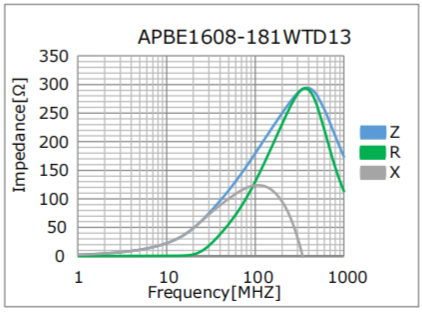
10
100
1000
Frequency[MHZ]
Z
R
X


APBE1608-181WTD13
Impedance[Ω]
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300
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200
150
100
50
0
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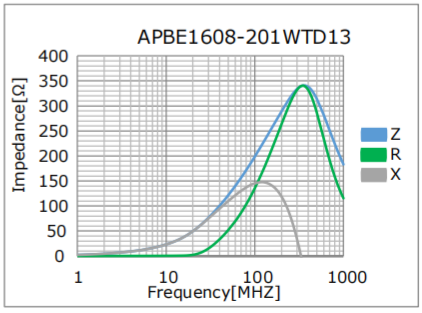
10
100
1000
Frequency[MHZ]
Z
R
X


APBE1608-201WTD13
Impedance[Ω]
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300
250
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150
100
50
0
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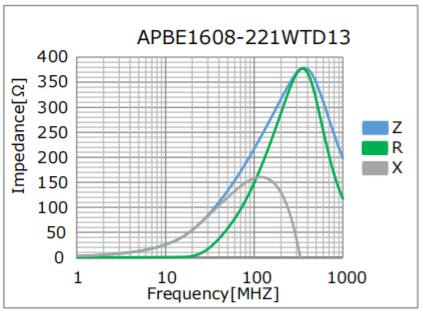
10
100
1000
Frequency[MHZ]
Z
R
X


APBE1608-221WTD13
Impedance[Ω]
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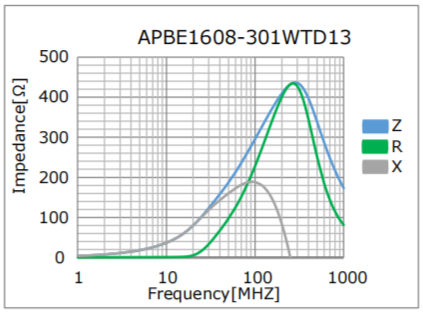
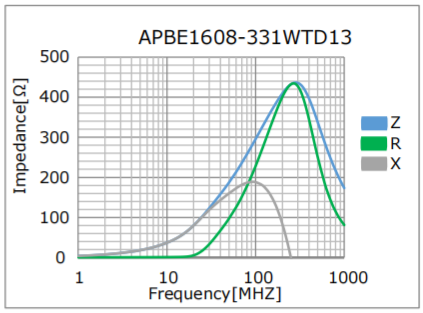
300
250
200
150
100
50
0
1
10
100
1000
Frequency[MHZ]
Z
R
X


APBE1608-301WTD13
Impedance[Ω]
500
400
300
200
100
0
1
10
100
1000
Frequency[MHZ]
Z
R
X


APBE1608-331WTD13
Impedance[Ω]
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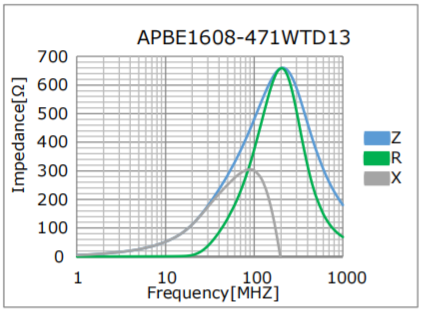
400
300
200
100
0
1
10
100
1000
Frequency[MHZ]
Z
R
X


APBE1608-471WTD13
Impedance[Ω]
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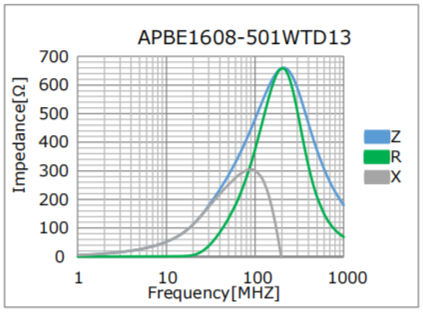
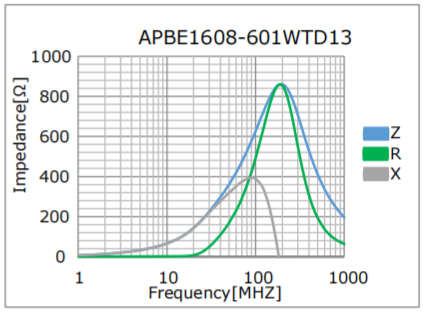
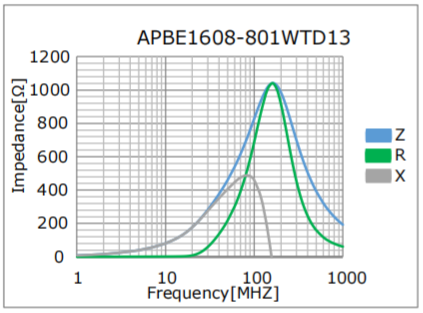
600
500
400
300
200
100
0
1
10
100
1000
Frequency[MHZ]
Z
R
X


APBE1608-501WTD13
Impedance[Ω]
700
600
500
400
300
200
100
0
1
10
100
1000
Frequency[MHZ]
Z
R
X


APBE1608-601WTD13
Impedance[Ω]
1000
800
600
400
200
0
1
10
100
1000
Frequency[MHZ]
Z
R
X


APBE1608-801WTD13
Impedance[Ω]
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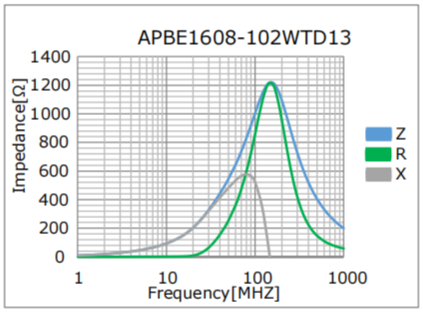
1000
800
600
400
200
0
1
10
100
1000
Frequency[MHZ]
Z
R
X


APBE1608-102WTD13
Impedance[Ω]
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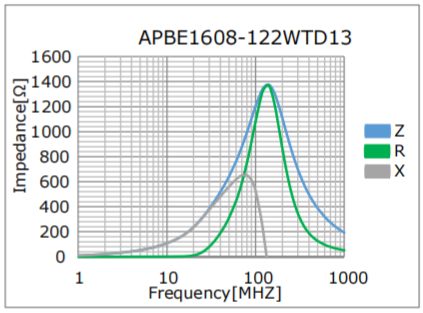
1200
1000
800
600
400
200
0
1
10
100
1000
Frequency[MHZ]
Z
R
X


APBE1608-122WTD13
Impedance[Ω]
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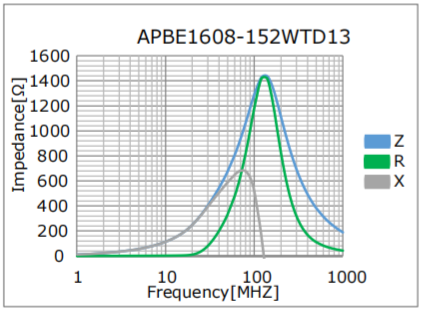
1400
1200
1000
800
600
400
200
0
1
10
100
1000
Frequency[MHZ]
Z
R
X


APBE1608-152WTD13
Impedance[Ω]
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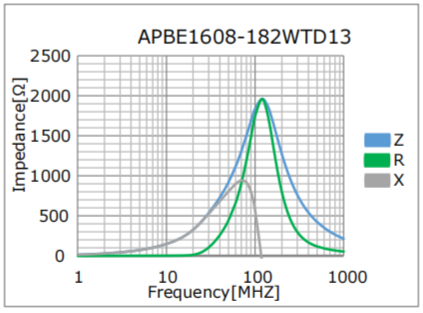
1400
1200
1000
800
600
400
200
0
1
10
100
1000
Frequency[MHZ]
Z
R
X


APBE1608-182WTD13
Impedance[Ω]
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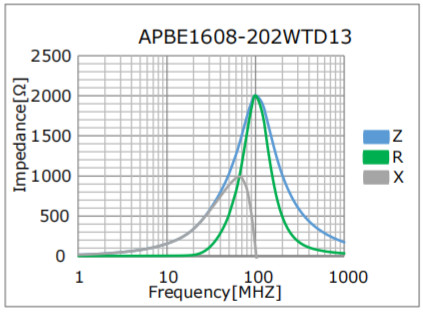
1000
Frequency[MHZ]
Z
R
X


APBE1608-202WTD13
Impedance[Ω]
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1000
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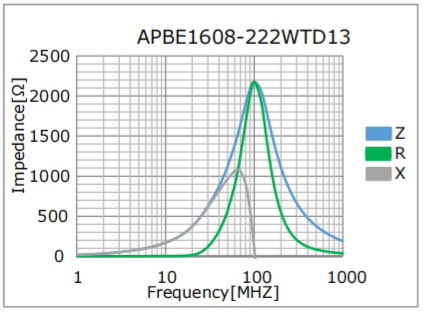
100
1000
Frequency[MHZ]
Z
R
X


