TDK

July 2013

# Chip Beads

For signal line

# MMZ series

| | |
|---|---|
| **MMZ0402** | **0402[01005 inch]*** |
| **MMZ0603** | **0603[0201 inch]** |
| **MMZ1005** | **1005[0402 inch]** |
| **MMZ1608** | **1608[0603 inch]** |
| **MMZ2012** | **2012[0805 inch]** |

* Dimensions Code JIS[EIA]

# REMINDERS FOR USING THESE PRODUCTS

Before using these products, be sure to request the delivery specifications.

# SAFETY REMINDERS

Please pay sufficient attention to the warnings for safe designing when using these products.

## ⚠ REMINDERS

- The storage period is less than 12 months. Be sure to follow the storage conditions (Temperature: 5 to 40°C, Humidity: 10 to 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.).
- Before soldering, be sure to preheat components.
  The preheating temperature should be set so that the temperature difference between the solder temperature and chip temperature does not exceed 150°C.
- 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.
- Carefully lay out 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 (AV equipment, telecommunications equipment, home appliances, amusement equipment, computer equipment, personal equipment, office equipment, measurement equipment, industrial robots) under a normal operation and use condition.
  The products are not designed or warranted to meet the requirements of the applications listed below, whose performance and/or quality require a more stringent level of safety or reliability, or whose failure, malfunction or trouble could cause serious damage to society, person or property.
  If you intend to use the products in the applications listed below or if you have special requirements exceeding the range or conditions set forth in the each 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.

# Chip Beads

## For signal line

**Product compatible with RoHS directive**
**Halogen-free**
**Compatible with lead-free solders**

# Overview of the MMZ Series

## FEATURES

- Noise reduction solution for general signal lines.
- Lineup includes 5 sizes from 0402 to 2012.
- Achieves various frequency characteristics by using 8 materials with different features.
- Multilayer integration monolithic structure makes it highly reliable.
- There is no directivity.

## APPLICATION

- Smart phones, tablets, portable memory audio devices, various modules, PCs, note PCs, TVs, STBs, Blu-ray recorders, DSCs, and DVCs
- Signal line noise removal for game machines, smart grids, industrial equipment, etc.

## PART NUMBER CONSTRUCTION

MMZ 0402 S 121 C T □□□

| Series name | L×W×T Dimensions (mm) | | Material name | Impedance (Ω) at 100MHz | | Characteristic type | Packaging style | | Internal code |
|---|---|---|---|---|---|---|---|---|---|
| | 0402 | 0.4×0.2×0.2 | A | 121 | 120 | C | T | Taping | |
| | 0603 | 0.6×0.3×0.3 | B | | | A | | | |
| | 1005 | 1.0×0.5×0.5 | D | | | B | | | |
| | 1608 | 1.6×0.8×0.6 | F | | | H | | | |
| | | 1.6×0.8×0.8 | Q | | | | | | |
| | 2012 | 2.0×1.25×0.85 | R | | | | | | |
| | | | S | | | | | | |
| | | | Y | | | | | | |

## OPERATING TEMPERATURE RANGE, PACKAGE QUANTITY, PRODUCT WEIGHT

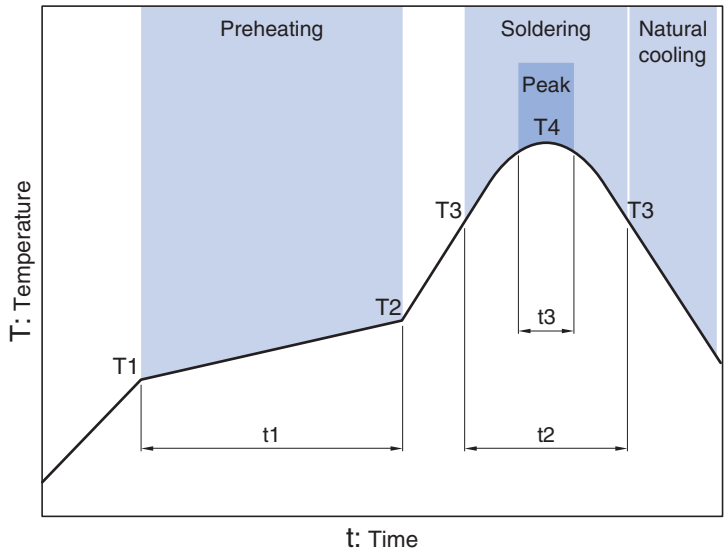
| Type | | Temperature range | | Package quantity | Individual weight |
|---|---|---|---|---|---|
| | | Operating temperature* | Storage temperature** | | |
| | | (°C) | (°C) | (pieces/reel) | (mg) |
| MMZ0402 | | –55 to +125 | –55 to +125 | 20,000 | 0.08 |
| MMZ0603 | | –55 to +125 | –55 to +125 | 15,000 | 0.3 |
| MMZ1005 | | –55 to +125 | –55 to +125 | 10,000 | 1 |
| MMZ1608 | t=0.6mm | –55 to +125 | –55 to +125 | 4,000 | 3 |
| | t=0.8mm | –55 to +125 | –55 to +125 | 4,000 | 4 |
| MMZ2012 | | –55 to +125 | –55 to +125 | 4,000 | 8 |

* Operating temperature range includes self-temperature rise.
** The Storage temperature range is for after the circuit board is mounted.

- RoHS Directive Compliant Product: See the following for more details related to RoHS Directive compliant products. http://www.tdk.co.jp/rohs/
- Halogen-free: Indicates that Cl content is less than 900ppm, Br content is less than 900ppm, and that the total Cl and Br content is less than 1500ppm.

# Overview of the MMZ Series

## RECOMMENDED REFLOW PROFILE




| Preheating | | | Soldering | | Peak | |
|---|---|---|---|---|---|---|
| Temp. | | Time | Temp. | Time | Temp. | Time |
| T1 | T2 | t1 | T3 | t2 | T4 | t3 |
| 150°C | 180°C | 60 to 120s | 230°C | 30 to 60s | 250 to 260°C | 10s |

# Overview of the MMZ Series

## MATERIAL CHARACTERISTICS

B material: This type is perfectly suited for fast digital signals. By equalizing R components and X components that beads possess at a frequency of 5MHz, it is able to suppress overshooting, undershooting and ringing of fast digital signals.

R material: For wide frequency applications calling for broad impedance characteristics. For digital signal line applications calling requiring good waveform integrity. Impedance values selected for effectiveness at 10 to 200MHz.

S material: Standard type that features impedance characteristics similar to those of a typical ferrite core. For signal line applications in which the blocking region is near 100MHz. Impedance values selected for effectiveness at 40 to 300MHz.

Y material: High frequency range type intended for the 100MHz region and above.
For signal line applications in which the signal frequency is far from the cutoff frequency. Impedance values selected for effectiveness at 80 to 400MHz.

A material: This high-impedance product is based on the impedance frequency characteristics of our Y-material. The product offers excellent impedance characteristics, which is greater than 2500Ω, in the vicinity of 100MHz range (MMZ1608A252B).

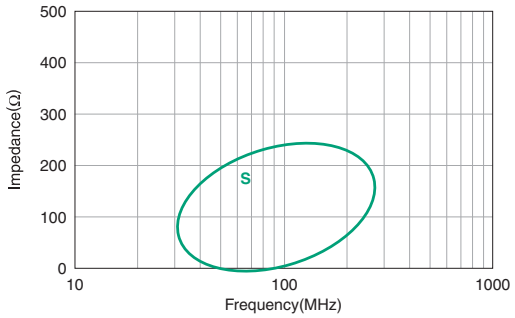
Q material: For high-band applications designed for 100MHz and above. Impedance values selected for effectiveness at 100 to 800MHz.

D material: For applications calling for low insertion loss at low frequencies and sharply increasing impedance at high frequencies. Designed for high impedance at high frequencies (300MHz to 1GHz) for signal line applications.

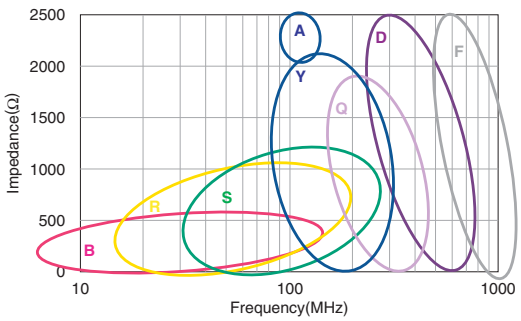
F material: This new product inherits the characteristic of our D-material, namely its sharp impedance rise time, and its impedance peak frequency has been shifted higher into range. The product offers excellent noise suppression from 600MHz to as high as in the GHz range.

## TYPICAL MATERIAL IMPEDANCE CHARACTERISTICS

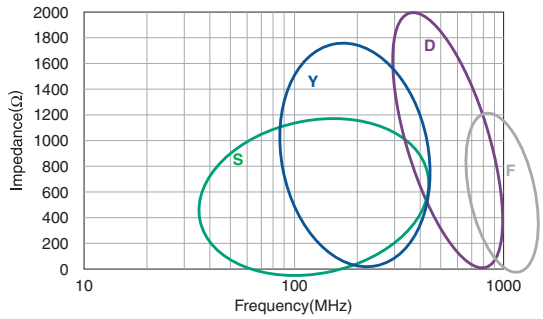
### MMZ0402 Type



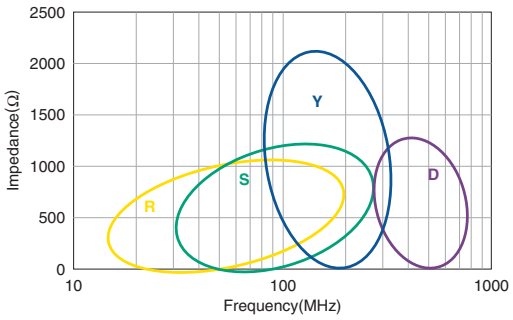

### MMZ1608 Type



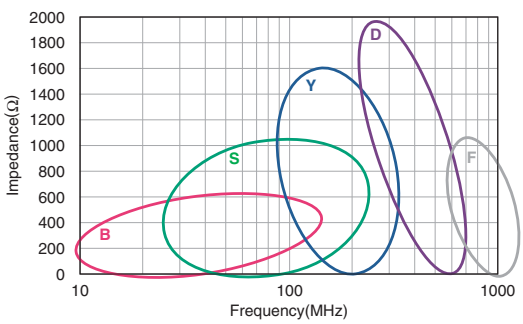

### MMZ0603 Type




### MMZ2012 Type




### MMZ1005 Type

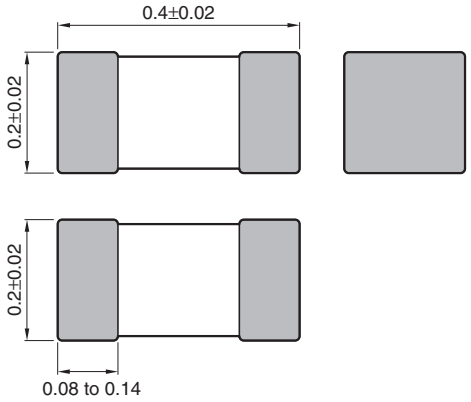



• All specifications are subject to change without notice.

MMZ series

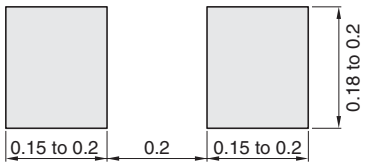
# MMZ0402 Type

## SHAPE & DIMENSIONS




Dimensions in mm

## RECOMMENDED LAND PATTERN




Dimensions in mm

# MMZ series MMZ0402 Type

## ■ELECTRICAL CHARACTERISTICS

### □CHARACTERISTICS SPECIFICATION TABLE

| Impedance [100MHz] (Ω) | Tolerance | DC resistance (Ω)max. | Rated current (mA)max. | Part No. |
|---|---|---|---|---|
| 10 | ±5Ω | 0.07 | 750 | MMZ0402S100CT□□□ |
| 70 | ±25% | 0.36 | 300 | MMZ0402S700CT□□□ |
| 120 | ±25% | 0.70 | 210 | MMZ0402S121CT□□□ |
| 150 | ±25% | 0.70 | 200 | MMZ0402S151CT□□□ |

○ Measurement equipment

| Measurement item | Product No. | Manufacturer |
|---|---|---|
| Impedance | E4991A+16196D | Agilent Technologies |
| DC resistance | Type-7556 | Yokogawa |

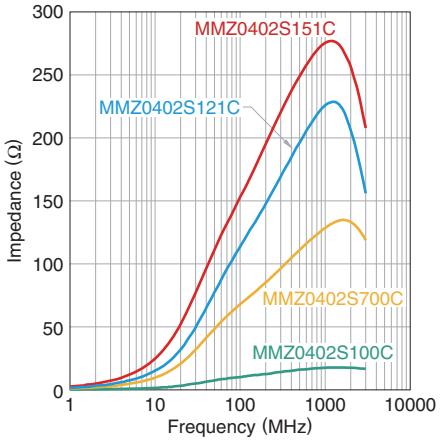
＊ Equivalent measurement equipment may be used.

