



# Multilayer Diplexer

For 2400-2496MHz / 4900-5950MHz

# DPX165950DT-8126A1

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**1.6x0.8mm [EIA 0603]\***

\* Dimensions Code JIS[EIA]

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# Multilayer Diplexer

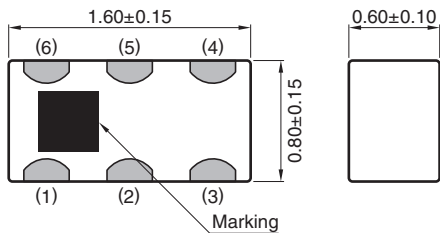
Conformity to RoHS Directive

For 2400-2496MHz / 4900-5950MHz

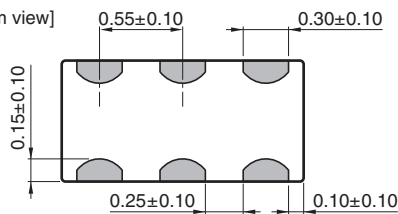
## DPX165950DT-8126A1

### SHAPES AND DIMENSIONS

[Top view]



[Bottom view]

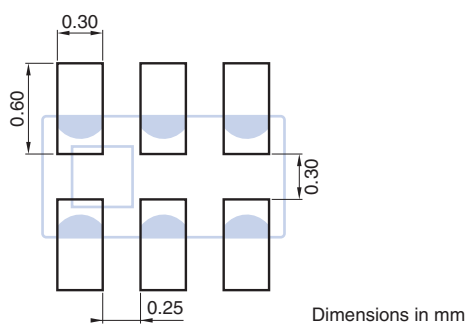


Terminal functions

|   |           |
|---|-----------|
| 1 | GND       |
| 2 | Common    |
| 3 | GND       |
| 4 | Low-band  |
| 5 | GND       |
| 6 | High-band |

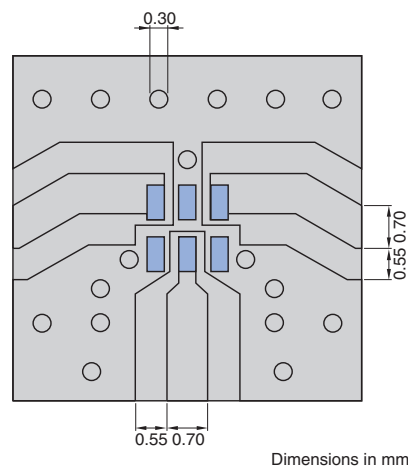
Dimensions in mm

### RECOMMENDED LAND PATTERN



Dimensions in mm

### EVALUATION BOARD



Dimensions in mm

| Material & Layer       | Thickness |
|------------------------|-----------|
| Copper Surface Pattern | 0.035mm   |
| RF-4                   | 0.40mm    |
| Copper Bottom GND      | 0.035mm   |

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

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

### LOW-BAND

| Item                                  | Frequency Range (MHz) | Min. | Typ.         | Max. |
|---------------------------------------|-----------------------|------|--------------|------|
| Insertion Loss (dB)                   | 2400 to 2496          | —    | 0.39         | 0.60 |
| Return Loss (dB)                      | 2400 to 2496          | 9.54 | 21.7         | —    |
| Attenuation (dB)                      | 4900 to 5950          | 26   | 30           | —    |
| Power Handling (W)                    | 2400 to 2496          | —    | —            | 3    |
| Characteristic Impedance ( $\Omega$ ) |                       |      | 50 (Nominal) |      |

· Ta: +25±5°C

### HIGH-BAND

| Item                                  | Frequency Range (MHz) | Min. | Typ.         | Max. |
|---------------------------------------|-----------------------|------|--------------|------|
| Insertion Loss (dB)                   | 4900 to 5950          | —    | 0.78         | 1.40 |
| Return Loss (dB)                      | 4900 to 5950          | 9.54 | 16.5         | —    |
| Attenuation (dB)                      | 30 to 2700            | 28   | 34.9         | —    |
|                                       | 9800 to 11900         | 10   | 21.6         | —    |
| Power Handling (W)                    | 14700 to 17850        | 5    | 14.4         | —    |
|                                       | 4900 to 5950          | —    | —            | 2    |
| Characteristic Impedance ( $\Omega$ ) |                       |      | 50 (Nominal) |      |

