Multilayer Directional Coupler
For 698-2620MHz

HHM22139A2

1.6x0.8mm [EIA 0603]*
* Dimensions Code JIS[EIA]
Multilayer Directional Coupler
For 698-2620MHz

HHM22139A2

**SHAPES AND DIMENSIONS**

[Top view]

<table>
<thead>
<tr>
<th>Terminal functions</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port</td>
<td>Input Port</td>
<td>GND</td>
<td>Output Port</td>
<td>50Ω terminate</td>
<td>GND</td>
<td>Coupling Port</td>
</tr>
</tbody>
</table>

[Bottom view]

Dimensions in mm:
- 0.10±0.10
- 0.25±0.10
- 0.55±0.10
- 0.80±0.10
- 1.60±0.10
- 0.30±0.10

**RECOMMENDED LAND PATTERN**

Dimensions in mm:
- 0.30
- 0.30
- 0.50
- 0.25


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

<table>
<thead>
<tr>
<th>Item</th>
<th>Frequency Range (MHz)</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coupling Factor (dB)</td>
<td>698 to 915</td>
<td>23.0</td>
<td>25.5</td>
<td>27.0</td>
</tr>
<tr>
<td></td>
<td>1710 to 2025</td>
<td>21.5</td>
<td>24.0</td>
<td>26.5</td>
</tr>
<tr>
<td></td>
<td>2300 to 2620</td>
<td>22.5</td>
<td>25.0</td>
<td>27.5</td>
</tr>
<tr>
<td>Insertion Loss (dB)</td>
<td>698 to 915</td>
<td>—</td>
<td>0.07</td>
<td>0.20</td>
</tr>
<tr>
<td></td>
<td>1710 to 2025</td>
<td>—</td>
<td>0.09</td>
<td>0.20</td>
</tr>
<tr>
<td></td>
<td>2300 to 2620</td>
<td>—</td>
<td>0.11</td>
<td>0.20</td>
</tr>
<tr>
<td>Return Loss (dB)</td>
<td>698 to 915</td>
<td>15</td>
<td>27.5</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>1710 to 2025</td>
<td>15</td>
<td>27.4</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>2300 to 2620</td>
<td>15</td>
<td>29.0</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>698 to 915 (Coupling Port)</td>
<td>15</td>
<td>21.7</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>1710 to 2025 (Coupling Port)</td>
<td>15</td>
<td>24.4</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>2300 to 2620 (Coupling Port)</td>
<td>15</td>
<td>28.4</td>
<td>—</td>
</tr>
<tr>
<td>Isolation (dB)</td>
<td>698 to 915</td>
<td>45</td>
<td>46.3</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>1710 to 2025</td>
<td>45</td>
<td>48.9</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>2300 to 2620</td>
<td>45</td>
<td>49.7</td>
<td>—</td>
</tr>
<tr>
<td>Characteristic Impedance (Ω)</td>
<td>50 (Nominal)</td>
<td>50 (Nominal)</td>
<td>50 (Nominal)</td>
<td></td>
</tr>
</tbody>
</table>

* Ta: +25 ± 5°C

# TEMPERATURE RANGE

<table>
<thead>
<tr>
<th>Operating temperature (°C)</th>
<th>Storage temperature (°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>−40 to +85</td>
<td>−40 to +85</td>
</tr>
</tbody>
</table>

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FREQUENCY CHARACTERISTICS

INSERTION LOSS

COUPLING

RETURN LOSS

RETURN LOSS (Coupling Port)

DIRECTIVITY

ISOLATION

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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>150°C</td>
<td>T2</td>
</tr>
</tbody>
</table>

* T1 : Time within 5°C of actual peak temperature

The maximum number of reflow is 3.
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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