



November 2013

## 3-terminal Filters

For signal line

# MEM series

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MEM2012S	2012[0805 inch]*
MEM2012SC	2012[0805 inch]
MEM2012V	2012[0805 inch]
MEM2012F	2012[0805 inch]
MEM1608P	1608[0603 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.

## 3-terminal Filters

### For signal line

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

# Overview of the MEM Series

## ■ FEATURES

- Multilayer chip EMC filter.
- Monolithic structure makes it highly reliable.
- Closed magnetic circuit structure makes it possible to achieve high-density mounting without crosstalk.
- Has sharp attenuation characteristics with excellent EMC suppression.
- Wide range of products compatible with passing frequencies and attenuating frequencies.

### MEM2012S

- T-type circuit is used.

### MEM2012SC

- T-type circuit is used.
- Compatible with 1A current.

### MEM2012V

- Double  $\pi$  type circuit is used.
- Sharp attenuation characteristics.

### MEM2012F

- $\pi$  type circuit is used.

### MEM1608P

- $\pi$  type circuit is used.
- Compact with a low profile design.

## ■ APPLICATION

Noise removal from signal lines of data terminals, digital cameras, computers, game machines, flat TVs, etc.

## ■ PART NUMBER CONSTRUCTION

MEM	2012	S	25R0	T	□□□		
Series name	LxWxT Dimensions (mm)		Product internal code	Cutoff frequency (MHz)		Packaging style	Internal code
1608	1.6x0.8x0.6		S	25R0	25	T	
2012	2.0x1.25x0.8		SC	201R	200		
	2.0x1.25x0.85		V				
			F	Capacitance (pF) at 1MHz			
			P	100	10		
				101	100		
MEM2012SC only							

## ■ OPERATING TEMPERATURE RANGE, PACKAGE QUANTITY, PRODUCT WEIGHT

Type	Temperature range		Package quantity (pieces/reel)	Individual weight (mg)
	Operating temperature	Storage temperature*		
	(°C)	(°C)		
MEM2012S	-40 to +85	-40 to +85	4,000	8
MEM2012SC	-40 to +85	-40 to +85	4,000	8
MEM2012V	-40 to +85	-40 to +85	4,000	8
MEM2012F	-40 to +85	-40 to +85	4,000	8
MEM1608P	-40 to +85	-40 to +85	4,000	3.5

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

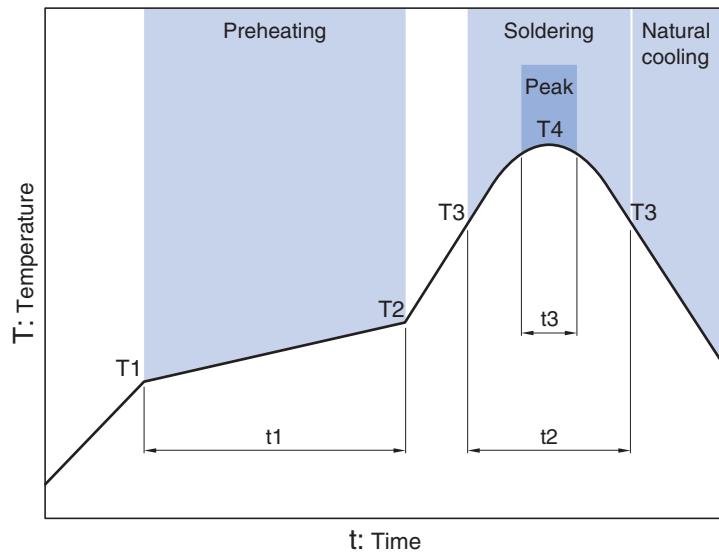
○ RoHS Directive Compliant Product: See the following for more details related to RoHS Directive compliant products. <http://www.tdk.co.jp/rohs/>

○ 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.

• All specifications are subject to change without notice.

# Overview of the MEM Series

## ■ RECOMMENDED REFLOW PROFILE



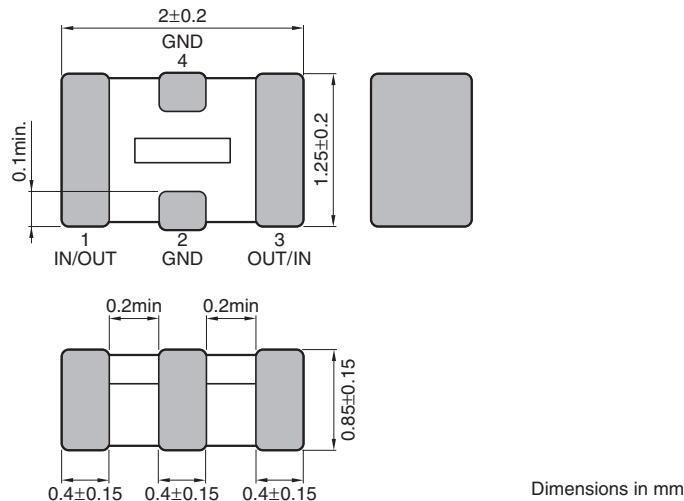
Preheating			Soldering		Peak	
Temp.	Time		Temp.	Time	Temp.	Time
T1	T2	t1	T3	t2	T4	t3
150°C	180°C	60 to 120s	230°C	30 to 60s	250 to 260°C	10s max.

