



June 2018

Chip beads

For power line
GHz noise countermeasure

MPZ-E series (for automotive)

MPZ1005-E type

MPZ-E1005-E 1005[0402 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	(8) Public information-processing equipment
(2) Transportation equipment (electric trains, ships, etc.)	(9) Military equipment
(3) Medical equipment	(10) Electric heating apparatus, burning equipment
(4) Power-generation control equipment	(11) Disaster prevention/crime prevention equipment
(5) Atomic energy-related equipment	(12) Safety equipment
(6) Seabed equipment	(13) Other applications that are not considered general-purpose applications
(7) Transportation control equipment	

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 power line

GHz noise countermeasure

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

Overview of MPZ1005-E type

■ FEATURES

- Noise reduction solution for power line.
- Lineup includes products with material S, which can attain impedance from low frequency bands to high frequency bands at GHz bands, and products with material F, where impedance is steeply raised at GHz bands.
- Compared to the MPZ series, it can attain high impedance at GHz bands.
- Compared to the MMZ-E series, has low direct current resistance for compatibility with large currents, optimal for low power consumption.
- Performs well even in signal lines where low direct current resistance is required.

■ APPLICATION

Various ECUs, various modules, car multimedia (telematics).

■ PART NUMBER CONSTRUCTION

MPZ	1005	S	121	E	T	D25
Series name	LxWxT dimensions (mm)	Material name	Impedance (Ω) at 100MHz	Characteristic type	Packaging style	Internal code
	1005 1.0×0.5×0.5	F S	121 120 221 220	E	T Taping	D25

■ OPERATING TEMPERATURE RANGE, PACKAGE QUANTITY, PRODUCT WEIGHT

Type	Temperature ranges		Package quantity (pieces/reel)	Individual weight (mg)
	Operating temperature* (°C)	Storage temperature** (°C)		
MPZ1005-E	-55 to +125	-55 to +125	10,000	1

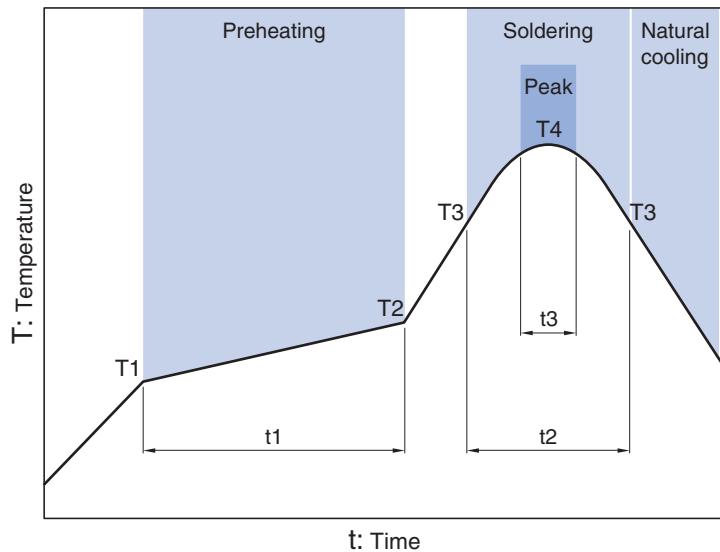
* The storage temperature range is for after the circuit board is mounted.

- 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.

 Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use.
Please note that the contents may change without any prior notice due to reasons such as upgrading.

MPZ1005-E type

■ RECOMMENDED REFLOW PROFILE



Preheating			Soldering		Peak	
Temp.	Temp.	Time	Temp.	Time	Temp.	Time
T_1 150°C	T_2 180°C	t_1 60 to 120s	T_3 230°C	t_2 30 to 60s	T_4 250 to 260°C	t_3 10s