APBE1608-222WTD13
Impedance[Ω]
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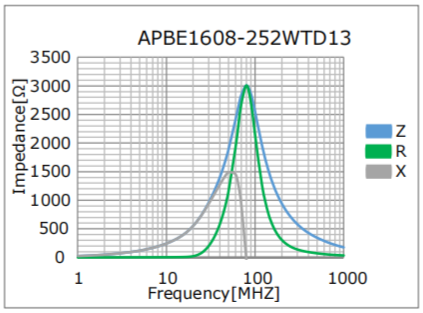
100
1000
Frequency[MHZ]
Z
R
X


APBE1608-252WTD13
Impedance[Ω]
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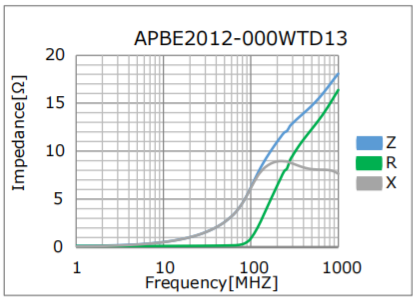
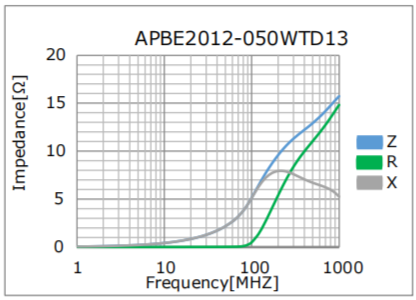
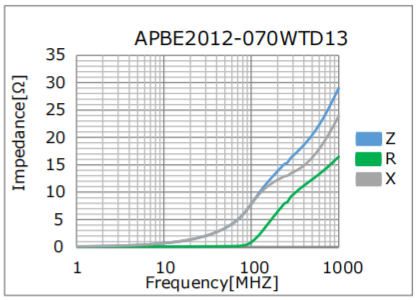
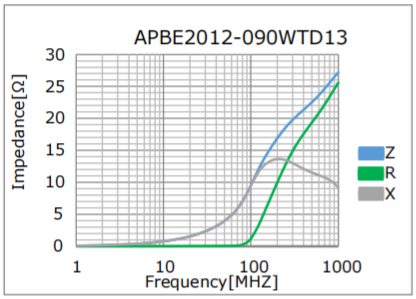
2000
1500
1000
500
0
1
10
100
1000
Frequency[MHZ]
Z
R
X

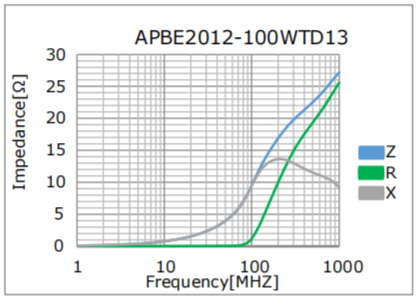
APBE2012 Series

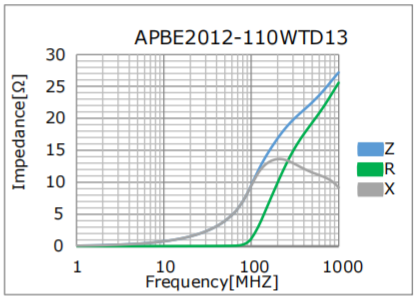


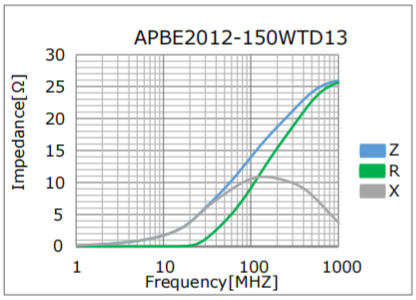


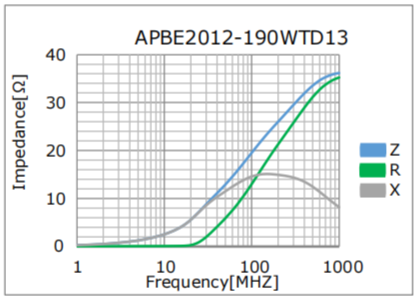


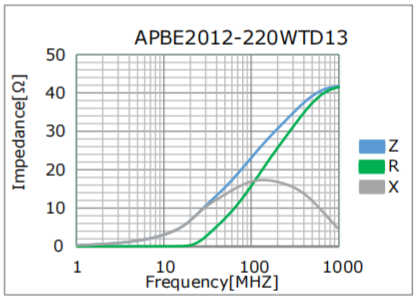


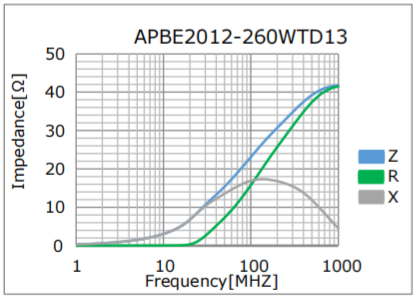


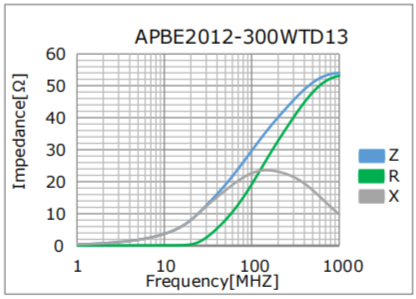


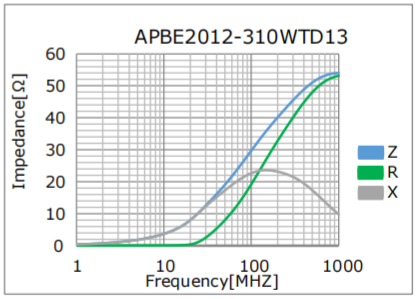


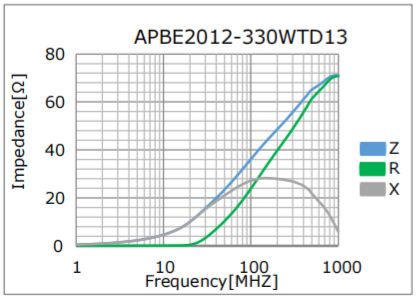


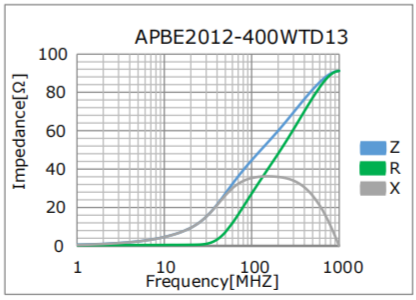


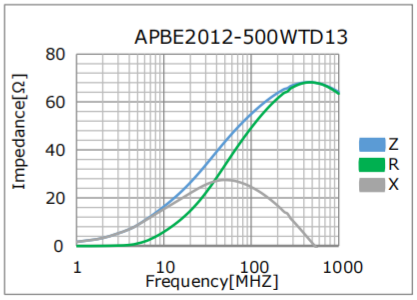


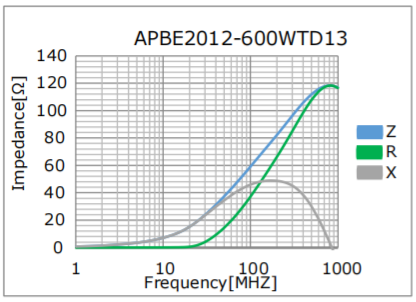











APBE2012-600WTD13
Impedance[Ω]
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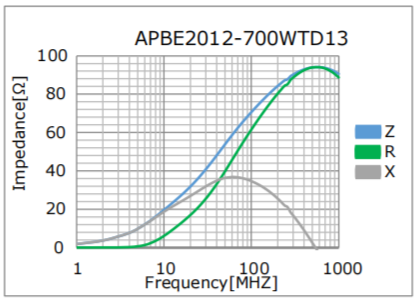
80
60
40
20
0
1
10
100
1000
Frequency[MHZ]
Z
R
X


APBE2012-700WTD13
Impedance[Ω]
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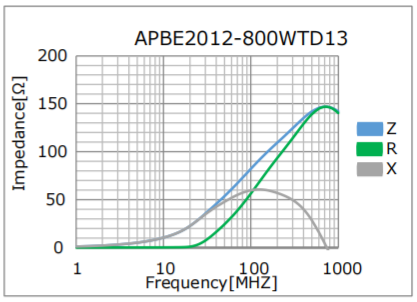
60
40
20
0
1
10
100
1000
Frequency[MHZ]
Z
R
X


APBE2012-800WTD13
Impedance[Ω]
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50
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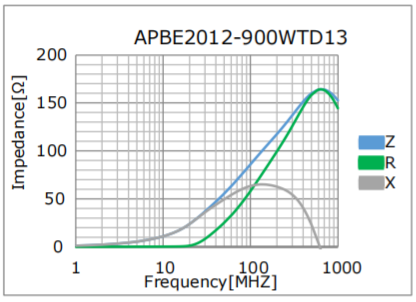
1
10
100
1000
Frequency[MHZ]
Z
R
X