MEM series

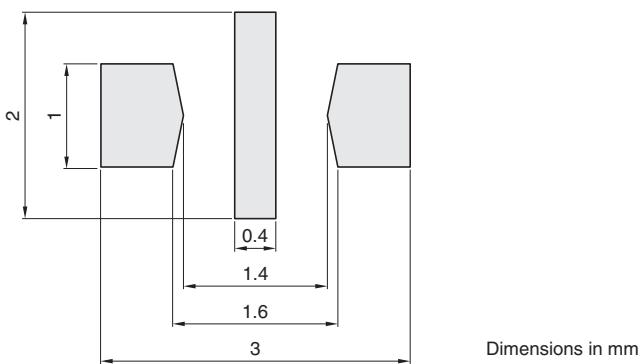
# MEM2012S Type



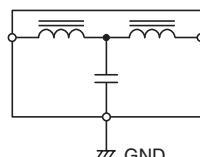
## ■ SHAPE & DIMENSIONS



## ■ RECOMMENDED LAND PATTERN



## ■ CIRCUIT DIAGRAM



# MEM series MEM2012S Type

## ■ ELECTRICAL CHARACTERISTICS

### □ CHARACTERISTICS SPECIFICATION TABLE

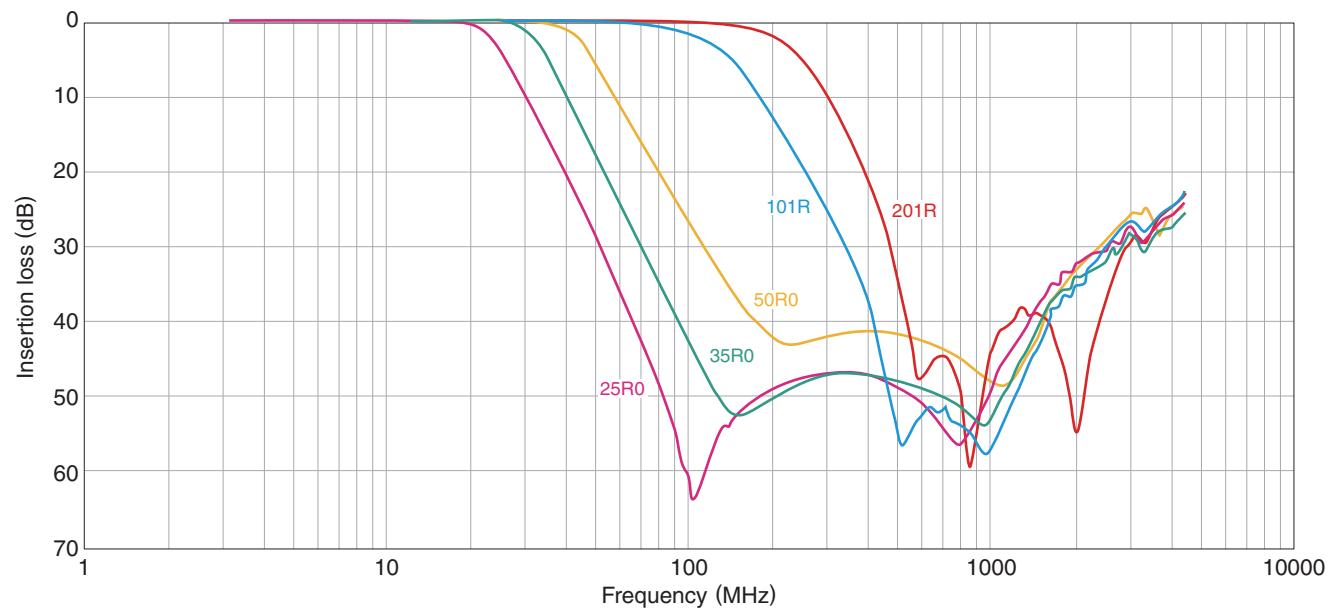
Cutoff frequency (MHz)	Insertion loss (dB)min.	Rated voltage (V)max.	Rated current (mA)max.	Part No.
25	30[70MHz to 2GHz]	10	100	MEM2012S25R0T□□□
35	30[90MHz to 2GHz]	10	100	MEM2012S35R0T□□□
50	30[200MHz to 2GHz]	10	100	MEM2012S50R0T□□□
100	30[400MHz to 2GHz]	10	250	MEM2012S101RT□□□
200	30[530MHz to 2GHz]	10	250	MEM2012S201RT□□□

○ Measurement equipment

Measurement item	Product No.	Manufacturer
Frequency characteristics	N5230C	Agilent Technologies

\* Equivalent measurement equipment may be used.

