TDK

May 2018

Chip beads

For general signal line

MMZ series (for automotive)

MMZ2012 type

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 this 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 (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 general signal line

Product compatible with RoHS directive
Halogen-free
Compatible with lead-free solders
AEC-Q200

Overview of MMZ2012 type

FEATURES

- Noise reduction solution for general signal line.
- Various frequency characteristics with 4 materials of different features for countermeasures against everything from general signals to high-speed signals.

APPLICATION

Various ECUs, powertrains, body controls, and car multimedia (telematics).

PART NUMBER CONSTRUCTION

MMZ	2012	R	150	A	T	D25
Series name	**L×W×T dimensions (mm)**	**Material name**	**Impedance (Ω) at 100MHz**	**Characteristic type**	**Packaging style**	**Internal code**
	2012 2.0×1.25×0.85	D	151 150	A	T Taping	D25
		R		B		
		S				
		Y				

OPERATING TEMPERATURE RANGE, PACKAGE QUANTITY, PRODUCT WEIGHT

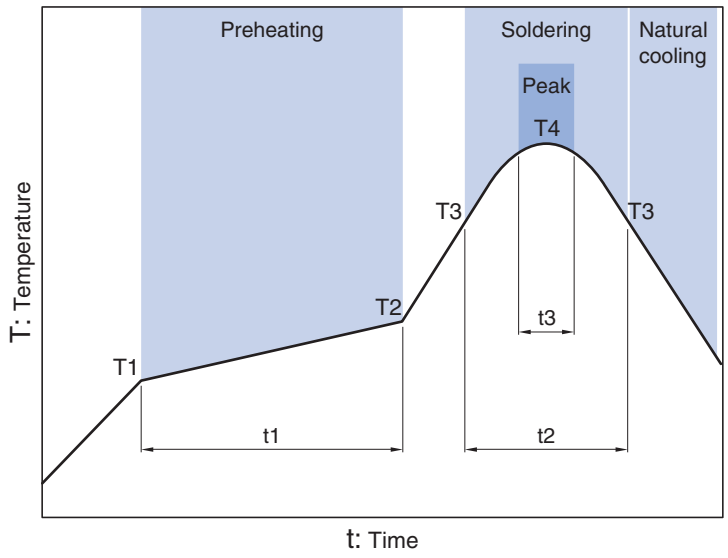
Type	Temperature ranges		Package quantity	Individual weight
	Operating temperature (°C)	Storage temperature* (°C)	(pieces/reel)	(mg)
MMZ2012	–55 to +125	–55 to +125	4,000	8

* The storage temperature range is for after the circuit board is mounted.

- RoHS Directive Compliant Product: See the following for more details.https://product.tdk.com/info/en/environment/rohs/index.html
- 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.

MMZ2012 type

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

MMZ2012 type

MATERIAL CHARACTERISTIC

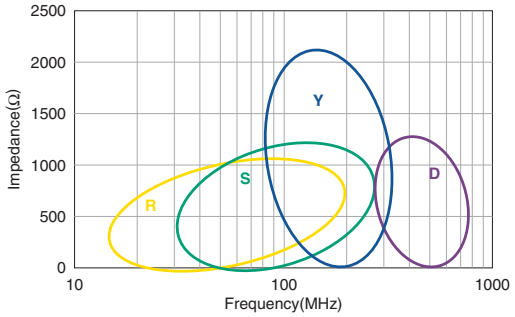
R material: For wide frequency applications calling for broad impedance characteristics. For digital signal line applications calling requiring good waveform integrity. Impedance values selected for effectiveness at 10 to 200MHz.

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.

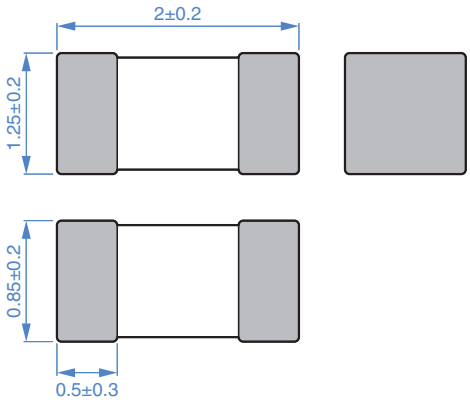
D material: For applications calling for low insertion loss at low frequencies and sharply increasing impedance at high frequencies. Designed for high impedance at high frequencies (300MHz to 1GHz) for signal line applications.

