

# Multilayer Diplexers

For GSM850/PCS Tx & Rx

## DPX Series

**Type:**            **DPX205850DT-4032A1 (2.0×1.25×0.95mm)**  
                      **DPX201990DT-4114A2 (2.0×1.25×0.95mm)**  
                      **DPX201990DT-4014A2 (2.0×1.25×0.95mm)**

**Issue date:**     December 2010

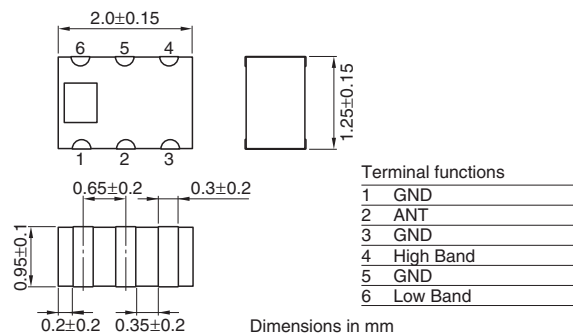
- All specifications are subject to change without notice.
  - Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.
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# Multilayer Chip Diplexers For GSM850/PCS Tx & Rx

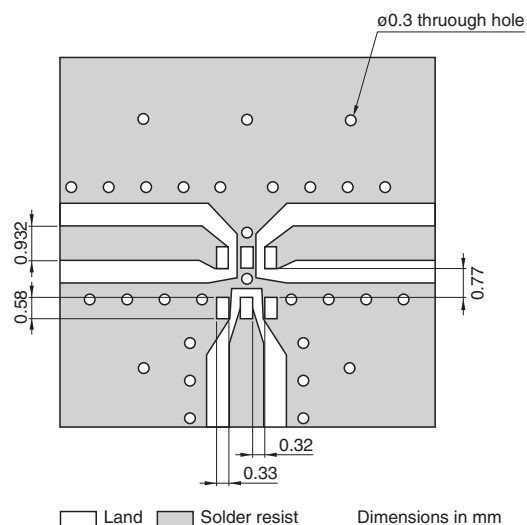
Conformity to RoHS Directive

DPX Series DPX205850DT-4032A1

## SHAPES AND DIMENSIONS



## RECOMMENDED PC BOARD PATTERNS



## ELECTRICAL CHARACTERISTICS

| Item              | Port        | Frequency range |      | Minimum value | Typical value | Maximum value |
|-------------------|-------------|-----------------|------|---------------|---------------|---------------|
| Insertion loss    | ANT Lo-band | 800 to 2170MHz  | (dB) | —             | 1.51          | 3.0           |
|                   | ANT Hi-band | 2400 to 5850MHz | (dB) | —             | 1.36          | 3.0           |
| Attenuation       | ANT Lo-band | 2400 to 5850MHz | (dB) | 8.0           | 12.7          | —             |
|                   | ANT Hi-band | 800 to 2170MHz  | (dB) | 8.0           | 11.5          | —             |
| Temperature range | Operating   | (°C)            |      | −40           | —             | +85           |
|                   | Storage     | (°C)            |      | −40           | —             | +85           |

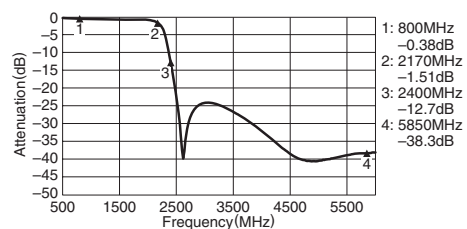
• Ta: +25°C

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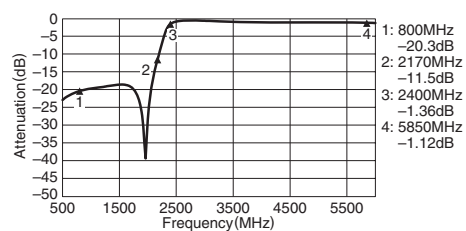
• All specifications are subject to change without notice.