### □ INSERTION LOSS VS. FREQUENCY CHARACTERISTICS



○ Measurement equipment

Product No.	Manufacturer
N5230C	Agilent Technologies

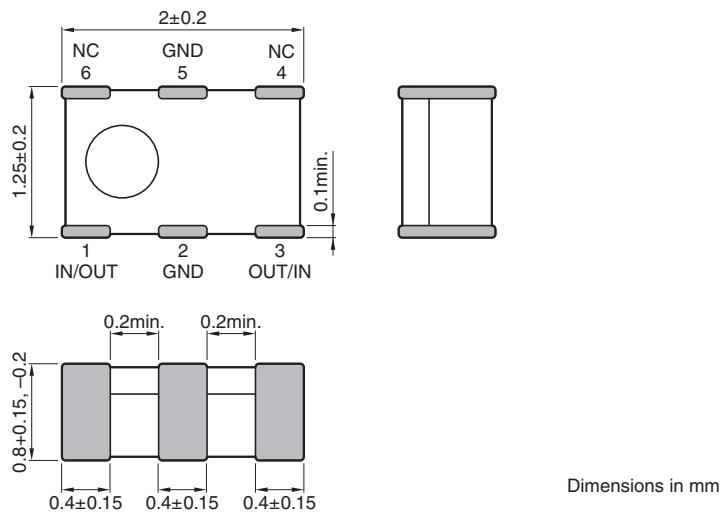
\* Equivalent measurement equipment may be used.

MEM series

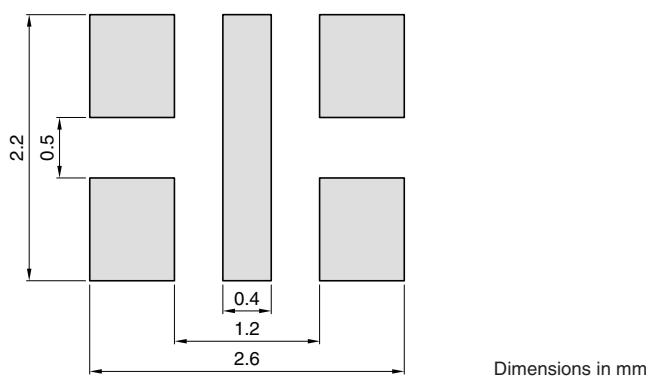
# MEM2012SC Type



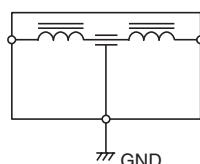
## ■ SHAPE & DIMENSIONS



## ■ RECOMMENDED LAND PATTERN



## ■ CIRCUIT DIAGRAM



# MEM series MEM2012SC Type

## ■ ELECTRICAL CHARACTERISTICS

### □ CHARACTERISTICS SPECIFICATION TABLE

Capacitance* (pF)	Tolerance (%)	Rated voltage (V)max.	Rated current (A)max.	DC resistance (Ω)max. [Terminal No.1 to 3]	Part No.
10	±30	12	1	0.15	MEM2012SC100T□□□
22	±30	12	1	0.15	MEM2012SC220T□□□
47	±30	12	1	0.15	MEM2012SC470T□□□
100	±30	12	1	0.15	MEM2012SC101T□□□
150	±30	12	1	0.15	MEM2012SC151T□□□

