

Chip Beads

For power line

MPZ series

Type:	MPZ0603	0603[0201 inch]*
	MPZ1005	1005[0402 inch]
	MPZ1608	1608[0603 inch]
	MPZ2012	2012[0805 inch]
	MPZ1005-E	1005[0402 inch]
* Dimensions Code JIS[EIA]		

Issue date: September 2012

- All specifications are subject to change without notice.
- Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.

Chip Beads

For Power Line

Conformity to RoHS Directive

MPZ Series MPZ0603

FEATURES

- This chip bead implements a 0603 shape in its capacity as an EMC countermeasure component, and it supports compact devices that need smaller spaces.
- This product can cope with a high current due to its low DC resistance. It is also most suitable for lower power consumption.
- Because of its low DC resistance, it is useful for audio lines.
- No cross talk with closed magnetic circuit structural design.
- It is a product conforming to RoHS directive.

APPLICATIONS

Removal of power line noises of cellular phones, PCs, note PCs, TV tuners, STBs, audio players, DVDs, DSCs, DVCs, game machines, digital photo frames, etc.

PRODUCT IDENTIFICATION

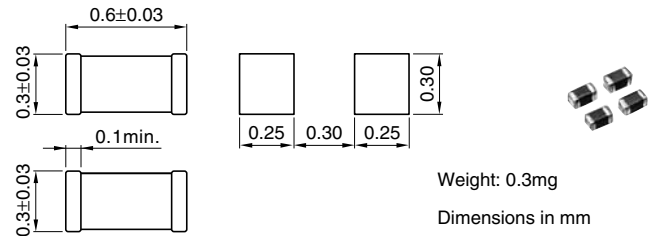
MPZ	0603	S	220	C	T	
(1)	(2)	(3)	(4)	(5)	(6)	(7)

- (1) Series name
 (2) Dimensions L×W
 (3) Type name
 (4) Impedance
 220: 22Ω at 100MHz
 (5) Characteristic type
 (6) Packaging style
 T:Taping(reel)
 (7) TDK internal code

HANDLING AND PRECAUTIONS

- Before soldering, be sure to preheat components. The preheating temperature should be set so that the temperature difference between the solder temperature and product temperature does not exceed 150°C.
- After mounting components onto the printed circuit board, do not apply stress through board bending or mishandling.
- Do not expose the inductors to stray magnetic fields.
- Avoid static electricity discharge during handling.
- When hand soldering, apply the soldering iron to the printed circuit board only. Temperature of the iron tip should not exceed 350°C. Soldering time should not exceed 3 seconds.

SHAPES AND DIMENSIONS/RECOMMENDED PC BOARD PATTERN



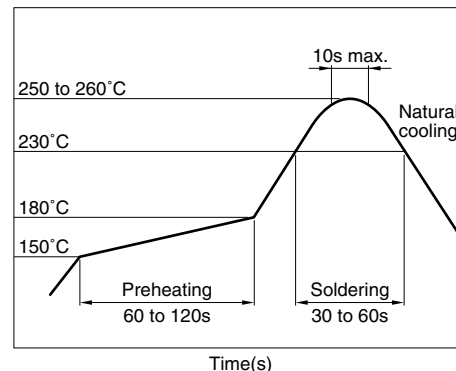
SPECIFICATIONS

Operating temperature range	-55 to +125°C
Storage temperature range	-55 to +125°C(After mount)

PACKAGING STYLE AND QUANTITIES

Packaging style	Quantity
Taping	15000 pieces/reel

RECOMMENDED SOLDERING CONDITION REFLOW SOLDERING



ELECTRICAL CHARACTERISTICS

Part No.	Impedance (Ω)[100MHz]*	DC resistance (Ω)max.	Rated current (mA)max.
MPZ0603S220C	22±25%	0.065	1000
MPZ0603S330C	33±25%	0.090	750
MPZ0603S470C	47±25%	0.120	500

* Test equipment: E4991A or equivalent
 Test tool: 16197 or equivalent
 Test temperature: 25±10°C

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• Please contact our Sales office when your application is considered the following:
 The device's failure or malfunction may directly endanger human life (e.g. application for automobile/aircraft/medical/nuclear power devices, etc.)

• All specifications are subject to change without notice.

This graph shows the impedance of three different components as a function of frequency. The x-axis represents Frequency in MHz on a logarithmic scale from 1 to 10,000. The y-axis represents Impedance in Ohms (Ω) on a linear scale from 0 to 100. The three components are MPZ0603S470C (highest impedance), MPZ0603S330C (middle impedance), and MPZ0603S220C (lowest impedance). All three components show a similar trend: impedance increases with frequency, reaches a peak, and then slightly decreases at higher frequencies.

Frequency (MHz)	MPZ0603S470C (Ω)	MPZ0603S330C (Ω)	MPZ0603S220C (Ω)
1	~0.5	~0.5	~0.5
10	~5	~3	~2
100	~45	~25	~15
1000	~85	~60	~40
10000	~80	~65	~40

The graph plots Impedance (Ω) on the y-axis (0 to 45) against Frequency (MHz) on a logarithmic x-axis (1 to 10,000). Three curves are shown: Z (total impedance, solid line), R (resistor impedance, dashed line), and X (reactance, solid line). Z and R both increase with frequency, intersecting at approximately 300 MHz. X increases to a peak of about 14 Ω at 300 MHz and then decreases.