APBE2012-900WTD13
Impedance[Ω]
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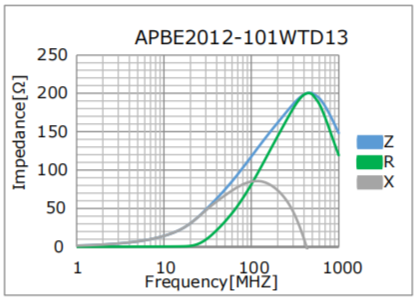
50
0
1
10
100
1000
Frequency[MHZ]
Z
R
X


APBE2012-101WTD13
Impedance[Ω]
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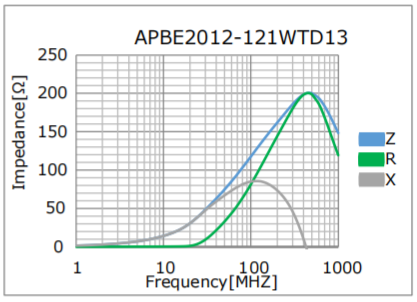
100
50
0
1
10
100
1000
Frequency[MHZ]
Z
R
X


APBE2012-121WTD13
Impedance[Ω]
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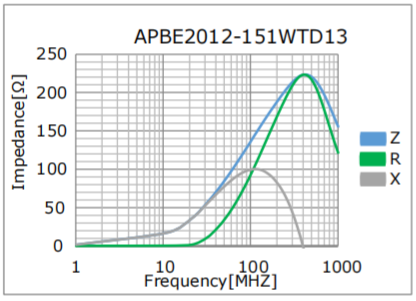
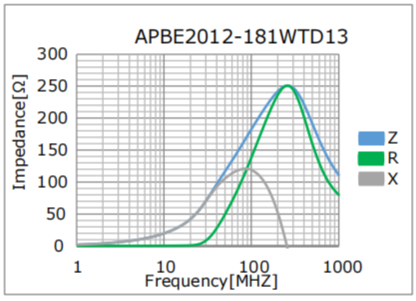
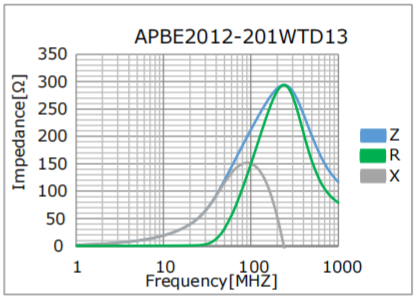
100
50
0
1
10
100
1000
Frequency[MHZ]
Z
R
X


APBE2012-151WTD13
Impedance[Ω]
250
200
150
100
50
0
1
10
100
1000
Frequency[MHZ]
Z
R
X


APBE2012-181WTD13
Impedance[Ω]
300
250
200
150
100
50
0
1
10
100
1000
Frequency[MHZ]
Z
R
X


APBE2012-201WTD13
Impedance[Ω]
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100
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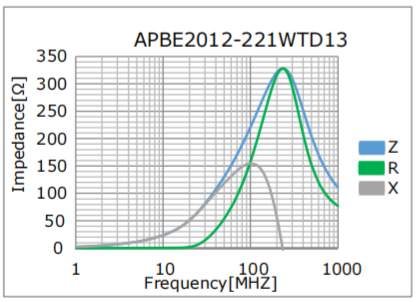
10
100
1000
Frequency[MHZ]
Z
R
X


APBE2012-221WTD13
Impedance[Ω]
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100
1000
Frequency[MHZ]
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R
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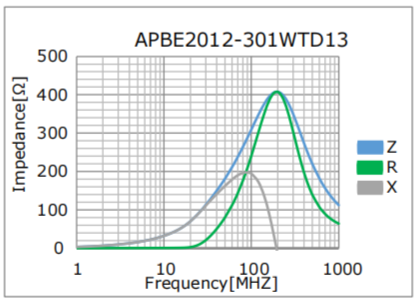
APBE2012-301WTD13
Impedance[Ω]
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Frequency[MHZ]
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R
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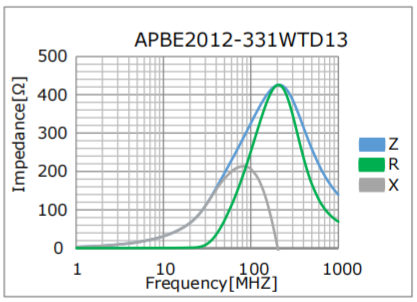
APBE2012-331WTD13
Impedance[Ω]
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200
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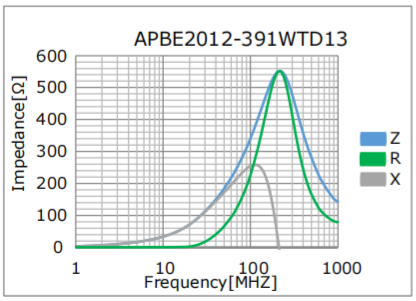
100
1000
Frequency[MHZ]
Z
R
X


APBE2012-391WTD13
Impedance[Ω]
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300
200
100
0
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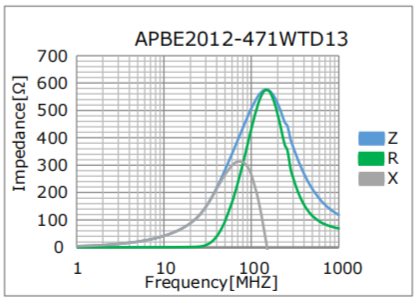
10
100
1000
Frequency[MHZ]
Z
R
X


APBE2012-471WTD13
Impedance[Ω]
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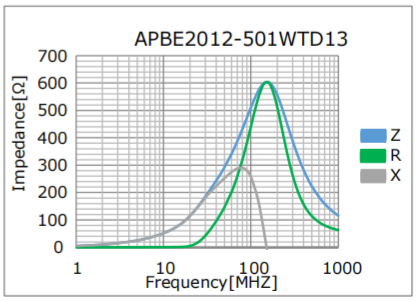
10
100
1000
Frequency[MHZ]
Z
R
X


APBE2012-501WTD13
Impedance[Ω]
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600
500
400
300
200
100
0
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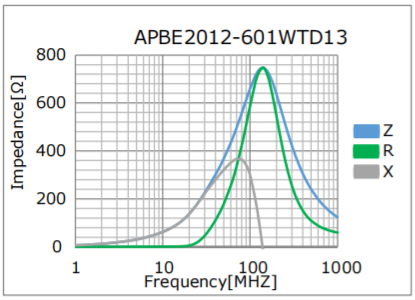
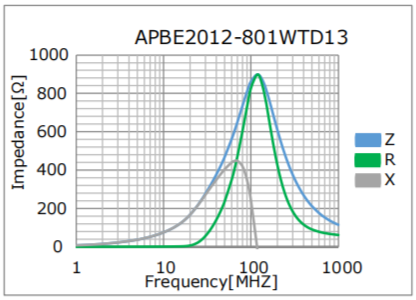
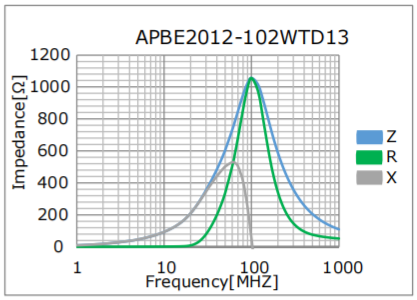
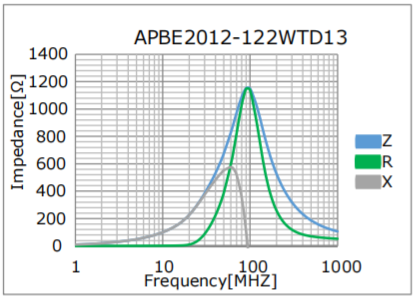
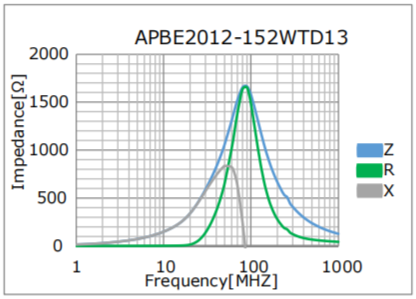
10
100
1000
Frequency[MHZ]
Z
R
X