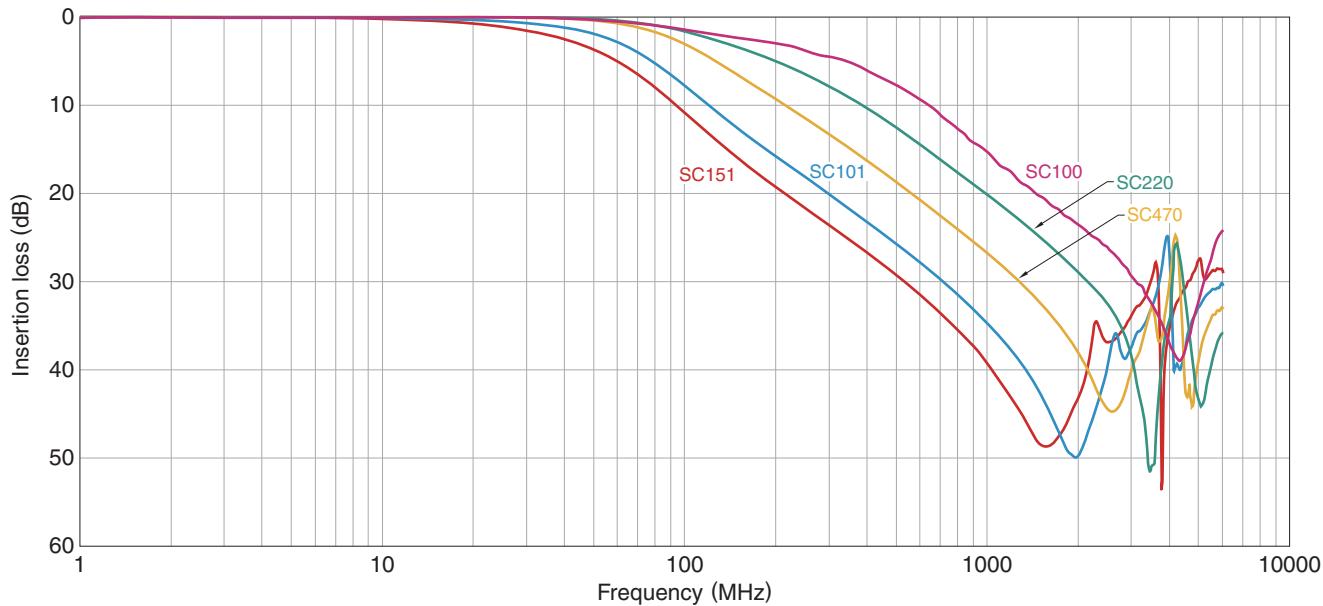
\* Measuring frequency: 1(MHz), measuring voltage: 1(V)

### ○ Measurement equipment

Measurement item	Product No.	Manufacturer
Capacitance	4294A	Agilent Technologies
Frequency characteristics	N5230C	Agilent Technologies

\* Equivalent measurement equipment may be used.

### □ INSERTION LOSS VS. FREQUENCY CHARACTERISTICS



### ○ Measurement equipment

Product No.	Manufacturer
N5230C	Agilent Technologies

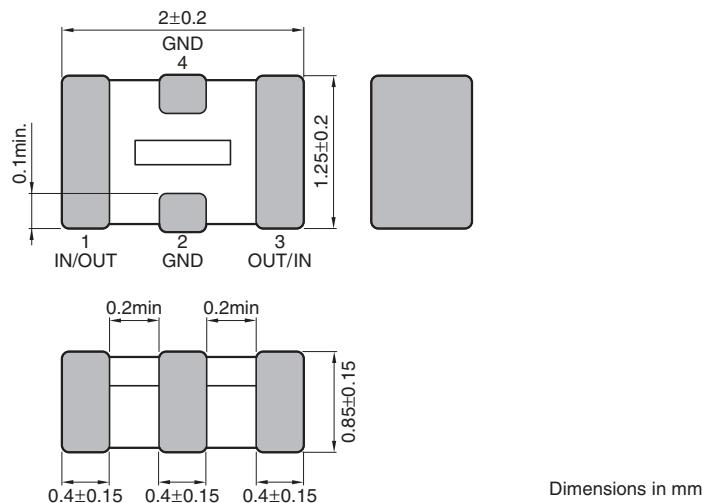
\* Equivalent measurement equipment may be used.