# MMZ series MMZ0402 Type

## ■ELECTRICAL CHARACTERISTICS

### □Z VS. FREQUENCY CHARACTERISTICS (BY SERIES)

**MMZ0402S SERIES**

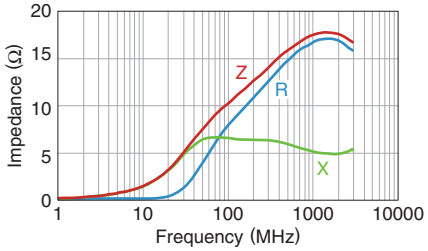


# MMZ series MMZ0402 Type

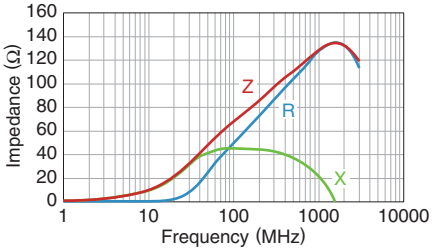
## ■ELECTRICAL CHARACTERISTICS

### □Z, X, R VS. FREQUENCY CHARACTERISTICS

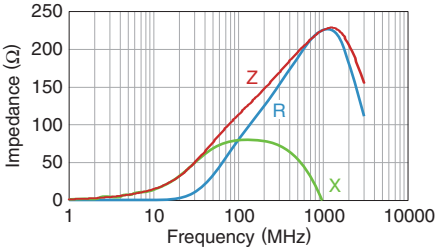
**MMZ0402S100C**



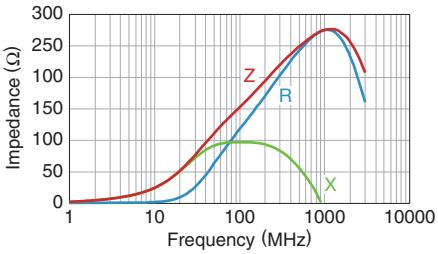

**MMZ0402S700C**




**MMZ0402S121C**



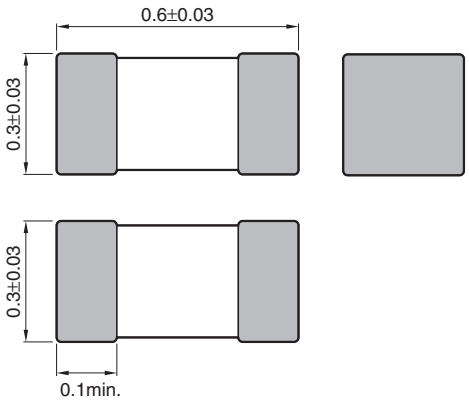

**MMZ0402S151C**



MMZ series

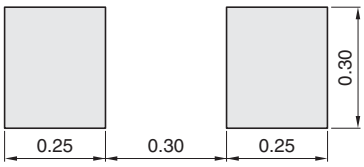
# MMZ0603 Type

## SHAPE & DIMENSIONS




Dimensions in mm

## RECOMMENDED LAND PATTERN




Dimensions in mm

# MMZ series MMZ0603 Type

## ■ELECTRICAL CHARACTERISTICS

### □CHARACTERISTICS SPECIFICATION TABLE

| Impedance [100MHz] (Ω) | Tolerance | DC resistance (Ω)max. | Rated current (mA)max. | Part No. |
|---|---|---|---|---|
| 10 | ±5Ω | 0.09 | 500 | MMZ0603S100CT□□□ |
| 80 | ±25% | 0.30 | 200 | MMZ0603S800CT□□□ |
| 120 | ±25% | 0.45 | 200 | MMZ0603S121CT□□□ |
| 240 | ±25% | 0.57 | 200 | MMZ0603S241CT□□□ |
| 470 | ±25% | 1.30 | 100 | MMZ0603S471CT□□□ |
| 600 | ±25% | 1.45 | 100 | MMZ0603S601CT□□□ |
| 1000 | ±25% | 1.25 | 200 | MMZ0603S102HT □□□ |
| 75 | ±25% | 0.35 | 300 | MMZ0603Y750CT □□□ |
| 120 | ±25% | 0.39 | 200 | MMZ0603Y121CT□□□ |
| 240 | ±25% | 0.80 | 200 | MMZ0603Y241CT□□□ |
| 470 | ±25% | 1.40 | 200 | MMZ0603Y471CT□□□ |
| 600 | ±25% | 1.50 | 200 | MMZ0603Y601CT□□□ |
| 33 | ±25% | 0.70 | 200 | MMZ0603D330CT□□□ |
| 47 | ±25% | 0.70 | 200 | MMZ0603D470CT □□□ |
| 56 | ±25% | 0.95 | 100 | MMZ0603D560CT□□□ |
| 80 | ±25% | 1.25 | 100 | MMZ0603D800CT□□□ |
| 10 | ±5Ω | 0.50 | 200 | MMZ0603F100CT□□□ |
| 22 | ±25% | 1.00 | 200 | MMZ0603F220CT□□□ |
| 33 | ±25% | 1.30 | 150 | MMZ0603F330CT□□□ |

○ Measurement equipment

| Measurement item | Product No. | Manufacturer |
|---|---|---|
| Impedance | E4991A+16197 | Agilent Technologies |
| DC resistance | Type-7556 | Yokogawa |

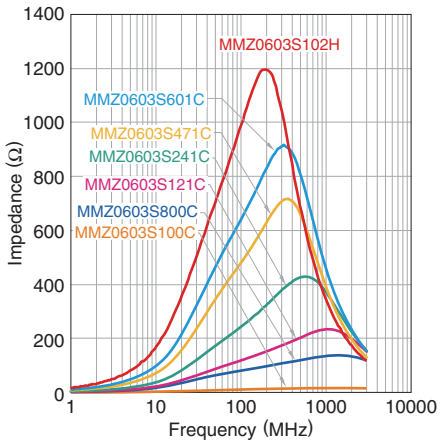
＊ Equivalent measurement equipment may be used.