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MPZ1005-E type

■ MATERIAL CHARACTERISTIC

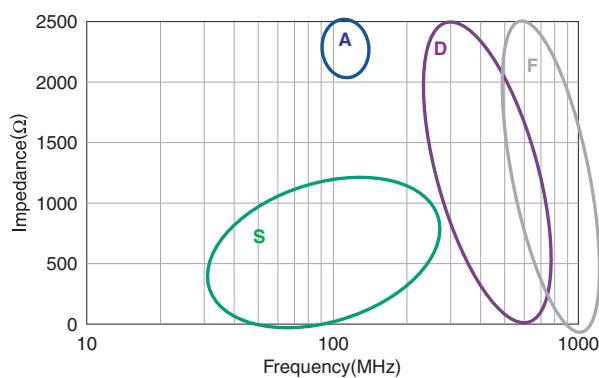
S material: Standard type that features impedance characteristics similar to those of a typical ferrite core. For signal line applications in which the blocking region is near 100MHz. Impedance values selected for effectiveness at 40 to 300MHz.

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).

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

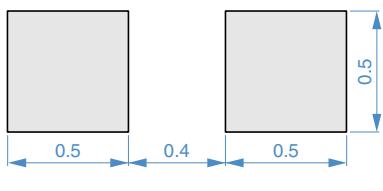


MPZ1005-E type

■ SHAPE & DIMENSIONS



■ RECOMMENDED LAND PATTERN



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MPZ1005-E type

■ ELECTRICAL CHARACTERISTICS

□ CHARACTERISTICS SPECIFICATION TABLE

Impedance		DC resistance		Rated current	Part No.
[100MHz] (Ω)	[1GHz] (Ω)	Tolerance	(Ω)max.	(A)max.	
120	±25%	200	±40%	0.095	1.50
220	±25%	350	±40%	0.220	0.90
330	±25%	550	±40%	0.280	0.70
150	±25%	350	±40%	0.180	0.80
330	±25%	800	±40%	0.300	0.60
33	±25%	200	±40%	0.180	0.80
75	±25%	500	±40%	0.300	0.60
33	±25%	400	±40%	0.350	0.55
47	±25%	600	±40%	0.450	MPZ1005F470ETD25

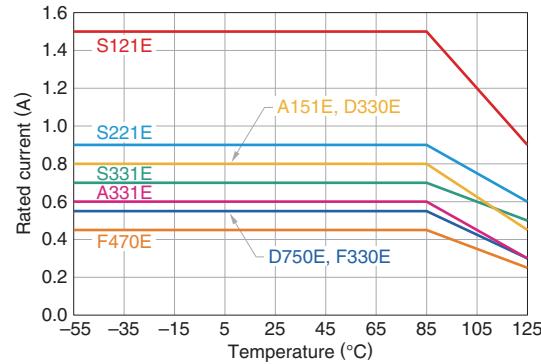
* Please refer to the graph of rated current vs. temperature characteristics (derating) about the rating current at 85°C or more in temperature of the product.

Measurement equipment

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

* Equivalent measurement equipment may be used.

Rated current vs. temperature characteristics (derating)

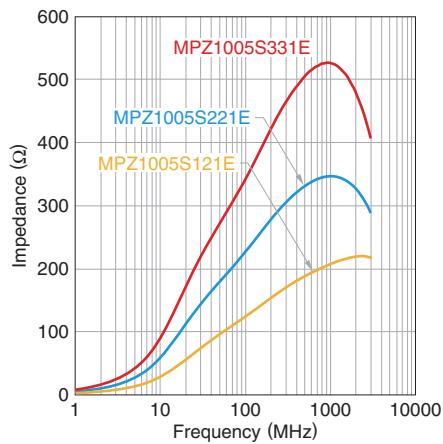


MPZ1005-E type

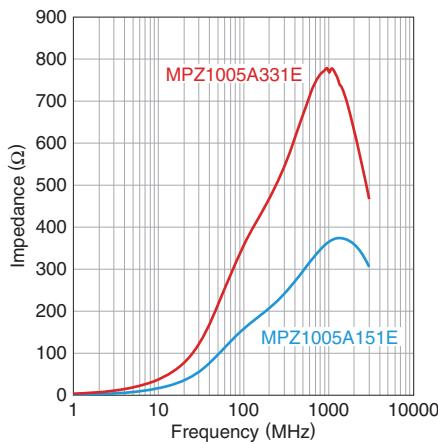
■ ELECTRICAL CHARACTERISTICS

□ Z VS. FREQUENCY CHARACTERISTICS (BY SERIES)

