



# Multilayer Balun

For 2400-2500MHz

# HHM1902A2

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**1.0x0.5mm [EIA 0402]\***

\* Dimensions Code JIS[EIA]

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## Multilayer Balun

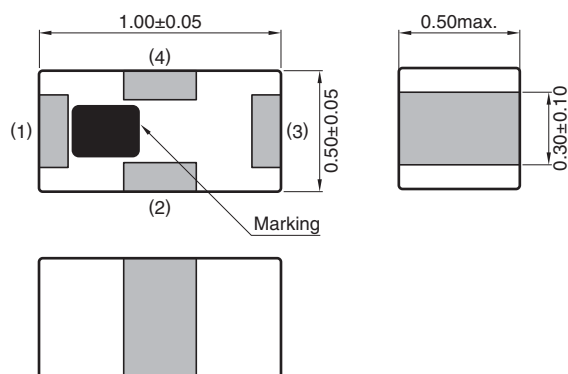
Conformity to RoHS Directive

For 2400-2500MHz

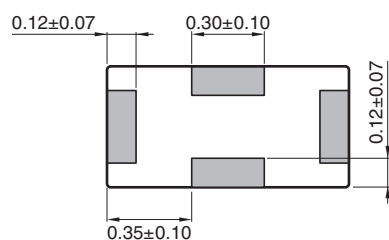
## HHM1902A2

## SHAPES AND DIMENSIONS

[Top view]



[Bottom view]

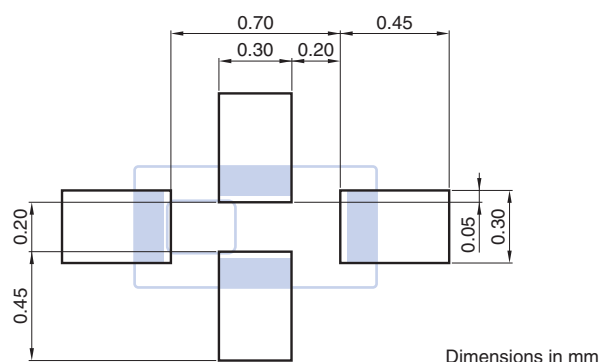


Terminal functions

|   |                 |
|---|-----------------|
| 1 | Balanced port   |
| 2 | Unbalanced port |
| 3 | Balanced port   |
| 4 | GND             |

Dimensions in mm

## RECOMMENDED LAND PATTERN



Dimensions in mm

○ RoHS Directive Compliant Product: See the following for more details related to RoHS Directive compliant products. <http://product.tdk.com/en/environment/rohs/>

- All specifications are subject to change without notice.
- Before using these products, be sure to request the delivery specifications.

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## ■ ELECTRICAL CHARACTERISTICS

| Item                                                  | Frequency Range (MHz) | Min. | Typ.         | Max. |
|-------------------------------------------------------|-----------------------|------|--------------|------|
| Unbalanced Port Characteristic Impedance ( $\Omega$ ) |                       |      | 50 (Nominal) |      |
| Balanced Port Characteristic Impedance ( $\Omega$ )   |                       |      | 50 (Nominal) |      |
| Return Loss at Unbalanced Port (dB)                   | 2400 to 2500          | 10   | —            | —    |
| Phase Balance (deg.)                                  | 2400 to 2500          | 170  | —            | 190  |
| Amplitude Balance (dB)                                | 2400 to 2500          | −2.0 | —            | 2.0  |
| Insertion Loss (dB)                                   | 2400 to 2500          | —    | —            | 0.55 |

## ■ TEMPERATURE RANGE

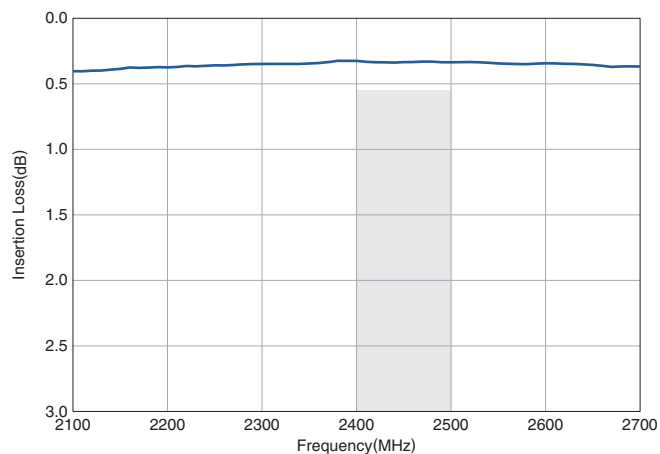
| Operating temperature (°C) | Storage temperature (°C) |
|----------------------------|--------------------------|
| −40 to +85                 | −40 to +85               |