# MMZ series MMZ0603 Type

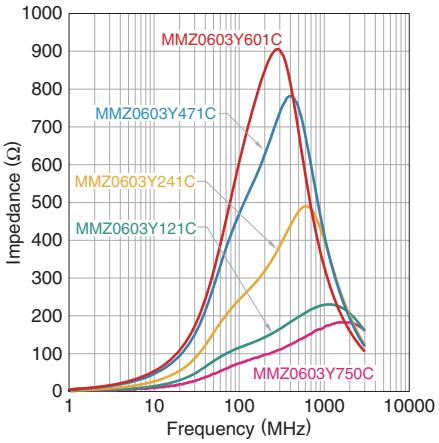
## ■ELECTRICAL CHARACTERISTICS

### □Z VS. FREQUENCY CHARACTERISTICS (BY SERIES)

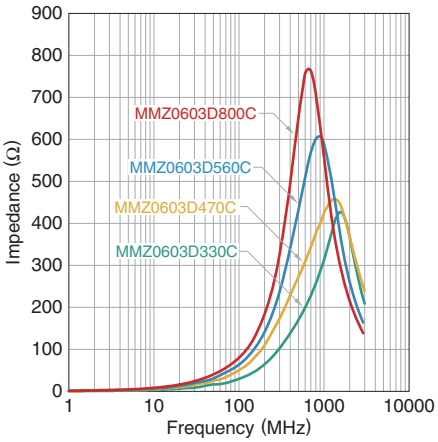
**MMZ0603S SERIES**



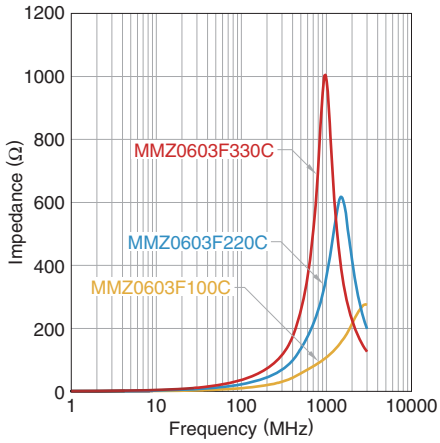

**MMZ0603Y SERIES**




**MMZ0603D SERIES**




**MMZ0603F SERIES**

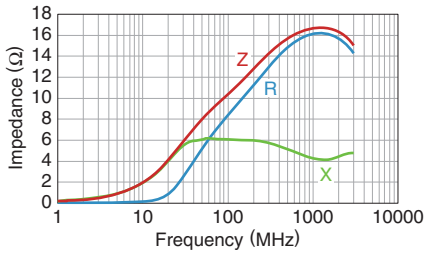


# MMZ series MMZ0603 Type

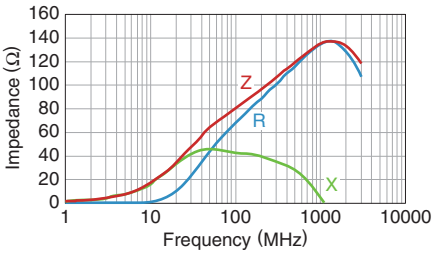
## ELECTRICAL CHARACTERISTICS

### Z, X, R VS. FREQUENCY CHARACTERISTICS

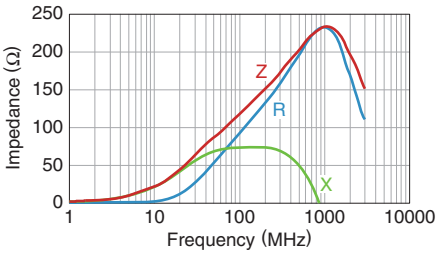
**MMZ0603S100C**



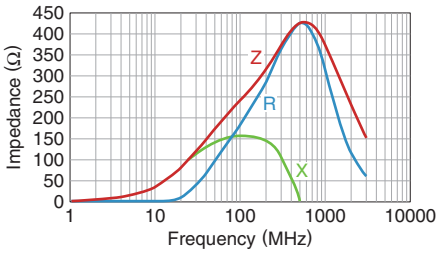

**MMZ0603S800C**



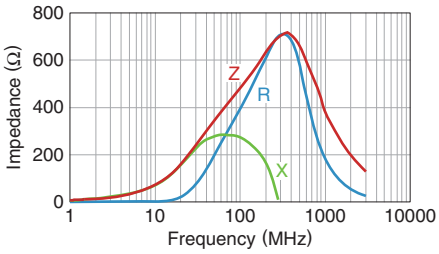

**MMZ0603S121C**



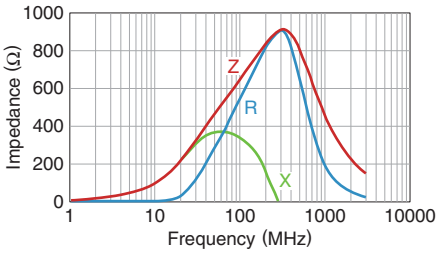

**MMZ0603S241C**



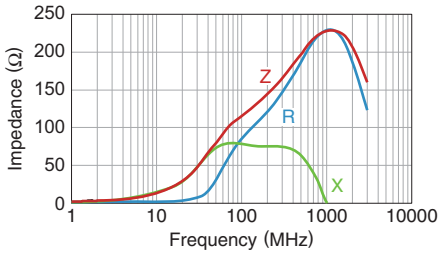

**MMZ0603S471C**



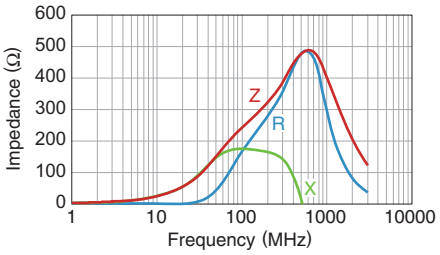

**MMZ0603S601C**



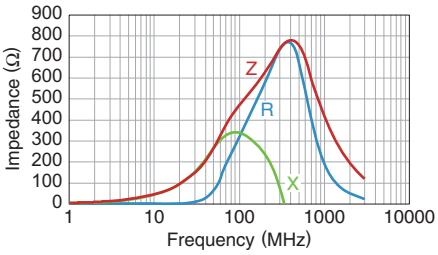

**MMZ0603Y121C**



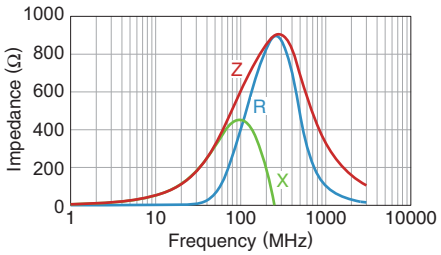

**MMZ0603Y241C**



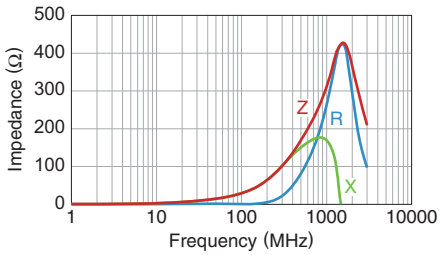

**MMZ0603Y471C**



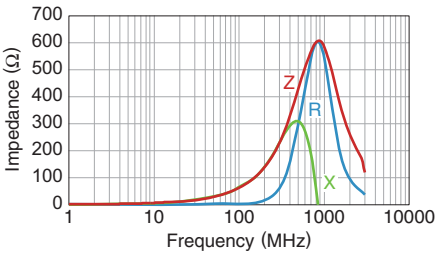

**MMZ0603Y601C**



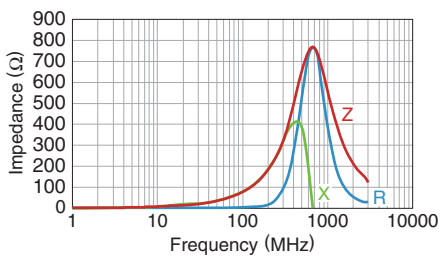

**MMZ0603D330C**



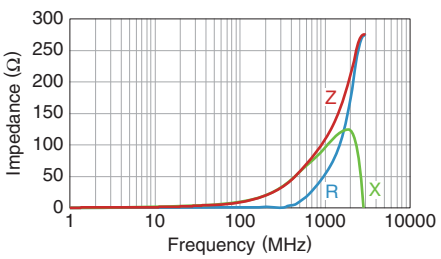

**MMZ0603D560C**



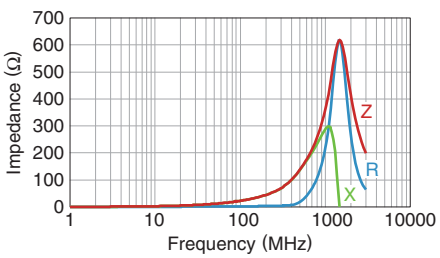

**MMZ0603D800C**




**MMZ0603F100C**




**MMZ0603F220C**

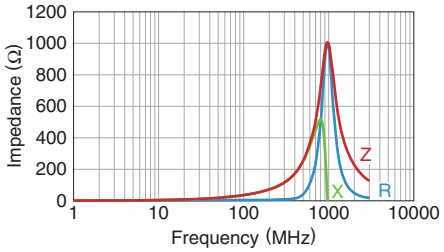


# MMZ series MMZ0603 Type

## ■ELECTRICAL CHARACTERISTICS

### □Z, X, R VS. FREQUENCY CHARACTERISTICS

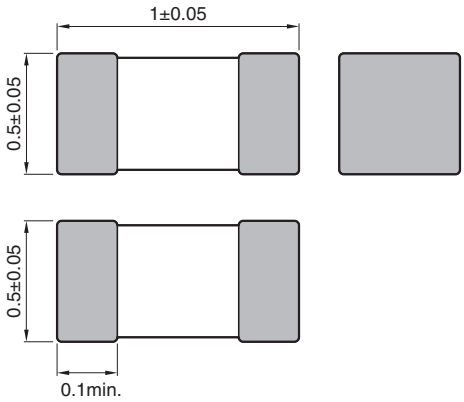
**MMZ0603F330C**



MMZ series

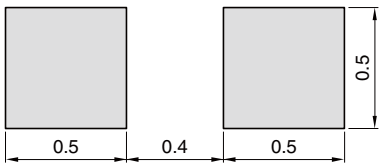
# MMZ1005 Type

## SHAPE & DIMENSIONS




Dimensions in mm

## RECOMMENDED LAND PATTERN




Dimensions in mm

# MMZ series MMZ1005 Type

## ■ELECTRICAL CHARACTERISTICS

### □CHARACTERISTICS SPECIFICATION TABLE

| Impedance [100MHz] (Ω) | Tolerance | DC resistance (Ω)max. | Rated current (mA)max. | Part No. |
|---|---|---|---|---|
| 80 | ±25% | 0.19 | 450 | MMZ1005B800CT□□□ |
| 120 | ±25% | 0.25 | 400 | MMZ1005B121CT□□□ |
| 600 | ±25% | 0.85 | 200 | MMZ1005B601CT□□□ |
| 80 | ±25% | 0.12 | 500 | MMZ1005S800CT□□□ |
| 120 | ±25% | 0.22 | 500 | MMZ1005S121CT□□□ |
| 240 | ±25% | 0.28 | 400 | MMZ1005S241CT□□□ |
| 600 | ±25% | 0.52 | 300 | MMZ1005S601CT□□□ |
| 1000 | ±25% | 0.75 | 200 | MMZ1005S102CT□□□ |
| 40 | ±25% | 0.10 | 550 | MMZ1005Y400CT□□□ |
| 80 | ±25% | 0.17 | 450 | MMZ1005Y800CT□□□ |
| 120 | ±25% | 0.18 | 400 | MMZ1005Y121CT□□□ |
| 240 | ±25% | 0.26 | 300 | MMZ1005Y241CT□□□ |
| 300 | ±25% | 0.38 | 250 | MMZ1005Y301CT□□□ |
| 470 | ±25% | 0.47 | 250 | MMZ1005Y471CT□□□ |
| 600 | ±25% | 0.54 | 250 | MMZ1005Y601CT□□□ |
| 1000 | ±25% | 0.70 | 200 | MMZ1005Y102CT□□□ |
| 1500 | ±25% | 1.00 | 100 | MMZ1005Y152CT□□□ |
| 1800 | ±25% | 0.85 | 150 | MMZ1005Y182CT□□□ |
| 10 | ±5Ω | 0.10 | 500 | MMZ1005D100CT□□□ |
| 22 | ±25% | 0.17 | 400 | MMZ1005D220CT□□□ |
| 33 | ±25% | 0.24 | 400 | MMZ1005D330CT□□□ |
| 68 | ±25% | 0.38 | 400 | MMZ1005D680CT□□□ |
| 120 | ±25% | 0.60 | 350 | MMZ1005D121CT□□□ |
| 240 | ±25% | 0.90 | 200 | MMZ1005D241CT□□□ |
| 33 | ±25% | 0.50 | 200 | MMZ1005F330CT□□□ |
| 47 | ±25% | 0.60 | 100 | MMZ1005F470CT□□□ |
| 56 | ±25% | 0.70 | 100 | MMZ1005F560CT□□□ |

○ Measurement equipment

| Measurement item | Product No. | Manufacturer |
|---|---|---|
| Impedance | E4991A+16192A | Agilent Technologies |
| DC resistance | Type-7556 | Yokogawa |

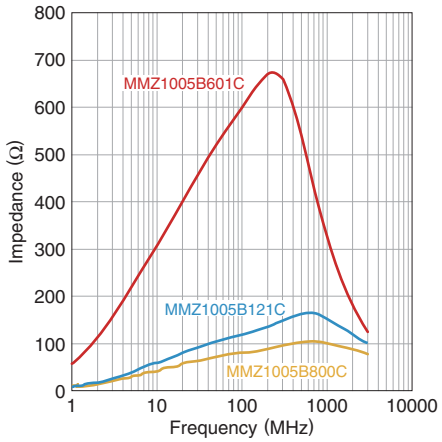
＊ Equivalent measurement equipment may be used.

