# Multilayer Balun

For 2400–2500MHz

**HHM1710D1**

1.6x0.8mm [EIA 0603]*

* Dimensions Code JIS[EIA]

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⚠️ **Caution**

The products in this catalog will be or have been stopped production

<table>
<thead>
<tr>
<th>Discontinue Issue Date</th>
<th>Jun. 3, 2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>Last Purchase Order Date</td>
<td>Mar. 31, 2023</td>
</tr>
<tr>
<td>Last Shipment Date</td>
<td>Mar. 31, 2024</td>
</tr>
</tbody>
</table>

Please refer to our Web site about replacement information.
Multilayer Balun
For 2400–2500MHz

HHM1710D1

SHAPES AND DIMENSIONS

<table>
<thead>
<tr>
<th>Top view</th>
<th>Bottom view</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.60±0.10</td>
<td>0.55±0.10</td>
</tr>
<tr>
<td>(6)</td>
<td>(1)</td>
</tr>
<tr>
<td>(5)</td>
<td>(2)</td>
</tr>
<tr>
<td>(4)</td>
<td>(3)</td>
</tr>
<tr>
<td>0.60±0.10</td>
<td>0.30±0.10</td>
</tr>
<tr>
<td>Marking</td>
<td></td>
</tr>
</tbody>
</table>

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:
0.25±0.10
0.10±0.10

RECOMMENDED LAND PATTERN

Dimensions in mm:
0.50
0.30
0.25
0.50
0.30


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

Conformity to RoHS Directive
### ELECTRICAL CHARACTERISTICS

<table>
<thead>
<tr>
<th>Item</th>
<th>Frequency Range</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unbalanced Port Characteristic Impedance</td>
<td>2400 to 2500</td>
<td>10</td>
<td>170</td>
<td>390</td>
</tr>
<tr>
<td>Balanced Port Characteristic Impedance</td>
<td>-20</td>
<td>-20</td>
<td>-20</td>
<td>-20</td>
</tr>
<tr>
<td>Return Loss at Unbalanced Port (dB)</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>1.2</td>
</tr>
<tr>
<td>Phase Balance (deg.)</td>
<td>2400 to 2500</td>
<td>2400</td>
<td>2500</td>
<td>2500</td>
</tr>
<tr>
<td>Amplitude Balance (dB)</td>
<td>2400 to 2500</td>
<td>2400</td>
<td>2500</td>
<td>2500</td>
</tr>
<tr>
<td>Insertion Loss (dB)</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>1.2</td>
</tr>
</tbody>
</table>

**TEMPERATURE RANGE**

- **Operating Temperature**: –40°C to +85°C
- **Storage Temperature**: –40°C to +85°C

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FREQUENCY CHARACTERISTICS

INSERTION LOSS

AMPLITUDE BALANCE

RETURN LOSS

PHASE BALANCE

- All specifications are subject to change without notice.
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RECOMMENDED REFLOW PROFILE

<table>
<thead>
<tr>
<th>Preheating</th>
<th>Soldering Critical zone (T3 to T4)</th>
<th>Peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temp.</td>
<td>Time</td>
<td>Temp.</td>
</tr>
<tr>
<td>T1</td>
<td>T2</td>
<td>T3</td>
</tr>
<tr>
<td>150°C</td>
<td>200°C</td>
<td>217°C</td>
</tr>
</tbody>
</table>

* t3 : Time within 5°C of actual peak temperature
The maximum number of reflow is 3.

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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
(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.

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The products will be of high performance.