The graph shows the frequency response of a series RLC circuit. The y-axis represents Impedance in Ohms (Ω) on a linear scale from 0 to 70. The x-axis represents Frequency in Megahertz (MHz) on a logarithmic scale from 1 to 10,000. Three curves are plotted: Z (total impedance, solid line), R (resistance, dashed horizontal line at 20 Ω), and X (reactance, solid line). The reactance X starts at 0 Ω at 1 MHz, rises to a peak of 20 Ω at approximately 100 MHz, and then falls back to 0 Ω at 10,000 MHz. The total impedance Z starts at 20 Ω at 1 MHz, decreases to a minimum of about 10 Ω at 100 MHz, and then increases to about 60 Ω at 10,000 MHz. The resistance R is constant at 20 Ω .

The graph shows the frequency response of a series RLC circuit. The x-axis is Frequency (MHz) on a logarithmic scale from 1 to 10,000. The y-axis is Impedance (Ω) on a linear scale from 0 to 100. The solid line represents the total impedance Z , which peaks at 85 Ω at 1500 MHz. The dashed horizontal line represents the resistance R , which is constant at 30 Ω . The dashed curve represents the reactance X , which peaks at 30 Ω at 100 MHz and crosses zero at 1500 MHz.

Technical drawing of a circular component, showing front and side views with dimensions in mm.

Front View Dimensions:

- Overall Diameter: $\varnothing 180 \pm 2.0$
- Central Hole Diameter: $\varnothing 13 \pm 0.2$
- Flange Thickness: 1.0
- Spoke Width (at base): 2.0 ± 0.5
- Spoke Width (at top): $\varnothing 21 \pm 0.8$

Side View Dimensions:

- Overall Height: 14.4 max.
- Central Section Height: $8.4^{+2.0}_{-0.0}$
- Minimum Diameter: $\varnothing 60 \text{ min.}$

Dimensions in mm

Technical drawing of a mechanical part, showing cross-sectional and side views with dimensions and tolerances.

Top View (Cross-section):

- Overall length: 160 min.
- Overall width: 8.0 ± 0.3
- Top surface thickness: 1.75 ± 0.1
- Bottom surface thickness: 0.68 ± 0.05
- Distance from left edge to first sprocket hole: 0.38 ± 0.05
- Distance between sprocket holes: 4.0 ± 0.1
- Distance from last sprocket hole to right edge: 2.0 ± 0.05
- Distance from left edge to first cavity: 2.0 ± 0.05
- Distance between cavities: 2.0 ± 0.05
- Distance from last cavity to right edge: 2.0 ± 0.05
- Feature labels: Sprocket hole, Cavity.
- Dimensional tolerance: $1.5^{+0.1}_{-0.0}$
- Left edge detail: 0.5 max.

Side View (Elevation):

- Overall length: 300 min.
- Overall width: 160 min.
- Feature labels: Taping, Drawing direction.

Dimensions in mm

001-08 / 20120925 / e9413_mpz

Chip Beads For Power Line

Conformity to RoHS Directive

MPZ Series MPZ1005

FEATURES

- TDK has manufactured MPZ1005 type as EMI countermeasure product for power line.
- This type is the best for energy-saving in the low DC resistance.
- No cross talk with closed magnetic circuit structural design.
- It is a product conforming to RoHS directive.

APPLICATIONS

Removal of power line noises of cellular phones, PCs, note PCs, TVs, TV tuners, STBs, audio players, DVDs, DSCs, DVCs, game machines, digital photo frames, car navigation system, PNDs, etc.

PRODUCT IDENTIFICATION

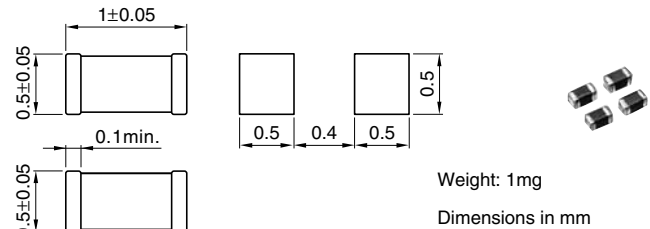
MPZ	1005	S	121	C	T			
(1)	(2)	(3)	(4)	(5)	(6)	(7)		

- (1) Series name
 (2) Dimensions L×W
 (3) Type name
 (4) Impedance
 121: 120Ω at 100MHz
 (5) Characteristic type
 (6) Packaging style
 T:Taping(reel)
 (7) TDK internal code

HANDLING AND PRECAUTIONS

- Before soldering, be sure to preheat components. The preheating temperature should be set so that the temperature difference between the solder temperature and product temperature does not exceed 150°C.
- After mounting components onto the printed circuit board, do not apply stress through board bending or mishandling.
- Do not expose the inductors to stray magnetic fields.
- Avoid static electricity discharge during handling.
- When hand soldering, apply the soldering iron to the printed circuit board only. Temperature of the iron tip should not exceed 350°C. Soldering time should not exceed 3 seconds.