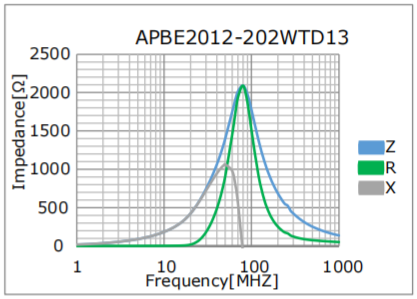


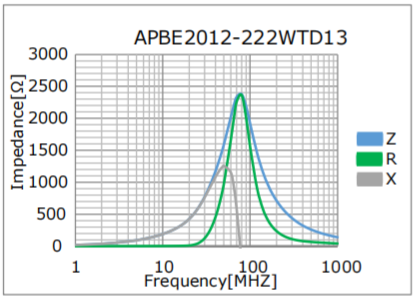


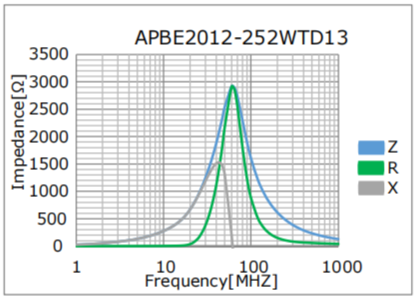




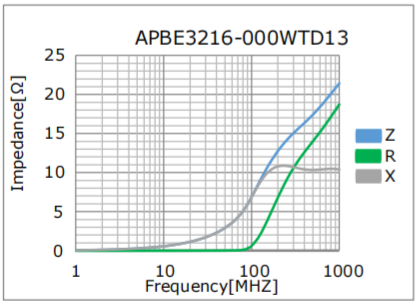


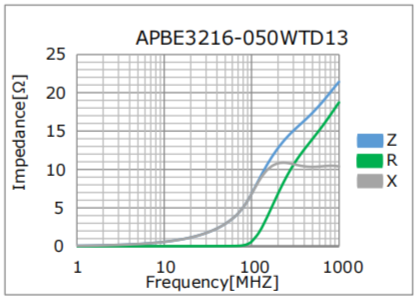


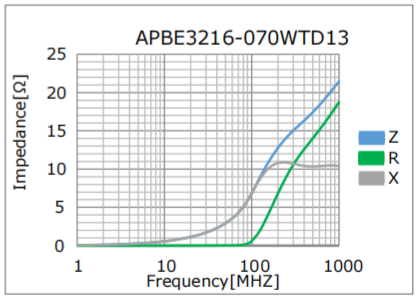


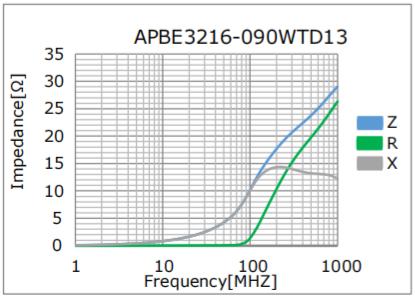


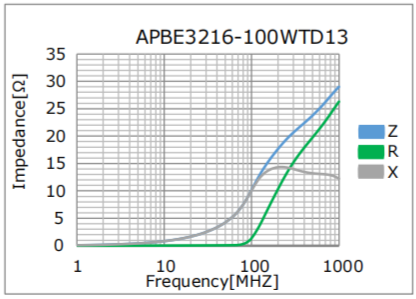
APBE3216 Series

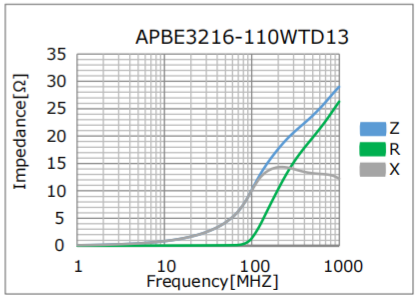


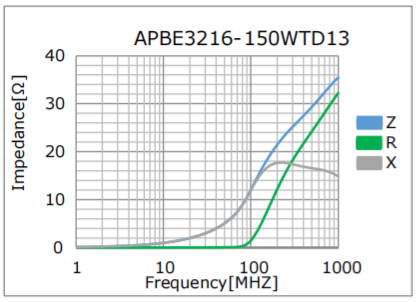


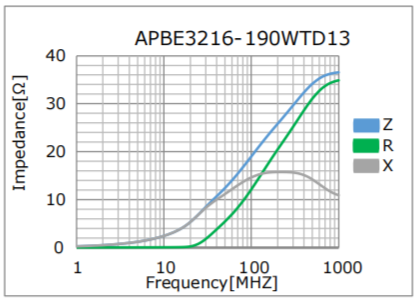


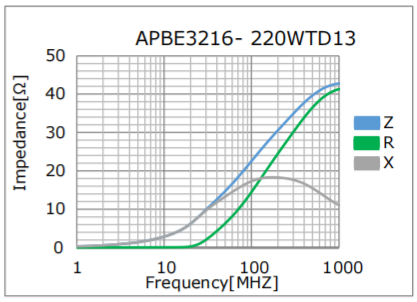


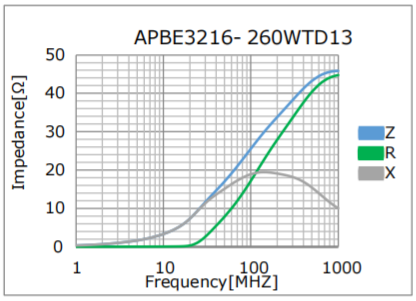


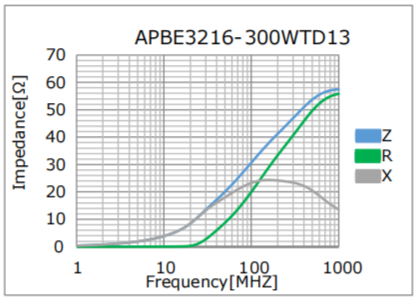


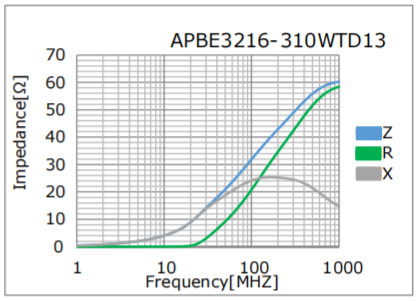

APBE3216-150WTD13
Impedance[Ω]
Frequency[MHZ]
Z
R
X

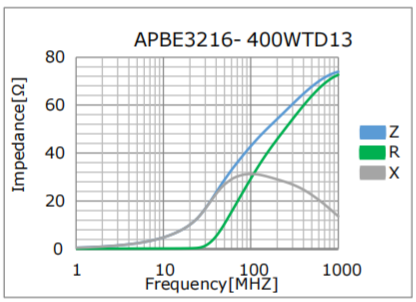

APBE3216-190WTD13
Impedance[Ω]
Frequency[MHZ]
Z
R
X

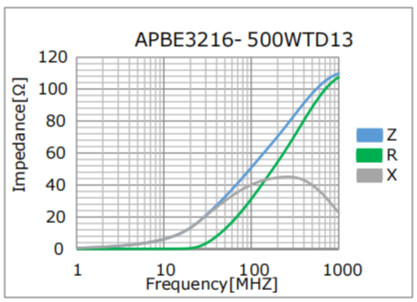

APBE3216- 220WTD13
Impedance[Ω]
Frequency[MHZ]
Z
R
X

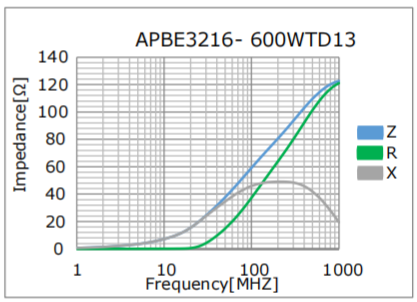

APBE3216- 260WTD13
Impedance[Ω]
Frequency[MHZ]
Z
R
X

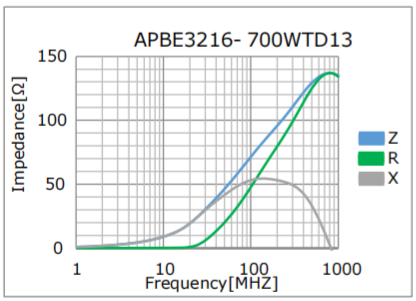

APBE3216-300WTD13
Impedance[Ω]
Frequency[MHZ]
Z
R
X

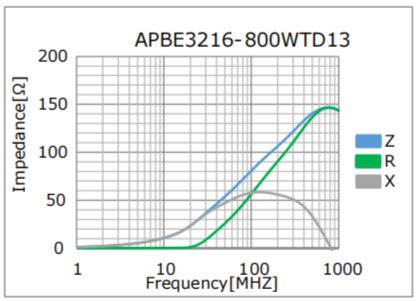

APBE3216-310WTD13
Impedance[Ω]
Frequency[MHZ]
Z
R
X

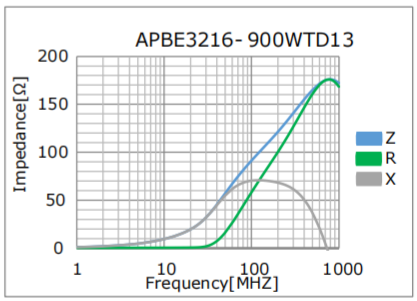

APBE3216- 400WTD13
Impedance[Ω]
Frequency[MHZ]
Z
R
X

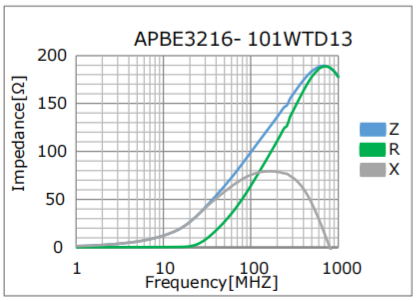

APBE3216- 500WTD13
Impedance[Ω]
Frequency[MHZ]
Z
R
X


APBE3216- 600WTD13
Impedance[Ω]
Frequency[MHZ]
Z
R
X


APBE3216- 700WTD13
Impedance[Ω]
Frequency[MHZ]
Z
R
X


APBE3216-800WTD13
Impedance[Ω]
Frequency[MHZ]
Z
R
X


APBE3216- 900WTD13
Impedance[Ω]
Frequency[MHZ]
Z
R
X


APBE3216- 101WTD13
Impedance[Ω]
Frequency[MHZ]
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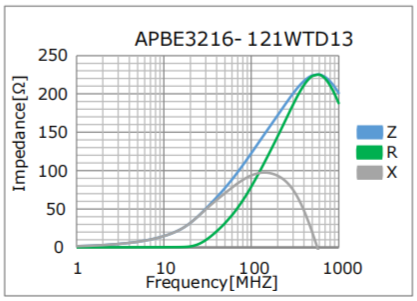
APBE3216- 121WTD13
Impedance[Ω]
Frequency[MHZ]
Z
R
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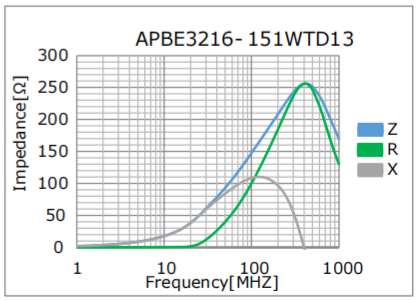
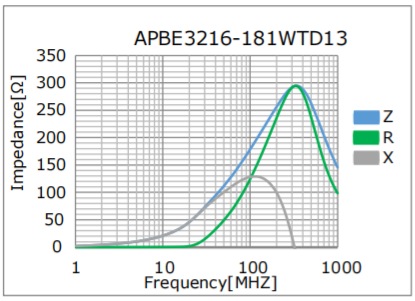