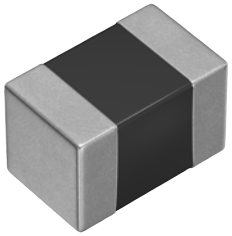
TYPICAL MATERIAL IMPEDANCE CHARACTERISTICS



MMZ2012 type

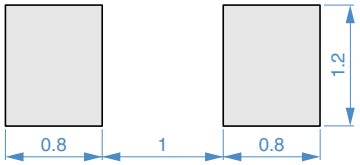
SHAPE & DIMENSIONS





Dimensions in mm

RECOMMENDED LAND PATTERN



Dimensions in mm

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	MMZ2012R150ATD25
30	±25%	0.05	1500	MMZ2012R300ATD25
60	±25%	0.10	1000	MMZ2012R600ATD25
120	±25%	0.12	800	MMZ2012R121ATD25
300	±25%	0.15	600	MMZ2012R301ATD25
600	±25%	0.20	500	MMZ2012R601ATD25
1000	±25%	0.30	500	MMZ2012R102ATD25
40	±25%	0.10	1000	MMZ2012S400ATD25
80	±25%	0.10	800	MMZ2012S800ATD25
120	±25%	0.15	800	MMZ2012S121ATD25
180	±25%	0.15	600	MMZ2012S181ATD25
300	±25%	0.20	600	MMZ2012S301ATD25
600	±25%	0.30	500	MMZ2012S601ATD25
1000	±25%	0.35	500	MMZ2012S102ATD25
15	±25%	0.05	1500	MMZ2012Y150BTD25
30	±25%	0.05	1500	MMZ2012Y300BTD25
60	±25%	0.10	1000	MMZ2012Y600BTD25
120	±25%	0.12	800	MMZ2012Y121BTD25
300	±25%	0.15	600	MMZ2012Y301BTD25
600	±25%	0.20	500	MMZ2012Y601BTD25
1000	±25%	0.30	500	MMZ2012Y102BTD25
1500	±25%	0.40	500	MMZ2012Y152BTD25
2000	±25%	0.50	400	MMZ2012Y202BTD25
80	±25%	0.30	500	MMZ2012D800BTD25
120	±25%	0.30	500	MMZ2012D121BTD25
300	±25%	0.50	400	MMZ2012D301BTD25

○ Measurement equipment

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

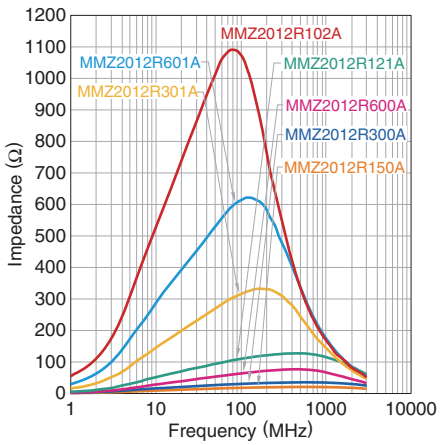
＊ Equivalent measurement equipment may be used.

MMZ2012 type

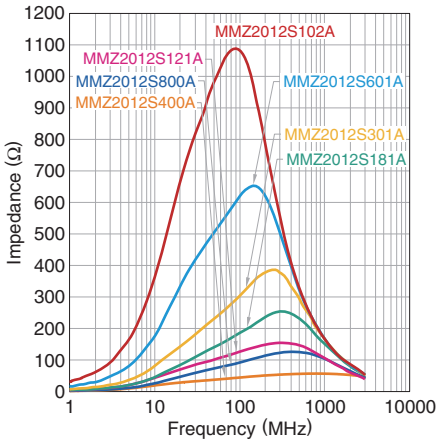
ELECTRICAL CHARACTERISTICS

Z VS. FREQUENCY CHARACTERISTICS (BY SERIES)