SHAPES AND DIMENSIONS/RECOMMENDED PC BOARD PATTERN



SPECIFICATIONS

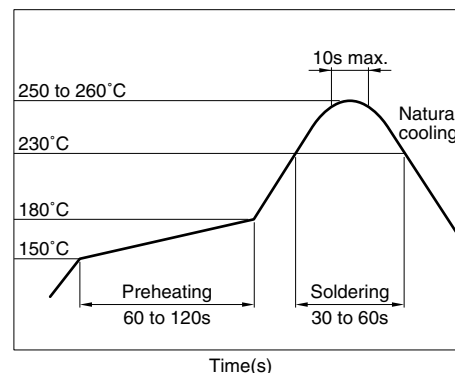
Operating temperature range	−40 to +85°C
Storage temperature range	−40 to +85°C(After mount)

PACKAGING STYLE AND QUANTITIES

Packaging style	Quantity
Taping	10000 pieces/reel

RECOMMENDED SOLDERING CONDITION

REFLOW SOLDERING



ELECTRICAL CHARACTERISTICS

Part No.	Impedance (Ω)[100MHz]*	DC resistance (Ω)max.	Rated current (A)max.
MPZ1005S100C	10±5Ω	0.025	2.0
MPZ1005S300C	30±10Ω	0.035	1.7
MPZ1005S600C	60±25%	0.060	1.5
MPZ1005S121C	120±25%	0.090	1.2
MPZ1005Y900C	90±25%	0.100	1.2

* Test equipment: E4991A or equivalent
 Test tool: 16192A or equivalent
 Test temperature: 25±10°C

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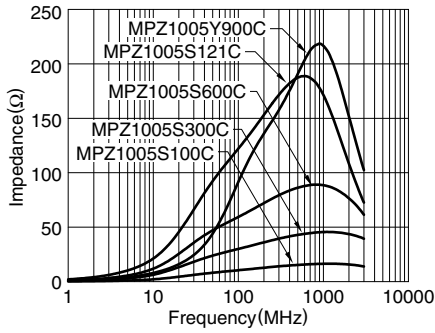
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TYPICAL ELECTRICAL CHARACTERISTICS