MEM series

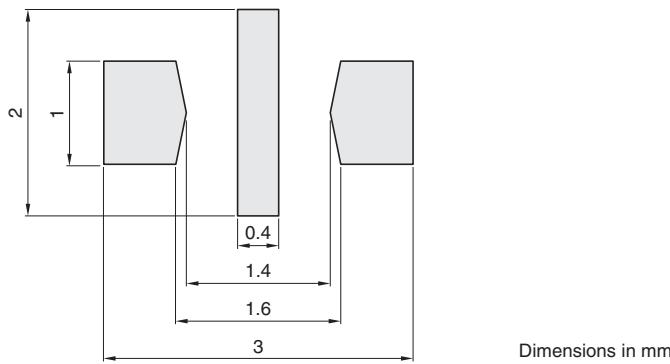
# MEM2012V Type



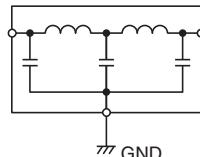
## ■ SHAPE & DIMENSIONS



## ■ RECOMMENDED LAND PATTERN



## ■ CIRCUIT DIAGRAM



# MEM series MEM2012V Type

## ■ ELECTRICAL CHARACTERISTICS

### □ CHARACTERISTICS SPECIFICATION TABLE

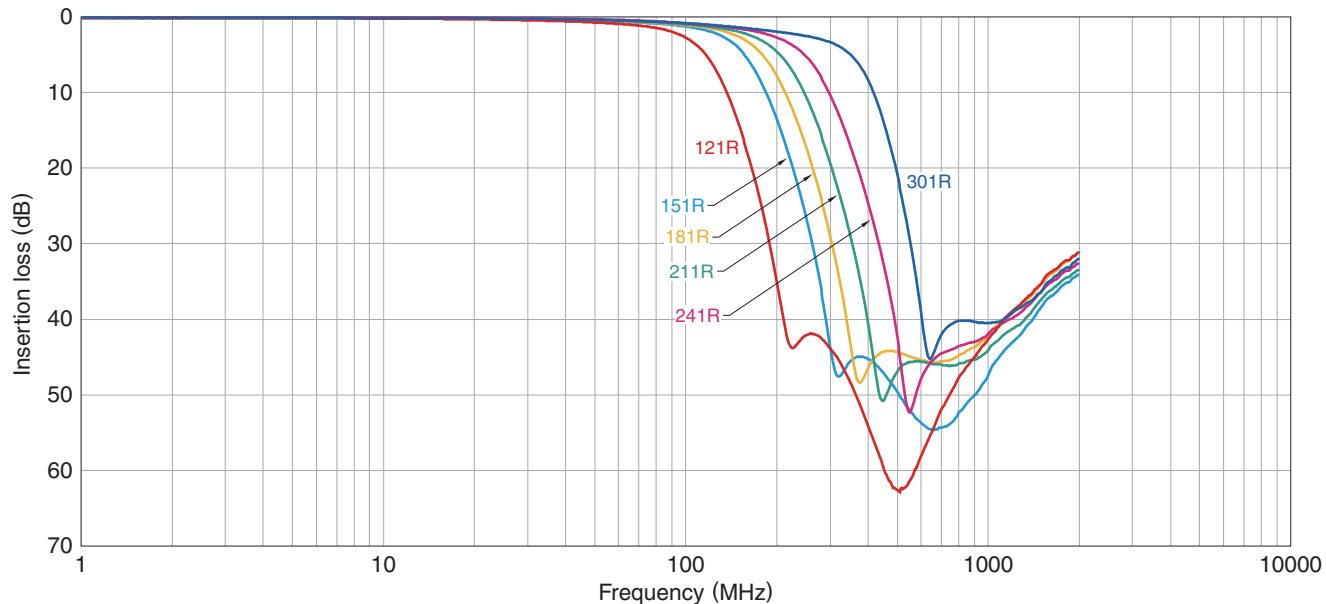
Cutoff frequency (MHz)	Insertion loss (dB)min.	Rated voltage (V)max.	Rated current (mA)max.	Part No.
120	20 [200MHz to 2GHz]	10	100	MEM2012V121RT□□□
150	20 [250MHz to 2GHz]	10	100	MEM2012V151RT□□□
180	20 [300MHz to 2GHz]	10	100	MEM2012V181RT□□□
210	20 [350MHz to 2GHz]	10	100	MEM2012V211RT□□□
240	20 [450MHz to 2GHz]	10	100	MEM2012V241RT□□□
300	20 [550MHz to 2GHz]	10	100	MEM2012V301RT□□□

○ Measurement equipment

Measurement item	Product No.	Manufacturer
Frequency characteristics	N5230C	Agilent Technologies

\* Equivalent measurement equipment may be used.

### □ INSERTION LOSS VS. FREQUENCY CHARACTERISTICS



○ Measurement equipment

Product No.	Manufacturer
N5230C	Agilent Technologies

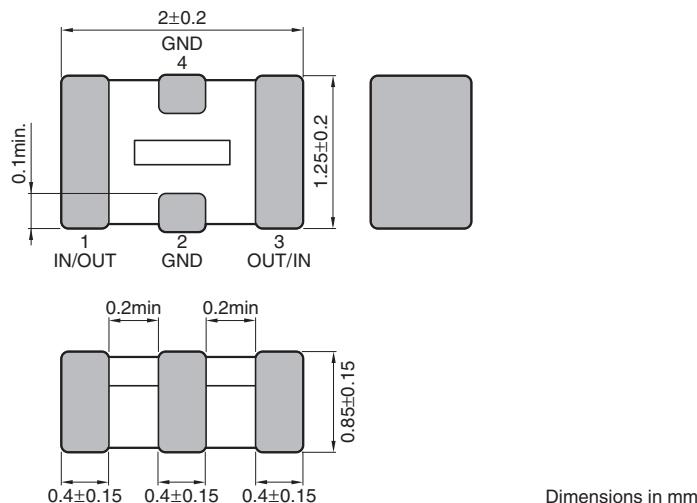
\* Equivalent measurement equipment may be used.