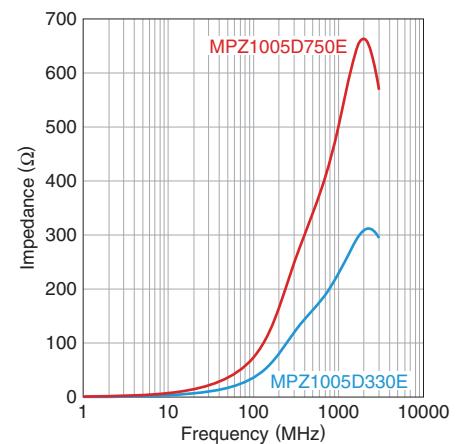
MPZ1005S-E series



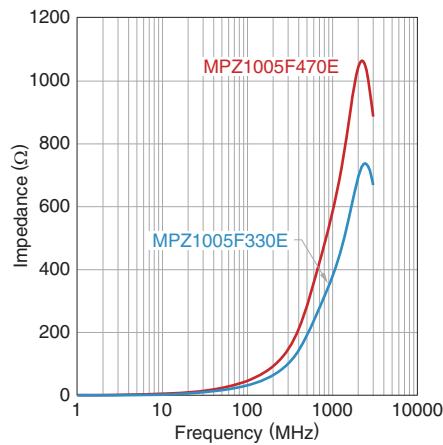
MPZ1005A-E series



MPZ1005D-E series



MPZ1005F-E series



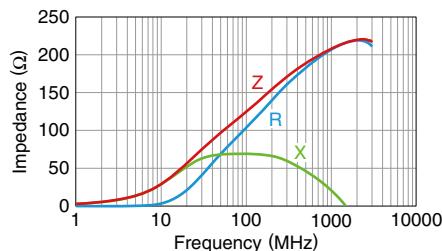
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MPZ1005-E type

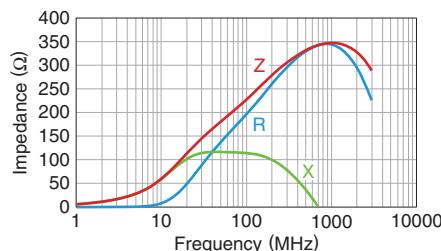
■ ELECTRICAL CHARACTERISTICS

□ Z, X, R VS. FREQUENCY CHARACTERISTICS

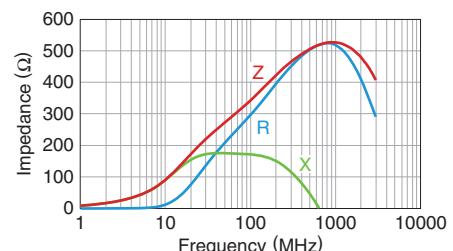
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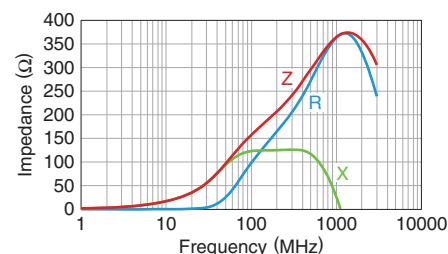
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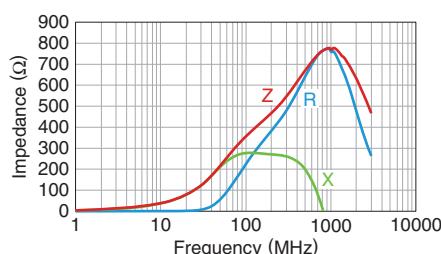
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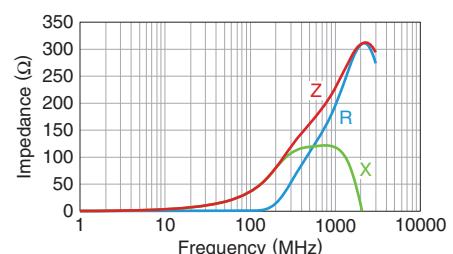
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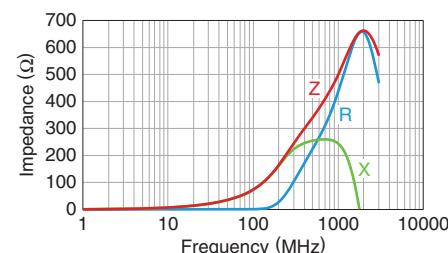
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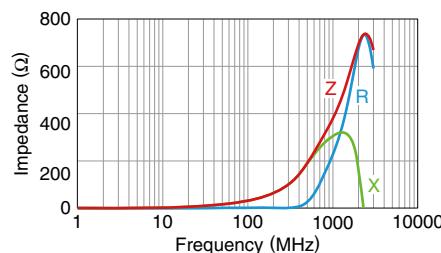
MPZ1005D330ETD25