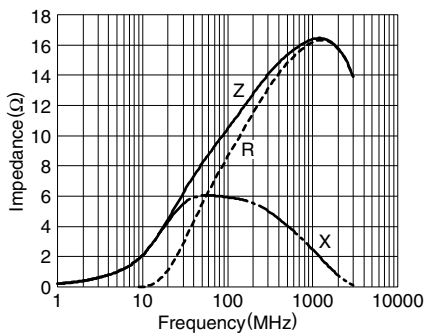
Z FREQUENCY CHARACTERISTICS

MPZ1005S/MPZ1005Y SERIES

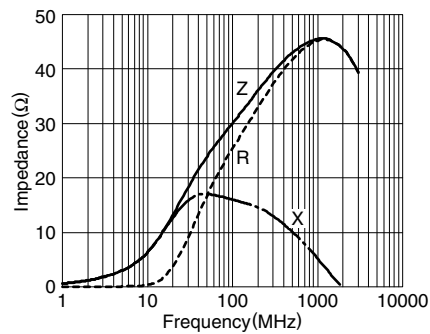


Z, X, R vs. FREQUENCY CHARACTERISTICS

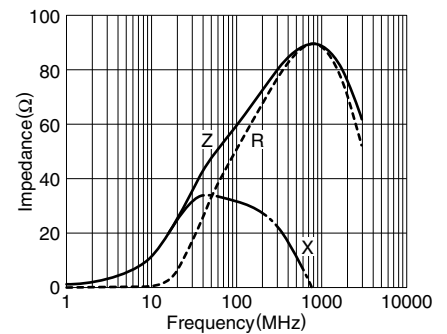
MPZ1005S100C



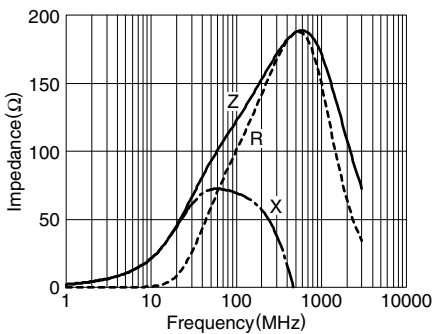
MPZ1005S300C



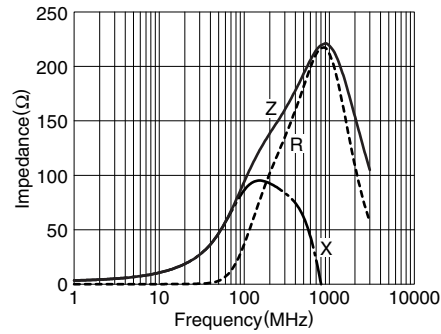
MPZ1005S600C



MPZ1005S121C

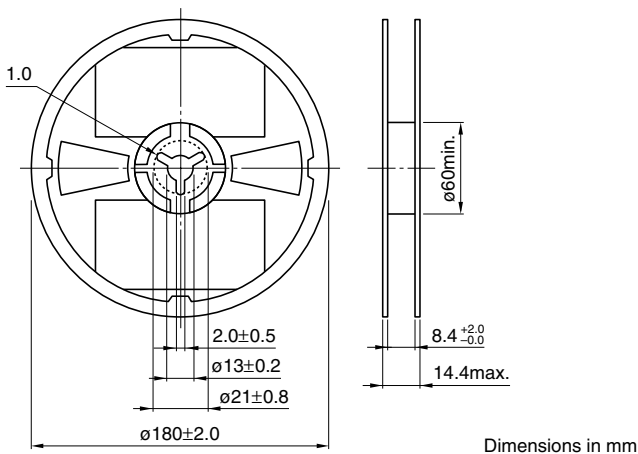


MPZ1005Y900C

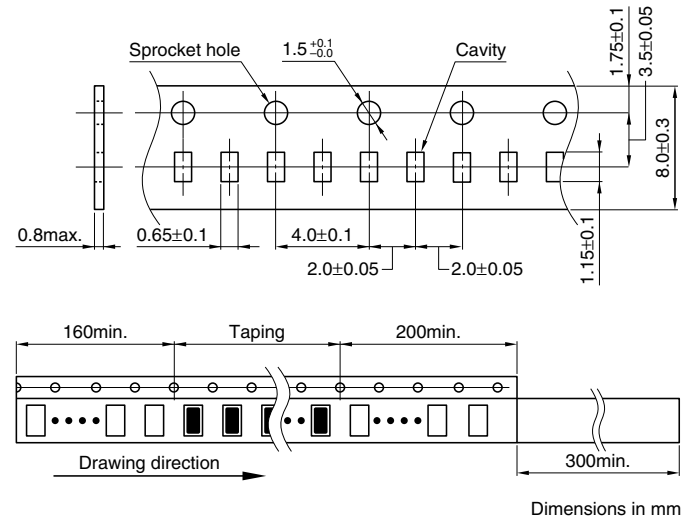


PACKAGING STYLES

REEL DIMENSIONS



TAPE DIMENSIONS



• All specifications are subject to change without notice.

Chip Beads

For Power Line

Conformity to RoHS Directive

MPZ Series MPZ1608

FEATURES

- This type is the best for energy-saving in the low DC resistance.
- The products contain no lead and also support lead-free soldering.
- It is a product conforming to RoHS directive.

APPLICATIONS

Removal of power line noises of cellular phones, PCs, note PCs, TVs, TV tuners, STBs, audio players, DVDs, DSCs, DVCs, game machines, digital photo frames, car navigation system, PNDs, etc.

PRODUCT IDENTIFICATION

MPZ	1608	S	221	A	T	☐ ☐ ☐
(1)	(2)	(3)	(4)	(5)	(6)	(7)

- (1) Series name
 (2) Dimensions L×W
 (3) Type name
 (4) Impedance
 221: 220Ω at 100MHz
 (5) Characteristic type
 (6) Packaging style
 T: Taping
 (7) TDK internal code

HANDLING AND PRECAUTIONS

- Before soldering, be sure to preheat components. The preheating temperature should be set so that the temperature difference between the solder temperature and product temperature does not exceed 150°C.
- After mounting components onto the printed circuit board, do not apply stress through board bending or mishandling.
- Do not expose the inductors to stray magnetic fields.
- Avoid static electricity discharge during handling.
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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.

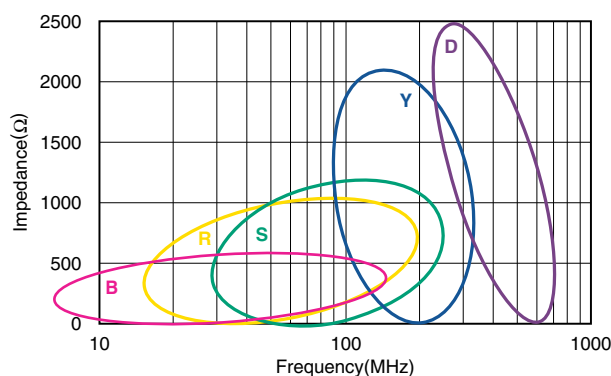
For signal line applications in which the blocking region is near 100MHz. Impedance values selected for effectiveness at 40 to 300MHz.

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.

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 CHARACTERISTICS

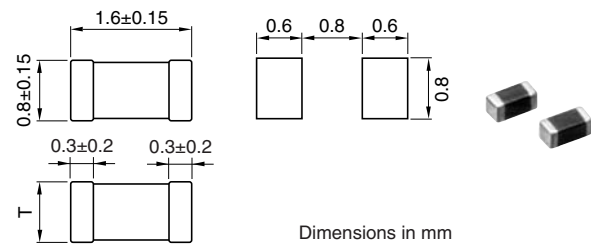


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SHAPES AND DIMENSIONS/RECOMMENDED PC BOARD PATTERN



Thickness(T)	Weight
0.6±0.15mm	3mg
0.8±0.15mm	4mg

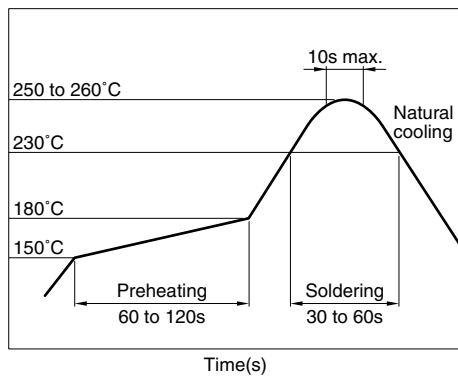
SPECIFICATIONS

Operating temperature range	-55 to +125°C
Storage temperature range	-55 to +125°C(After mount)

