



## 3-terminal Filters

For signal line

# MEM series

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|                  |                         |
|------------------|-------------------------|
| <b>MEM2012S</b>  | <b>2012[0805 inch]*</b> |
| <b>MEM2012SC</b> | <b>2012[0805 inch]</b>  |
| <b>MEM2012V</b>  | <b>2012[0805 inch]</b>  |
| <b>MEM2012F</b>  | <b>2012[0805 inch]</b>  |
| <b>MEM1608P</b>  | <b>1608[0603 inch]</b>  |

\* Dimensions Code JIS[EIA]

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## 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               | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|-------------|-----------------------|--|-----------------------|--------------------------|-----|-----------------|--------------------------|--------------------------|--------------------------|
| Series name | LxWxT Dimensions (mm) |  | Product internal code | Cutoff frequency (MHz)   |     | Packaging style |                          | Internal code            |                          |
| 1608        | 1.6x0.8x0.6           |  | S                     | 25R0                     | 25  | T               | Taping                   |                          |                          |
| 2012        | 2.0x1.25x0.8          |  | SC                    | 201R                     | 200 |                 |                          |                          |                          |
|             | 2.0x1.25x0.85         |  | V                     |                          |     |                 |                          |                          |                          |
|             |                       |  | F                     |                          |     |                 |                          |                          |                          |
|             |                       |  | P                     |                          |     |                 |                          |                          |                          |
|             |                       |  |                       | Capacitance (pF) at 1MHz |     |                 |                          |                          |                          |
|             |                       |  |                       | 100                      | 10  |                 |                          |                          |                          |
|             |                       |  |                       | 101                      | 100 |                 |                          |                          |                          |
|             |                       |  |                       | MEM2012SC only           |     |                 |                          |                          |                          |

## OPERATING TEMPERATURE RANGE, PACKAGE QUANTITY, PRODUCT WEIGHT

| Type      | Temperature range     |                      | Package quantity | Individual weight |
|-----------|-----------------------|----------------------|------------------|-------------------|
|           | Operating temperature | Storage temperature* |                  |                   |
|           | (°C)                  | (°C)                 | (pieces/reel)    | (mg)              |
| 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               |

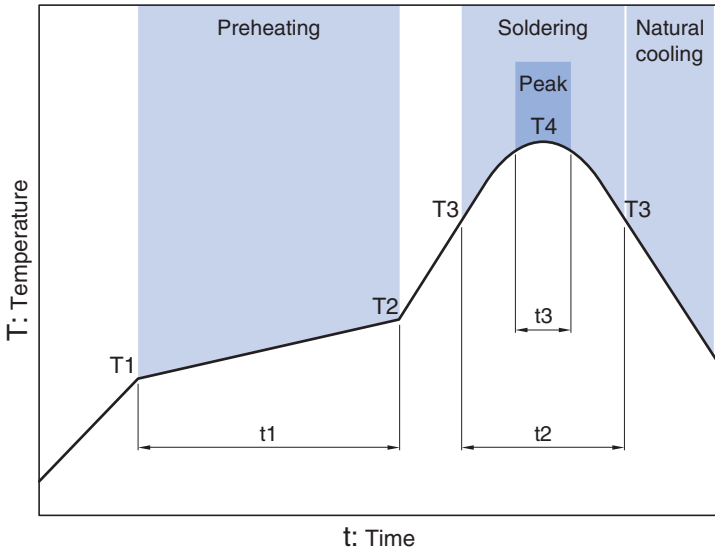
\* The Storage temperature range is for after the circuit board is mounted.