APBE3216- 151WTD13
Impedance[Ω]
Frequency[MHZ]
Z
R
X


APBE3216-181WTD13
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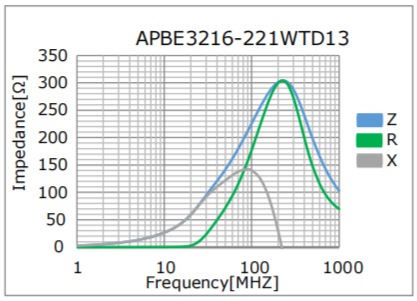
0
1
10
100
1000
Frequency[MHZ]
Z
R
X


APBE3216-221WTD13
Impedance[Ω]
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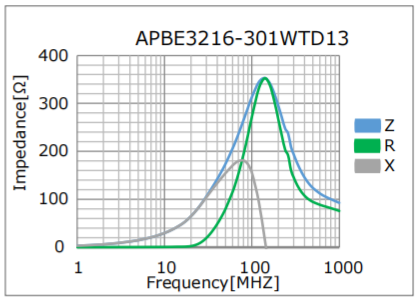
100
50
0
1
10
100
1000
Frequency[MHZ]
Z
R
X


APBE3216-301WTD13
Impedance[Ω]
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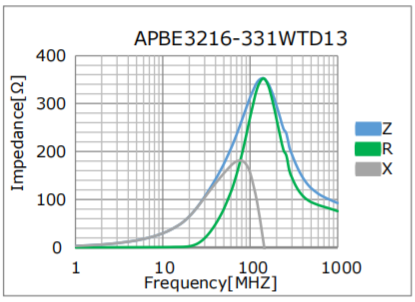
200
100
0
1
10
100
1000
Frequency[MHZ]
Z
R
X


APBE3216-331WTD13
Impedance[Ω]
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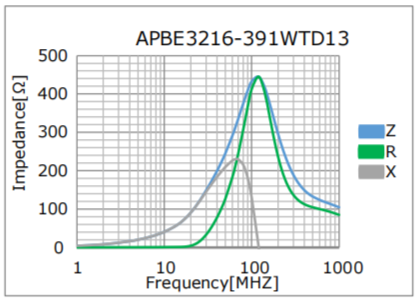
300
200
100
0
1
10
100
1000
Frequency[MHZ]
Z
R
X


APBE3216-391WTD13
Impedance[Ω]
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400
300
200
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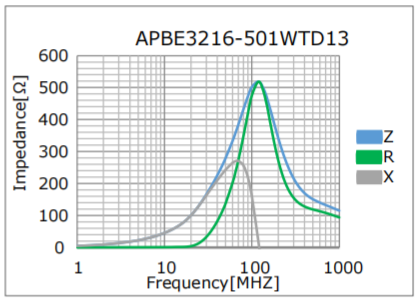
0
1
10
100
1000
Frequency[MHZ]
Z
R
X


APBE3216-501WTD13
Impedance[Ω]
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300
200
100
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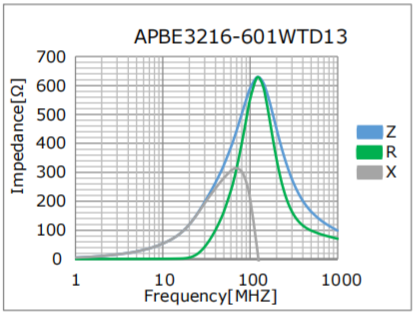
10
100
1000
Frequency[MHZ]
Z
R
X


APBE3216-601WTD13
Impedance[Ω]
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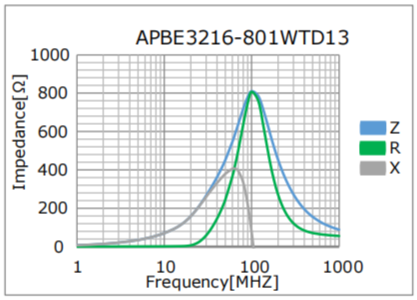
500
400
300
200
100
0
1
10
100
1000
Frequency[MHZ]
Z
R
X


APBE3216-801WTD13
Impedance[Ω]
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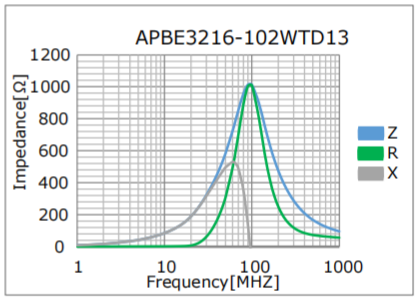
800
600
400
200
0
1
10
100
1000
Frequency[MHZ]
Z
R
X


APBE3216-102WTD13
Impedance[Ω]
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800
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400
200
0
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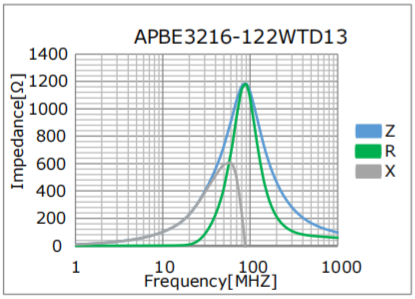
10
100
1000
Frequency[MHZ]
Z
R
X


APBE3216-122WTD13
Impedance[Ω]
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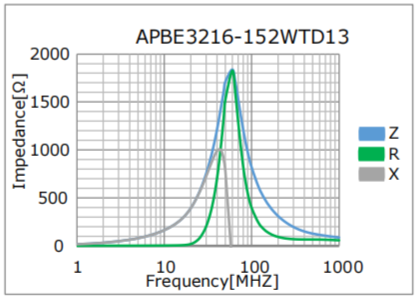
1200
1000
800
600
400
200
0
1
10
100
1000
Frequency[MHZ]
Z
R
X


APBE3216-152WTD13
Impedance[Ω]
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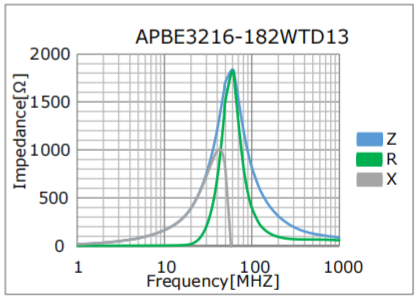
1500
1000
500
0
1
10
100
1000
Frequency[MHZ]
Z
R
X


APBE3216-182WTD13
Impedance[Ω]
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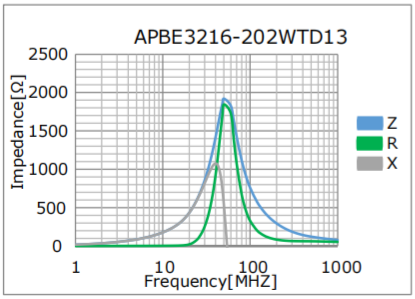
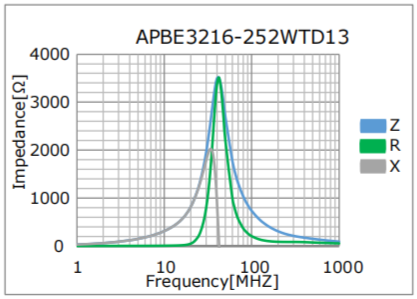
1000
500
0
1
10
100
1000
Frequency[MHZ]
Z
R
X