# MMZ series MMZ1005 Type

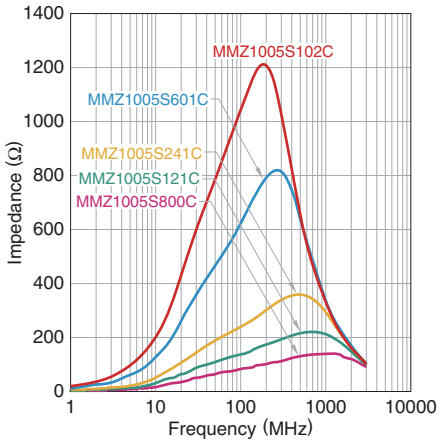
## ELECTRICAL CHARACTERISTICS

### Z VS. FREQUENCY CHARACTERISTICS (BY SERIES)

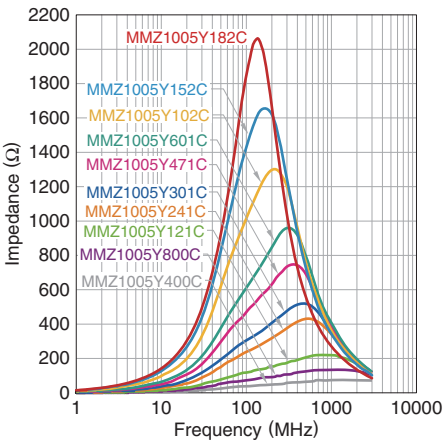
**MMZ1005B SERIES**



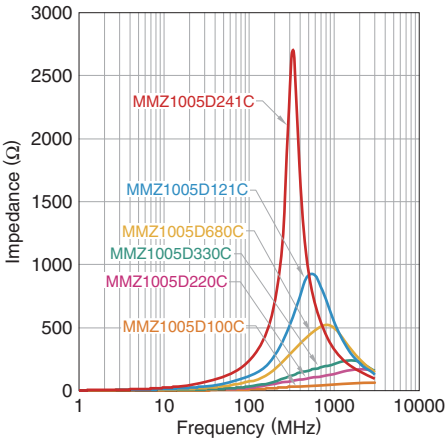

**MMZ1005S SERIES**



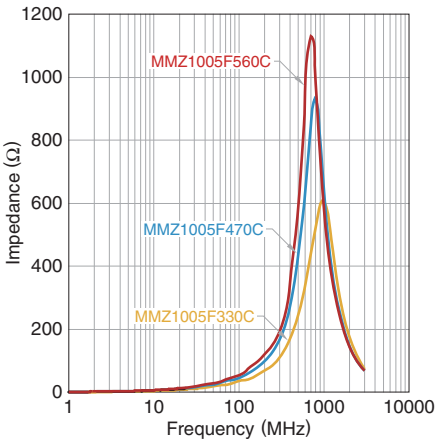

**MMZ1005Y SERIES**




**MMZ1005D SERIES**




**MMZ1005F SERIES**

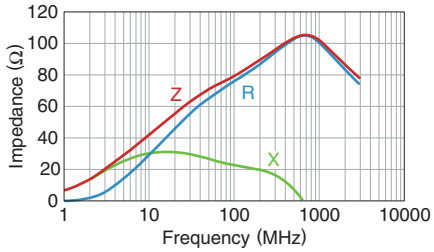


# MMZ series MMZ1005 Type

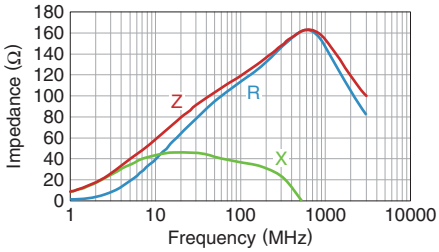
## ■ELECTRICAL CHARACTERISTICS

### □Z, X, R VS. FREQUENCY CHARACTERISTICS

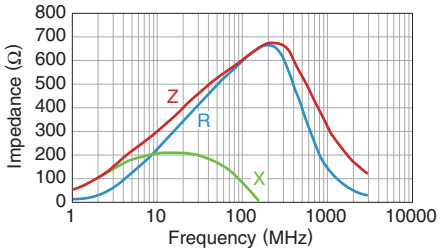
**MMZ1005B800C**



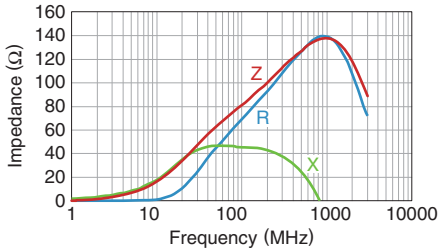

**MMZ1005B121C**



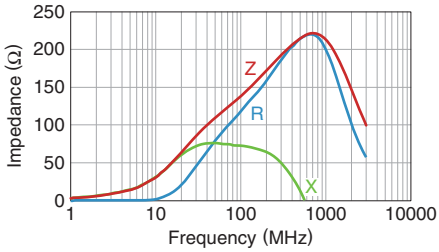

**MMZ1005B601C**



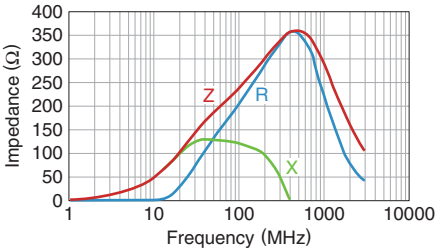

**MMZ1005S800C**



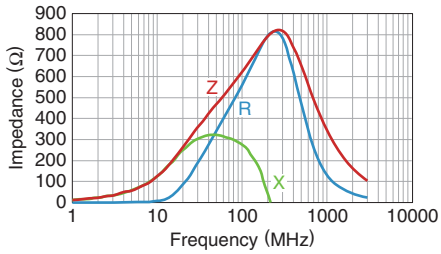

**MMZ1005S121C**



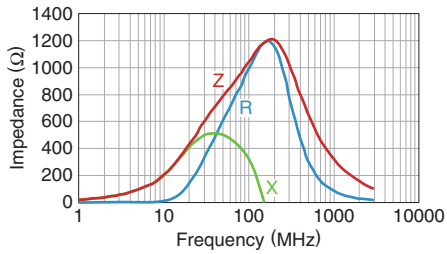

**MMZ1005S241C**



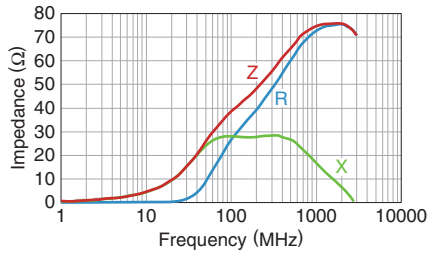

**MMZ1005S601C**



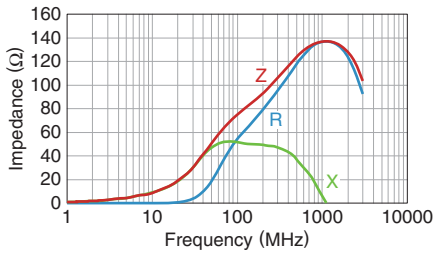

**MMZ1005S102C**



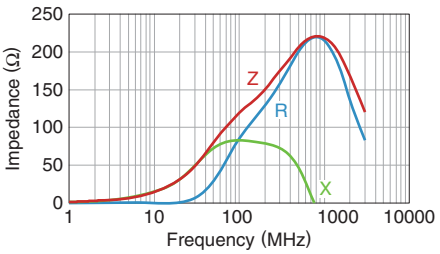

**MMZ1005Y400C**



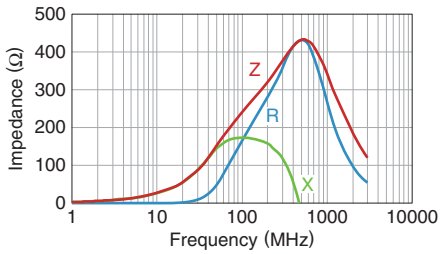

**MMZ1005Y800C**



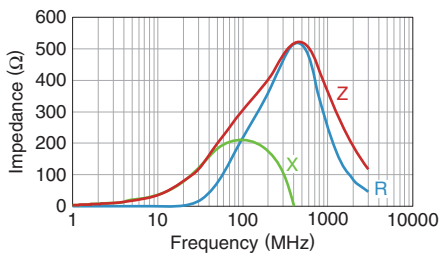

**MMZ1005Y121C**



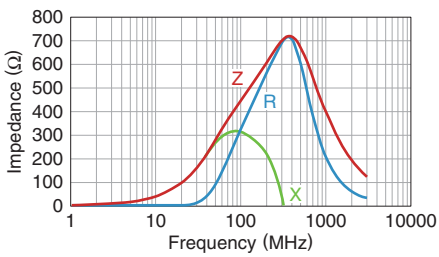

**MMZ1005Y241C**



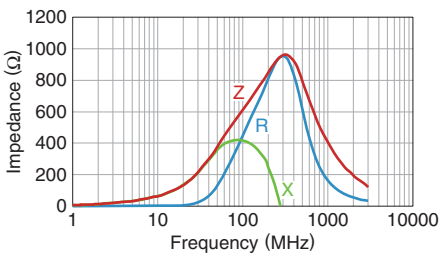

**MMZ1005Y301C**




**MMZ1005Y471C**




**MMZ1005Y601C**

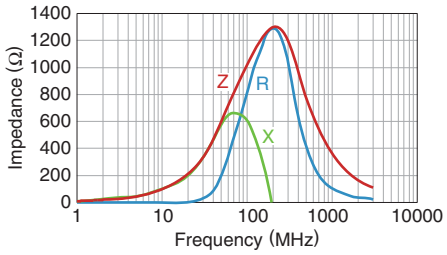


# MMZ series MMZ1005 Type

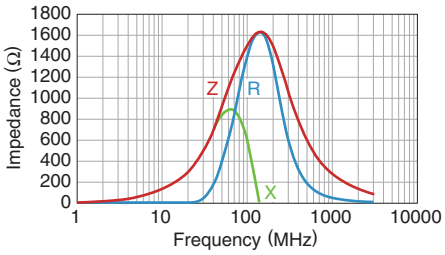
## ■ELECTRICAL CHARACTERISTICS

### □Z, X, R VS. FREQUENCY CHARACTERISTICS

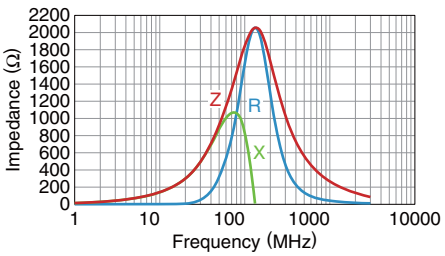
**MMZ1005Y102C**



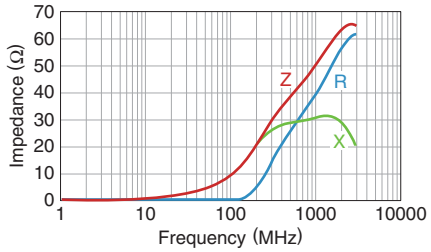

**MMZ1005Y152C**



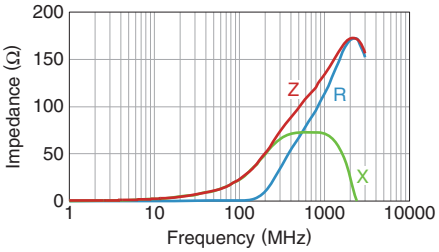

**MMZ1005Y182C**



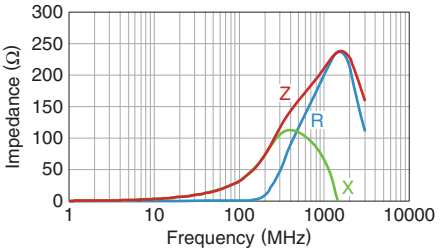

**MMZ1005D100C**



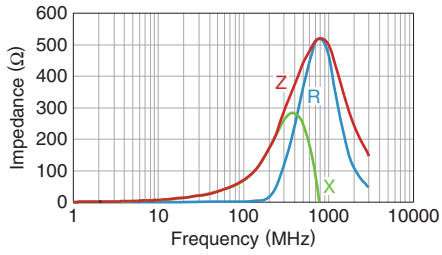

**MMZ1005D220C**



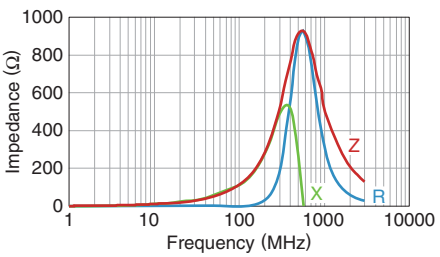

**MMZ1005D330C**



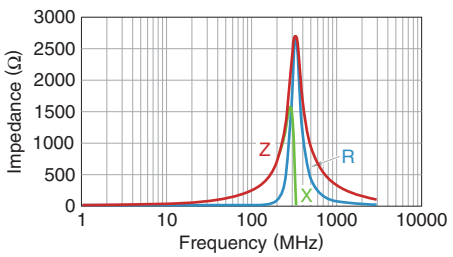

**MMZ1005D680C**



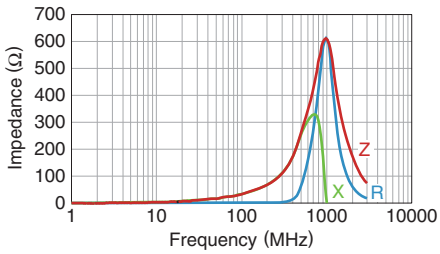

**MMZ1005D121C**



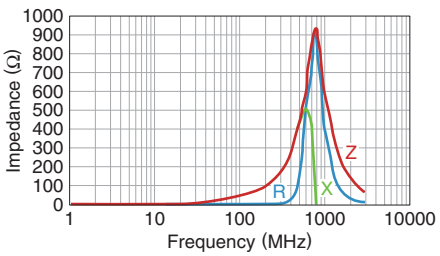

**MMZ1005D241C**



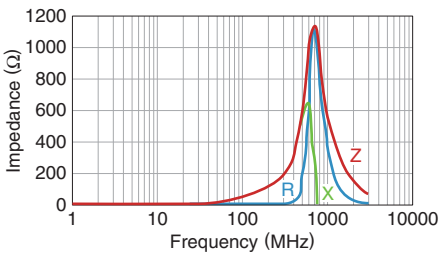

**MMZ1005F330C**




**MMZ1005F470C**



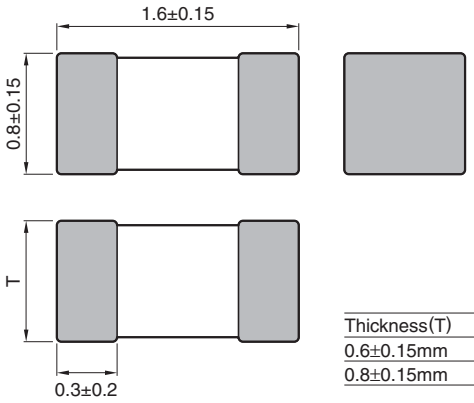

**MMZ1005F560C**



MMZ series

# MMZ1608 Type

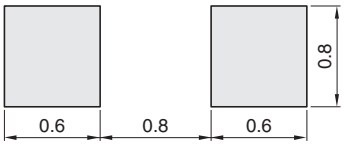
## SHAPE & DIMENSIONS




| Thickness(T) |
|---|
| 0.6±0.15mm |
| 0.8±0.15mm |

Dimensions in mm

## RECOMMENDED LAND PATTERN




Dimensions in mm

# MMZ series MMZ1608 Type

## ■ELECTRICAL CHARACTERISTICS

### □CHARACTERISTICS SPECIFICATION TABLE

| Impedance [100MHz] (Ω) | Tolerance | DC resistance (Ω)max. | Rated current (mA)max. | Thickness T (mm) | Part No. |
|---|---|---|---|---|---|
| 120 | ±25% | 0.15 | 600 | 0.6 | MMZ1608B121CT□□□ |
| 220 | ±25% | 0.25 | 500 | 0.6 | MMZ1608B221CT□□□ |
| 300 | ±25% | 0.25 | 500 | 0.6 | MMZ1608B301CT□□□ |
| 470 | ±25% | 0.30 | 500 | 0.6 | MMZ1608B471CT□□□ |
| 600 | ±25% | 0.40 | 500 | 0.6 | MMZ1608B601CT□□□ |
| 1000 | ±25% | 0.60 | 300 | 0.8 | MMZ1608B102CT□□□ |
| 15 | ±25% | 0.05 | 1500 | 0.8 | MMZ1608R150AT□□□ |
| 30 | ±25% | 0.05 | 1500 | 0.8 | MMZ1608R300AT□□□ |
| 60 | ±25% | 0.10 | 800 | 0.8 | MMZ1608R600AT□□□ |
| 120 | ±25% | 0.18 | 500 | 0.8 | MMZ1608R121AT□□□ |
| 300 | ±25% | 0.25 | 500 | 0.8 | MMZ1608R301AT□□□ |
| 470 | ±25% | 0.30 | 500 | 0.8 | MMZ1608R471AT□□□ |
| 600 | ±25% | 0.40 | 500 | 0.8 | MMZ1608R601AT□□□ |
| 1000 | ±25% | 0.50 | 400 | 0.8 | MMZ1608R102AT□□□ |
| 40 | ±25% | 0.10 | 600 | 0.8 | MMZ1608S400AT□□□ |
| 80 | ±25% | 0.15 | 500 | 0.8 | MMZ1608S800AT□□□ |
| 120 | ±25% | 0.15 | 500 | 0.8 | MMZ1608S121AT□□□ |
| 180 | ±25% | 0.20 | 500 | 0.8 | MMZ1608S181AT□□□ |
| 220 | ±25% | 0.20 | 500 | 0.8 | MMZ1608S221AT□□□ |
| 300 | ±25% | 0.30 | 500 | 0.8 | MMZ1608S301AT□□□ |
| 470 | ±25% | 0.30 | 500 | 0.8 | MMZ1608S471AT□□□ |
| 600 | ±25% | 0.35 | 500 | 0.8 | MMZ1608S601AT□□□ |
| 1000 | ±25% | 0.50 | 400 | 0.8 | MMZ1608S102AT□□□ |
| 2000 | ±25% | 0.90 | 200 | 0.8 | MMZ1608S202AT□□□ |
| 15 | ±25% | 0.05 | 1500 | 0.8 | MMZ1608Y150BT□□□ |
| 30 | ±25% | 0.05 | 1500 | 0.8 | MMZ1608Y300BT□□□ |
| 60 | ±25% | 0.15 | 500 | 0.8 | MMZ1608Y600BT□□□ |
| 120 | ±25% | 0.20 | 500 | 0.8 | MMZ1608Y121BT□□□ |
| 220 | ±25% | 0.30 | 500 | 0.8 | MMZ1608Y221BT□□□ |
| 300 | ±25% | 0.30 | 500 | 0.8 | MMZ1608Y301BT□□□ |
| 470 | ±25% | 0.35 | 500 | 0.8 | MMZ1608Y471BT□□□ |
| 600 | ±25% | 0.40 | 500 | 0.8 | MMZ1608Y601BT□□□ |
| 750 | ±25% | 0.45 | 500 | 0.8 | MMZ1608Y751BT□□□ |
| 1000 | ±25% | 0.50 | 400 | 0.8 | MMZ1608Y102BT□□□ |
| 1500 | ±25% | 0.60 | 300 | 0.8 | MMZ1608Y152BT□□□ |
| 1800 | ±25% | 0.80 | 200 | 0.8 | MMZ1608A182BT□□□ |
| 2200 | ±25% | 0.80 | 200 | 0.8 | MMZ1608A222BT□□□ |
| 2500 | ±25% | 0.80 | 200 | 0.8 | MMZ1608A252BT□□□ |
| 120 | ±25% | 0.30 | 500 | 0.8 | MMZ1608Q121BT□□□ |
| 220 | ±25% | 0.40 | 500 | 0.8 | MMZ1608Q221BT□□□ |
| 330 | ±25% | 0.50 | 400 | 0.8 | MMZ1608Q331BT□□□ |
| 470 | ±25% | 0.70 | 300 | 0.8 | MMZ1608Q471BT□□□ |
| 600 | ±25% | 0.80 | 200 | 0.8 | MMZ1608Q601BT□□□ |
| 1000 | ±25% | 1.00 | 200 | 0.8 | MMZ1608Q102BT□□□ |

○ Measurement equipment

| Measurement item | Product No. | Manufacturer |
|---|---|---|
| Impedance | E4991A+16192A | Agilent Technologies |
| DC resistance | Type-7556 | Yokogawa |

＊ Equivalent measurement equipment may be used.

