

Please read this notice before using the TAIYO YUDEN products.

REMINDERS

- Product information in this catalog is as of October 2017. All of the contents specified herein are subject to change without notice due to technical improvements, etc. Therefore, please check for the latest information carefully before practical application or use of our products.

Please note that TAIYO YUDEN shall not be in any way responsible for any damages and defects in products or equipment incorporating our products, which are caused under the conditions other than those specified in this catalog or individual product specification sheets.

- Please contact TAIYO YUDEN for further details of product specifications as the individual product specification sheets are available.
- Please conduct validation and verification of our products in actual condition of mounting and operating environment before using our products.
- The products listed in this catalog are intended for use in general electronic equipment (e.g., AV equipment, OA equipment, home electric appliances, office equipment, information and communication equipment including, without limitation, mobile phone, and PC) and medical equipment classified as Class I or II by IMDRF. Please be sure to contact TAIYO YUDEN for further information before using the products for any equipment which may directly cause loss of human life or bodily injury (e.g., transportation equipment including, without limitation, automotive powertrain control system, train control system, and ship control system, traffic signal equipment, disaster prevention equipment, medical equipment classified as Class III by IMDRF, highly public information network equipment including, without limitation, telephone exchange, and base station).

Please do not incorporate our products into any equipment requiring high levels of safety and/or reliability (e.g., aerospace equipment, aviation equipment*, medical equipment classified as Class IV by IMDRF, nuclear control equipment, undersea equipment, military equipment).

*Note: There is a possibility that our products can be used only for aviation equipment that does not directly affect the safe operation of aircraft (e.g., in-flight entertainment, cabin light, electric seat, cooking equipment) if such use meets requirements specified separately by TAIYO YUDEN. Please be sure to contact TAIYO YUDEN for further information before using our products for such aviation equipment.

When our products are used even for high safety and/or reliability-required devices or circuits of general electronic equipment, it is strongly recommended to perform a thorough safety evaluation prior to use of our products and to install a protection circuit as necessary.

Please note that unless you obtain prior written consent of TAIYO YUDEN, TAIYO YUDEN shall not be in any way responsible for any damages incurred by you or third parties arising from use of the products listed in this catalog for any equipment requiring inquiry to TAIYO YUDEN or prohibited for use by TAIYO YUDEN as described above.

- Information contained in this catalog is intended to convey examples of typical performances and/or applications of our products and is not intended to make any warranty with respect to the intellectual property rights or any other related rights of TAIYO YUDEN or any third parties nor grant any license under such rights.
- Please note that the scope of warranty for our products is limited to the delivered our products themselves and TAIYO YUDEN shall not be in any way responsible for any damages resulting from a fault or defect in our products. Notwithstanding the foregoing, if there is a written agreement (e.g., supply and purchase agreement, quality assurance agreement) signed by TAIYO YUDEN and your company, TAIYO YUDEN will warrant our products in accordance with such agreement.
- The contents of this catalog are applicable to our products which are purchased from our sales offices or authorized distributors (hereinafter "TAIYO YUDEN's official sales channel"). Please note that the contents of this catalog are not applicable to our products purchased from any seller other than TAIYO YUDEN's official sales channel.
- Caution for Export
Some of our products listed in this catalog may require specific procedures for export according to "U.S. Export Administration Regulations", "Foreign Exchange and Foreign Trade Control Law" of Japan, and other applicable regulations. Should you have any questions on this matter, please contact our sales staff.

BALUN TRANSFORMERS



MB: WAVE MC: REFLOW

INDUCTORS \ BALUN TRANSFORMERS

PARTS NUMBER

* Operating Temp.: -25~+105°C (Including self-generated heat)



△ = Blank space

① Series name

Code	Series name
BU	Balun transformer

② Dimensions of core

Code	Dimensions of core [mm]
05	5.0
	5.3
06	6.0

③ Shape

Code	Shape
MB	Pin type
MC	Surface mount type

④ Product classification code

Code (example)	Product classification code
△01	Product classification code

⑤ Packaging

Code	Packaging
△T	Taping
△△	Bulk (Only pin type)