APBE3216-202WTD13
Impedance[Ω]
2500
2000
1500
1000
500
0
1
10
100
1000
Frequency[MHZ]
Z
R
X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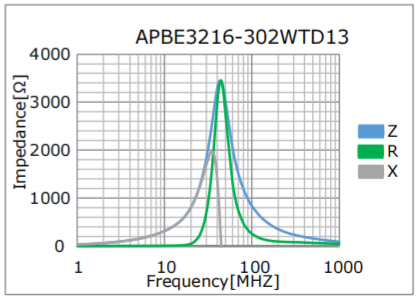
0
1
10
100
1000
Frequency[MHZ]
Z
R
X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Impedance[Ω]
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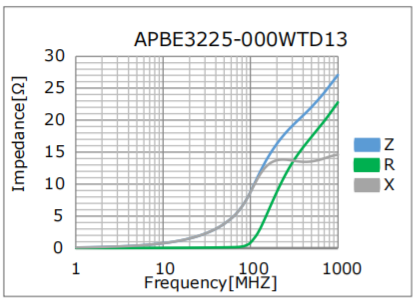
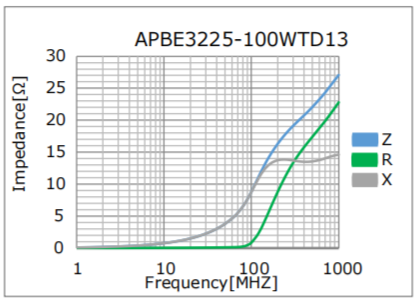
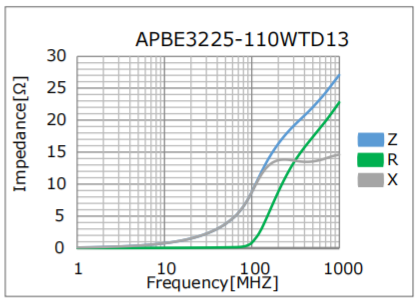
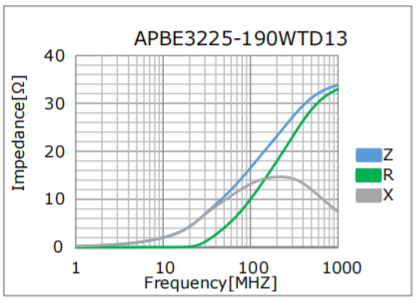
Frequency[MHZ]
Z
R
X