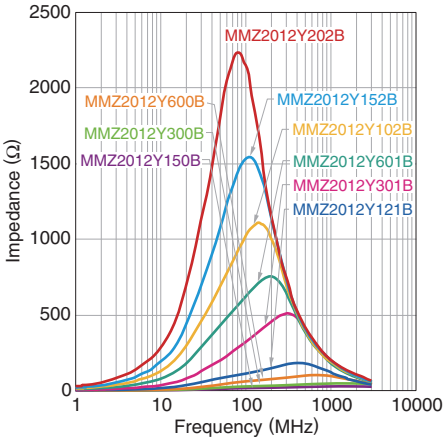
MMZ2012R series



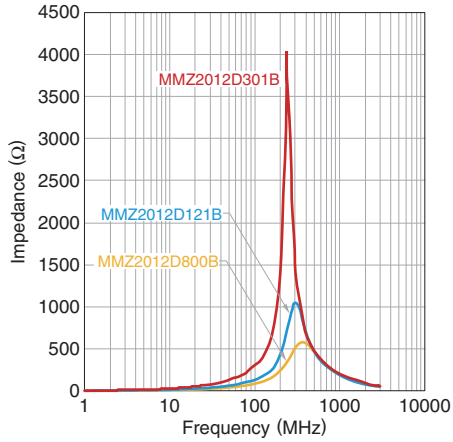
MMZ2012S series



MMZ2012Y series



MMZ2012D series

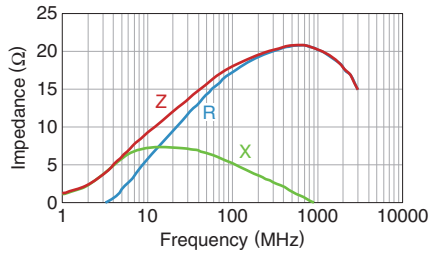


MMZ2012 type

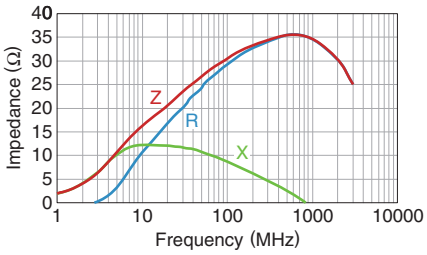
ELECTRICAL CHARACTERISTICS

Z, X, R VS. FREQUENCY CHARACTERISTICS

MMZ2012R150ATD25



MMZ2012R300ATD25



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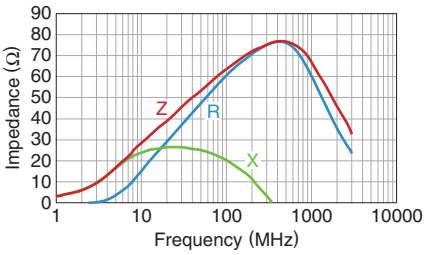

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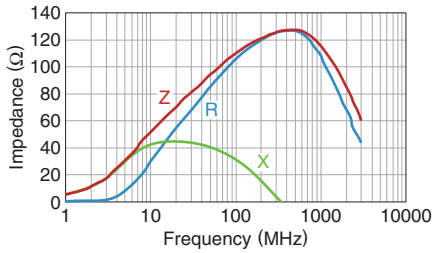

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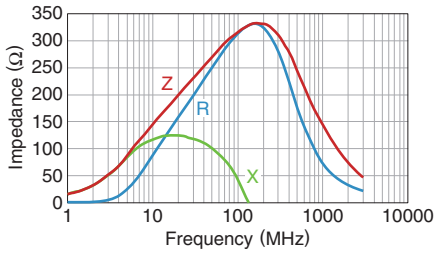

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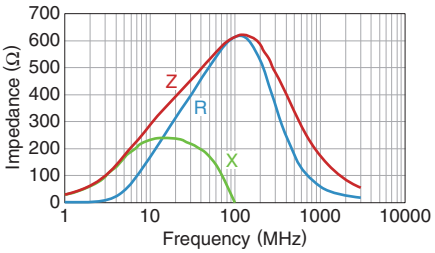

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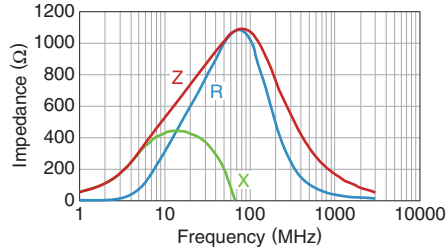
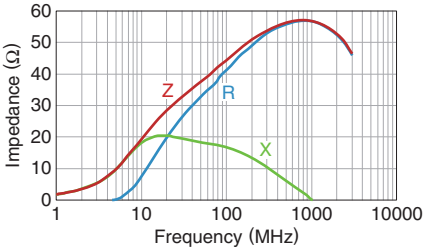
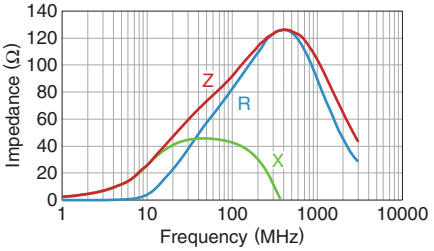