PACKAGING STYLE AND QUANTITIES

Packaging style	Quantity
Taping	4000 pieces/reel

RECOMMENDED SOLDERING CONDITION REFLOW SOLDERING



ELECTRICAL CHARACTERISTICS

Part No.	Impedance (Ω)[100MHz]*1	DC resistance (Ω)max.	Rated current*2 (A)max.	Thickness T(mm)
MPZ1608B471A	470±25%	0.150	1.0	0.8
MPZ1608S300A	30±10 Ω	0.010	5.0	0.6
MPZ1608S600A	60±25%	0.020	3.5	0.6
MPZ1608S101A	100±25%	0.030	3.0	0.6
MPZ1608S121A	120±25%	0.045	2.0	0.6
MPZ1608S181A	180±25%	0.050	2.0	0.6
MPZ1608S221A	220±25%	0.050	2.2	0.8
MPZ1608S331A	330±25%	0.080	1.7	0.8
MPZ1608R391A	390±25%	0.120	1.2	0.8
MPZ1608S471A	470±25%	0.150	1.0	0.8
MPZ1608S601A	600±25%	0.150	1.0	0.8
MPZ1608S102A	1000±25%	0.300	0.8	0.8
MPZ1608Y600B	60±25%	0.030	2.3	0.8
MPZ1608Y101B	100±25%	0.040	2.0	0.8
MPZ1608Y151B	150±25%	0.050	1.8	0.8
MPZ1608Y221B	220±25%	0.100	1.5	0.8
MPZ1608D300B	30±10 Ω	0.060	1.8	0.8
MPZ1608D600B	60±25%	0.100	1.2	0.8
MPZ1608D101B	100±25%	0.150	1.0	0.8

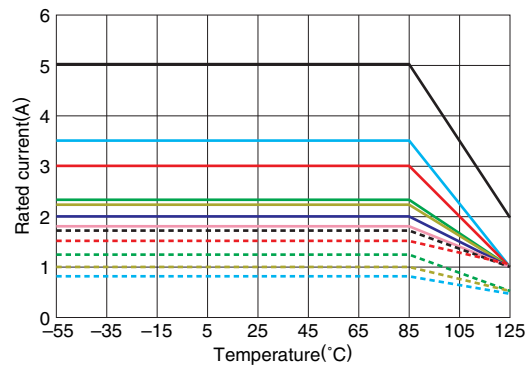
*1 Test equipment: E4991A or equivalent

Test tool: 16192A or equivalent

Test temperature: 25±10°C

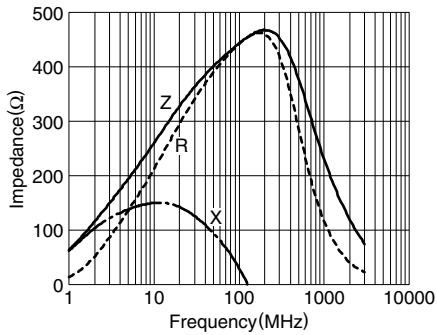
*2 Please refer to the graph of RATED CURRENT vs. TEMPERATURE CHARACTERISTICS(DERATING) about the rating current at 85°C or more in temperature of the product.

RATED CURRENT vs. TEMPERATURE CHARACTERISTICS (DERATING)

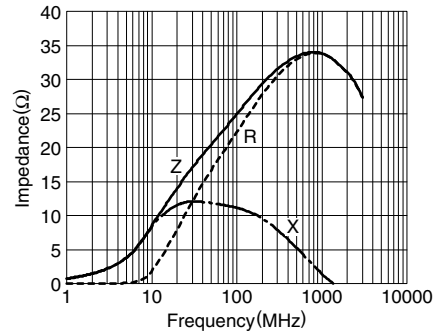


S300A	S600A	S101A	Y600B
S221A	S121A,S181A,Y101B	Y151B,D300B	
S331A	Y221B	R391A,D600B	
B471A,S471A,S601A,D101B	S102A		

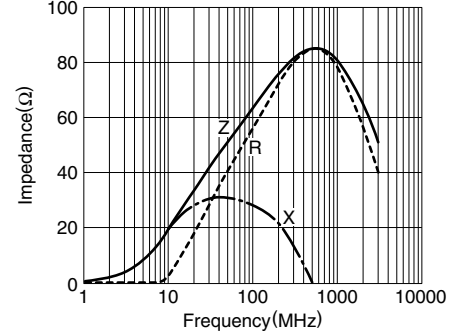
TYPICAL ELECTRICAL CHARACTERISTICS
Z, X, R vs. FREQUENCY CHARACTERISTICS
MPZ1608B471A