- 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.      | 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. |

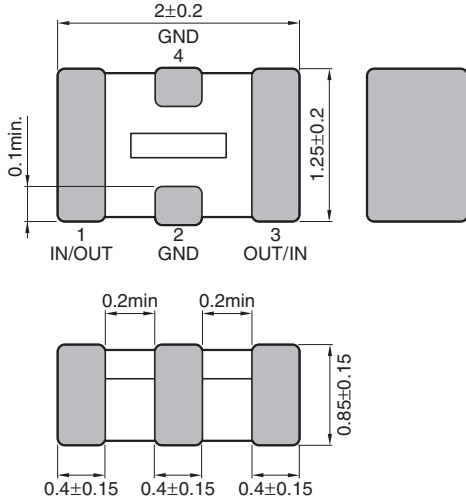
• All specifications are subject to change without notice.

MEM series

# MEM2012S Type

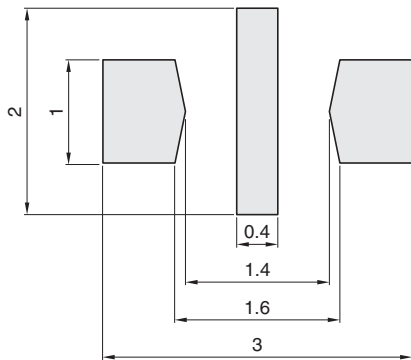


## SHAPE & DIMENSIONS



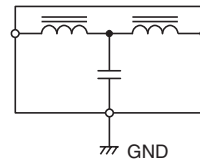
Dimensions in mm

## RECOMMENDED LAND PATTERN



Dimensions in mm

## CIRCUIT DIAGRAM



• All specifications are subject to change without notice.

# MEM series MEM2012S Type

## ELECTRICAL CHARACTERISTICS

### CHARACTERISTICS SPECIFICATION TABLE

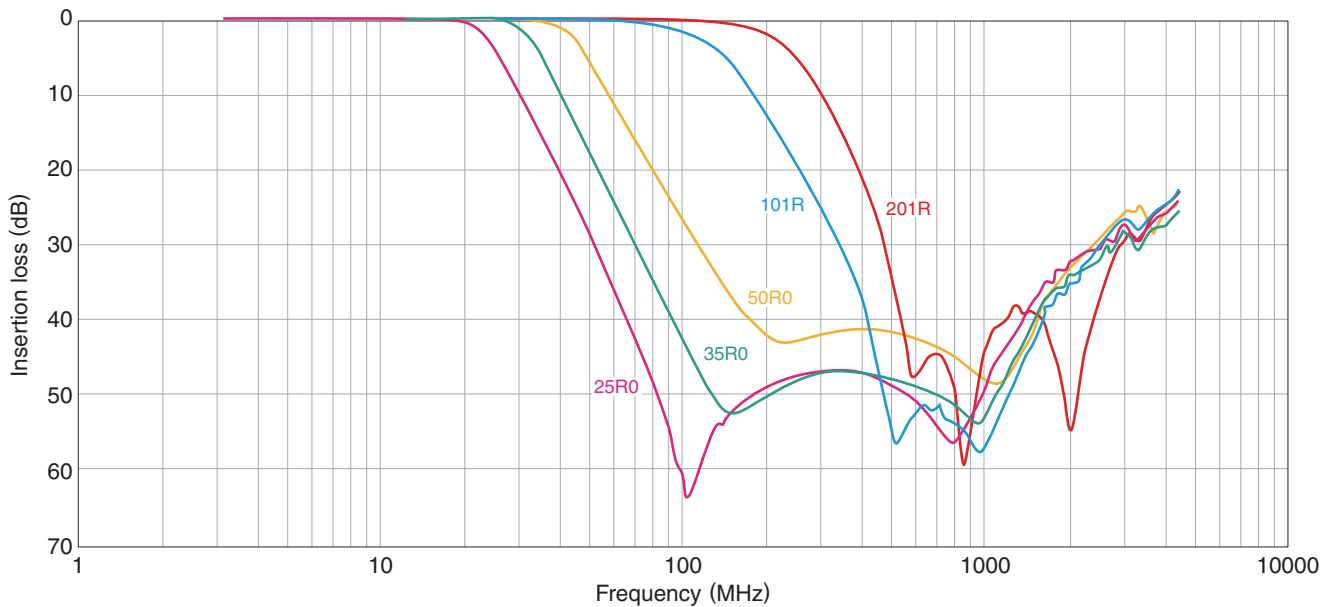
| Cutoff frequency (MHz) | Insertion loss (dB)min. | Rated voltage (V)max. | Rated current (mA)max. | Part No.         |
|------------------------|-------------------------|-----------------------|------------------------|------------------|
| 25                     | 30[70MHz to 2GHz]       | 10                    | 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 |