MMZ2012S400ATD25



MMZ2012S800ATD25



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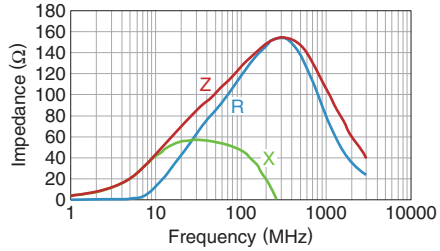

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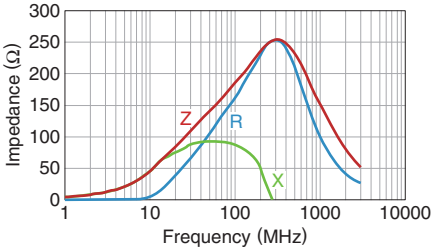

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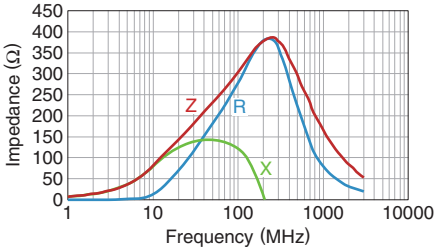

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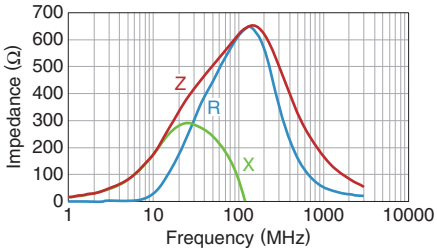

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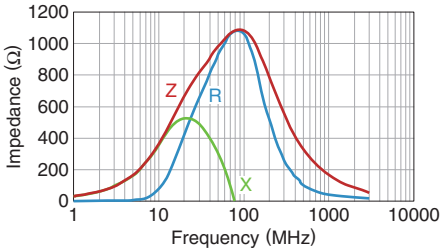
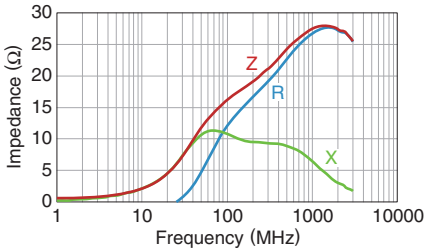


MMZ2012Y150BTD25

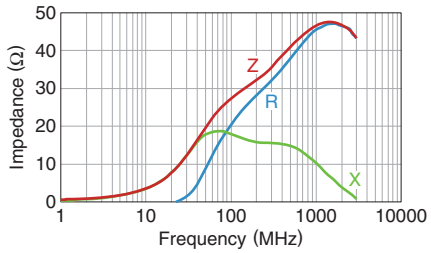


MMZ2012 type

ELECTRICAL CHARACTERISTICS

Z, X, R VS. FREQUENCY CHARACTERISTICS

MMZ2012Y300BTD25



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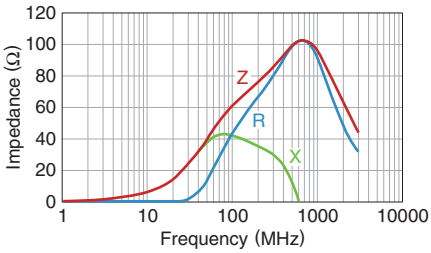

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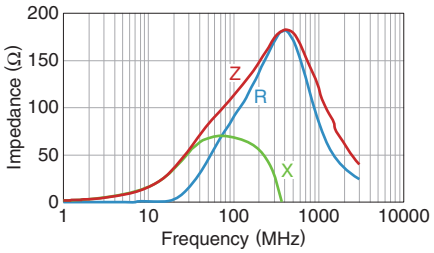

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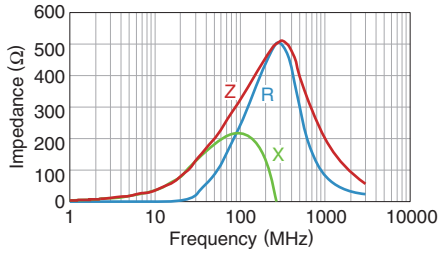

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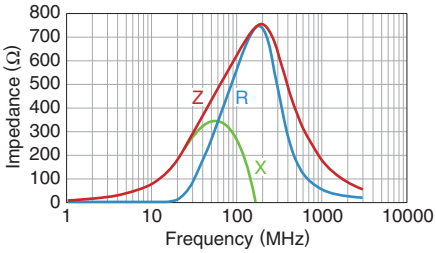

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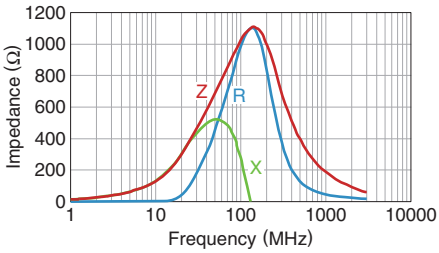