# MMZ series MMZ1608 Type

## ■ELECTRICAL CHARACTERISTICS

### □CHARACTERISTICS SPECIFICATION TABLE

| Impedance [100MHz] (Ω) | Tolerance | DC resistance (Ω)max. | Rated current (mA)max. | Thickness T (mm) | Part No. |
|---|---|---|---|---|---|
| 5 | ±2Ω | 0.05 | 700 | 0.8 | MMZ1608D050CT□□□ |
| 10 | ±5Ω | 0.10 | 500 | 0.6 | MMZ1608D100CT□□□ |
| 22 | ±25% | 0.20 | 500 | 0.6 | MMZ1608D220CT□□□ |
| 50 | ±25% | 0.25 | 500 | 0.6 | MMZ1608D500CT□□□ |
| 80 | ±25% | 0.30 | 500 | 0.6 | MMZ1608D800CT□□□ |
| 80 | ±25% | 0.30 | 500 | 0.8 | MMZ1608D800BT□□□ |
| 120 | ±25% | 0.30 | 400 | 0.6 | MMZ1608D121CT□□□ |
| 120 | ±25% | 0.30 | 400 | 0.8 | MMZ1608D121BT□□□ |
| 240 | ±25% | 0.60 | 300 | 0.8 | MMZ1608D241CT□□□ |
| 300 | ±25% | 0.70 | 300 | 0.8 | MMZ1608D301BT□□□ |
| 3typ. | | 0.05 | 700 | 0.8 | MMZ1608F030BT□□□ |
| 47 | ±25% | 0.40 | 500 | 0.8 | MMZ1608F470BT□□□ |
| 75 | ±25% | 0.55 | 300 | 0.8 | MMZ1608F750BT□□□ |
| 120 | ±25% | 0.75 | 200 | 0.8 | MMZ1608F121BT□□□ |

○ Measurement equipment

| Measurement item | Product No. | Manufacturer |
|---|---|---|
| Impedance | E4991A+16192A | Agilent Technologies |
| DC resistance | Type-7556 | Yokogawa |

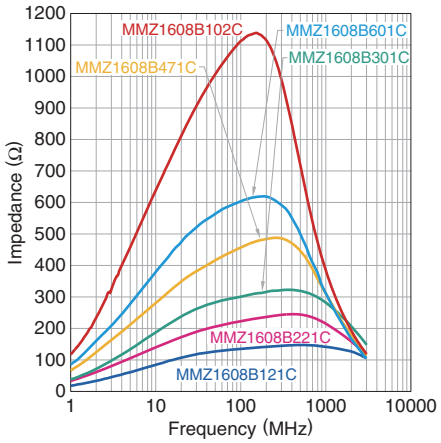
＊ Equivalent measurement equipment may be used.