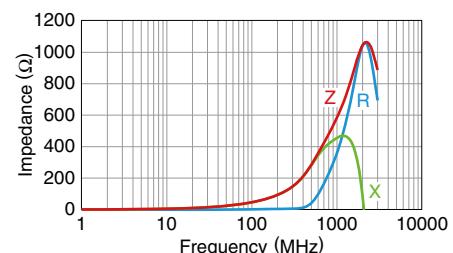
MPZ1005D750ETD25



MPZ1005F330ETD25



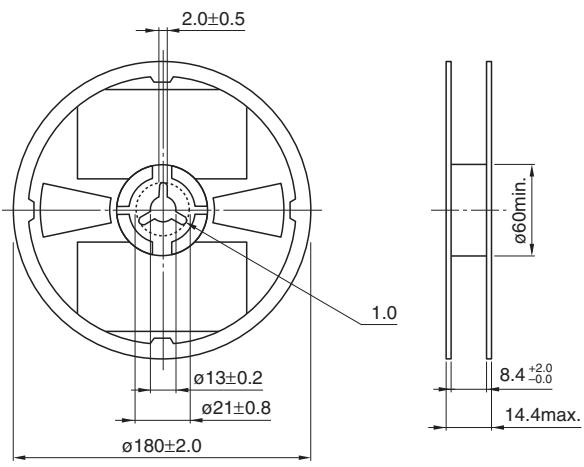
MPZ1005F470ETD25



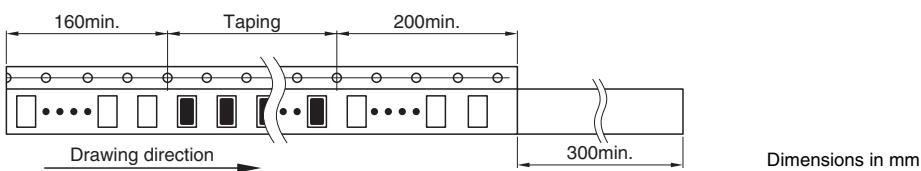
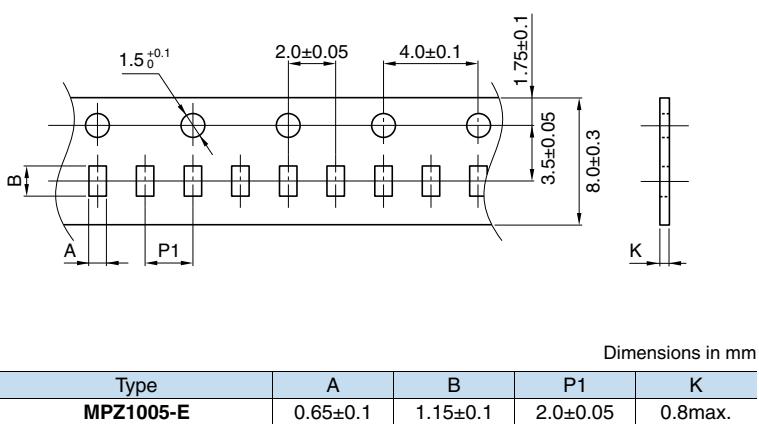
MPZ1005-E type

■ PACKAGING STYLE

□ REEL DIMENSIONS



□ TAPE DIMENSIONS



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