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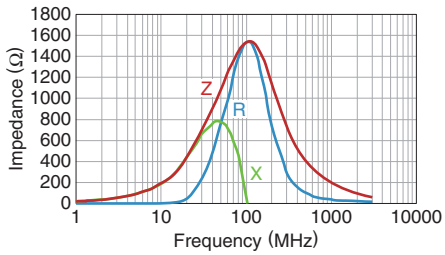

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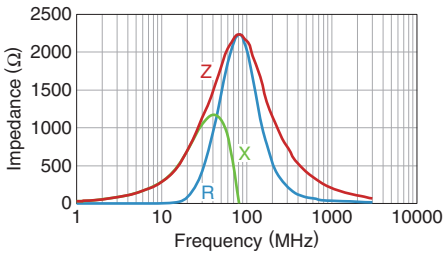

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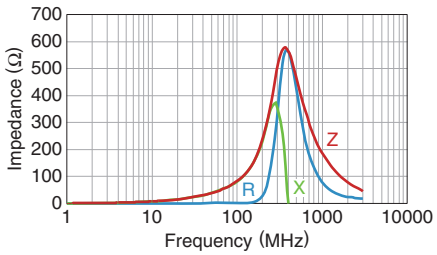

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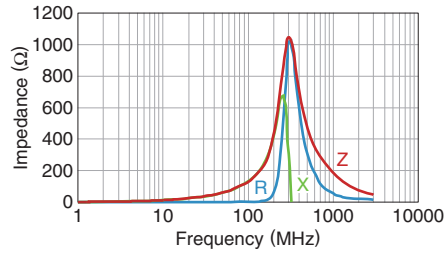

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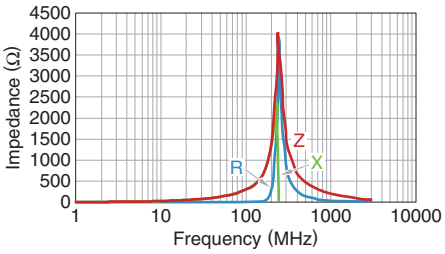
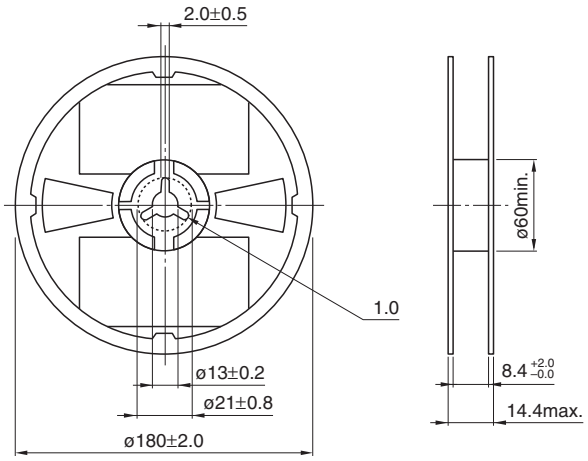


MMZ2012 type

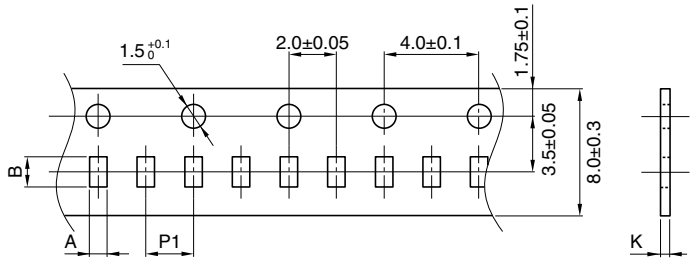
■PACKAGING STYLE

□REEL DIMENSIONS



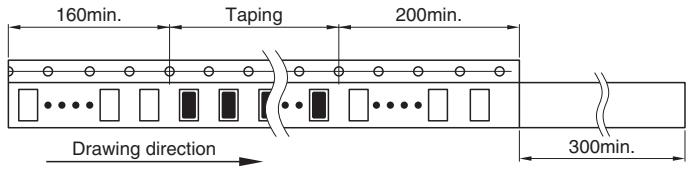
Dimensions in mm

□TAPE DIMENSIONS



Dimensions in mm

Type	A	B	P1	K
MMZ2012	1.5±0.2	2.3±0.2	4.0±0.1	1.1max.



Dimensions in mm