# MMZ series MMZ1608 Type

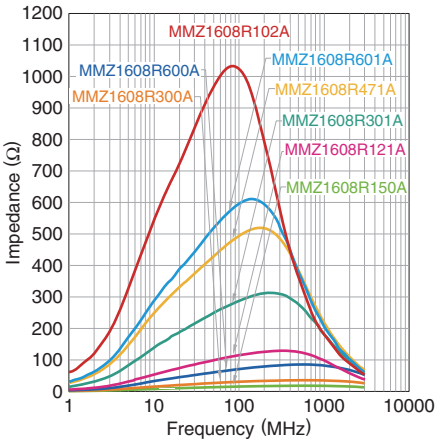
## ELECTRICAL CHARACTERISTICS

### Z VS. FREQUENCY CHARACTERISTICS (BY SERIES)

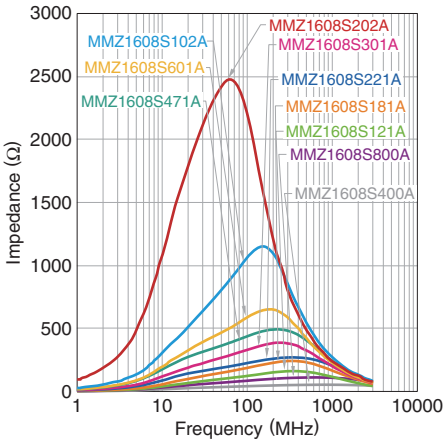
#### MMZ1608B SERIES



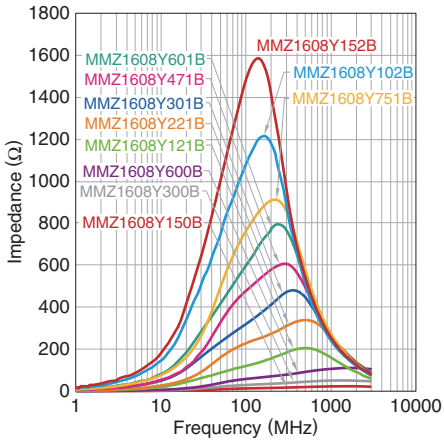

#### MMZ1608R SERIES



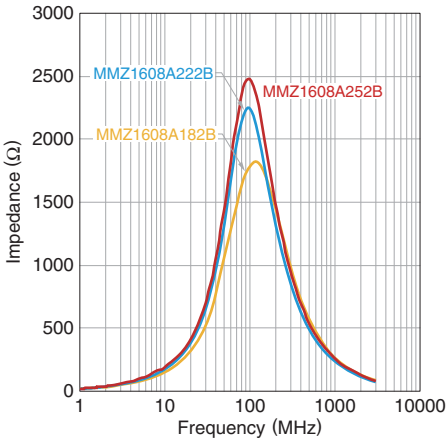

#### MMZ1608S SERIES



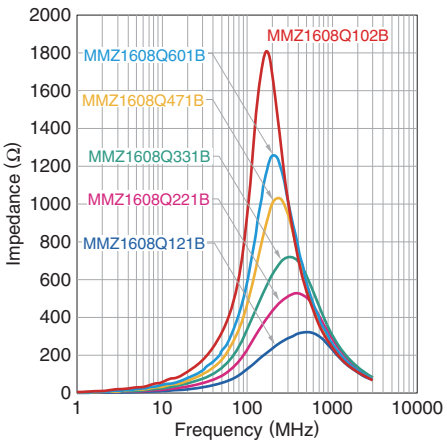

#### MMZ1608Y SERIES



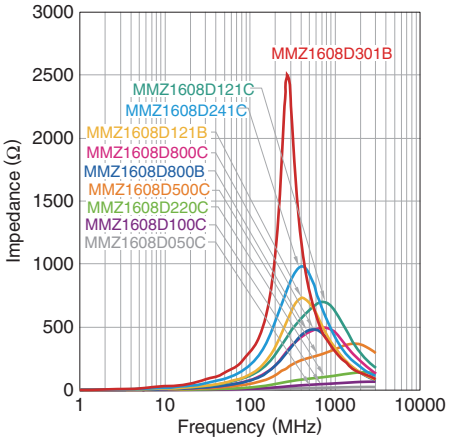

#### MMZ1608A SERIES



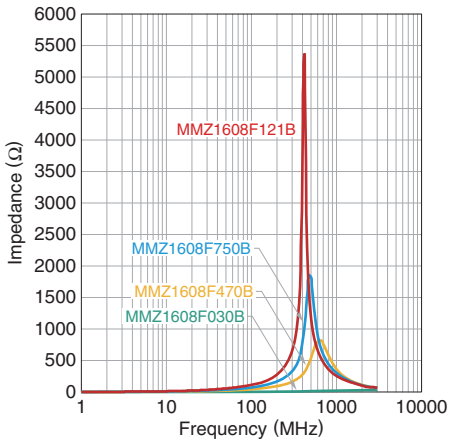

#### MMZ1608Q SERIES




#### MMZ1608D SERIES




#### MMZ1608F SERIES

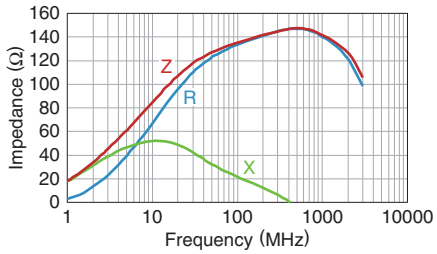


# MMZ series MMZ1608 Type

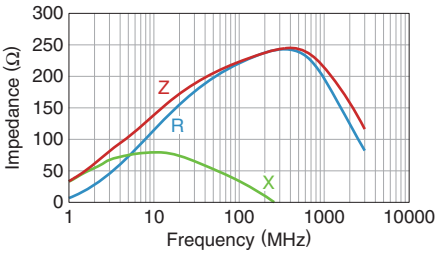
## ELECTRICAL CHARACTERISTICS

### Z, X, R VS. FREQUENCY CHARACTERISTICS

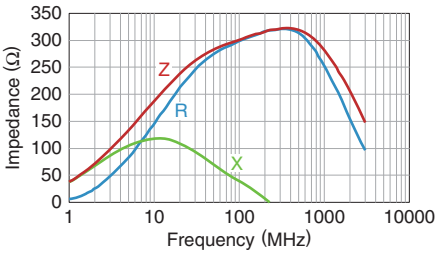
**MMZ1608B121C**



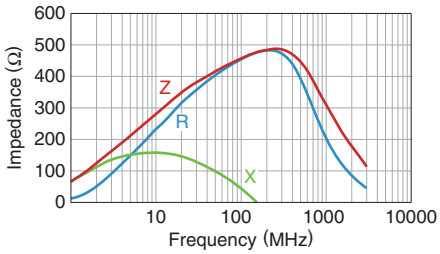

**MMZ1608B221C**



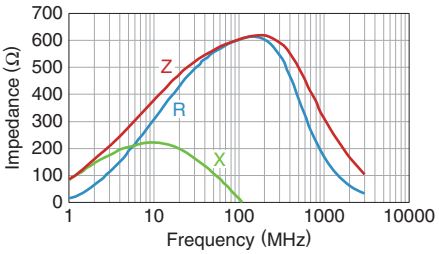

**MMZ1608B301C**



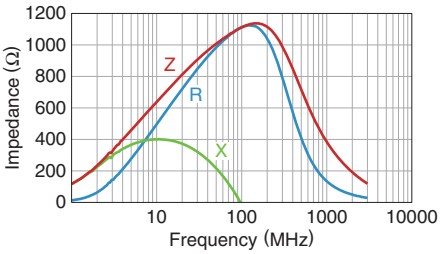

**MMZ1608B471C**



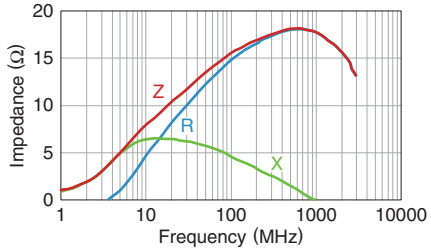

**MMZ1608B601C**



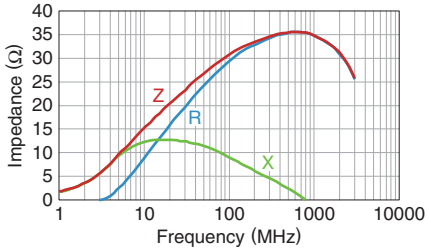

**MMZ1608B102C**



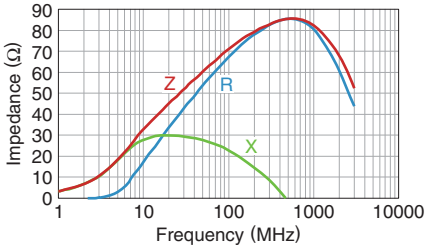

**MMZ1608R150A**



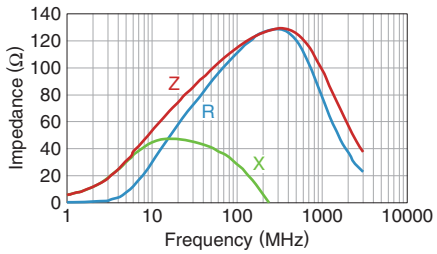

**MMZ1608R300A**



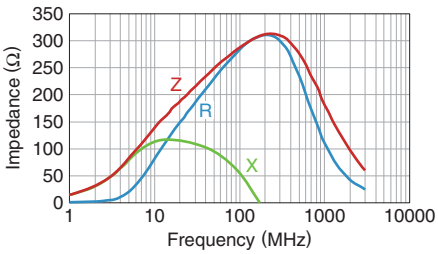

**MMZ1608R600A**



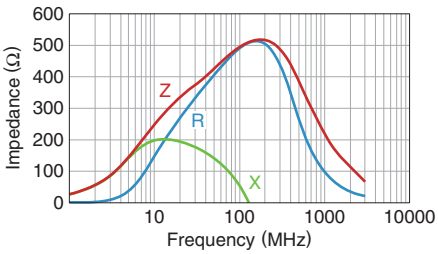

**MMZ1608R121A**



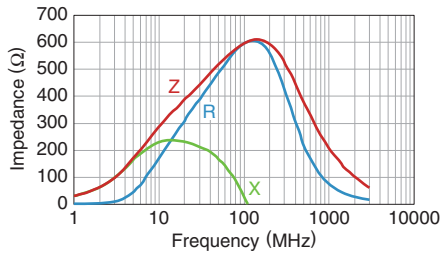

**MMZ1608R301A**



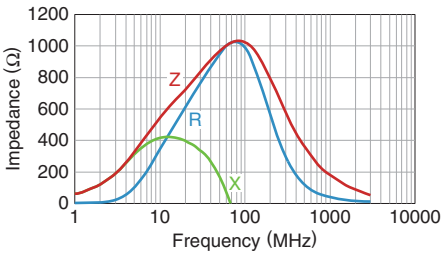

**MMZ1608R471A**



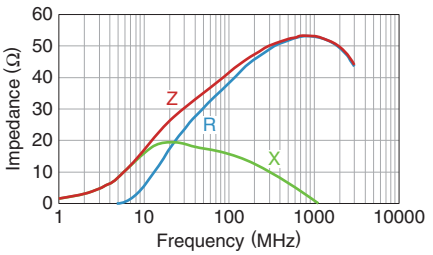

**MMZ1608R601A**




**MMZ1608R102A**




**MMZ1608S400A**

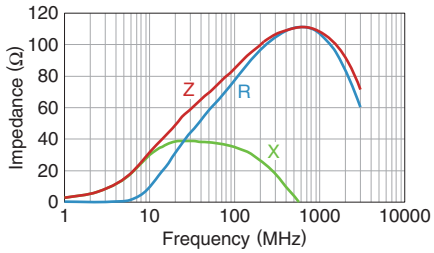


# MMZ series MMZ1608 Type

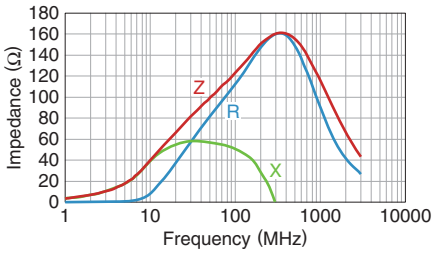
## ■ELECTRICAL CHARACTERISTICS

### □Z, X, R VS. FREQUENCY CHARACTERISTICS

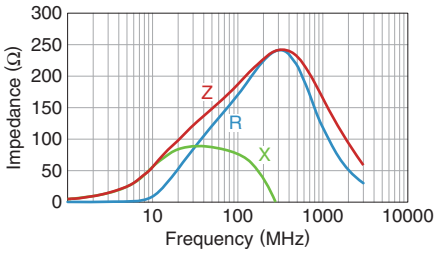
**MMZ1608S800A**



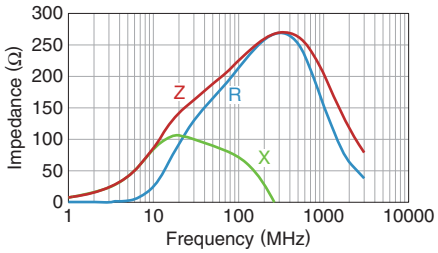

**MMZ1608S121A**



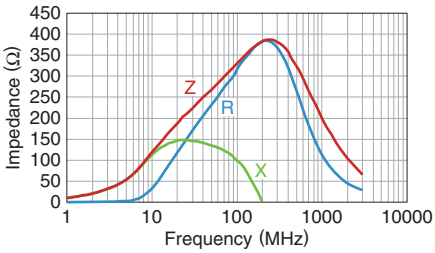

**MMZ1608S181A**



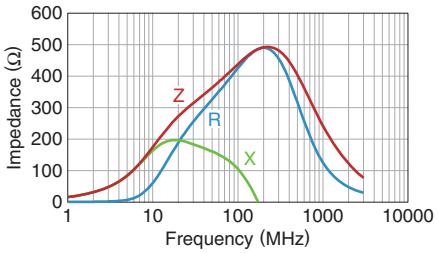

**MMZ1608S221A**



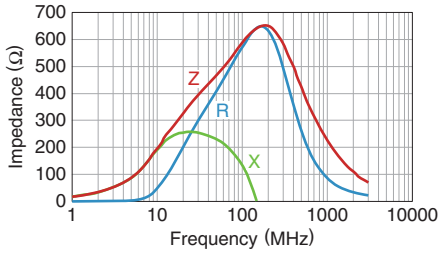

**MMZ1608S301A**



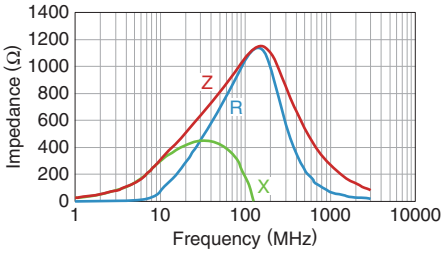

**MMZ1608S471A**



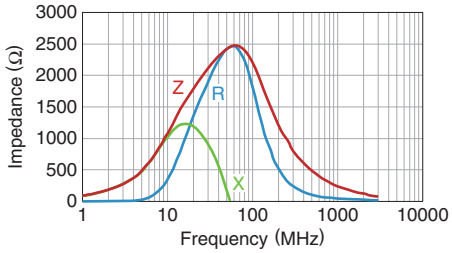

**MMZ1608S601A**



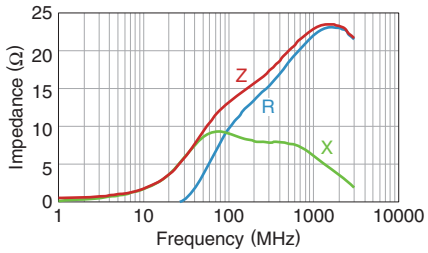

**MMZ1608S102A**



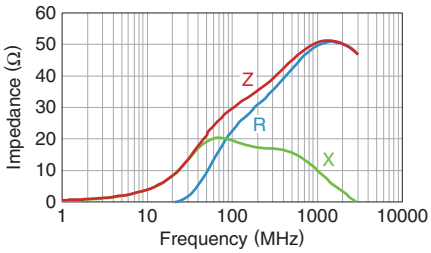

**MMZ1608S202A**



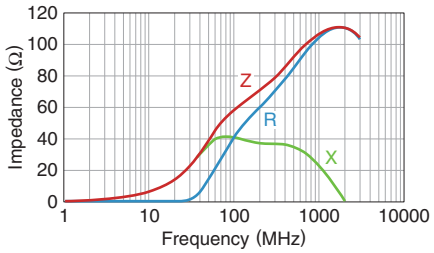

**MMZ1608Y150B**



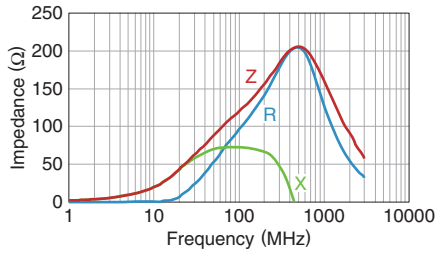

**MMZ1608Y300B**



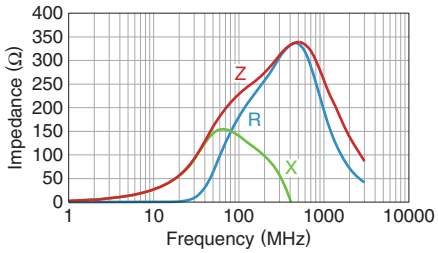

**MMZ1608Y600B**



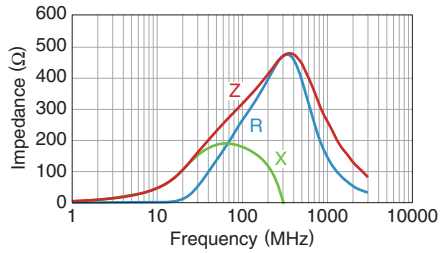

**MMZ1608Y121B**




**MMZ1608Y221B**




**MMZ1608Y301B**

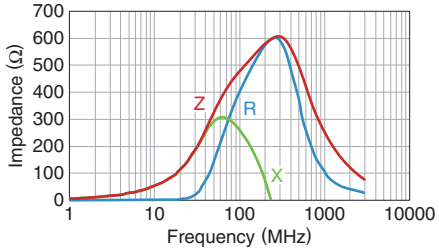


# MMZ series MMZ1608 Type

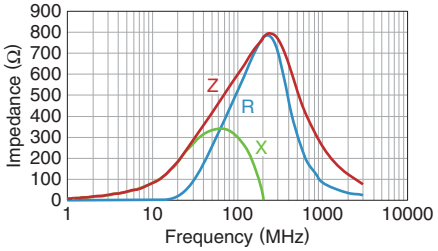
## ■ELECTRICAL CHARACTERISTICS

### □Z, X, R VS. FREQUENCY CHARACTERISTICS

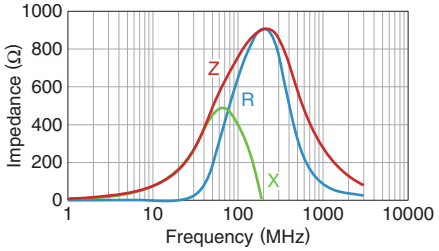
**MMZ1608Y471B**



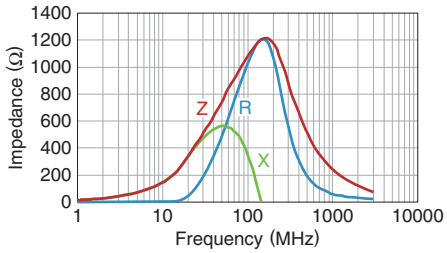

**MMZ1608Y601B**



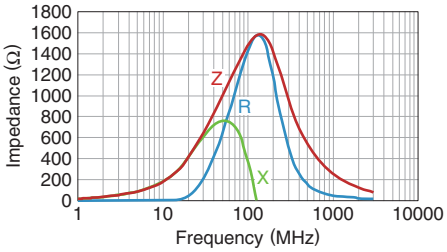

**MMZ1608Y751B**



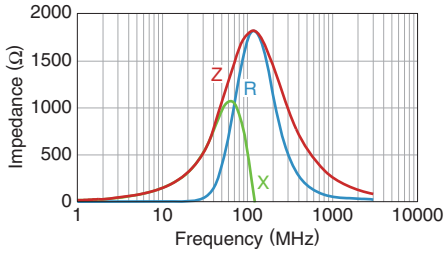

**MMZ1608Y102B**



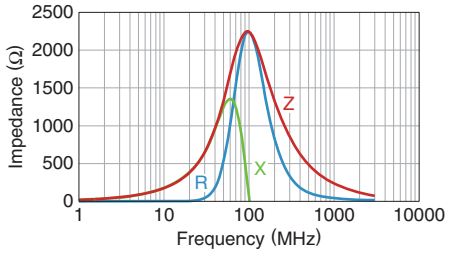

**MMZ1608Y152B**



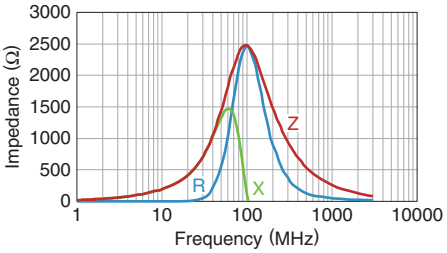

**MMZ1608A182B**



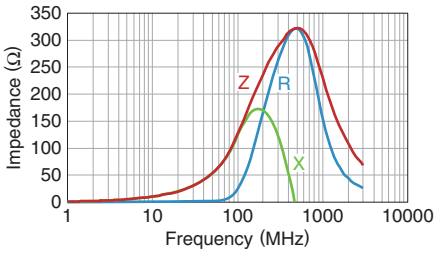

**MMZ1608A222B**



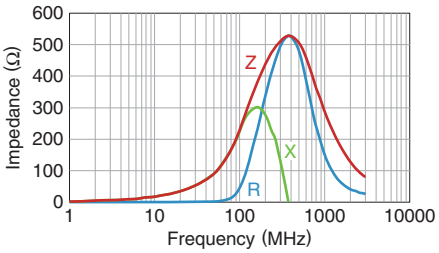

**MMZ1608A252B**



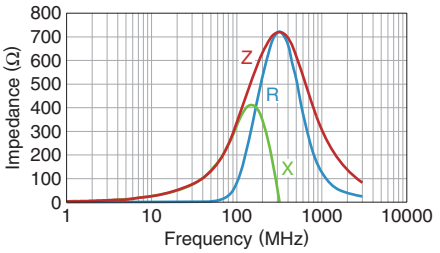

**MMZ1608Q121B**



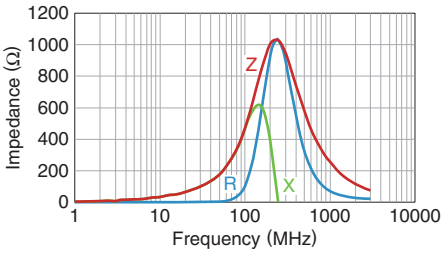

**MMZ1608Q221B**



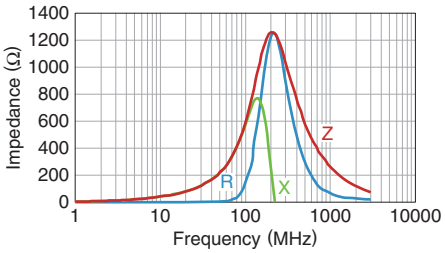

**MMZ1608Q331B**



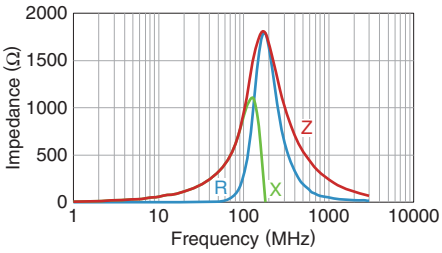

**MMZ1608Q471B**




**MMZ1608Q601B**




**MMZ1608Q102B**

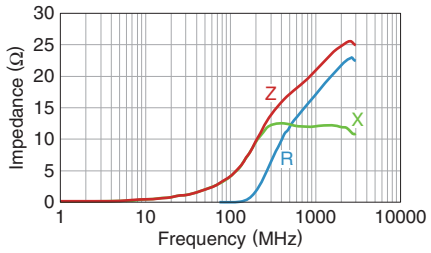


# MMZ series MMZ1608 Type

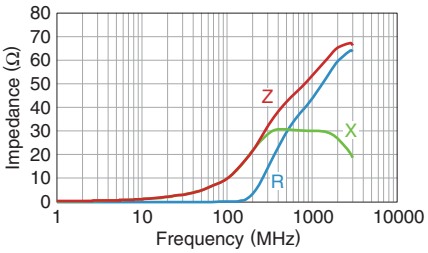