⑥ Internal code

Code	Internal code
△	Standard

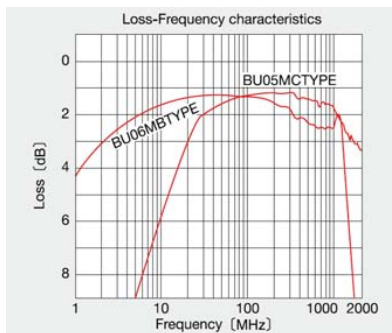
STANDARD EXTERNAL DIMENSIONS / MINIMUM QUANTITY

Pin type MB (BU06MB)	Surface mount type MC (BU05MC)	Recommended Land Patterns (BU05MC)
		<p style="text-align: right;">Unit: mm</p>

Type	A	B	C	D	E	Minimum quantity [pcs]	
						Box	Taping
BU06MB	8.0 max (0.315 max)	8.0 max (0.315 max)	8.0 max (0.315 max)	2.25±0.2 pitch (0.089±0.008)	3.5~5.0 (0.138~0.197)	150	—
BU05MC	5.3±0.5 (0.209±0.020)	5.0±0.3 (0.197±0.012)	2.7±0.2 (0.106±0.008)	1.5±0.2 pitch (0.059±0.008)	—	—	2500

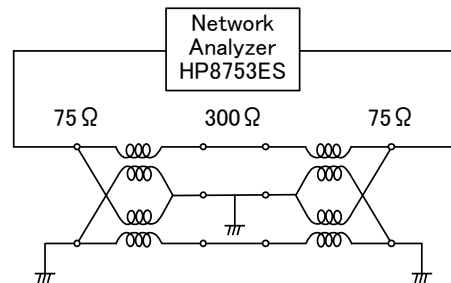
Unit: mm (inch)

ELECTRICAL CHARACTERISTICS



The following chart shows typical ranges for operating characteristics. Please specify the following when ordering.

- ① loss
- ② standing wave ratio (VSWR)
- ③ operating frequency
- ④ specified test circuit



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SMD COMMON MODE CHOKE COILS FOR DC AND SIGNAL LINES, BALUN TRANSFORMERS