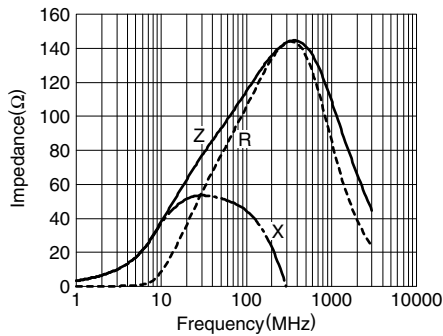
MPZ1608S300A



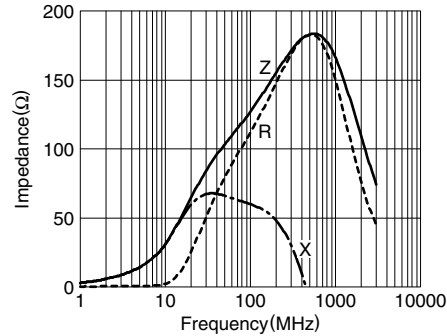
MPZ1608S600A



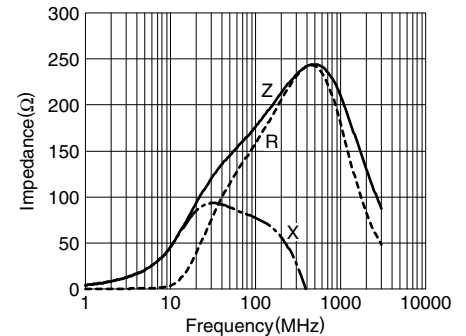
MPZ1608S101A



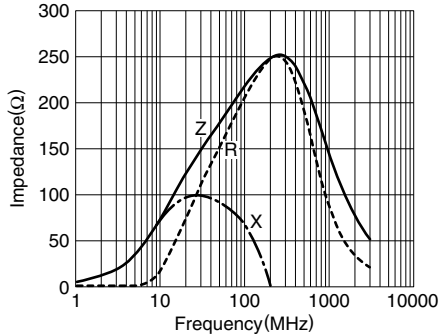
MPZ1608S121A



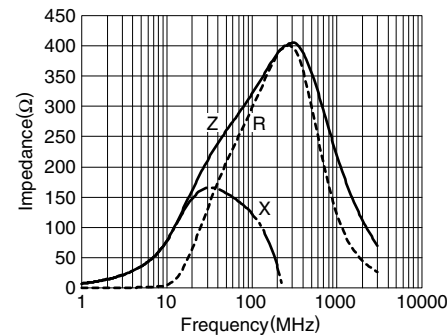
MPZ1608S181A



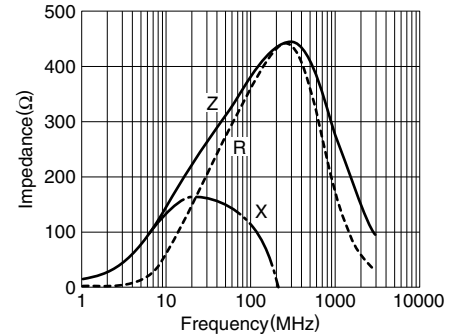
MPZ1608S221A



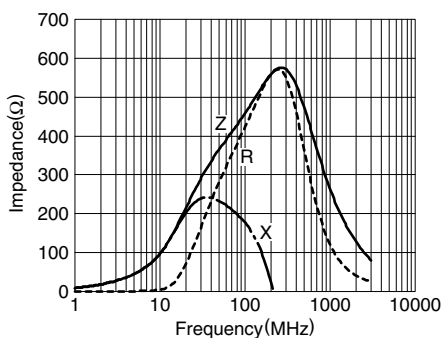
MPZ1608S331A



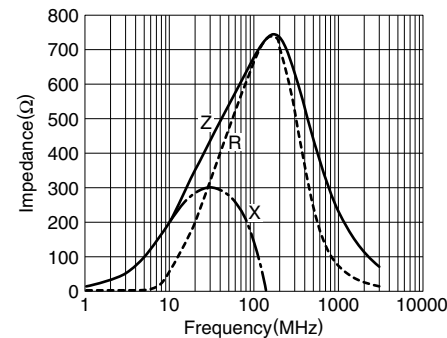
MPZ1608R391A



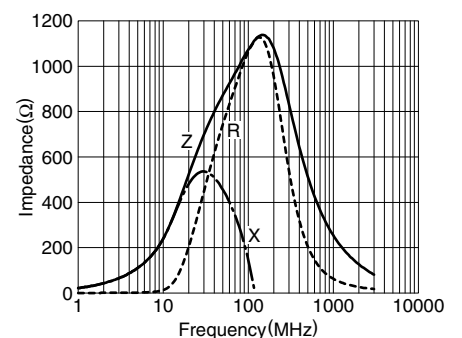
MPZ1608S471A



MPZ1608S601A



MPZ1608S102A



Chip Beads

For Power Line

Conformity to RoHS Directive

MPZ Series MPZ2012

FEATURES

- The MPZ series are multilayer chip impeders for power supply line applications.
- High miniaturized, these parts nonetheless exhibit low DC resistance and high current handling capability.
- The products contain no lead and also support lead-free soldering.
- It is a product conforming to RoHS directive.

APPLICATIONS

Removal of power line noises of cellular phones, PCs, note PCs, TVs, TV tuners, STBs, audio players, DVDs, DSCs, DVCs, game machines, digital photo frames, car navigation system, PNDs, etc.

PRODUCT IDENTIFICATION

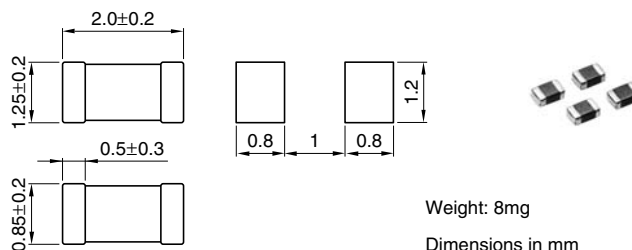
MPZ	2012	S	331	A	T	☐ ☐ ☐
(1)	(2)	(3)	(4)	(5)	(6)	(7)

- (1) Series name
 (2) Dimensions L×W
 (3) Type name
 (4) Impedance
 331: 330Ω at 100MHz
 (5) Characteristic type
 (6) Packaging style
 T: Taping
 (7) TDK internal code

HANDLING AND PRECAUTIONS

- Before soldering, be sure to preheat components. The preheating temperature should be set so that the temperature difference between the solder temperature and product temperature does not exceed 150°C.
- After mounting components onto the printed circuit board, do not apply stress through board bending or mishandling.
- Do not expose the inductors to stray magnetic fields.
- Avoid static electricity discharge during handling.
- When hand soldering, apply the soldering iron to the printed circuit board only. Temperature of the iron tip should not exceed 350°C. Soldering time should not exceed 3 seconds.