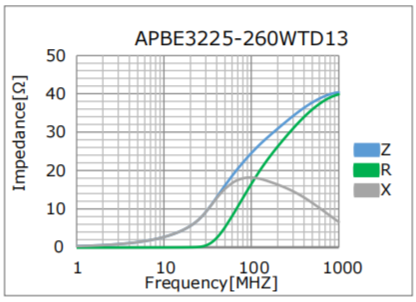
APBE3225 Series

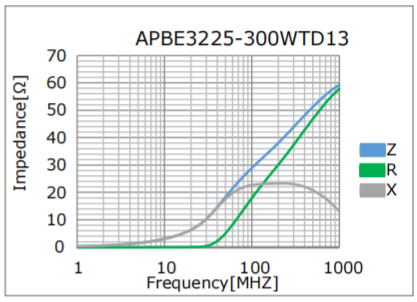


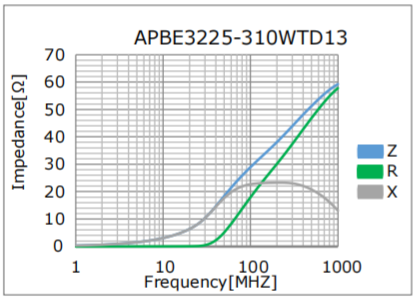


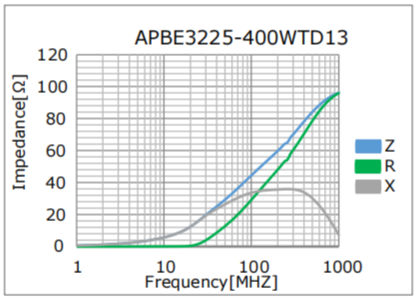


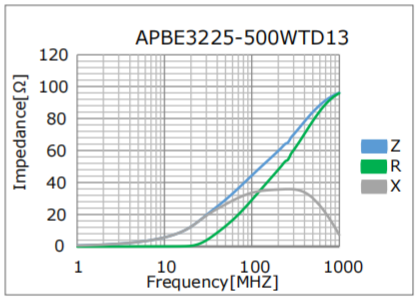


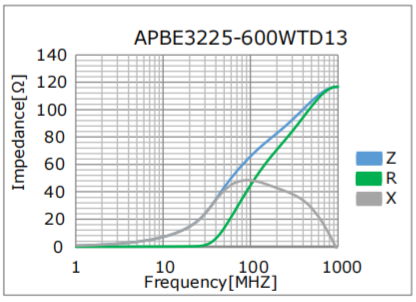


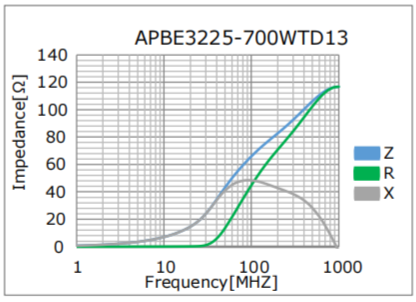


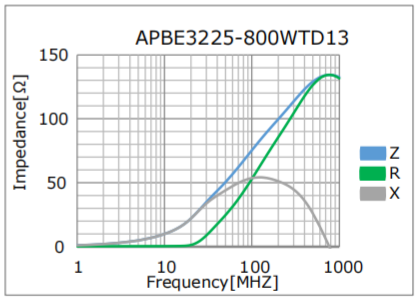


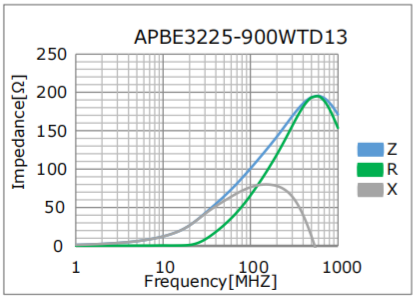


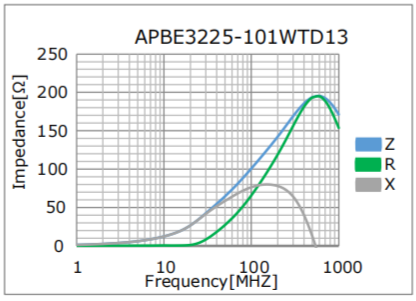


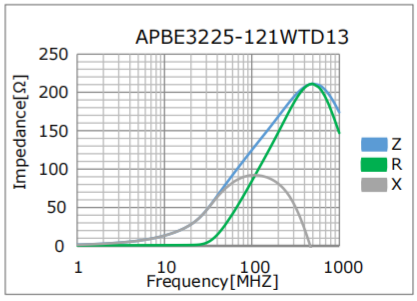


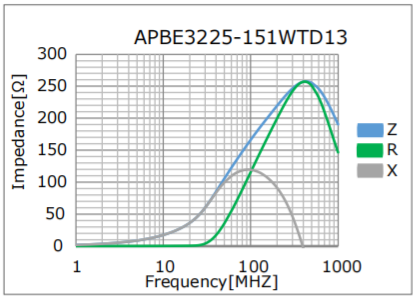


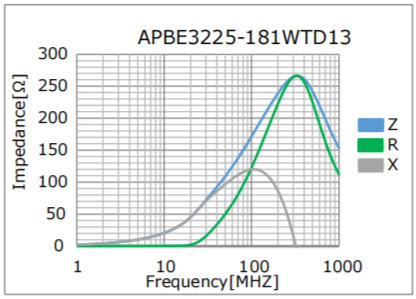


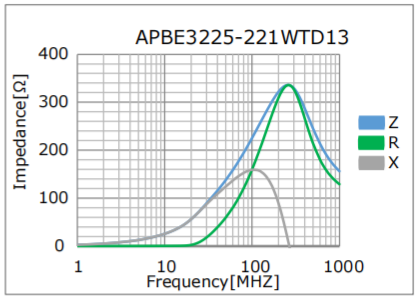


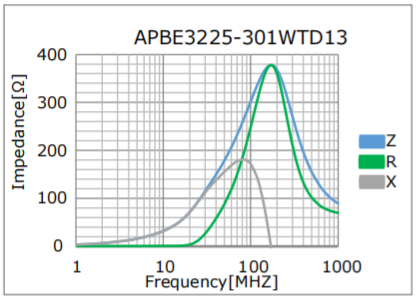


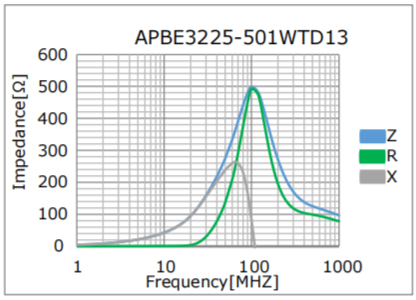


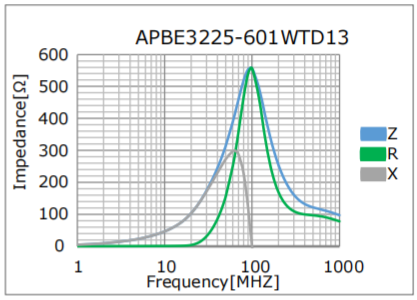


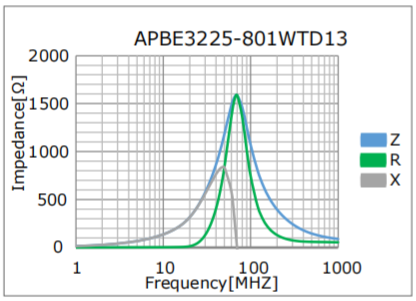


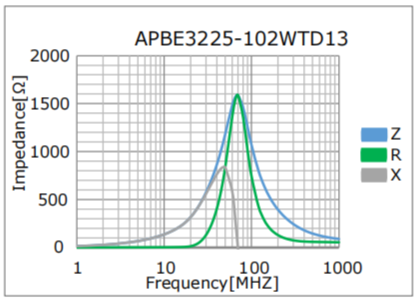




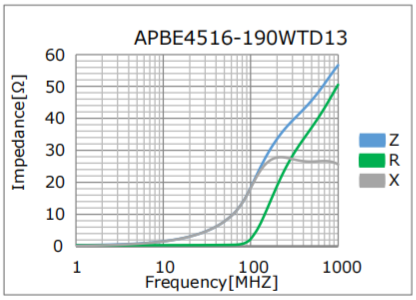


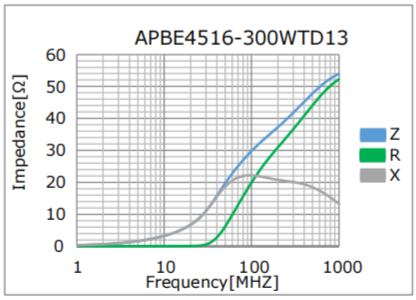


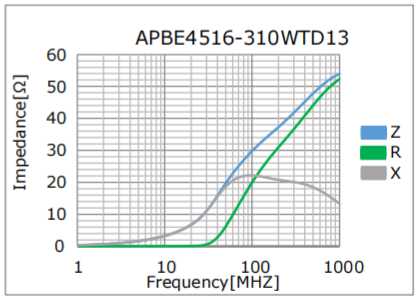


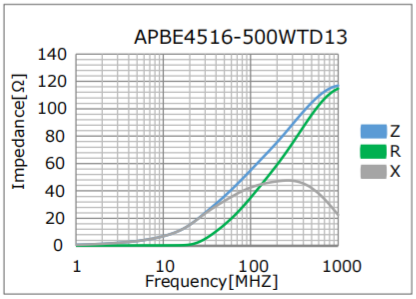


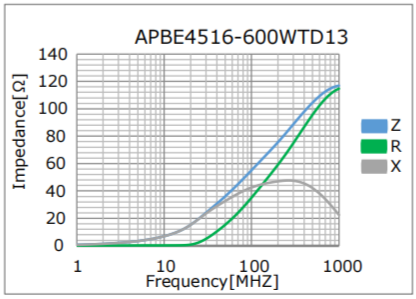
APBE4516 Series

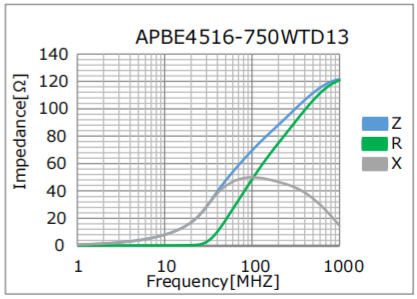


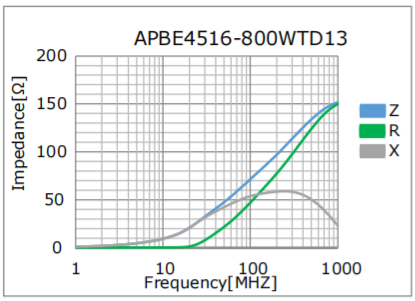


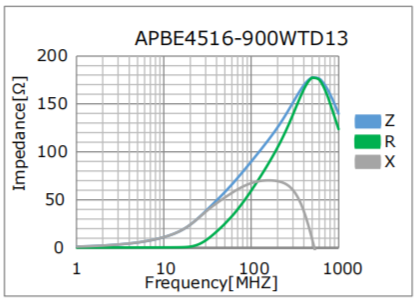


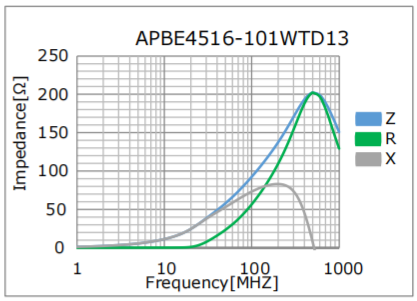


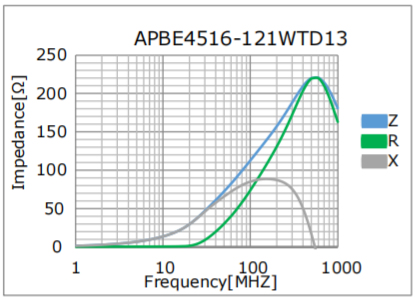


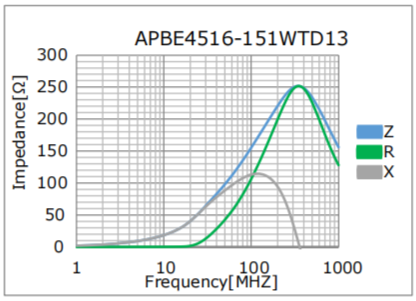


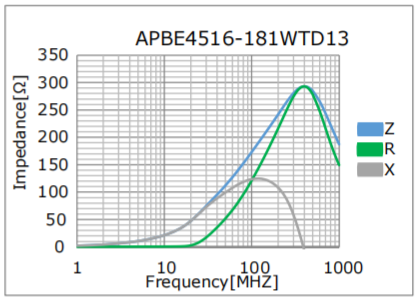


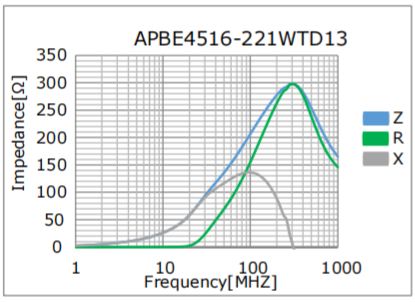


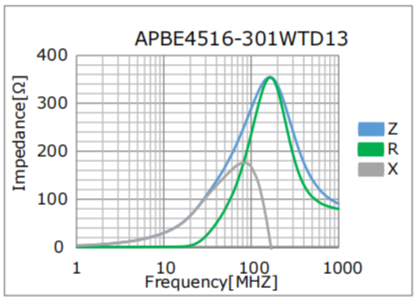


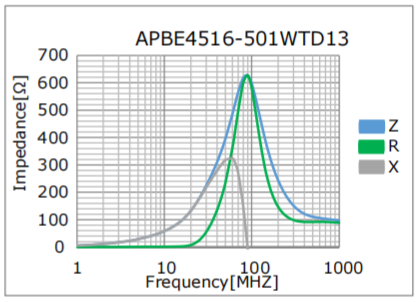


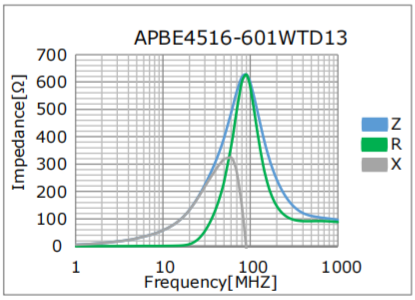




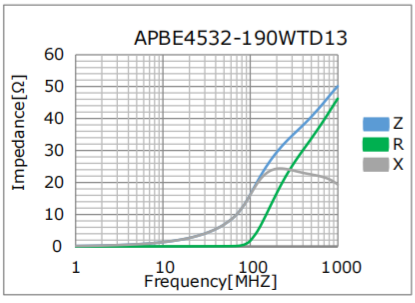


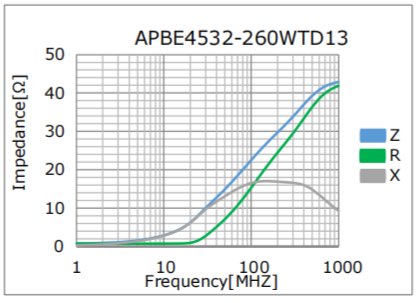


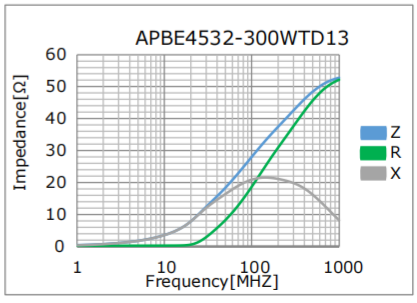


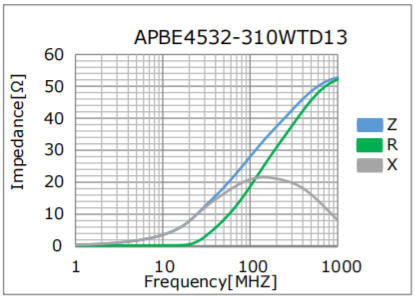


APBE4532Type





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Impedance[Ω]
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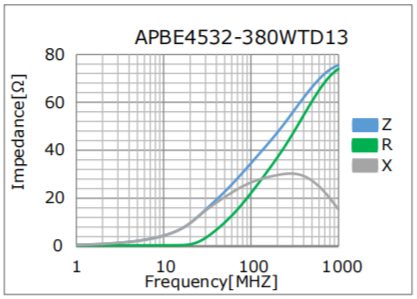
10
0
1
10
100
1000
Frequency[MHZ]
Z
R
X


APBE4532-380WTD13
Impedance[Ω]
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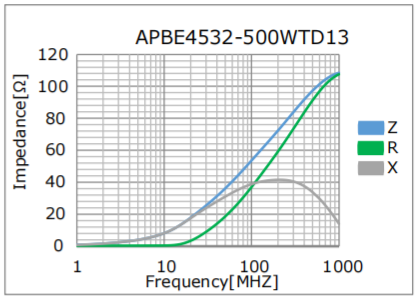
60
40
20
0
1
10
100
1000
Frequency[MHZ]
Z
R
X