· Ta: +25±5°C

### COMMON

| Item                                  | Frequency Range (MHz) | Min. | Typ.         | Max. |
|---------------------------------------|-----------------------|------|--------------|------|
| Isolation (dB)                        | 30 to 2700            | 28   | 34.2         | —    |
|                                       | 4900 to 5950          | 26   | 32.9         | —    |
| Return Loss (dB)                      | 2400 to 2500          | 9.54 | 21.7         | —    |
|                                       | 4900 to 5950          | 9.54 | 20.4         | —    |
| Characteristic Impedance ( $\Omega$ ) |                       |      | 50 (Nominal) |      |

· Ta: +25±5°C

## TEMPERATURE RANGE

| Operating temperature (°C) | Storage temperature (°C) |
|----------------------------|--------------------------|
| -40 to +85                 | -40 to +85               |

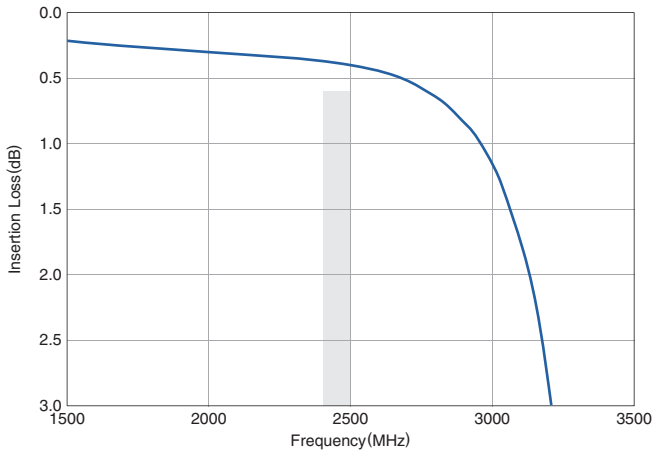
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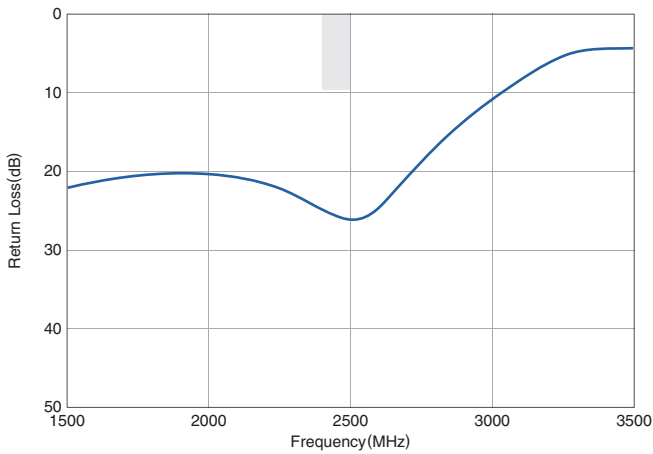
## FREQUENCY CHARACTERISTICS

