



# Multilayer Diplexer

For 2400-2500MHz / 4900-5950MHz

# DPX105950DT-6112A2

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1.0x0.5mm [EIA 0402]\*

\* Dimensions Code JIS[EIA]

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# Multilayer Diplexer

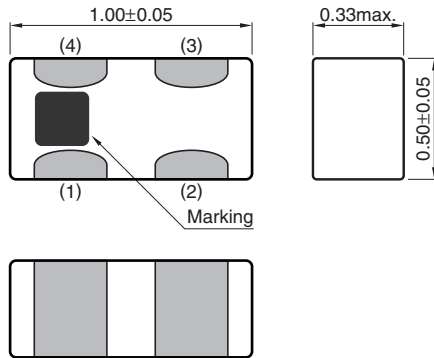
Conformity to RoHS Directive

For 2400-2500MHz / 4900-5950MHz

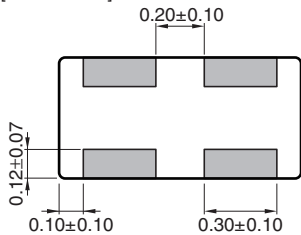
## DPX105950DT-6112A2

### SHAPES AND DIMENSIONS

[Top view]



[Bottom view]

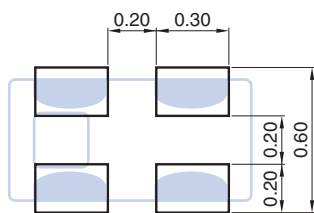


Terminal functions

|   |                |
|---|----------------|
| 1 | GND            |
| 2 | Common Port    |
| 3 | Low-band Port  |
| 4 | High-band Port |

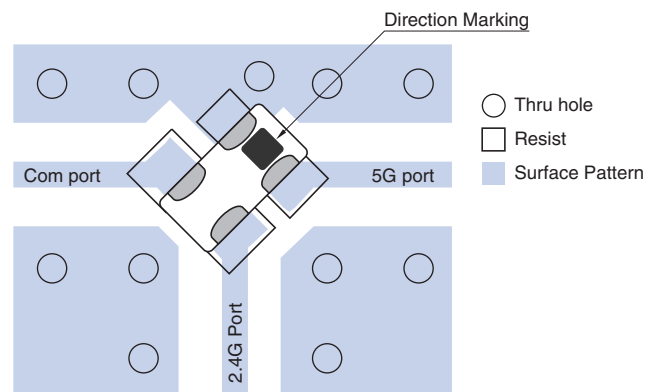
Dimensions in mm

### RECOMMENDED LAND PATTERN



Dimensions in mm

### EVALUATION BOARD



| Material, Layer        | Thickness |
|------------------------|-----------|
| Top Resist             | Resist    |
| Copper Surface Pattern | 0.035mm   |
| FR-4                   | 0.10mm    |
| Copper Inner GND       | 0.018mm   |
| FR-4                   | 0.30mm    |
| 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 2500          | —    | 0.37         | 0.50                |
|                              | 2400 to 2500          | —    | —            | 0.60 (−40 to +85°C) |
| Return Loss (dB)             | 2400 to 2500          | 10   | 22           | —                   |
| Attenuation (dB)             | 4800 to 6000          | 23   | 29           | —                   |
|                              | 7200 to 7500          | 23   | 29           | —                   |
| Characteristic Impedance (Ω) |                       |      | 50 (Nominal) |                     |

· Ta: +25±5°C

### HIGH-BAND

| Item                         | Frequency Range (MHz) | Min. | Typ.         | Max.                |
|------------------------------|-----------------------|------|--------------|---------------------|
| Insertion Loss (dB)          | 4900 to 5950          | —    | 0.56         | 0.80                |
|                              | 4900 to 5950          | —    | —            | 1.00 (−40 to +85°C) |
| Return Loss (dB)             | 4900 to 5950          | 10   | 15           | —                   |
| Attenuation (dB)             | 30 to 2400            | 25   | 29           | —                   |
|                              | 2400 to 2500          | 32   | 41           | —                   |
|                              | 2500 to 2690          | 23   | 29           | —                   |
|                              | 9800 to 11900         | 20   | 30           | —                   |
| Characteristic Impedance (Ω) |                       |      | 50 (Nominal) |                     |

· Ta: +25±5°C

### COMMON

| Item                         | Frequency Range (MHz) | Min. | Typ.         | Max. |
|------------------------------|-----------------------|------|--------------|------|
| Return Loss (dB)             | 2400 to 2500          | 10   | 22           | —    |
|                              | 4900 to 5950          | 10   | 15           | —    |
| Power Handling (W)           |                       | —    | —            | 1    |
| Characteristic Impedance (Ω) |                       |      | 50 (Nominal) |      |