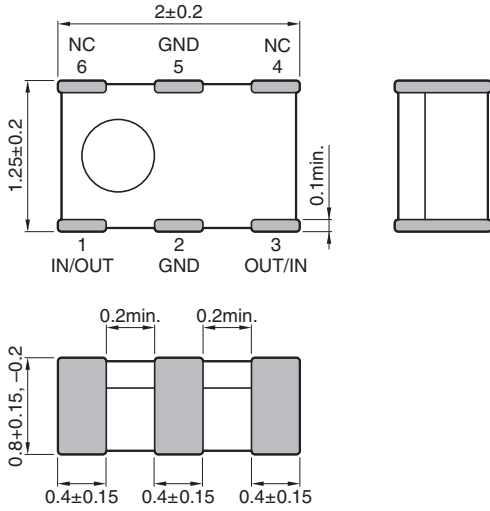
\* Equivalent measurement equipment may be used.

# MEM series

# MEM2012SC Type

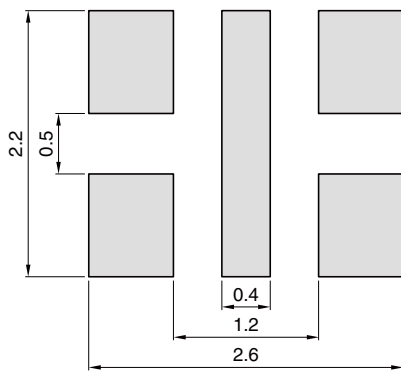


## SHAPE & DIMENSIONS



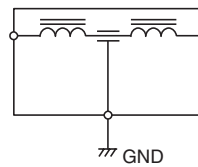
Dimensions in mm

## RECOMMENDED LAND PATTERN



Dimensions in mm

## CIRCUIT DIAGRAM



• All specifications are subject to change without notice.

# MEM series MEM2012SC Type

## ELECTRICAL CHARACTERISTICS

### CHARACTERISTICS SPECIFICATION TABLE

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

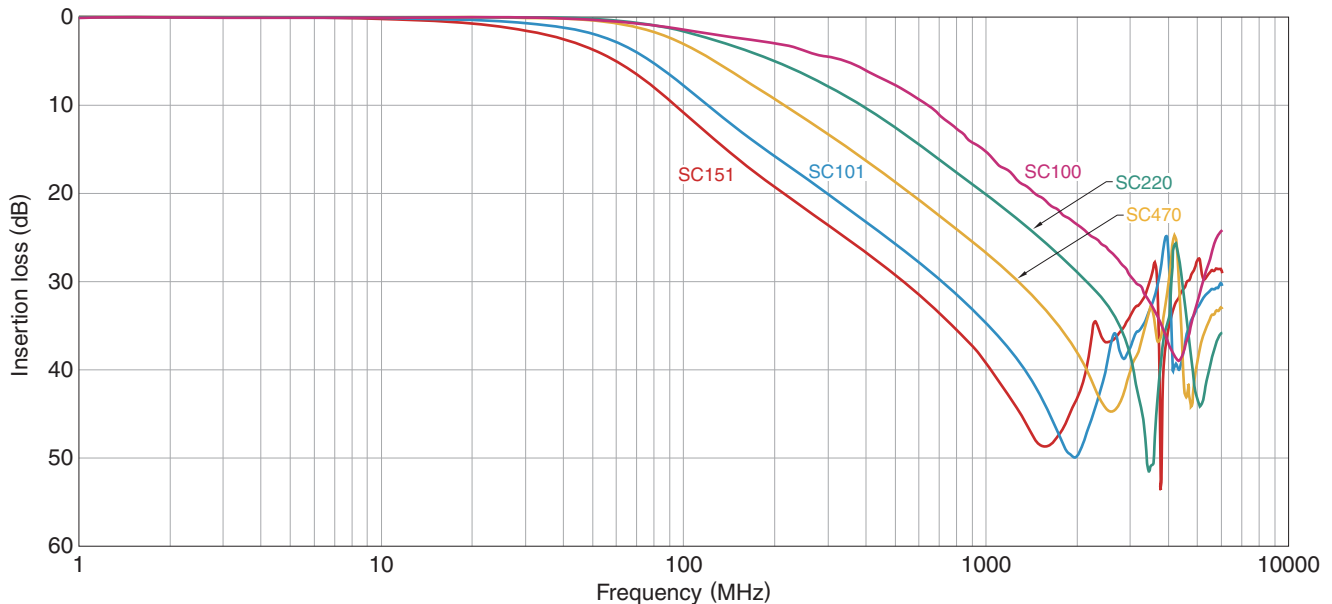
\* Measuring frequency: 1(MHz), measuring voltage: 1(V)