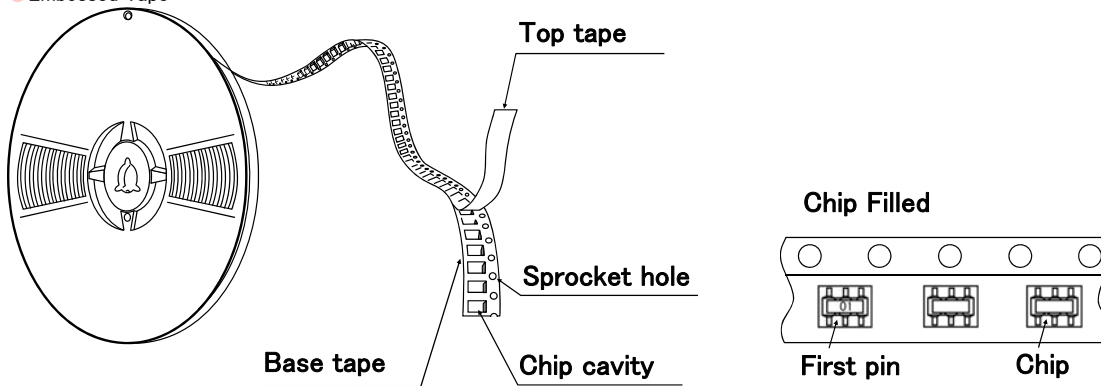
PACKAGING

① Minimum Quantity

Type	Minimum Quantity [pcs]	
	Box	Taping
BU05MC	—	2500
BU06MB	150	—

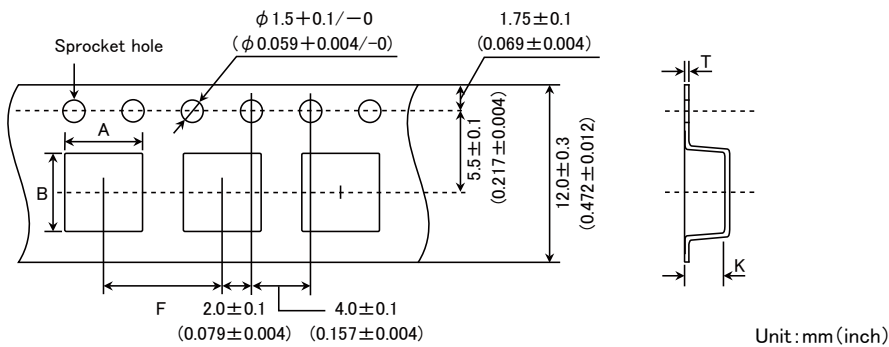
② Tape material

● Embossed Tape



③ Taping dimensions

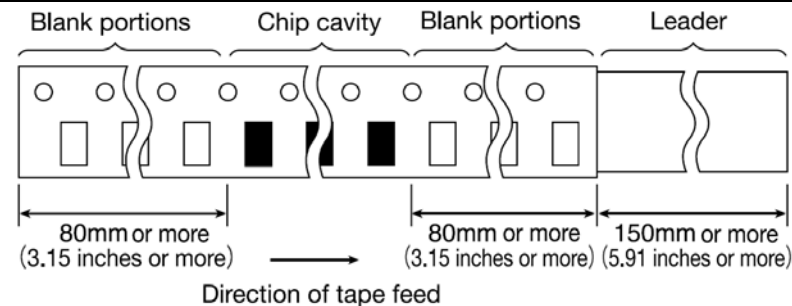
● Embossed tape 12mm wide (0.472 inches wide)



Type	Insertion pitch	Chip cavity		Tape thickness	
		A	B	K	T
BU05MC	8.0 ± 0.1 (0.315 ± 0.004)	5.2 ± 0.1 (0.205 ± 0.004)	5.6 ± 0.1 (0.220 ± 0.004)	3.2 ± 0.1 (0.126 ± 0.004)	0.4 ± 0.05 (0.016 ± 0.002)

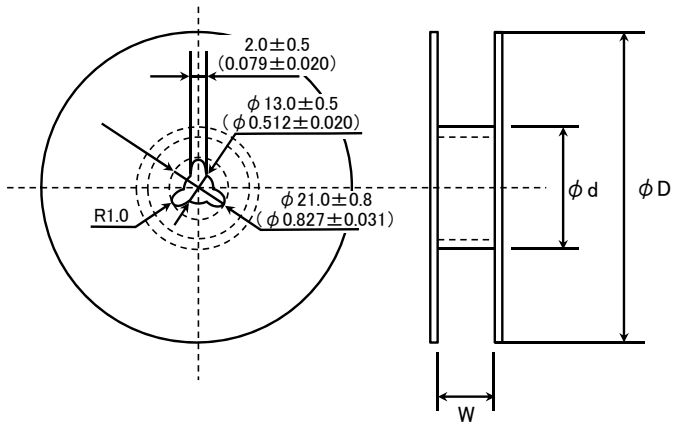
Unit: mm (inch)

④ Leader and Blank portion



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⑤ Reel size



Type	ϕD	ϕd	W
BU05MC	330 ± 2.0 (12.99 ± 0.079)	80 ± 1.0 (3.15 ± 0.039)	13.5 ± 1.0 (0.53 ± 0.039)

Unit : mm (inch)

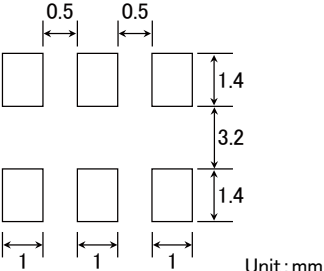
SMD COMMON MODE CHOKE COILS FOR DC AND SIGNAL LINES, BALUN TRANSFORMERS

PRECAUTIONS

1. Circuit Design

Precautions	<ul style="list-style-type: none"> ◆Operating environment 1. The products described in this specification are intended for use in general electronic equipment, (office supply equipment, telecommunications systems, measuring equipment, and household equipment). They are not intended for use in mission-critical equipment or systems requiring special quality and high reliability (traffic systems, safety equipment, aerospace systems, nuclear control systems and medical equipment including life-support systems,) where product failure might result in loss of life, injury or damage. For such uses, contact TAIYO YUDEN Sales Department in advance.
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2. PCB Design

Precautions	<ul style="list-style-type: none"> ◆Land pattern design 1. Please contact any of our offices for a land pattern, and refer to a recommended land pattern of specifications.
Technical considerations	<ul style="list-style-type: none"> ◆Land pattern design Surface Mounting • Mounting and soldering conditions should be checked beforehand. • Applicable soldering process to these products is reflow soldering only. • Recommended Land Patterns 【BU05MC】  <p style="text-align: right;">Unit: mm</p>

3. Considerations for automatic placement

Precautions	<ul style="list-style-type: none"> ◆Adjustment of mounting machine 1. Excessive impact load should not be imposed on the products when mounting onto the PC boards. 2. Mounting and soldering conditions should be checked beforehand.
Technical considerations	<ul style="list-style-type: none"> ◆Adjustment of mounting machine 1. When installing products, care should be taken not to apply distortion stress as it may deform the products.

