Thin-Film Directional Coupler
For 2400-2500MHz / 5150-5850MHz

TFSC06054125-2120A1X

0.65x0.5mm [EIA 0202]*
* Dimensions Code JIS[EIA]
Thin-Film Directional Coupler
For 2400-2500MHz / 5150-5850MHz

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SHAPES AND DIMENSIONS

[Top view]

Terminal functions
1. Coupling port
2. 50Ω terminate
3. Output port
4. Input port

Dimensions in mm

RECOMMENDED LAND PATTERN

Dimensions in mm

Line width be designed to match 50Ω characteristic impedance depending on PCB material and thickness.


• 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>2400 to 2500</td>
<td>18.6</td>
<td>19.4</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>5150 to 5850</td>
<td>12</td>
<td>12.8</td>
<td>14</td>
</tr>
<tr>
<td>Insertion Loss (dB)</td>
<td>2400 to 2500</td>
<td>—</td>
<td>0.07</td>
<td>0.2</td>
</tr>
<tr>
<td></td>
<td>5150 to 5850</td>
<td>—</td>
<td>0.34</td>
<td>0.5</td>
</tr>
<tr>
<td>Return Loss (dB)</td>
<td>2400 to 2500</td>
<td>20.83</td>
<td>35.8</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>5150 to 5850</td>
<td>19.08</td>
<td>23.7</td>
<td>—</td>
</tr>
<tr>
<td>Directivity (dB)</td>
<td>2400 to 2500</td>
<td>16</td>
<td>19.9</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>5150 to 5850</td>
<td>20</td>
<td>23.8</td>
<td>—</td>
</tr>
<tr>
<td>Power Handling (W)</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>3</td>
</tr>
<tr>
<td>Characteristic Impedance (Ω)</td>
<td></td>
<td>50 (Nominal)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Ta: +25°C±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

ISOLATION

DIRECTIVITY

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### PACKAGING STYLE

#### REEL DIMENSIONS

Dimensions in mm

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>J</th>
<th>K</th>
<th>T</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.63±0.03</td>
<td>0.81±0.03</td>
<td>8.0±0.2</td>
<td>3.5±0.05</td>
<td>1.75±0.1</td>
<td>2.0±0.05</td>
<td>2.0±0.05</td>
<td>4.0±0.1</td>
<td>ø1.5±0.1/0</td>
<td>0.34±0.03</td>
<td>0.20±0.05</td>
</tr>
</tbody>
</table>

#### TAPE DIMENSIONS

Dimensions in mm

- Dimensions in mm
- Standard package quantity (pieces/reel)

- 10,000

### PACKAGE QUANTITY

- 10,000

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## RECOMMENDED REFLOW PROFILE

![Graph showing the recommended reflow profile with temperature and time details.](image)

<table>
<thead>
<tr>
<th>Preheating</th>
<th>Soldering</th>
<th>Critical zone (T3 to T4)</th>
<th>Peak</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Temp.</strong></td>
<td><strong>Time</strong></td>
<td><strong>Temp.</strong></td>
<td><strong>Time</strong></td>
</tr>
<tr>
<td>T1</td>
<td>150°C</td>
<td>60 to 120sec</td>
<td>T3</td>
</tr>
<tr>
<td>T2</td>
<td>200°C</td>
<td>3°C/sec or lower</td>
<td>T4</td>
</tr>
<tr>
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</tr>
<tr>
<td>T2</td>
<td>200°C</td>
<td>3°C/sec or lower</td>
<td>T4</td>
</tr>
</tbody>
</table>

* T3: 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.

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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