Multilayer Diplexer
For 698-2690MHz / 3400-5850MHz

DPX165850DT-8086A1

1.6x0.8mm [EIA 0603]*
* Dimensions Code JIS[EIA]
Multilayer Diplexer
For 698-2690MHz / 3400-5850MHz

DPX165850DT-8086A1

**SHAPES AND DIMENSIONS**

[Top view]

1.60±0.10

(6) (5) (4)

(1) (2) (3)

Marking

0.65max.

0.80±0.10

[Bottom view]

0.22±0.05

0.22±0.05

0.22±0.05

0.22±0.05

0.22±0.05

0.35±0.05

0.35±0.05

Terminal functions

1. GND
2. Common Port
3. GND
4. High-Band Port
5. GND
6. Low-Band Port

Dimensions in mm

**RECOMMENDED LAND PATTERN**

[Diagram]

Dimensions in mm

**EVALUATION BOARD**

[Diagram]

Dimensions in mm

Material, Layer | Thickness
---|---
Top resist | Resist
Copper Surface Pattern | 0.05mm
FR-4 | 0.10mm
Copper Inner GND | 0.018mm
FR-4 | 0.36mm
Copper Bottom GND | 0.035mm

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


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### ELECTRICAL CHARACTERISTICS

#### LOW-BAND

<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>Insertion Loss (dB)</td>
<td>698 to 2690</td>
<td>—</td>
<td>0.66</td>
<td>0.80</td>
</tr>
<tr>
<td></td>
<td>698 to 2690</td>
<td>—</td>
<td>—</td>
<td>0.91 (–40 to +85°C)</td>
</tr>
<tr>
<td>Return Loss (dB)</td>
<td>698 to 2690</td>
<td>9.54</td>
<td>18.2</td>
<td>—</td>
</tr>
<tr>
<td>Attenuation (dB)</td>
<td>3400 to 3800</td>
<td>13</td>
<td>16.4</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>2.0</td>
</tr>
<tr>
<td>Characteristic Impedance (Ω)</td>
<td>50 (Nominal)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ta: +25±5°C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### HIGH-BAND

<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>Insertion Loss (dB)</td>
<td>3400 to 3800</td>
<td>—</td>
<td>0.77</td>
<td>0.89</td>
</tr>
<tr>
<td></td>
<td>5150 to 5850</td>
<td>—</td>
<td>0.45</td>
<td>0.54</td>
</tr>
<tr>
<td>Return Loss (dB)</td>
<td>3400 to 3800</td>
<td>—</td>
<td>—</td>
<td>0.96 (–40 to +85°C)</td>
</tr>
<tr>
<td></td>
<td>5150 to 5850</td>
<td>—</td>
<td>—</td>
<td>0.64 (–40 to +85°C)</td>
</tr>
<tr>
<td>Attenuation (dB)</td>
<td>3400 to 3800</td>
<td>9.54</td>
<td>19.4</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>5150 to 5850</td>
<td>9.54</td>
<td>21.2</td>
<td>—</td>
</tr>
<tr>
<td>Power Handling (W)</td>
<td>698 to 2690</td>
<td>14</td>
<td>16.6</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>10300 to 11700</td>
<td>18</td>
<td>23.4</td>
<td>—</td>
</tr>
<tr>
<td>Characteristic Impedance (Ω)</td>
<td>50 (Nominal)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ta: +25±5°C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### COMMON

<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>Isolation (dB)</td>
<td>698 to 2690</td>
<td>14</td>
<td>15.8</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>3400 to 3800</td>
<td>13</td>
<td>16.6</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>5150 to 5850</td>
<td>20</td>
<td>23.6</td>
<td>—</td>
</tr>
<tr>
<td>Return Loss (dB)</td>
<td>698 to 2690</td>
<td>9.54</td>
<td>16.8</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>3400 to 3800</td>
<td>9.54</td>
<td>20.1</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>5150 to 5850</td>
<td>9.54</td>
<td>22.1</td>
<td>—</td>
</tr>
<tr>
<td>Characteristic Impedance (Ω)</td>
<td>50 (Nominal)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ta: +25±5°C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### 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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DPX165850DT-8086A1

FREQUENCY CHARACTERISTICS

LOW-BAND

Insertion Loss

Return Loss

Attenuation

HIGH-BAND

Insertion Loss

Return Loss

Attenuation

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**FREQUENCY CHARACTERISTICS**

- **COMMON**
  - Return Loss
  - Isolation

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RECOMMENDED REFLOW PROFILE

Preheating

Soldering

Critical zone (T3 to T4)

Peak

<table>
<thead>
<tr>
<th>Temp.</th>
<th>Time</th>
<th>Temp.</th>
<th>Time</th>
<th>Temp.</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>150°C</td>
<td>T2</td>
<td>200°C</td>
<td>T3</td>
<td>217°C</td>
</tr>
<tr>
<td></td>
<td>60 to 120sec</td>
<td></td>
<td>60 to 120sec</td>
<td></td>
<td>240 to 260°C</td>
</tr>
<tr>
<td></td>
<td></td>
<td>t1</td>
<td></td>
<td>t2</td>
<td>30sec max.</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

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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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