## FREQUENCY CHARACTERISTICS

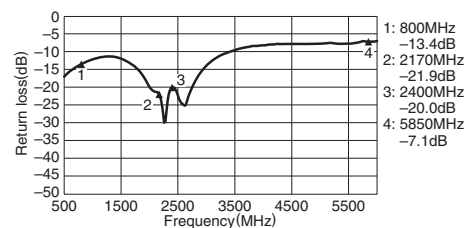
### Lo-BAND PORT ATTENUATION S21



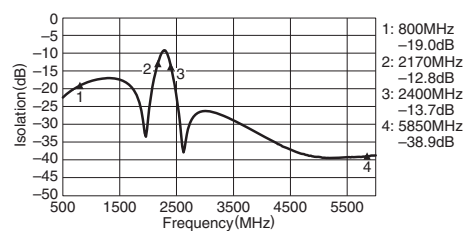
### Hi-BAND PORT ATTENUATION S31



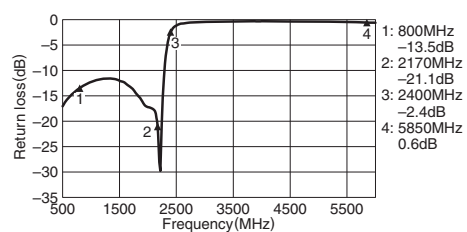
### COMMON PORT RETURN LOSS S11



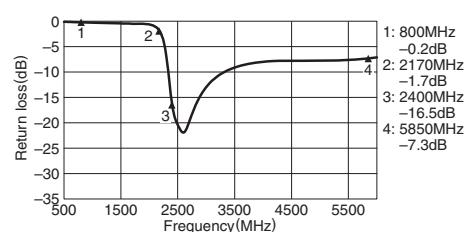
### ISOLATION S23



### Lo-BAND PORT RETURN LOSS S22



### Hi-PORT RETURN LOSS S33

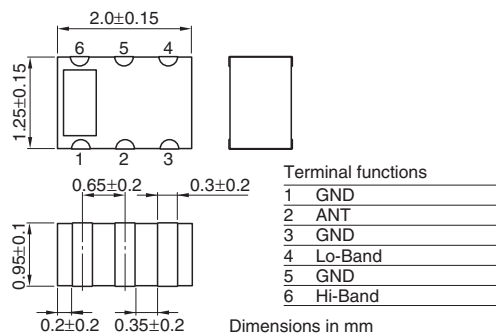


# Multilayer Chip Diplexers For GSM850/PCS Tx & Rx

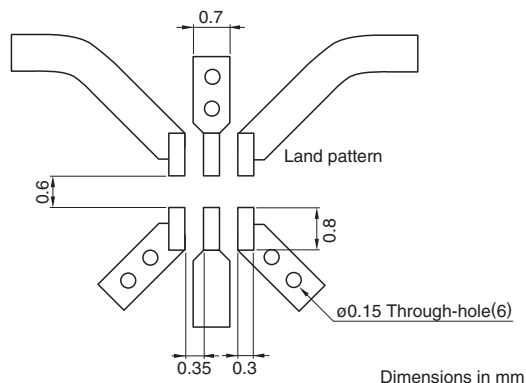
Conformity to RoHS Directive

DPX Series DPX201990DT-4114A2

## SHAPES AND DIMENSIONS



## RECOMMENDED PC BOARD PATTERNS



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

## ELECTRICAL CHARACTERISTICS

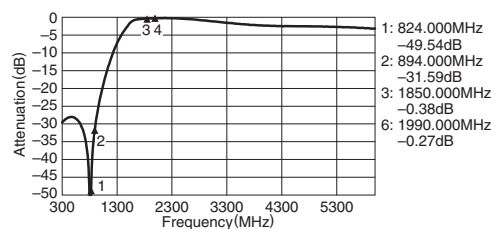
| Item              | Port    | Frequency range                | Minimum value | Typical value | Maximum value |
|-------------------|---------|--------------------------------|---------------|---------------|---------------|
| Insertion loss    | Lo-band | [−40 to +85°C] 824 to 894MHz   | (dB) —        | —             | 0.5           |
|                   | Hi-band | [−40 to +85°C] 1850 to 1990MHz | (dB) —        | —             | 0.55          |
|                   | Lo-band | [25°C] 824 to 894MHz           | (dB) —        | —             | 0.45          |
|                   | Hi-band | [25°C] 1850 to 1990MHz         | (dB) —        | —             | 0.5           |
| Return loss       | ANT     | 824 to 894, 1850 to 1990MHz    | (dB) 10.0     | —             | —             |
|                   | Hi-band | 824 to 894MHz                  | (dB) 19.0     | —             | —             |
| Attenuation       | Lo-band | 1850 to 1990MHz                | (dB) 20.0     | —             | —             |
|                   | Lo-band | 1648 to 1788MHz(AGSM 2fo)      | (dB) 10.0     | —             | —             |
|                   | Lo-band | 2472 to 2682MHz(AGSM 3fo)      | (dB) 28.0     | —             | —             |
| Power capability  |         |                                | (W) —         | —             | 3.0           |
| Temperature range |         | Operating                      | (°C) −40      | —             | +85           |
|                   |         | Storage                        | (°C) −40      | —             | +85           |

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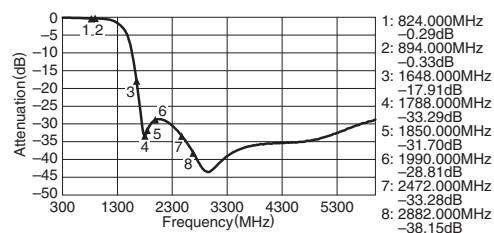
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## FREQUENCY CHARACTERISTICS