### LOW-BAND

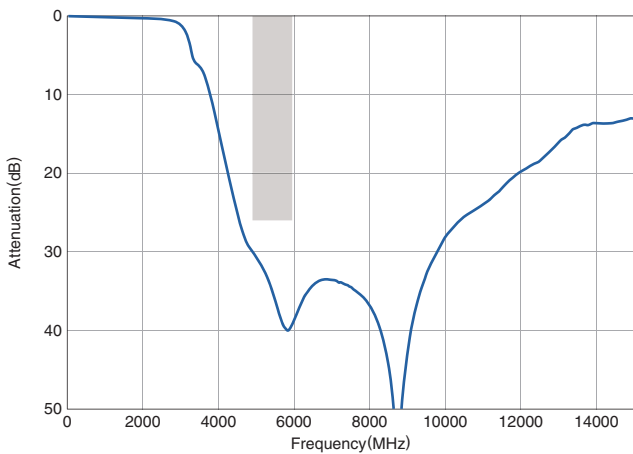
#### Insertion Loss



#### Return Loss

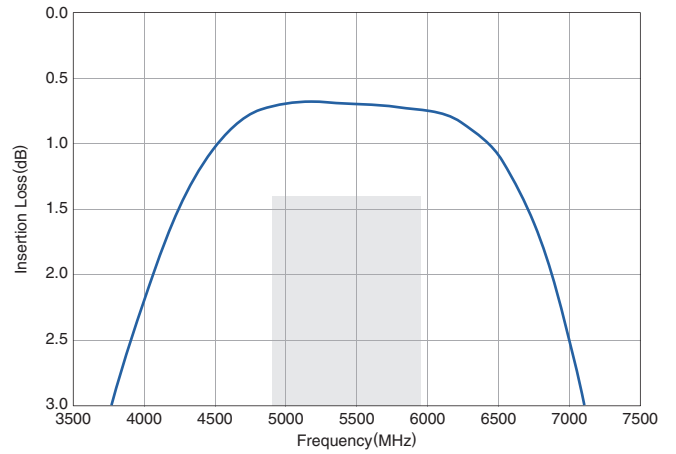


#### Attenuation

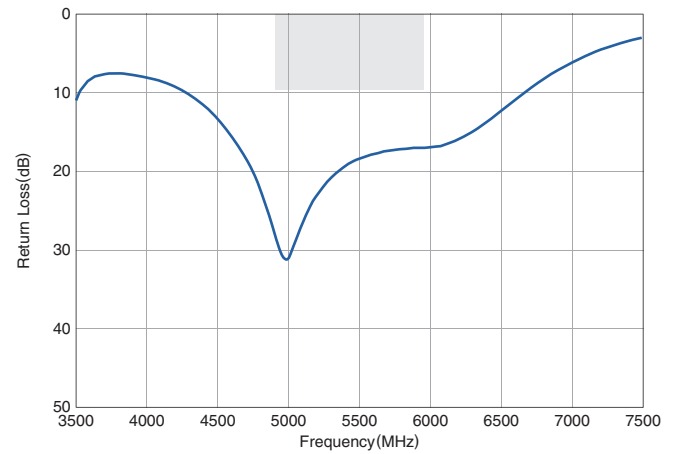


### HIGH-BAND

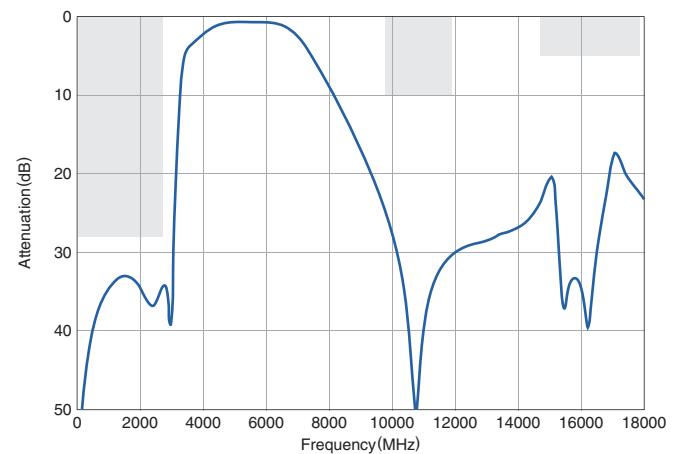
#### Insertion Loss



#### Return Loss



#### Attenuation



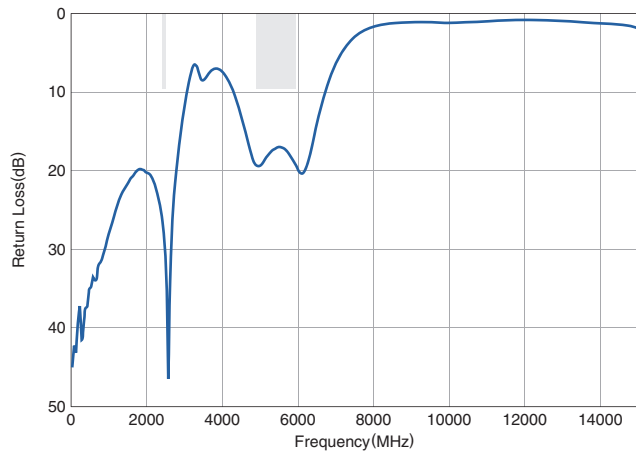
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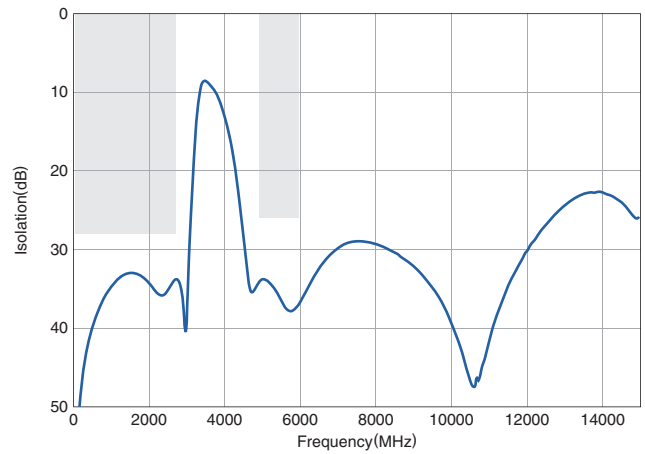
## FREQUENCY CHARACTERISTICS

COMMON

Return Loss



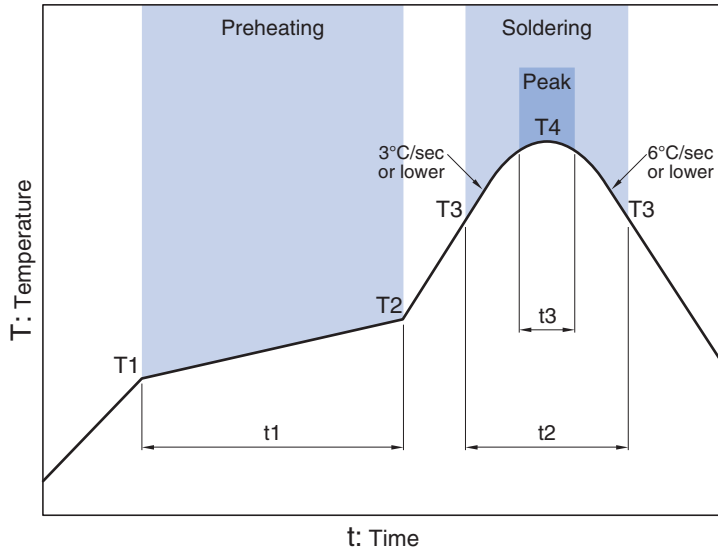
Isolation



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## RECOMMENDED REFLOW PROFILE



| Preheating |       |              | Soldering                |              |              |            |
|------------|-------|--------------|--------------------------|--------------|--------------|------------|
| Temp.      | Temp. | Time         | Critical zone (T3 to T4) |              | Peak         |            |
| T1         | T2    | t1           | T3                       | t2           | T4           | t3*        |
| 150°C      | 200°C | 60 to 120sec | 217°C                    | 60 to 120sec | 240 to 260°C | 30sec max. |

\* 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.

#### 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                                  | (8) Public information-processing equipment                                  |
| (2) Transportation equipment (cars, electric trains, ships, etc.) | (9) Military equipment   |
| (3) Medical equipment   | (10) Electric heating apparatus, burning equipment                           |
| (4) Power-generation control equipment                            | (11) Disaster prevention/crime prevention equipment                          |
| (5) Atomic energy-related equipment                               | (12) Safety equipment  |
| (6) Seabed equipment  | (13) Other applications that are not considered general-purpose applications |
| (7) Transportation control equipment                              |  |

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.