SHAPES AND DIMENSIONS/RECOMMENDED PC BOARD PATTERN



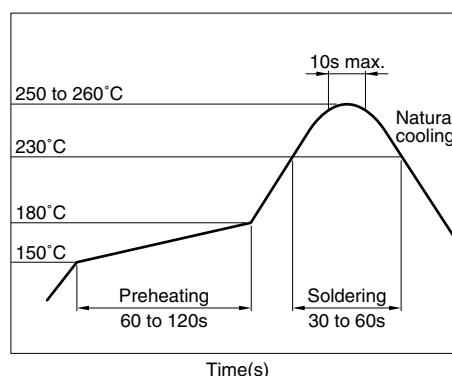
SPECIFICATIONS

Operating temperature range	-55 to +125°C
Storage temperature range	-55 to +125°C (After mount)

PACKAGING STYLE AND QUANTITIES

Packaging style	Quantity
Taping	4000 pieces/reel

RECOMMENDED SOLDERING CONDITION REFLOW SOLDERING



• Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.

• Please contact our Sales office when your application is considered the following:
 The device's failure or malfunction may directly endanger human life (e.g. application for automobile/aircraft/medical/nuclear power devices, etc.)

• All specifications are subject to change without notice.

Chip Beads

For Power Line

Conformity to RoHS Directive

MPZ Series MPZ1005-E

FEATURES

- TDK has manufactured MPZ1005 type as EMI countermeasure product for power line.
- Compared with the existing MPZ1005 type, this new product has broad-band impedance values for higher frequency ranges.
- This type is the best for energy-saving in the low DC resistance.
- No cross talk with closed magnetic circuit structural design.
- It is a product conforming to RoHS directive.

APPLICATIONS

Removal of power line noises of cellular phones, PCs, note PCs, TVs, TV tuners, STBs, audio players, DVDs, DSCs, DVCs, game machines, digital photo frames, PNDs, etc.

PRODUCT IDENTIFICATION

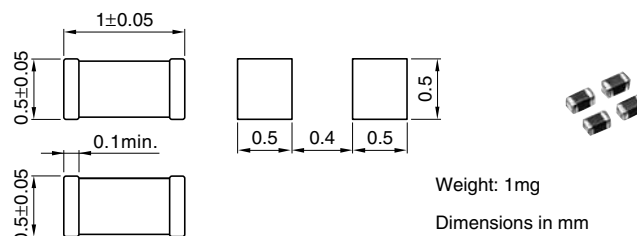
MPZ	1005	S	221	E	T	☐ ☐ ☐
(1)	(2)	(3)	(4)	(5)	(6)	(7)

- (1) Series name
 (2) Dimensions L×W
 (3) Type name
 (4) Impedance
 221:220Ω at 100MHz
 (5) Characteristic type
 (6) Packaging style
 T:Taping(reel)
 (7) TDK internal code

HANDLING AND PRECAUTIONS

- Before soldering, be sure to preheat components. The preheating temperature should be set so that the temperature difference between the solder temperature and product temperature does not exceed 150°C.
- After mounting components onto the printed circuit board, do not apply stress through board bending or mishandling.
- Do not expose the inductors to stray magnetic fields.
- Avoid static electricity discharge during handling.
- When hand soldering, apply the soldering iron to the printed circuit board only. Temperature of the iron tip should not exceed 350°C. Soldering time should not exceed 3 seconds.

SHAPES AND DIMENSIONS/RECOMMENDED PC BOARD PATTERN



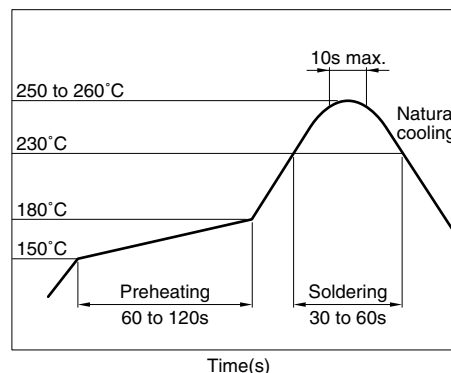
SPECIFICATIONS

Operating temperature range	-55 to +125°C
Storage temperature range	-55 to +125°C(After mount)

PACKAGING STYLE AND QUANTITIES

Packaging style	Quantity
Taping	10000 pieces/reel

RECOMMENDED SOLDERING CONDITION REFLOW SOLDERING



• Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.

• Please contact our Sales office when your application is considered the following:
 The device's failure or malfunction may directly endanger human life (e.g. application for automobile/aircraft/medical/nuclear power devices, etc.)

• All specifications are subject to change without notice.