#### 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.

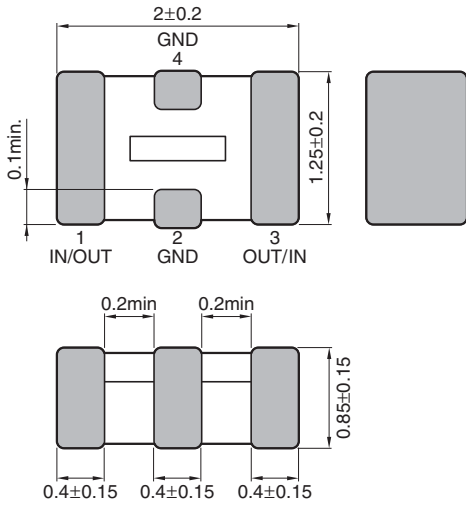


MEM series

# MEM2012V Type

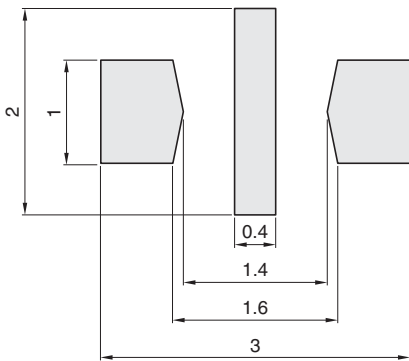


## SHAPE & DIMENSIONS



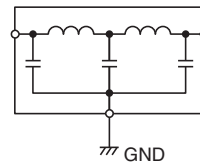
Dimensions in mm

## RECOMMENDED LAND PATTERN



Dimensions in mm

## CIRCUIT DIAGRAM



• All specifications are subject to change without notice.

