April 2015

Multilayer Balun

For 2400–2500MHz

HHM1713E2

1.6x0.8mm [EIA 0603]*

* Dimensions Code JIS[EIA]

Multilayer Balun
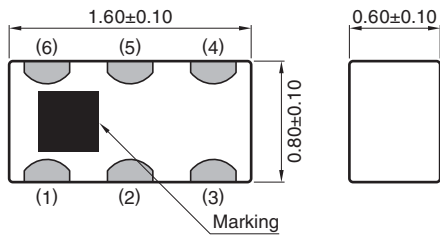
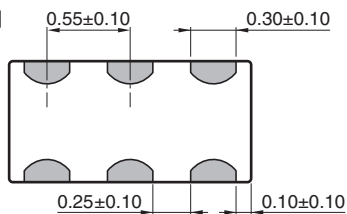**Conformity to RoHS Directive**

For 2400–2500MHz
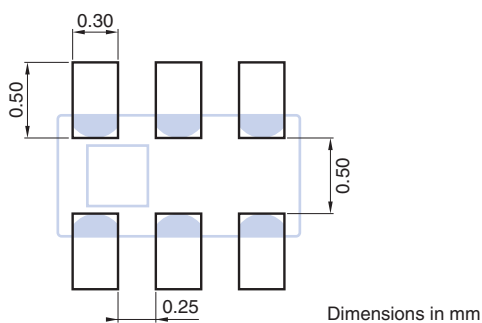
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■SHAPES AND DIMENSIONS

[Top view]

1.60±0.10

(6) (5) (4)

0.80±0.10

(1) (2) (3)

Marking

0.60±0.10

[Bottom view]

0.55±0.10   0.30±0.10

0.25±0.10   0.10±0.10

Terminal functions	
1	Unbalanced port
2	GND or DC feed+ RF GND
3	Balanced port
4	Balanced port
5	GND
6	N.C.

Dimensions in mm

■RECOMMENDED LAND PATTERN

0.30

0.50

0.50

0.25

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

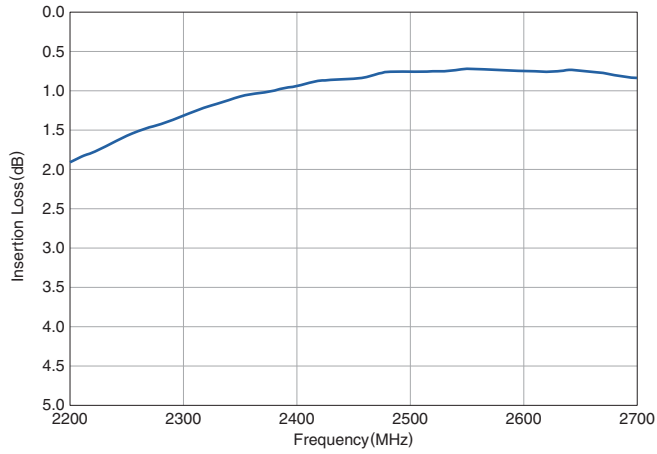| Item	Frequency Range (MHz)	Min.	Typ.	Max.
Unbalanced Port Characteristic Impedance (Ω)			50 (Nominal)	
Balanced Port Characteristic Impedance (Ω)			200 (Nominal)	
Return Loss at Unbalanced Port (dB)	2400 to 2500	10	—	—
Phase Balance (deg.)	2400 to 2500	170	—	190
Amplitude Balance (dB)	2400 to 2500	−1.7	—	1.7
Insertion Loss (dB)	2400 to 2500	—	—	1.2