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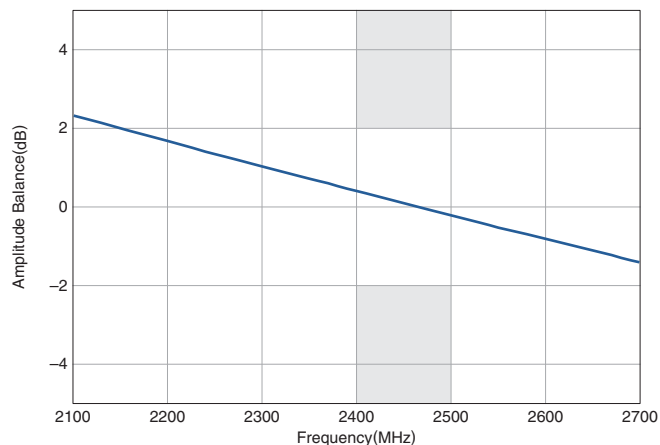
## HHM1902A2

## FREQUENCY CHARACTERISTICS

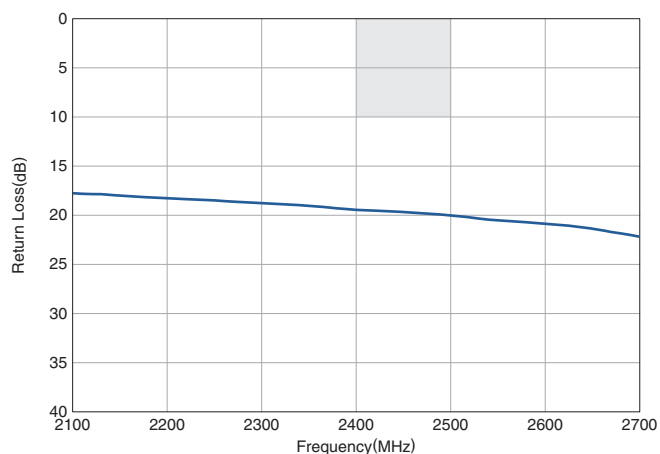
## INSERTION LOSS



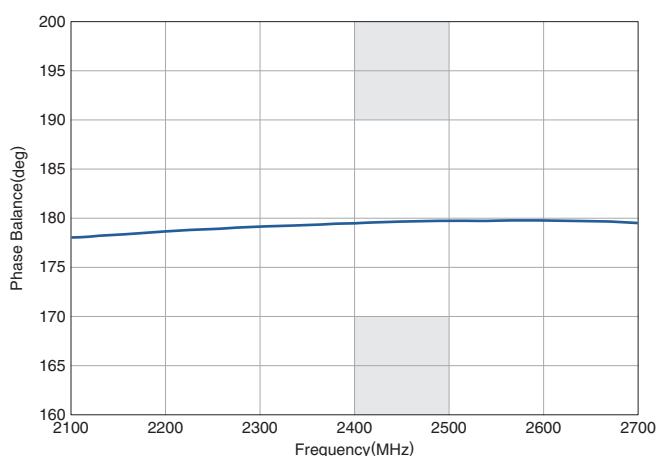
## AMPLITUDE BALANCE



## RETURN LOSS

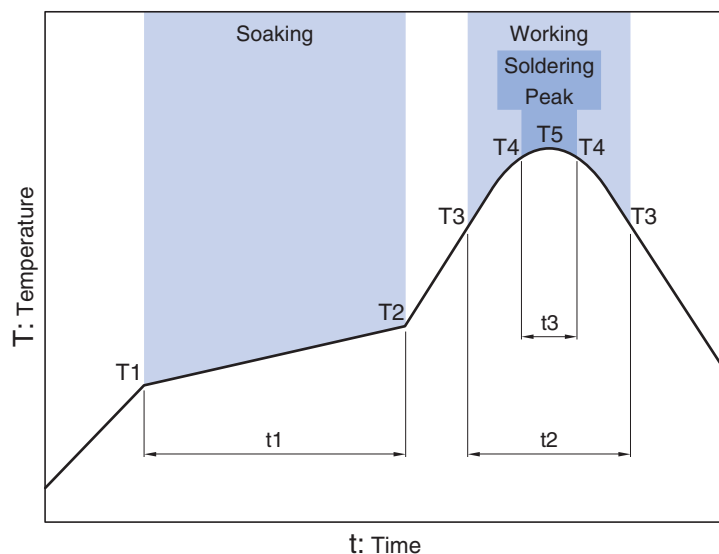


## PHASE BALANCE



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**RECOMMENDED REFLOW PROFILE**


| Soaking |       |            | Working |               | Soldering Peak |            |            |
|---------|-------|------------|---------|---------------|----------------|------------|------------|
| Temp.   |       | Time       | Temp.   | Time          | Temp.          | Time       | Temp.      |
| T1      | T2    | t1         | T3      | t2            | T4             | t3         | T5         |
| 150°C   | 180°C | 60 to 120s | 230°C   | more than 30s | 247 to 253°C   | within 10s | 260°C max. |

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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 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.

Please understand that we are not responsible for any damage or liability caused by use of the products in any of the applications below or for any other use exceeding the range or conditions set forth in this catalog.

- |                                                                   |                                                                              |
|-------------------------------------------------------------------|------------------------------------------------------------------------------|
| (1) Aerospace/Aviation equipment                                  | (8) Public information-processing equipment                                  |
| (2) Transportation equipment (cars, 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 using this product in general-purpose applications, you are kindly requested to take into consideration securing protection circuit/equipment or providing backup circuits, etc., to ensure higher safety.

## 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

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