4. Soldering

Precautions	<ul style="list-style-type: none"> ◆Reflow soldering 1. Please contact any of our offices for a reflow soldering, and refer to the recommended condition specified. 2. This product can be used reflow soldering only. 3. Please do not add any stress to a product until it returns in normal temperature after reflow soldering. ◆Lead free soldering 1. When using products with lead free soldering, we request to use them after confirming adhesion, temperature of resistance to soldering heat, soldering etc sufficiently. ◆Recommended conditions for using a soldering iron 【BU05MC】 • Put the soldering iron on the land-pattern. • Soldering iron's temperature - Below 350°C • Duration - 3 seconds or less • The soldering iron should not directly touch the inductor.
Technical considerations	<ul style="list-style-type: none"> ◆Reflow soldering 1. If products are used beyond the range of the recommended conditions, heat stresses may deform the products, and consequently degrade the reliability of the products. ◆Recommended conditions for using a soldering iron If products are used beyond the range of the recommended conditions, heat stresses may deform the products, and consequently degrade the reliability of the products.

5. Cleaning

Precautions	<ul style="list-style-type: none"> ◆Cleaning conditions 1. Please contact any of our offices for a cleaning.
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6. Handling	
Precautions	<ul style="list-style-type: none"> ◆ Handling <ol style="list-style-type: none"> 1. Keep the product away from all magnets and magnetic objects. ◆ Breakaway PC boards (splitting along perforations) <ol style="list-style-type: none"> 1. When splitting the PC board after mounting product, care should be taken not to give any stresses of deflection or twisting to the board. 2. Board separation should not be done manually, but by using the appropriate devices. ◆ Mechanical considerations <ol style="list-style-type: none"> 1. Please do not give the product any excessive mechanical shocks. 2. Please do not add any shock and power to a product in transportation. ◆ Pick-up pressure <ol style="list-style-type: none"> 1. Please do not push to add any pressure to a winding part. Please do not give any shock and push onto an exposed part of ferrite cores. ◆ Packing <ol style="list-style-type: none"> 1. Please avoid accumulation of a packing box as much as possible.
Technical considerations	<ul style="list-style-type: none"> ◆ Handling <ol style="list-style-type: none"> 1. There is a case that a characteristic varies with magnetic influence. ◆ Breakaway PC boards (splitting along perforations) <ol style="list-style-type: none"> 1. The position of the product on PCBs shall be carefully considered to minimize the stress caused from splitting of the PCBs. ◆ Mechanical considerations <ol style="list-style-type: none"> 1. There is a case to be damaged by a mechanical shock. 2. There is a case to be broken by the handling in transportation. ◆ Pick-up pressure <ol style="list-style-type: none"> 1. An excessive shock or stress may cause a damage to the product or a deterioration of a characteristic. ◆ Packing <ol style="list-style-type: none"> 1. If packing boxes are accumulated, that could cause a deformation on packing tapes or a damage on the products.
7. Storage conditions	
Precautions	<ul style="list-style-type: none"> ◆ Storage <ol style="list-style-type: none"> 1. To maintain the solderability of terminal electrodes and to keep the packing material in good condition, temperature and humidity in the storage area should be controlled. <ul style="list-style-type: none"> • Recommended conditions <ul style="list-style-type: none"> Ambient temperature : 0~40°C, Humidity : Below 70% RH <p>The ambient temperature must be kept below 30°C. Even under ideal storage conditions, the solderability of electrodes may decrease gradually. For this reason, the products should be used within one year from the time of delivery. In case of storage over 6 months, solderability shall be checked before actual usage.</p>
Technical considerations	<ul style="list-style-type: none"> ◆ Storage <ol style="list-style-type: none"> 1. Under a high temperature and humidity environment, problems such as reduced solderability caused by oxidation of terminal electrodes and deterioration of taping/packaging materials may take place.