# MEM series MEM2012V Type

## ELECTRICAL CHARACTERISTICS

### CHARACTERISTICS SPECIFICATION TABLE

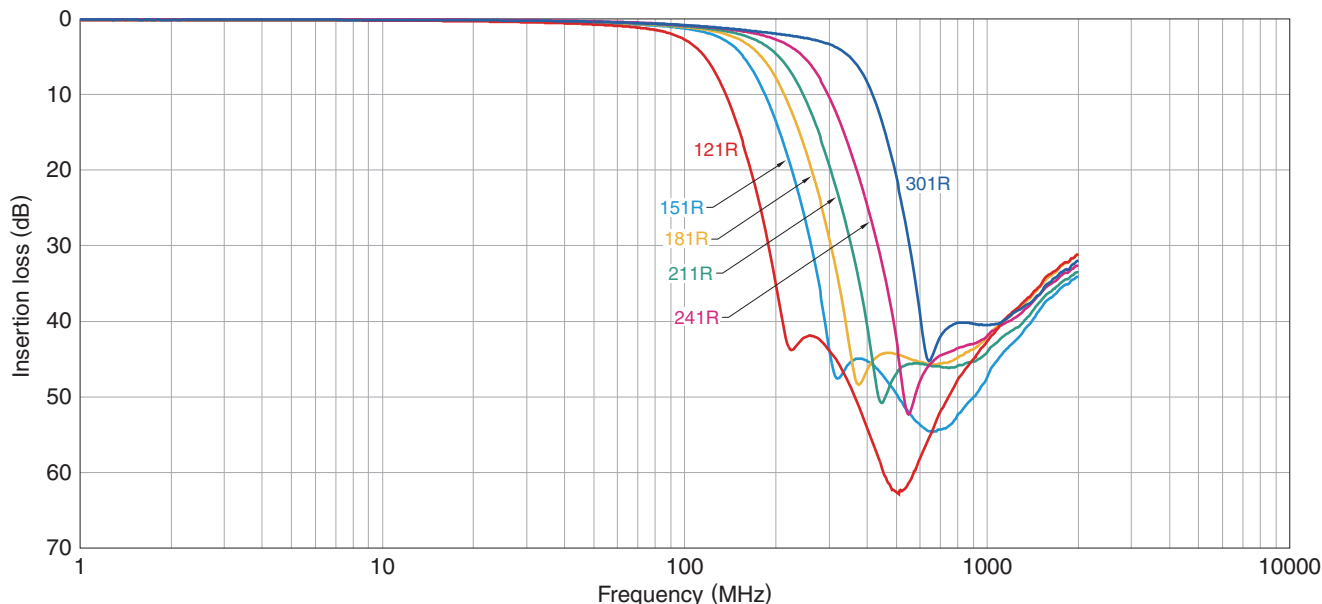
| Cutoff frequency (MHz) | Insertion loss (dB)min. | Rated voltage (V)max. | Rated current (mA)max. | Part No.         |
|------------------------|-------------------------|-----------------------|------------------------|------------------|
| 120                    | 20 [200MHz to 2GHz]     | 10                    | 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.

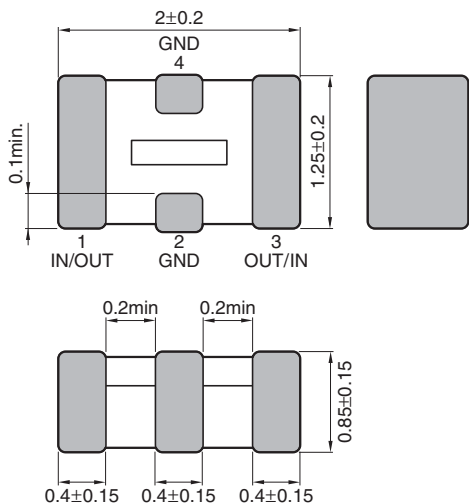
• All specifications are subject to change without notice.

MEM series

# MEM2012F Type

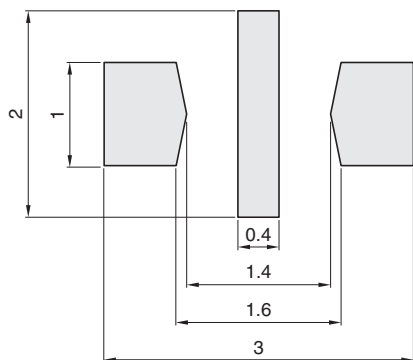


## SHAPE & DIMENSIONS



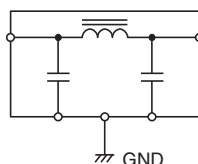
Dimensions in mm

## RECOMMENDED LAND PATTERN



Dimensions in mm

## CIRCUIT DIAGRAM



• All specifications are subject to change without notice.