ELECTRICAL CHARACTERISTICS

Part No.	Impedance(Ω)*1		DC resistance (Ω) max.	Rated current (A) max.*2
	[100MHz]	[1GHz]		
MPZ1005S221E	220 $\pm$ 25%	350 $\pm$ 40%	0.22	0.9
MPZ1005S331E	330 $\pm$ 25%	550 $\pm$ 40%	0.28	0.7

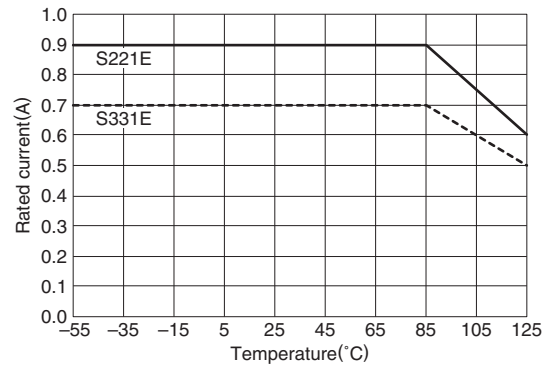
*1 Test equipment: E4991A or equivalent

Test tool: 16192A or equivalent

Test temperature: 25 $\pm$ 10°C

*2 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.

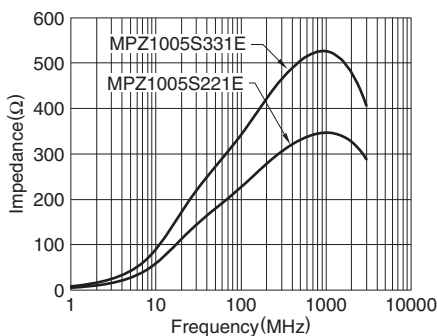
RATED CURRENT vs. TEMPERATURE CHARACTERISTICS (DERATING)



TYPICAL ELECTRICAL CHARACTERISTICS

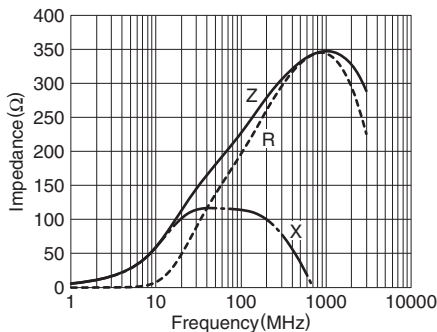
Z FREQUENCY CHARACTERISTICS

MPZ1005S-E SERIES

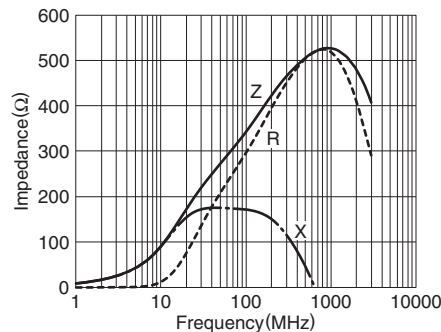


Z, X, R vs. FREQUENCY CHARACTERISTICS

MPZ1005S221E

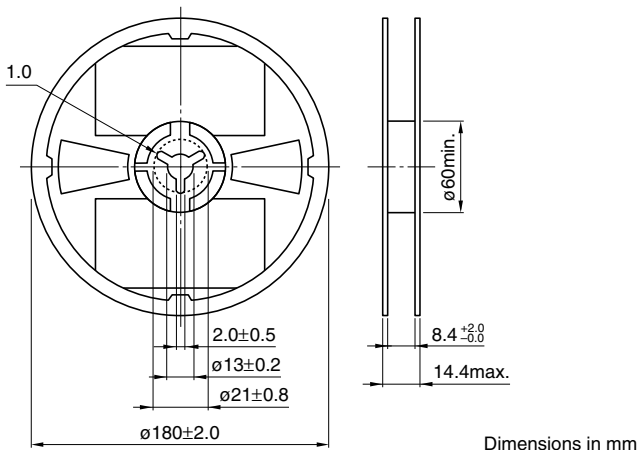


MPZ1005S331E



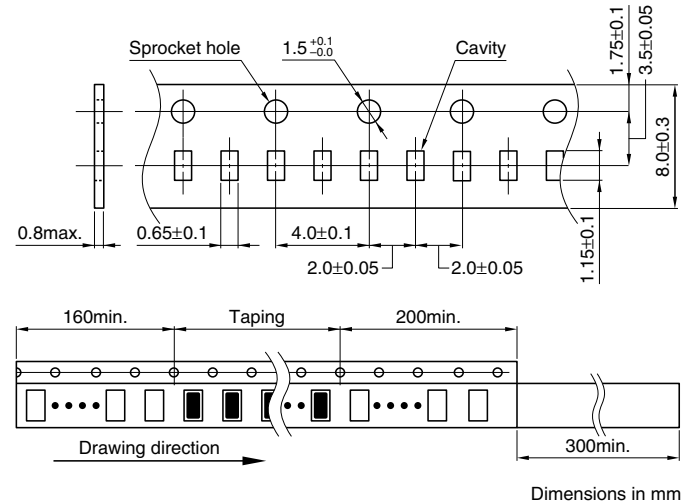
PACKAGING STYLES

REEL DIMENSIONS



Dimensions in mm

TAPE DIMENSIONS



Dimensions in mm

• All specifications are subject to change without notice.

Данный компонент на территории Российской Федерации

Вы можете приобрести в компании MosChip.

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

<http://moschip.ru/get-element>

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

Офис по работе с юридическими лицами:

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