MEM series

# MEM2012F Type

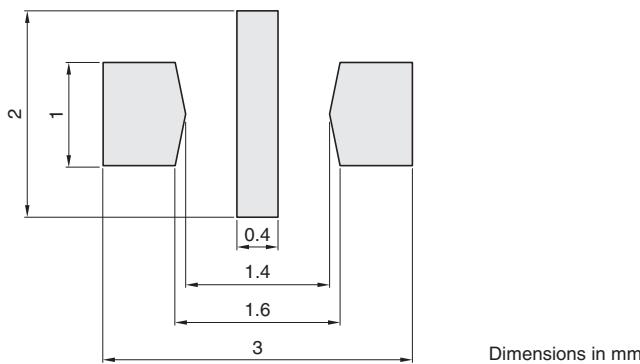


## ■ SHAPE & DIMENSIONS



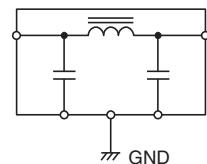
Dimensions in mm

## ■ RECOMMENDED LAND PATTERN



Dimensions in mm

## ■ CIRCUIT DIAGRAM



# MEM series MEM2012F Type

## ■ ELECTRICAL CHARACTERISTICS

### □ CHARACTERISTICS SPECIFICATION TABLE

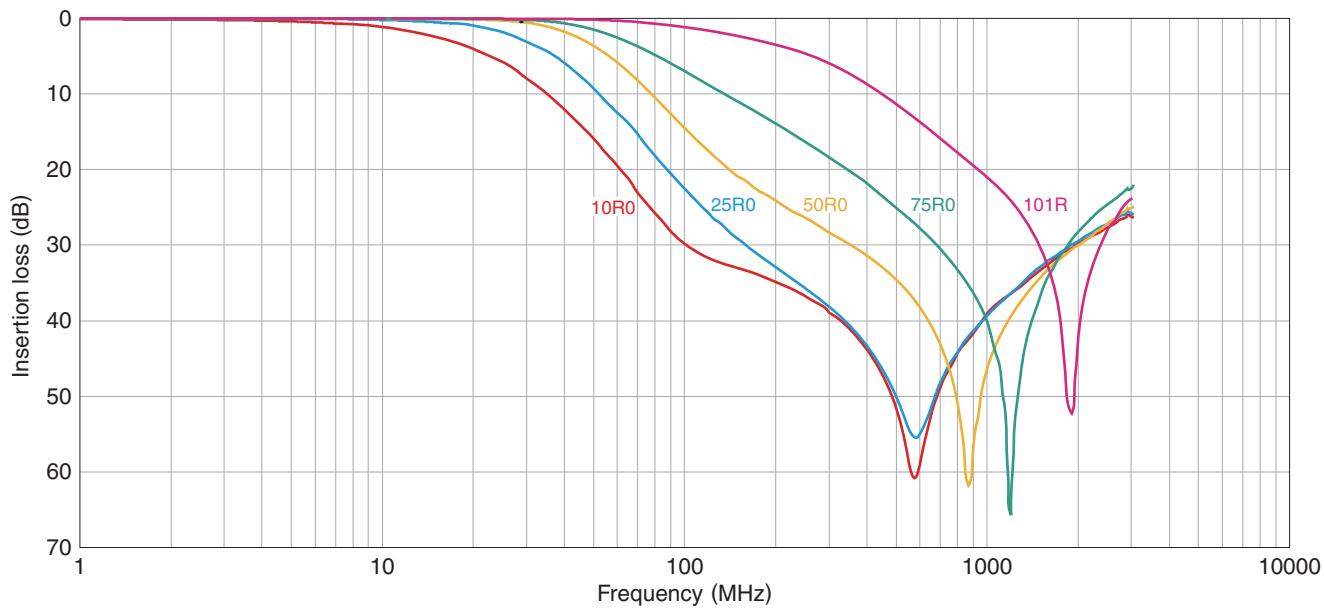
Cutoff frequency (MHz)	Insertion loss (dB)min.	Rated voltage (V)max.	Rated current (mA)max.	Part No.
10	20 [200MHz to 2GHz]	12	200	MEM2012F10R0T□□□
25	20 [300MHz to 2GHz]	12	200	MEM2012F25R0T□□□
50	20 [400MHz to 2GHz]	12	200	MEM2012F50R0T□□□
75	20 [700MHz to 2GHz]	12	200	MEM2012F75R0T□□□
100	20 [1.5GHz to 2GHz]	12	200	MEM2012F101RT□□□

○ Measurement equipment

Measurement item	Product No.	Manufacturer
Frequency characteristics	N5230C	Agilent Technologies

\* Equivalent measurement equipment may be used.

### □ INSERTION LOSS VS. FREQUENCY CHARACTERISTICS



○ Measurement equipment

Product No.	Manufacturer
N5230C	Agilent Technologies

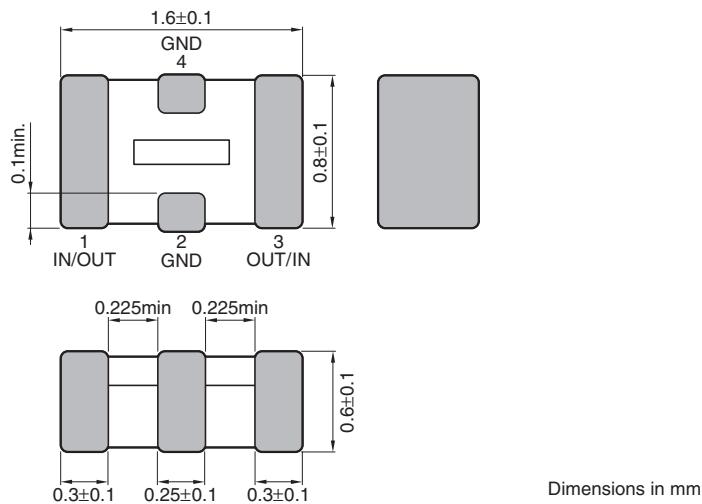
\* Equivalent measurement equipment may be used.