MEM series **MEM2012F Type**

## ■ ELECTRICAL CHARACTERISTICS

## □ CHARACTERISTICS SPECIFICATION TABLE

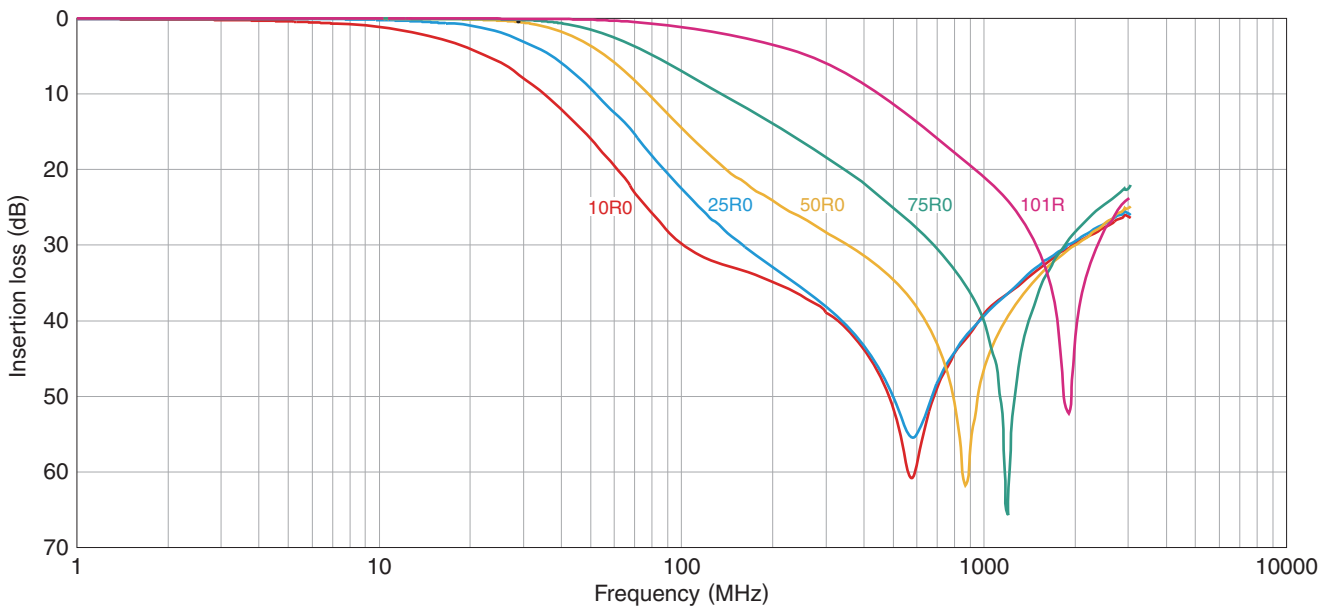
| Cutoff frequency (MHz) | Insertion loss (dB)min. | Rated voltage (V)max. | Rated current (mA)max. | Part No.         |
|------------------------|-------------------------|-----------------------|------------------------|------------------|
| 10                     | 20 [200MHz to 2GHz]     | 12                    | 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 |

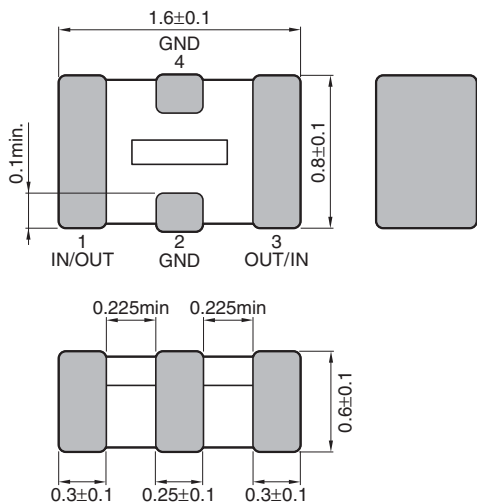
\* Equivalent measurement equipment may be used.