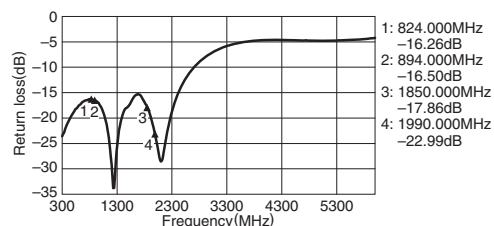
### Hi-BAND PORT S21



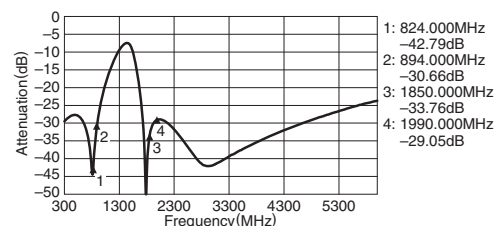
### Lo-BAND PORT S31



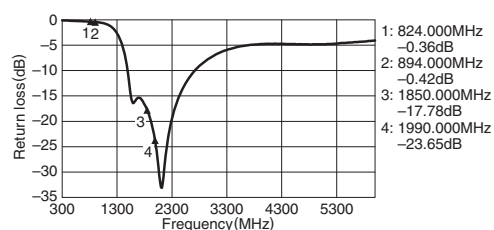
### COMMON PORT RETURN LOSS S11



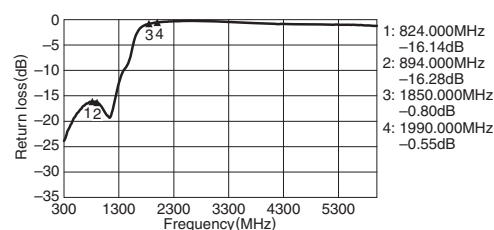
### ISOLATION S23



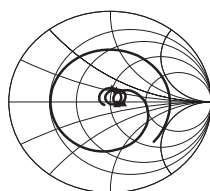
### Hi-BAND PORT RETURN LOSS S22



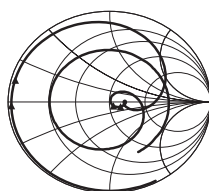
### Lo-PORT RETURN LOSS S33



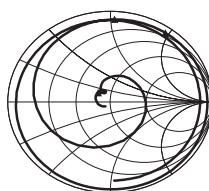
## SMITH CHARTS



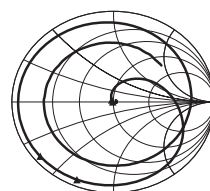
S11



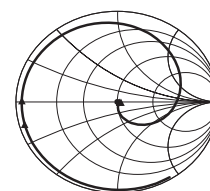
S22



S33



S21



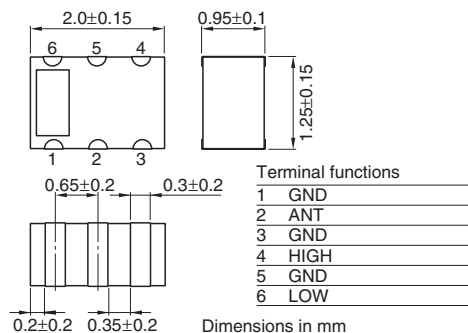
S31

# Multilayer Chip Diplexers For AGSM/PCS Tx/Rx

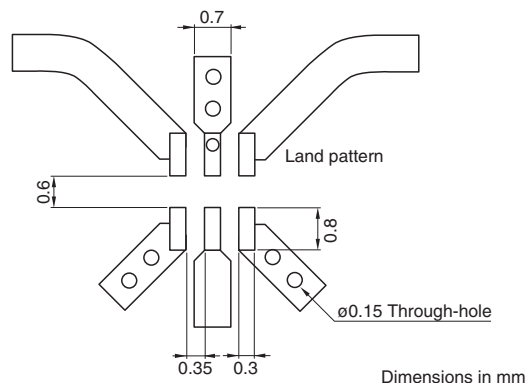
Conformity to RoHS Directive

DPX Series DPX201990DT-4014A2

## SHAPES AND DIMENSIONS



## RECOMMENDED PC BOARD PATTERNS



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

## ELECTRICAL CHARACTERISTICS

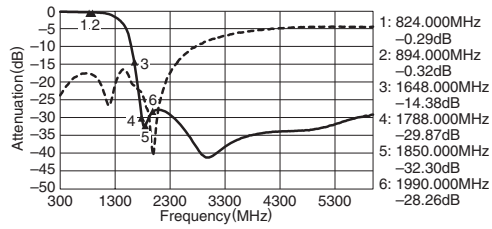
| Item              | Port    | Frequency range                                  | Minimum value          | Typical value | Maximum value |
|-------------------|---------|--------------------------------------------------|------------------------|---------------|---------------|
| Insertion loss    | Lo-band | $[-40$ to $+85^{\circ}\text{C}]$ 824 to 894MHz   | (dB)                   | —             | 0.5           |
|                   | Hi-band | $[-40$ to $+85^{\circ}\text{C}]$ 1850 to 1990MHz | (dB)                   | —             | 0.55          |
|                   | Lo-band | $[25^{\circ}\text{C}]$ 824 to 894MHz             | (dB)                   | —             | 0.45          |
|                   | Hi-band | $[25^{\circ}\text{C}]$ 1850 to 1990MHz           | (dB)                   | —             | 0.5           |