## ELECTRICAL CHARACTERISTICS

### Z, X, R VS. FREQUENCY CHARACTERISTICS

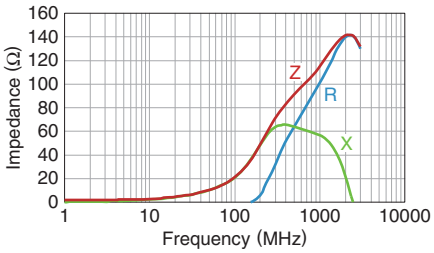
**MMZ1608D050C**



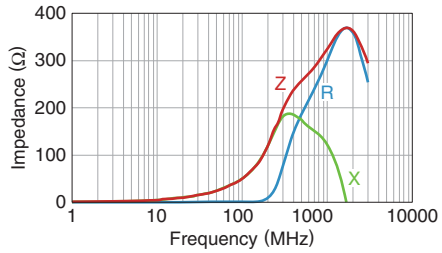

**MMZ1608D100C**



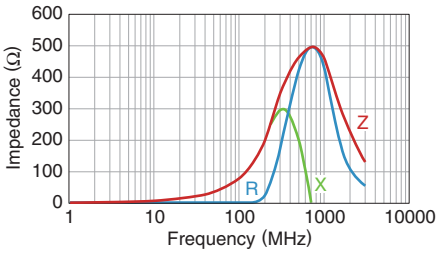

**MMZ1608D220C**



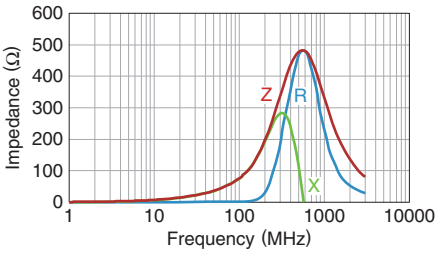

**MMZ1608D500C**



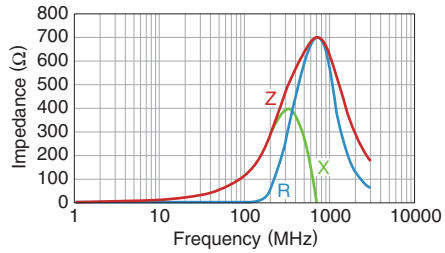

**MMZ1608D800C**



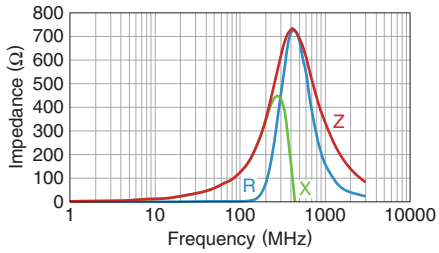

**MMZ1608D800B**



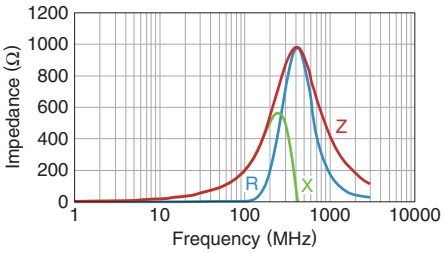

**MMZ1608D121C**



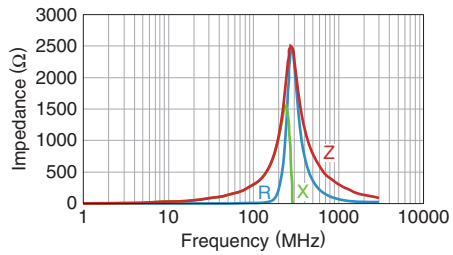

**MMZ1608D121B**



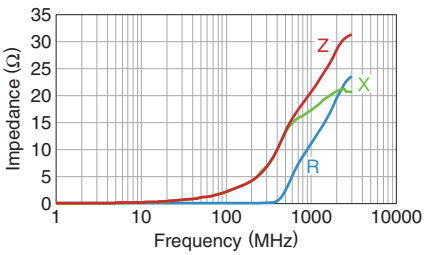

**MMZ1608D241C**



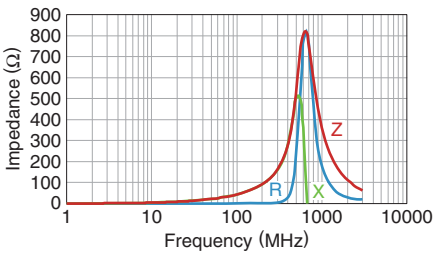

**MMZ1608D301B**



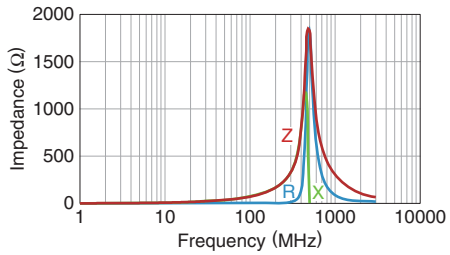

**MMZ1608F030B**



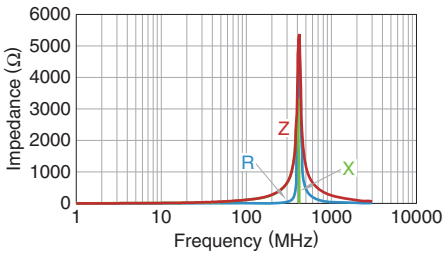

**MMZ1608F470B**




**MMZ1608F750B**




**MMZ1608F121B**

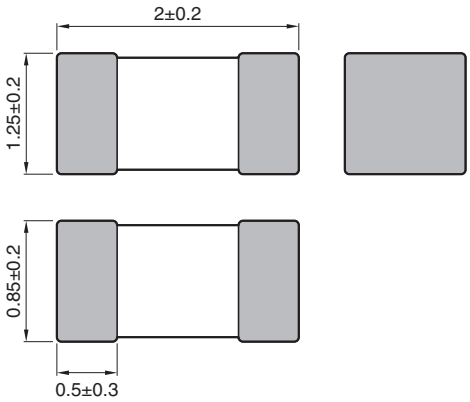



• All specifications are subject to change without notice.

MMZ series

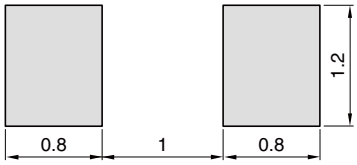
# MMZ2012 Type

## SHAPE & DIMENSIONS




Dimensions in mm

## RECOMMENDED LAND PATTERN




Dimensions in mm

# MMZ series MMZ2012 Type

## ■ELECTRICAL CHARACTERISTICS

### □CHARACTERISTICS SPECIFICATION TABLE

| Impedance [100MHz] (Ω) | Tolerance | DC resistance (Ω)max. | Rated current (mA)max. | Part No. |
|---|---|---|---|---|
| 15 | ±25% | 0.05 | 1500 | MMZ2012R150AT□□□ |
| 30 | ±25% | 0.05 | 1500 | MMZ2012R300AT□□□ |
| 60 | ±25% | 0.10 | 1000 | MMZ2012R600AT□□□ |
| 120 | ±25% | 0.12 | 800 | MMZ2012R121AT□□□ |
| 300 | ±25% | 0.15 | 600 | MMZ2012R301AT□□□ |
| 600 | ±25% | 0.20 | 500 | MMZ2012R601AT□□□ |
| 1000 | ±25% | 0.30 | 500 | MMZ2012R102AT□□□ |
| 40 | ±25% | 0.10 | 1000 | MMZ2012S400AT□□□ |
| 80 | ±25% | 0.10 | 800 | MMZ2012S800AT□□□ |
| 120 | ±25% | 0.15 | 800 | MMZ2012S121AT□□□ |
| 180 | ±25% | 0.15 | 600 | MMZ2012S181AT□□□ |
| 300 | ±25% | 0.20 | 600 | MMZ2012S301AT□□□ |
| 600 | ±25% | 0.30 | 500 | MMZ2012S601AT□□□ |
| 1000 | ±25% | 0.35 | 500 | MMZ2012S102AT□□□ |
| 15 | ±25% | 0.05 | 1500 | MMZ2012Y150BT□□□ |
| 30 | ±25% | 0.05 | 1500 | MMZ2012Y300BT□□□ |
| 60 | ±25% | 0.10 | 1000 | MMZ2012Y600BT□□□ |
| 120 | ±25% | 0.12 | 800 | MMZ2012Y121BT□□□ |
| 300 | ±25% | 0.15 | 600 | MMZ2012Y301BT□□□ |
| 600 | ±25% | 0.20 | 500 | MMZ2012Y601BT□□□ |
| 1000 | ±25% | 0.30 | 500 | MMZ2012Y102BT□□□ |
| 1500 | ±25% | 0.40 | 500 | MMZ2012Y152BT□□□ |
| 2000 | ±25% | 0.50 | 400 | MMZ2012Y202BT□□□ |
| 80 | ±25% | 0.30 | 500 | MMZ2012D800BT□□□ |
| 120 | ±25% | 0.30 | 500 | MMZ2012D121BT□□□ |
| 300 | ±25% | 0.50 | 400 | MMZ2012D301BT□□□ |

○ Measurement equipment

| Measurement item | Product No. | Manufacturer |
|---|---|---|
| Impedance | E4991A+16192A | Agilent Technologies |
| DC resistance | Type-7556 | Yokogawa |

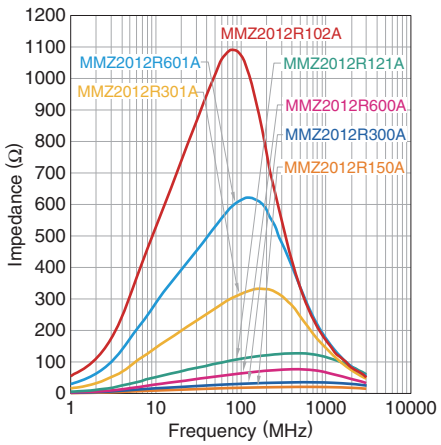
＊ Equivalent measurement equipment may be used.

# MMZ series MMZ2012 Type

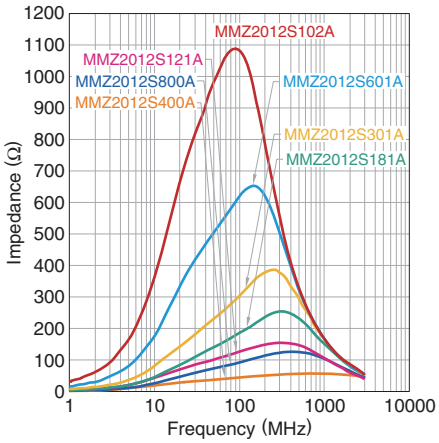
## ELECTRICAL CHARACTERISTICS

### Z VS. FREQUENCY CHARACTERISTICS (BY SERIES)

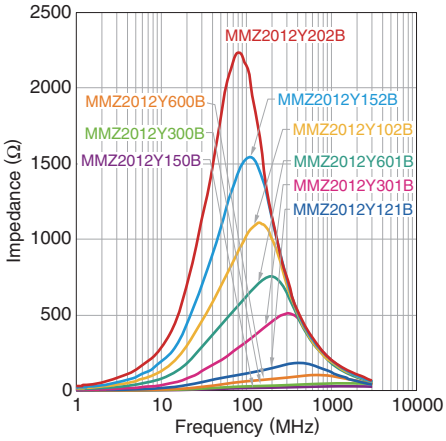
**MMZ2012R SERIES**



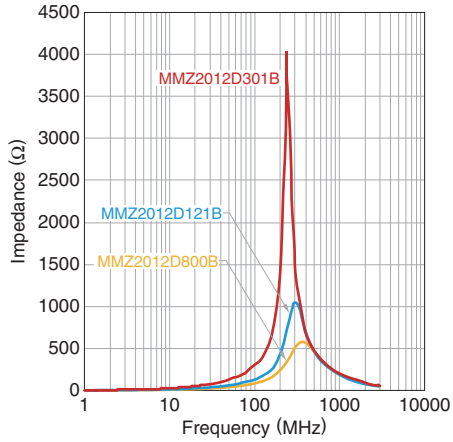

**MMZ2012S SERIES**




**MMZ2012Y SERIES**




**MMZ2012D SERIES**

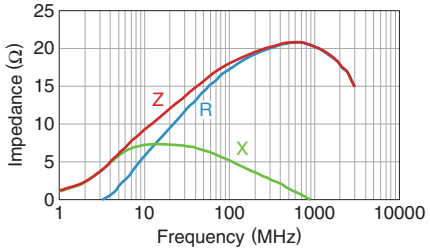


# MMZ series MMZ2012 Type

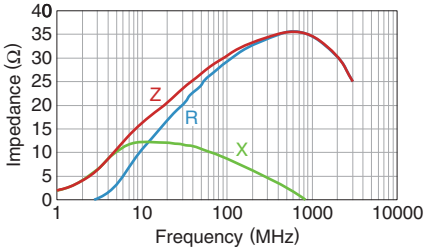
## ELECTRICAL CHARACTERISTICS

### Z, X, R VS. FREQUENCY CHARACTERISTICS

**MMZ2012R150A**




**MMZ2012R300A**

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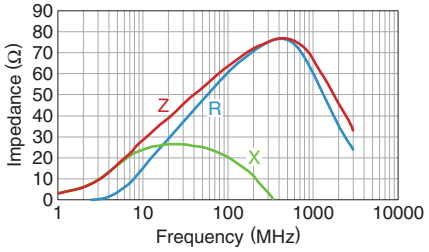


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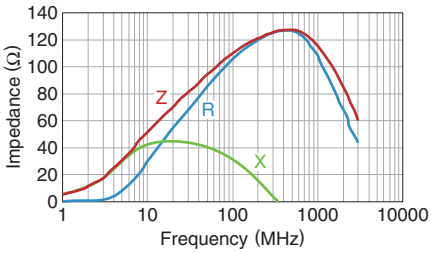


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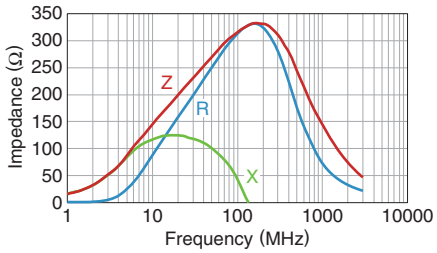