MEM series

# MEM1608P Type

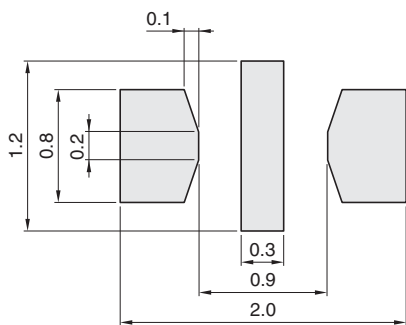


## SHAPE & DIMENSIONS



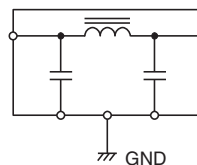
Dimensions in mm

## RECOMMENDED LAND PATTERN



Dimensions in mm

## CIRCUIT DIAGRAM



• All specifications are subject to change without notice.

# MEM series MEM1608P Type

## ELECTRICAL CHARACTERISTICS

### CHARACTERISTICS SPECIFICATION TABLE

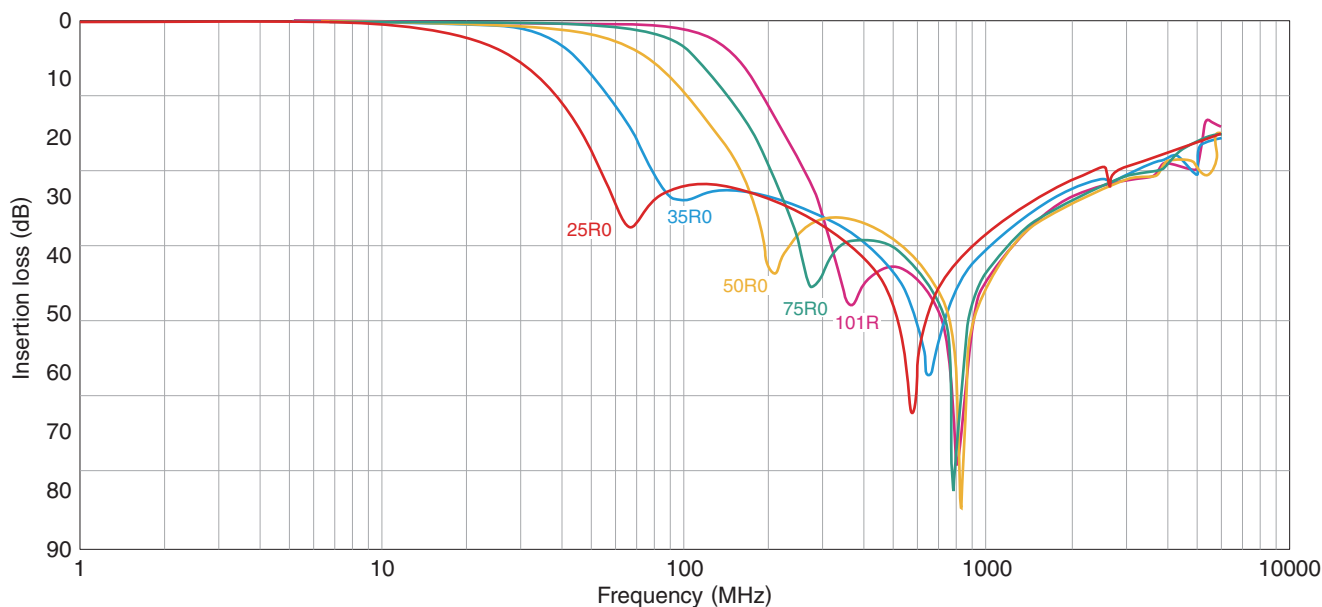
| Cutoff frequency (MHz) | Insertion loss (dB)min. | Rated voltage (V)max. | Rated current (mA)max. | Part No.         |
|------------------------|-------------------------|-----------------------|------------------------|------------------|
| 25                     | 20[70MHz to 2GHz]       | 10                    | 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.

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