· Ta: +25±5°C

## TEMPERATURE RANGE

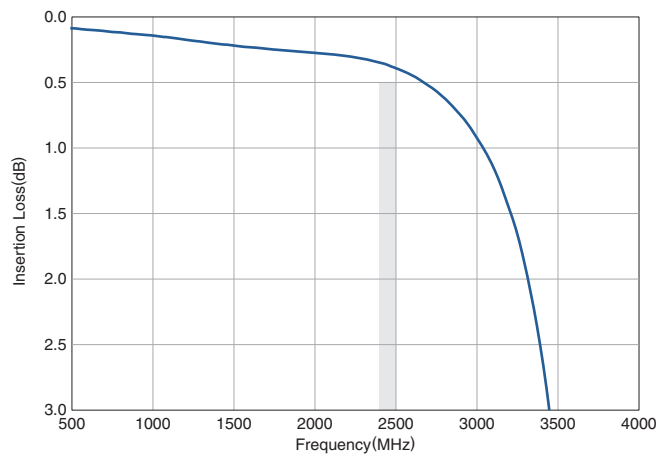
| Operating temperature (°C) | Storage temperature (°C) |
|----------------------------|--------------------------|
| −40 to +85                 | −40 to +85               |

# DPX105950DT-6112A2

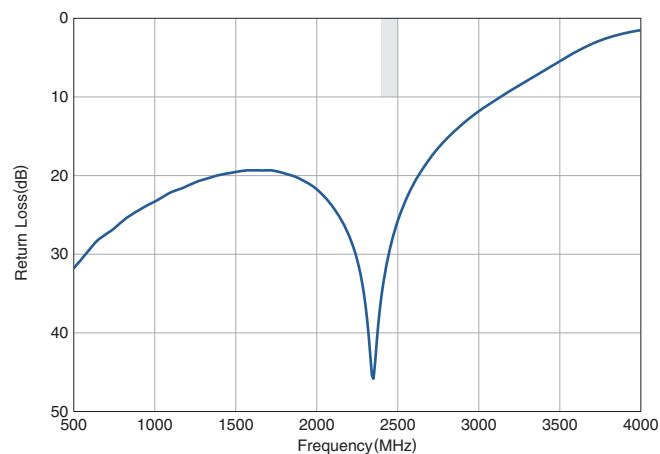
## FREQUENCY CHARACTERISTICS

### LOW-BAND

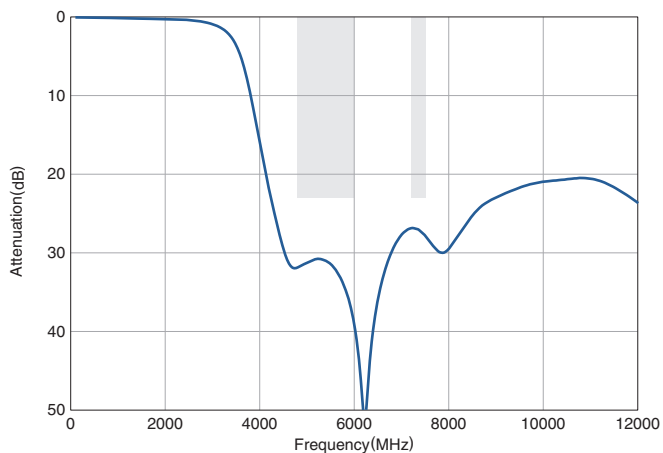
#### Insertion Loss



#### Return Loss

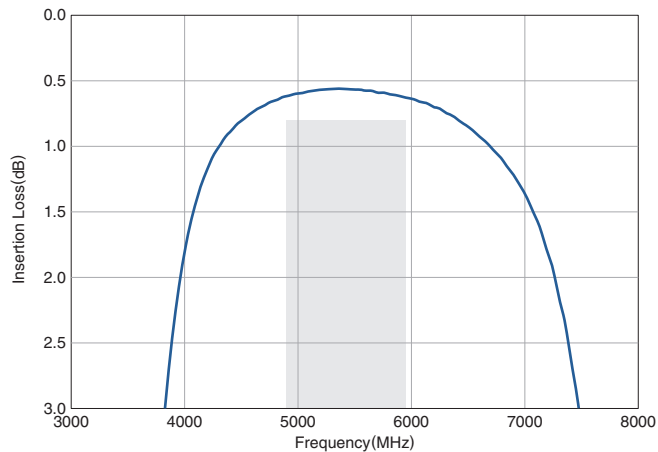


#### Attenuation

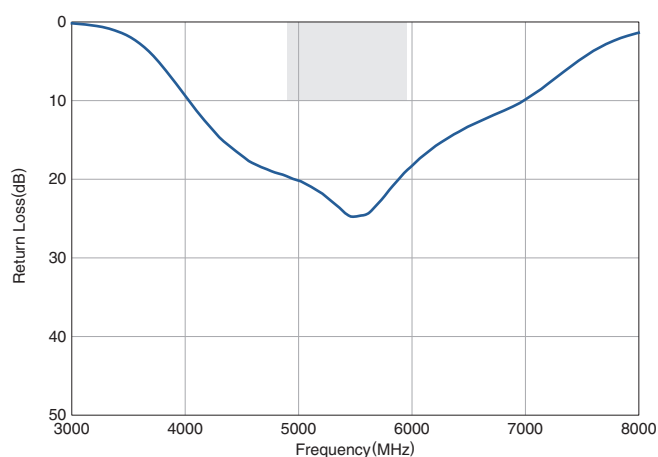


### HIGH-BAND

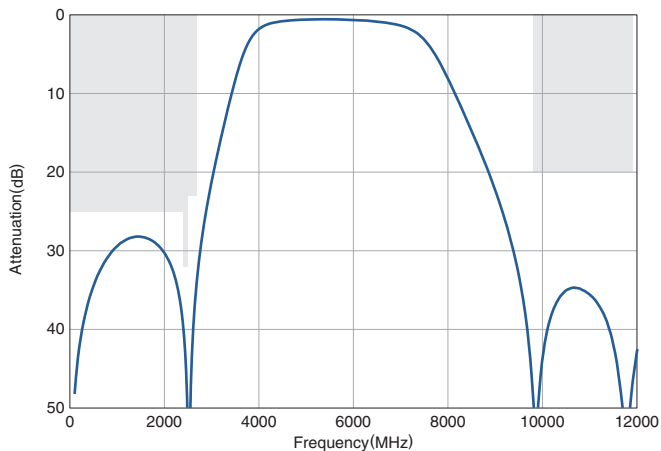
#### Insertion Loss



#### Return Loss



#### Attenuation



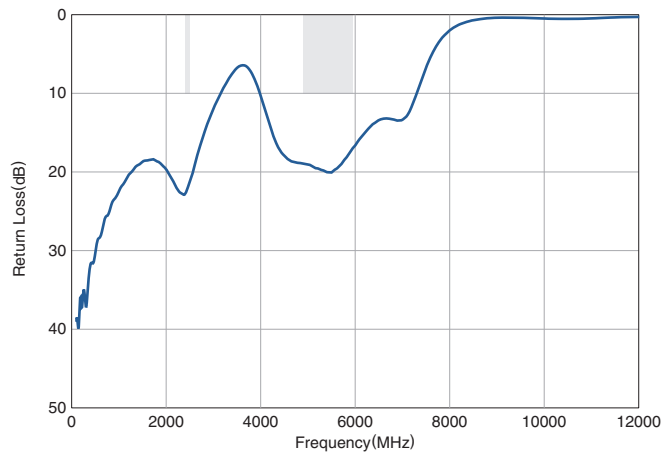
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## DPX105950DT-6112A2