MEM series

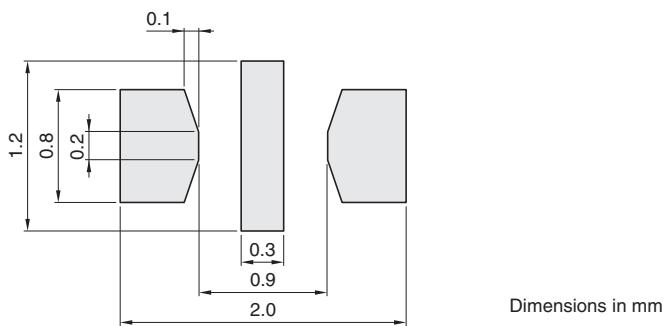
# MEM1608P Type



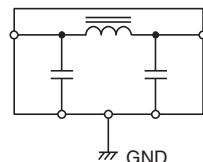
## ■ SHAPE & DIMENSIONS



## ■ RECOMMENDED LAND PATTERN



## ■ CIRCUIT DIAGRAM



# MEM series MEM1608P Type

## ■ ELECTRICAL CHARACTERISTICS

### □ CHARACTERISTICS SPECIFICATION TABLE

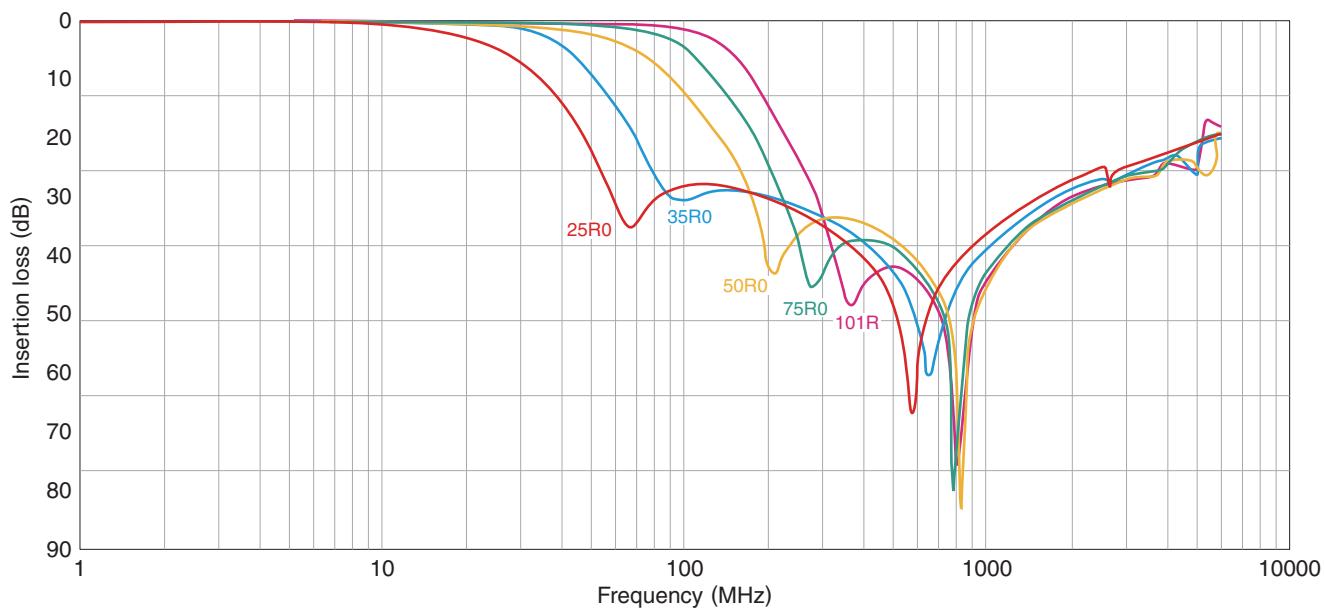
Cutoff frequency (MHz)	Insertion loss (dB)min.	Rated voltage (V)max.	Rated current (mA)max.	Part No.
25	20[70MHz to 2GHz]	10	100	MEM1608P25R0T□□□
35	20[90MHz to 2GHz]	10	100	MEM1608P35R0T□□□
50	20[200MHz to 2GHz]	10	100	MEM1608P50R0T□□□
75	20[300MHz to 2GHz]	10	100	MEM1608P75R0T□□□
100	20[400MHz to 2GHz]	10	100	MEM1608P101RT□□□

○ Measurement equipment

Measurement item	Product No.	Manufacturer
Frequency characteristics	N5230C	Agilent Technologies

\* Equivalent measurement equipment may be used.