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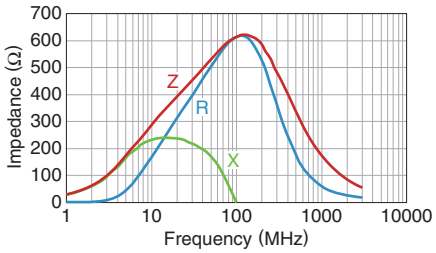


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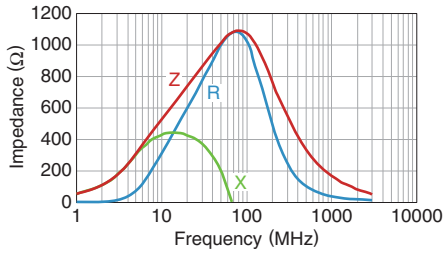


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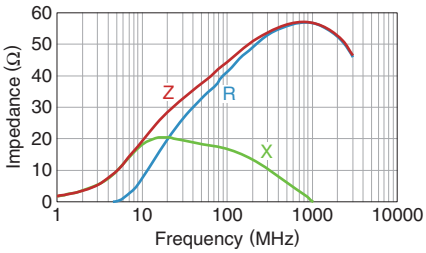


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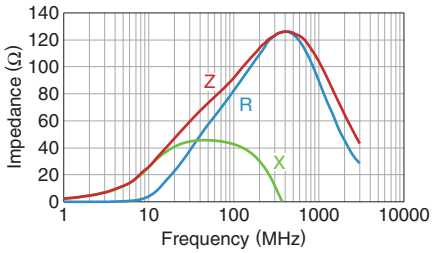


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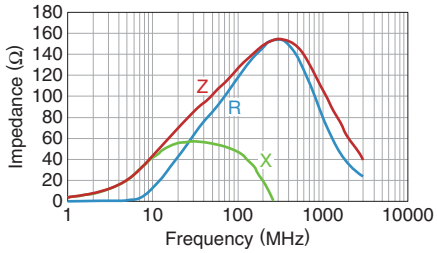
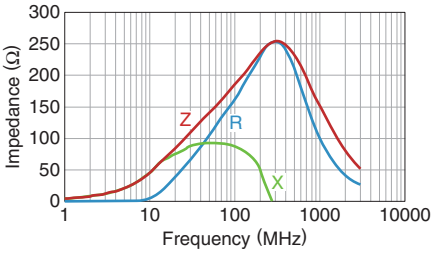



**MMZ2012S181A**

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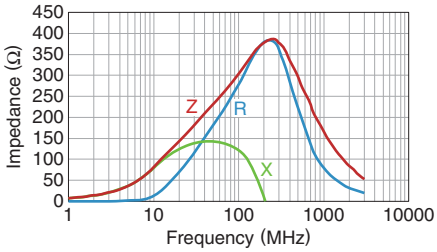


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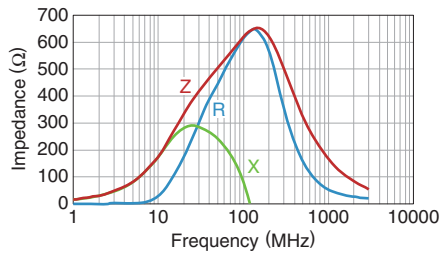


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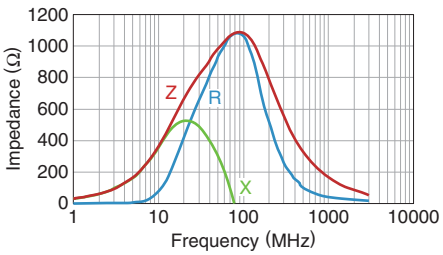


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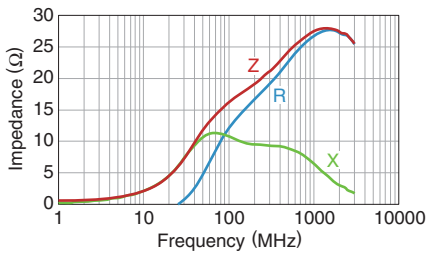
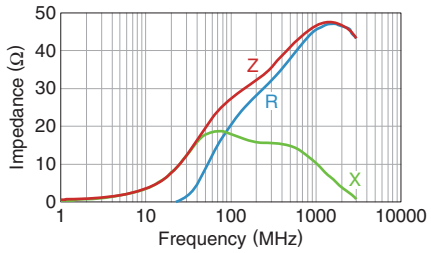


# MMZ series MMZ2012 Type

## ELECTRICAL CHARACTERISTICS

### Z, X, R VS. FREQUENCY CHARACTERISTICS

**MMZ2012Y300B**

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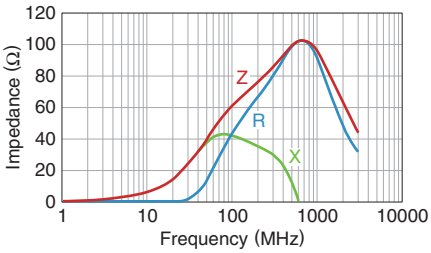


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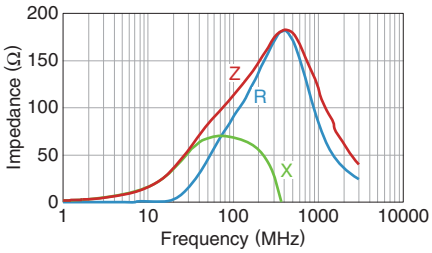


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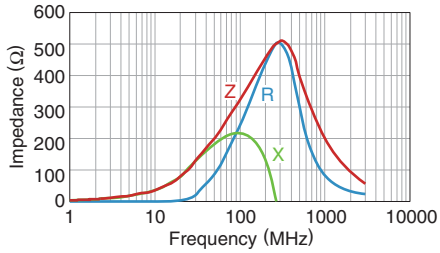


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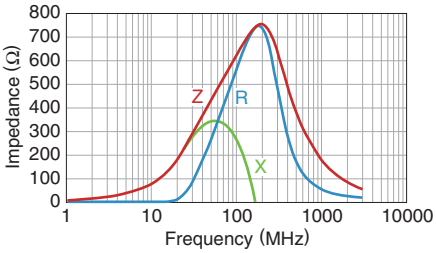


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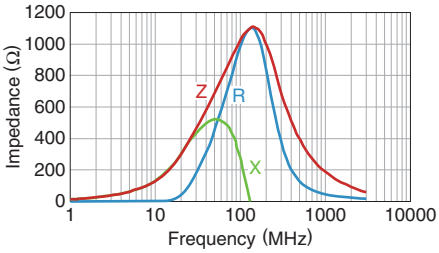


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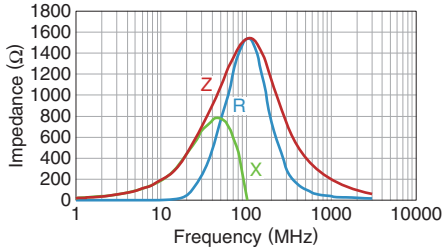
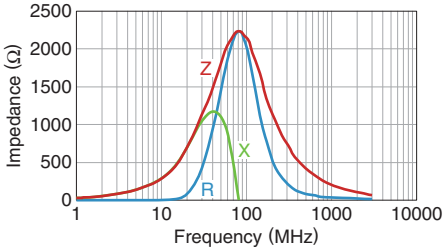



**MMZ2012Y202B**

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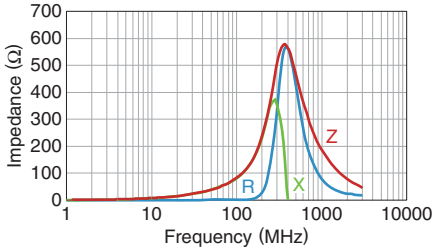
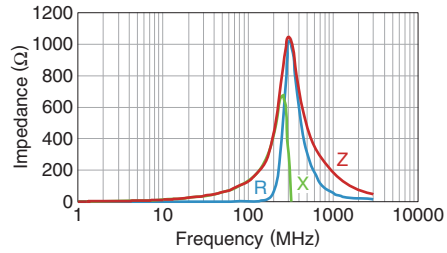



**MMZ2012D121B**

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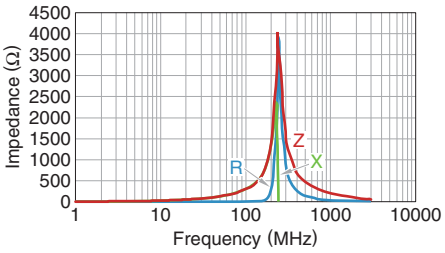
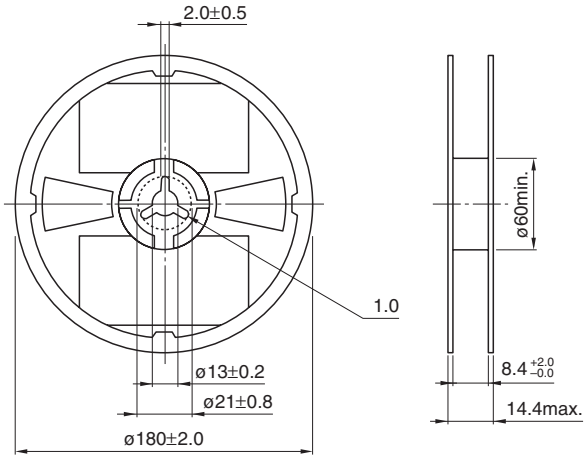


MMZ series

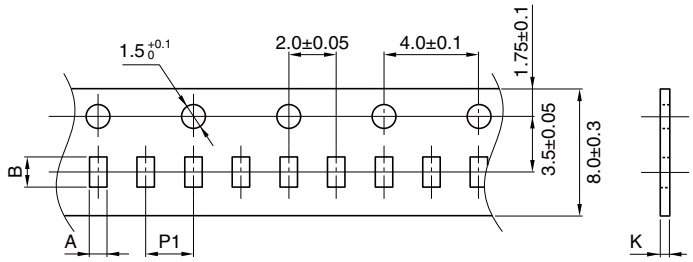
# Packaging style

## REEL DIMENSIONS



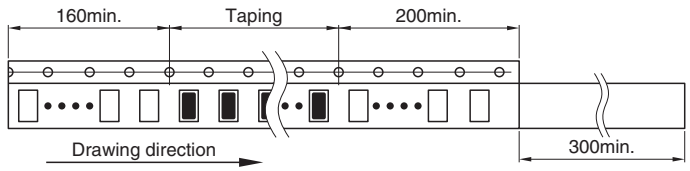

Dimensions in mm

## TAPE DIMENSIONS




Dimensions in mm

| Type | A | B | P1 | K |
|---|---|---|---|---|
| **MMZ0402** | 0.26±0.04 | 0.46±0.04 | 2.0±0.05 | 0.4max. |
| **MMZ0603** | 0.38±0.05 | 0.68±0.05 | 2.0±0.05 | 0.5max. |
| **MMZ1005** | 0.65±0.1 | 1.15±0.1 | 2.0±0.05 | 0.8max. |
| **MMZ1608** | 1.1±0.2 | 1.9±0.2 | 4.0±0.1 | 1.1max. |
| **MMZ2012** | 1.5±0.2 | 2.3±0.2 | 4.0±0.1 | 1.1max. |




Dimensions in mm

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

TDK:

MMZ1608Y150B MMZ1608Y300B MMZ1608Y600B MMZ2012S151A MMZ1005S601A MMZ2012R600A MMZ1005S241C MMZ1608Y301B MMZ1608R601A MMZ1608R600A MMZ1005Y-301C MMZ1608B121C MMZ2012S181A MMZ1005S102C MMZ1608R150A MMZ2012R300A MMZ2012R301A MMZ1005S601C MMZ1608B601C MMZ1608R121A MMZ2012Y300B MMZ2012Y301B MMZ1608D800B MMZ2012Y601B MMZ2012Y600B MMZ1608S181A MMZ1608S102A MMZ2012Y102B MMZ2012Y121B MMZ1005Y-152C MMZ2012R102A MMZ2012R121A MMZ1608Y152B MMZ1608S301A MMZ2012S102A MMZ2012R601A MMZ1005Y-121C MMZ1608S121A MMZ1608S800A MMZ2012S800A MMZ1608Y601B MMZ2012D800B MMZ2012D121B MMZ2012S601A MMZ1005S121C MMZ1608S601A MMZ1005Y-241C MMZ1005S800C MMZ1005Y-400C MMZ1608D121B MMZ1005Y-471C MMZ2012S301A MMZ1608D301B MMZ1608R301A MMZ1608R300A MMZ1608S400A MMZ2012Y150B MMZ2012Y152B MMZ1608Y121B MMZ2012S400A MMZ2012R150A MMZ1608R102A MMZ1005Y-800C MMZ2012Y202B MMZ2012S121A MMZ1608B301C MMZ2012D301B MMZ1608A152E MMZ1608A252B MMZ1608Y102B MMZ1005B121C MMZ1005B601C MMZ1005B800C MMZ1005D100C MMZ1005D121C MMZ1005D220C MMZ1005D241C MMZ1005D330C MMZ1005D680C MMZ1005F330C MMZ1005F470C MMZ1005F560C MMZ1005Y102C MMZ1608S102AT MMZ1005A152E MMZ1005Y601C MMZ1005D121E MMZ1005D221E MMZ1005F470E MMZ1005F750E MMZ1005S182E MMZ1608B102C MMZ1608D100C MMZ1608D121C MMZ1608D220C MMZ1608D241C MMZ1608D500C MMZ1608D800C MMZ1608R601C MMZ1608Y152C