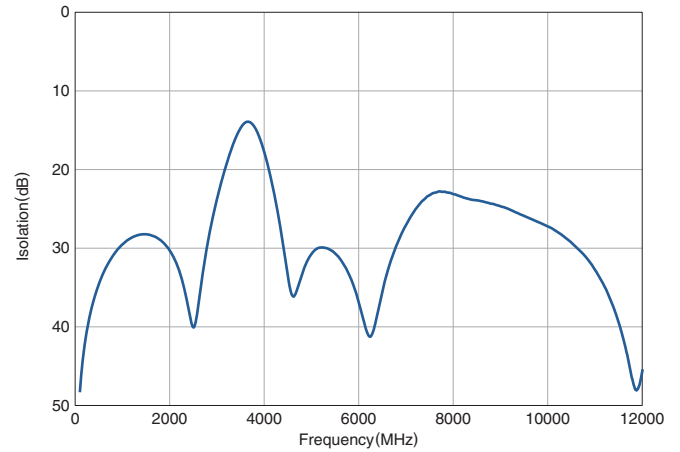
## FREQUENCY CHARACTERISTICS

## COMMON

## Return Loss



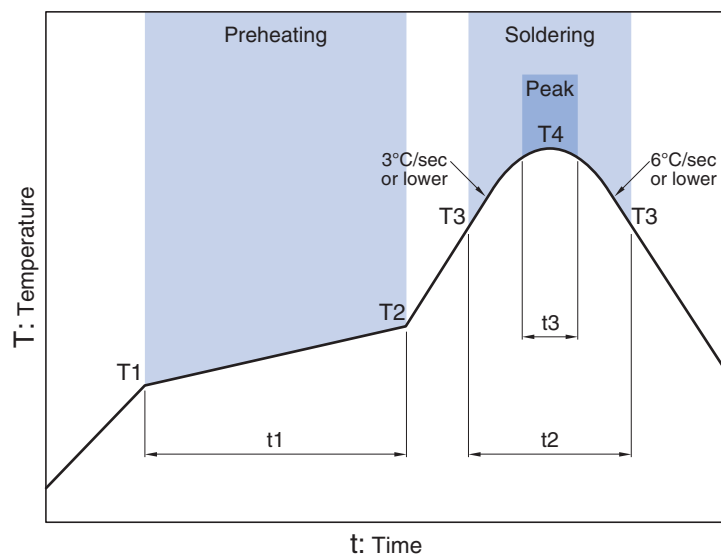
## Isolation



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## RECOMMENDED REFLOW PROFILE



| Preheating |       |              | Soldering                |              |              |            |
|------------|-------|--------------|--------------------------|--------------|--------------|------------|
|            |       |              | Critical zone (T3 to T4) |              | Peak         |            |
| Temp.      |       | Time         | Temp.                    | Time         | Temp.        | Time       |
| 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.