■TEMPERATURE RANGE

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

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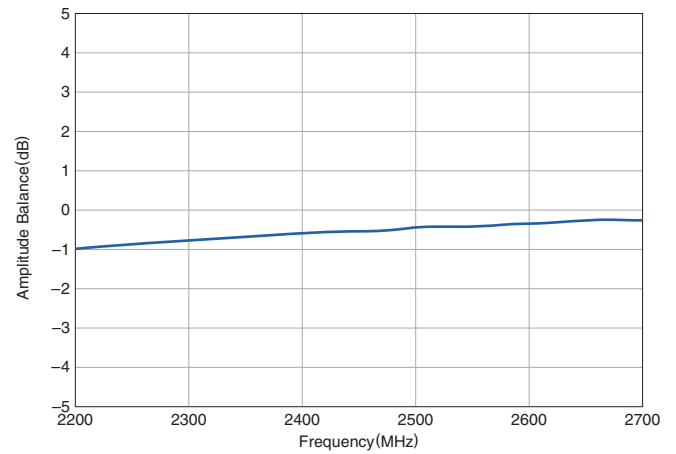• Before using these products, be sure to request the delivery specifications.
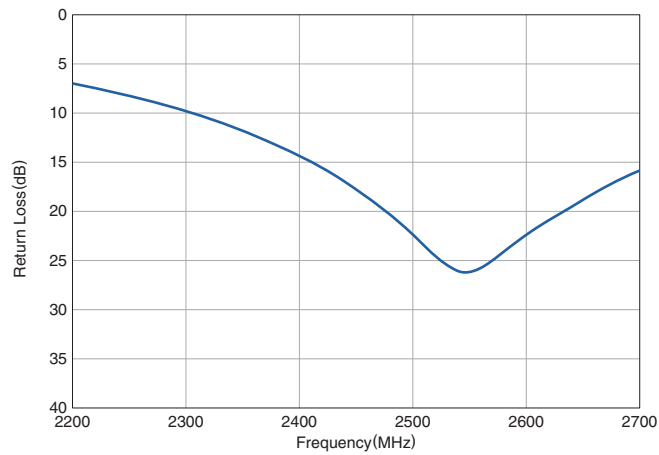
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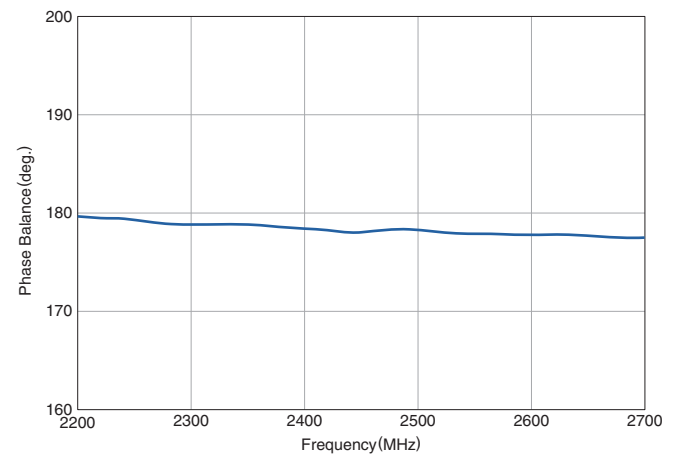## ■ FREQUENCY CHARACTERISTICS

□INSERTION LOSS

□AMPLITUDE BALANCE
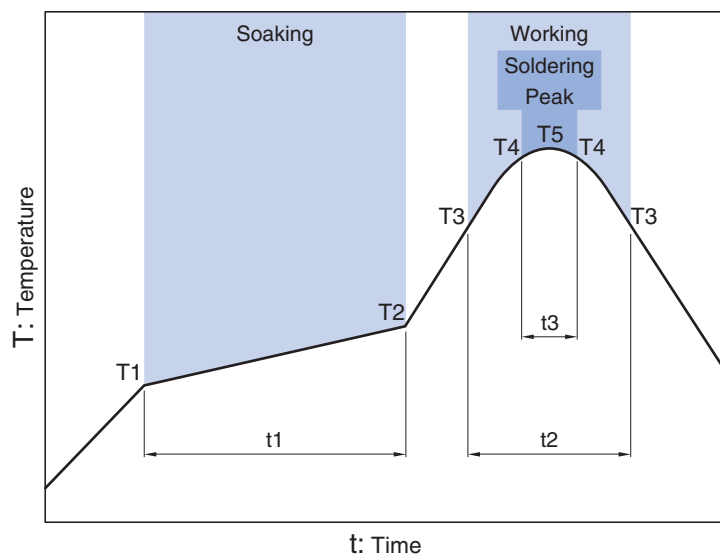

□RETURN LOSS

□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.

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
(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 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.