APBE4532-500WTD13
Impedance[Ω]
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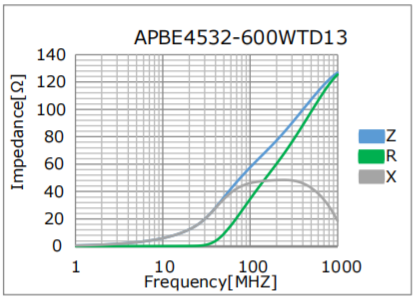
100
80
60
40
20
0
1
10
100
1000
Frequency[MHZ]
Z
R
X


APBE4532-600WTD13
Impedance[Ω]
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100
80
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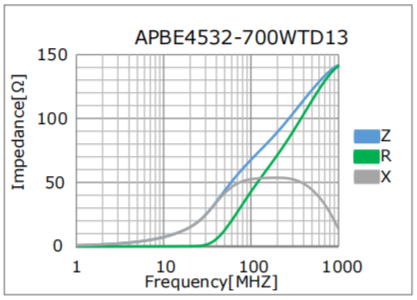
40
20
0
1
10
100
1000
Frequency[MHZ]
Z
R
X


APBE4532-700WTD13
Impedance[Ω]
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100
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1
10
100
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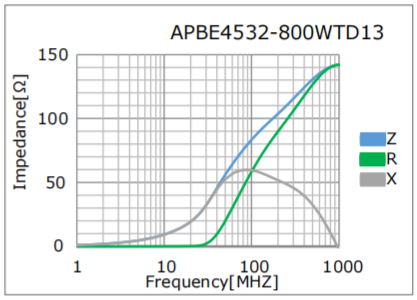
Frequency[MHZ]
Z
R
X


APBE4532-800WTD13
Impedance[Ω]
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100
1000
Frequency[MHZ]
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R
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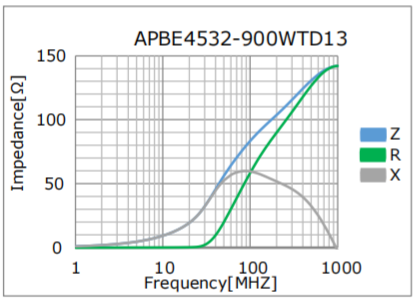
APBE4532-900WTD13
Impedance[Ω]
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10
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Frequency[MHZ]
Z
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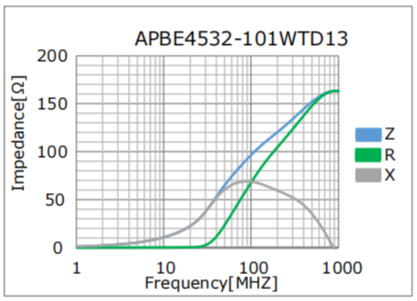
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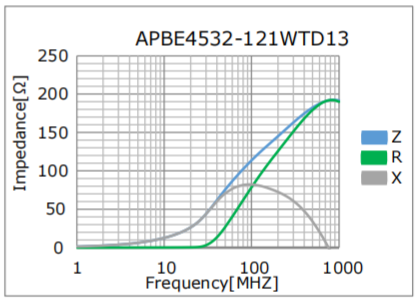
0
1
10
100
1000
Frequency[MHZ]
Z
R
X


APBE4532-121WTD13
Impedance[Ω]
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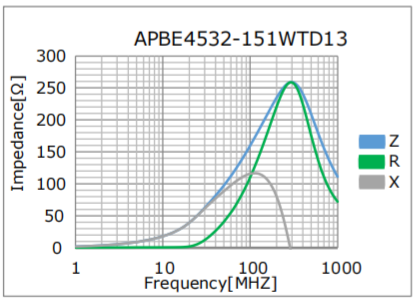
100
50
0
1
10
100
1000
Frequency[MHZ]
Z
R
X


APBE4532-151WTD13
Impedance[Ω]
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200
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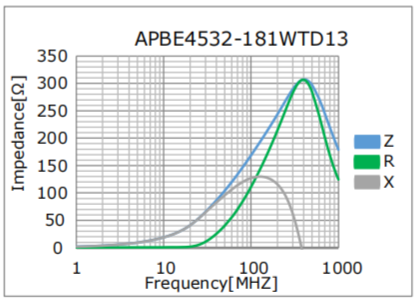
100
50
0
1
10
100
1000
Frequency[MHZ]
Z
R
X


APBE4532-181WTD13
Impedance[Ω]
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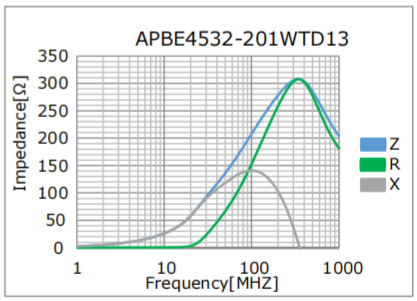
100
1000
Frequency[MHZ]
Z
R
X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Impedance[Ω]
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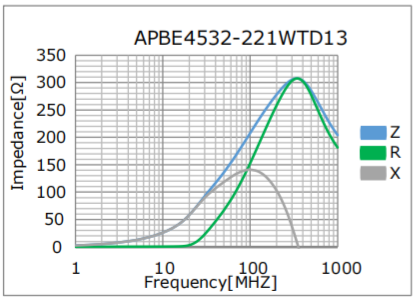
100
1000
Frequency[MHZ]
Z
R
X


APBE4532-221WTD13
Impedance[Ω]
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100
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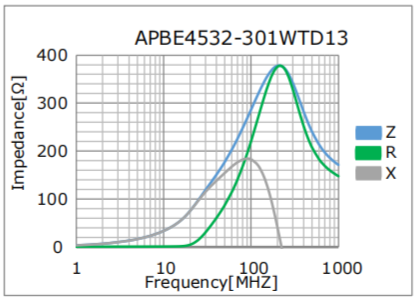
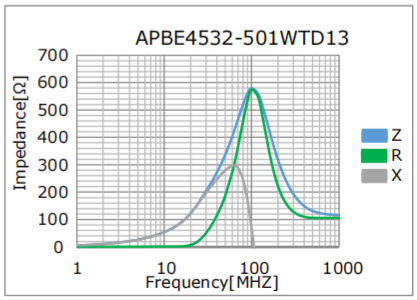
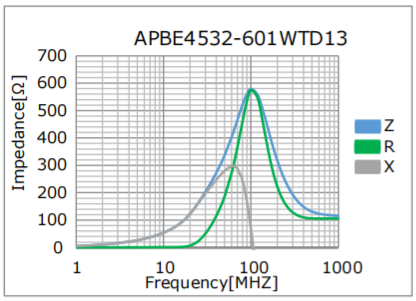
1
10
100
1000
Frequency[MHZ]
Z
R
X


APBE4532-301WTD13
Impedance[Ω]
400
300
200
100
0
1
10
100
1000
Frequency[MHZ]
Z
R
X


APBE4532-501WTD13
Impedance[Ω]
700
600
500
400
300
200
100
0
1
10
100
1000
Frequency[MHZ]
Z
R
X


APBE4532-601WTD13
Impedance[Ω]
700
600
500
400
300
200
100
0
1
10
100
1000
Frequency[MHZ]
Z
R
X

Safety Reminders 注意事项

SAFETY REMINDERS

- The storage period is within 12 months. Be sure to follow the storage conditions (temperature: 15 to 35℃, humidity: 75% RH or less).If the storage period elapses, the soldering of the terminal electrodes may deteriorate.
- Do not use or store in locations where there are conditions such as gas corrosion (salt, acid, alkali, etc.).
- Soldering corrections after mounting should be within the range of the conditions determined in the specifications. If overheated, a short circuit, performance deterioration, or lifespan shortening may occur.
- When embedding a printed circuit board where a chip is mounted to a set, be sure that residual stress is not given to the chip due to the overall distortion of the printed circuit board and partial distortion such as at screw tightening portions.
- Self heating (temperature increase) occurs when the power is turned ON, so the tolerance should be sufficient for the set thermal design.
- This product is not designed for production processes involving ultrasonic welding, as high-frequency vibration may cause application issues such as product detachment and breakage.
- Carefully layout the coil for the circuit board design of the non-magnetic shield type. A malfunction may occur due to magnetic interference.
- Use a wrist band to discharge static electricity in your body through the grounding wire.
- Do not expose the products to magnets or magnetic fields.
- Do not use for a purpose outside of the contents regulated in the delivery specifications.
- The products listed on this catalog are intended for use in general electronic equipment, under a normal operation and use condition.

The Company shall not guarantee the suitability, performance, or quality for the following applications that require a high level of safety and reliability, or where equipment failure, malfunction, or abnormal operation may cause damage to human life, physical well-being, or property, and may have significant social impacts (hereinafter referred to as "specific applications").If you intend to use this product in the application scenarios listed below, or if you have special requirements exceeding the scope or conditions specified in each product catalog, please contact us.

(1) Aerospace/aviation equipment
(2) Transportation equipment (cars, electric trains, ships, etc.)
(3) Medical equipment
(4) Power-generation control equipment
(5) Atomic energy-related equipment
(6) Seabed equipment
(7) Transportation control equipment
(8) Public information-processing equipment
(9) Military equipment
(10) Electric heating apparatus, burning equipment
(11) Disaster prevention/crime prevention equipment
(12) Safety equipment
(13) Other applications that are not considered general-purpose applications

When designing your equipment even for general-purpose applications, you are kindly requested to take into consideration securing protection circuit/device or providing backup circuits in your equipment.