### □ INSERTION LOSS VS. FREQUENCY CHARACTERISTICS



○ Measurement equipment

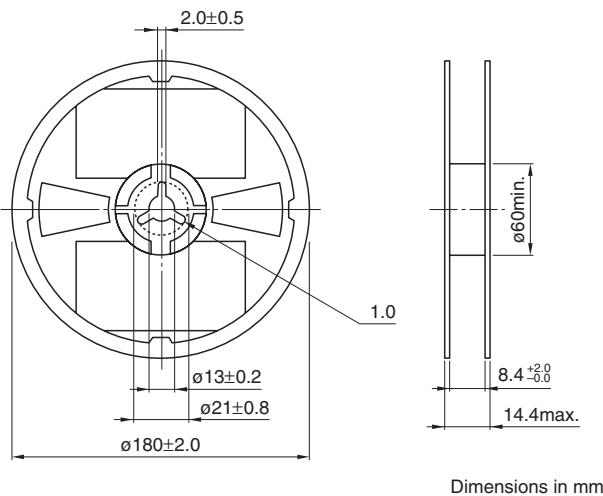
Product No.	Manufacturer
N5230C	Agilent Technologies

\* Equivalent measurement equipment may be used.

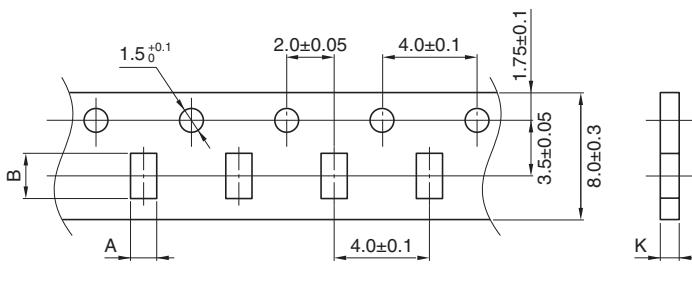
## MEM series

## Packaging style

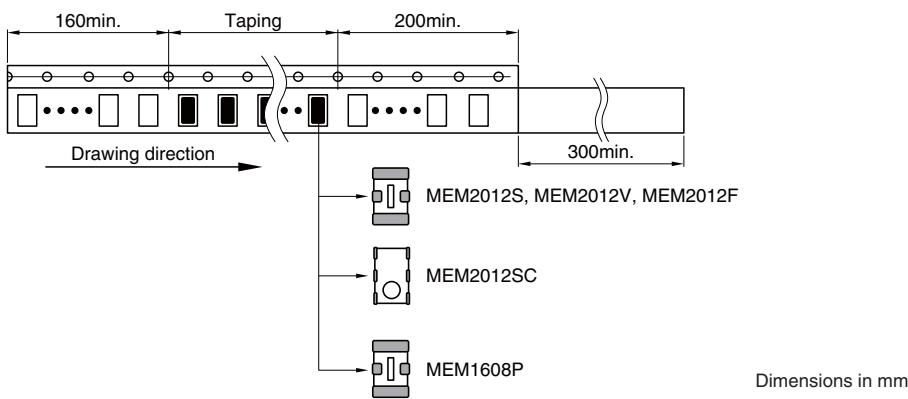
## ■ REEL DIMENSIONS



## ■ TAPE DIMENSIONS



Type	A	B	K
MEM2012S	1.55±0.20	2.30±0.20	1.10max.
MEM2012SC	1.55±0.20	2.30±0.20	1.10max.
MEM2012V	1.55±0.20	2.30±0.20	1.10max.
MEM2012F	1.55±0.20	2.30±0.20	1.10max.
MEM1608P	1.10±0.20	1.90±0.20	0.90max.



# Mouser Electronics

Authorized Distributor

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[MEM2012S201RT001](#) [MEM1608P101R](#) [MEM1608P25R0](#) [MEM1608P35R0](#) [MEM1608P50R0](#) [MEM1608P75R0](#)  
[MEM2012F10R0T](#) [MEM2012F75R0T](#) [MEM2012SC100](#) [MEM2012V151RT](#) [MEM2012SC220](#) [MEM2012V241RT](#)  
[MEM2012SC151](#) [MEM2012V301RT](#) [MEM2012V181RT](#) [MEM2012SC470](#) [MEM2012F101RT](#) [MEM2012SC101](#)  
[MEM2012V211RT](#) [MEM2012V121RT](#) [MEM2012F50R0T](#) [MEM2012S101RT](#) [MEM2012F25R0](#)