| Return loss       | ANT     | 824 to 894, 1850 to 1990MHz                      | (dB)                   | 10.0          | —             |
|                   | Hi-band | 824 to 894MHz                                    | (dB)                   | 19.0          | —             |
| Attenuation       | Lo-band | 1850 to 1990MHz                                  | (dB)                   | 20.0          | —             |
|                   | Lo-band | 1648 to 1788MHz(AGSM 2fo)                        | (dB)                   | 10.0          | —             |
|                   | Lo-band | 2472 to 2682MHz(AGSM 3fo)                        | (dB)                   | 28.0          | —             |
| Power capability  |         |                                                  | (W)                    | —             | 3.0           |
| Temperature range |         | Operating                                        | ( $^{\circ}\text{C}$ ) | —40           | +85           |
|                   |         | Storage                                          | ( $^{\circ}\text{C}$ ) | —40           | +85           |

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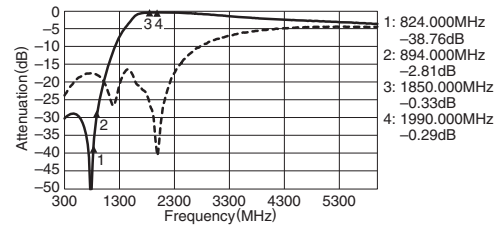
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## FREQUENCY CHARACTERISTICS

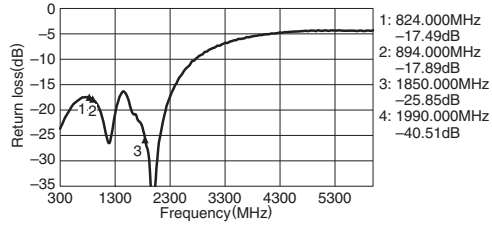
### Lo-BAND PORT S21



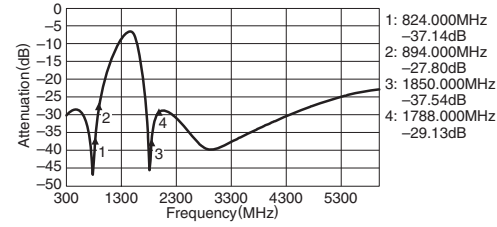
### Hi-BAND PORT S31



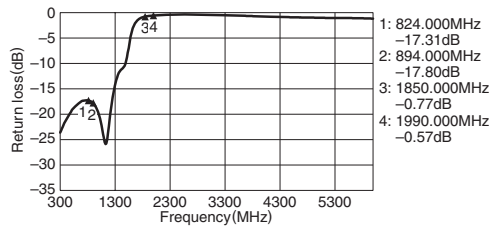
### COMMON PORT RETURN LOSS S11



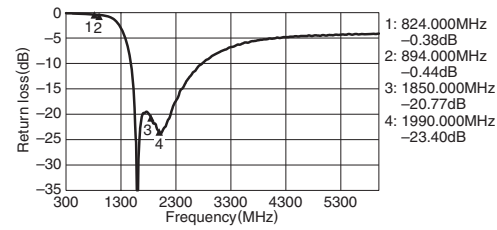
### ISOLATION S23



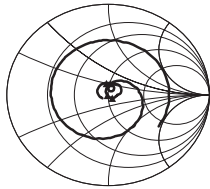
### Lo-BAND PORT RETURN LOSS S22



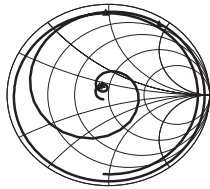
### Hi-PORT RETURN LOSS S33



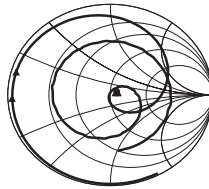
## SMITH CHARTS



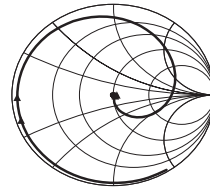
S11



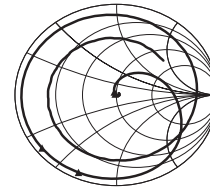
S22



S33



S21



S31