

# Multilayer Band Pass Filters

For 2.4GHz W-LAN/Bluetooth

## DEA Series

Type:            **DEA252450BT-2080B2 (2.5×2.0×0.9mm)**  
                    **DEA252450BT-2024C2 (2.5×2.0×0.9mm)**  
                    **DEA252450BT-2024C5 (2.5×2.0×1.0mm max.)**  
                    **DEA252400BT-2030A1 (2.5×2.0×1.0mm max.)**  
                    **DEA252450BT-2024D4 (2.5×2.0×1.0mm max.)**  
                    **DEA252450BT-2027A1 (2.5×2.0×1.0mm max.)**  
                    **DEA252450BT-2031A1 (2.5×2.0×1.0mm max.)**  
                    **DEA252450BT-2063C1 (2.5×2.0×1.0mm max.)**  
                    **DEA252450BT-2109C3 (2.5×2.0×1.0mm max.)**  
                    **DEA252450BT-2037C1 (2.5×2.0×1.5mm max.)**

Issue date:     December 2011

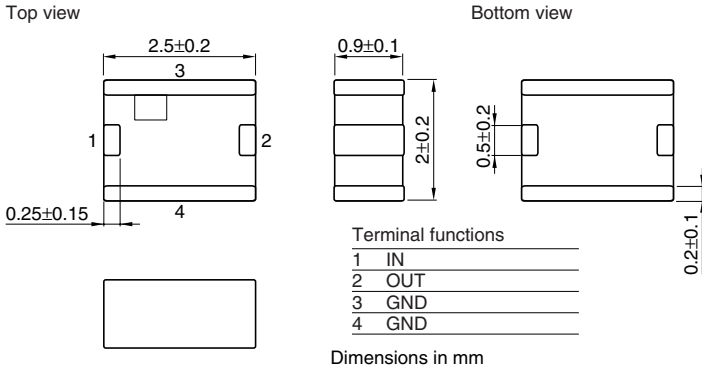
- All specifications are subject to change without notice.
  - Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.
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# Multilayer Chip Band Pass Filters For Bluetooth & 2.4GHz W-LAN

Conformity to RoHS Directive

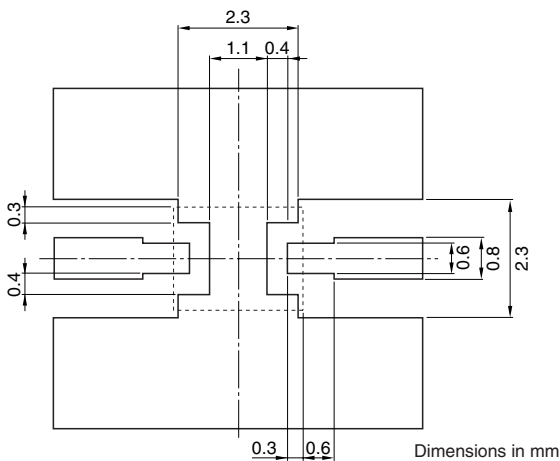
DEA Series DEA252450BT-2080B2

## SHAPES AND DIMENSIONS



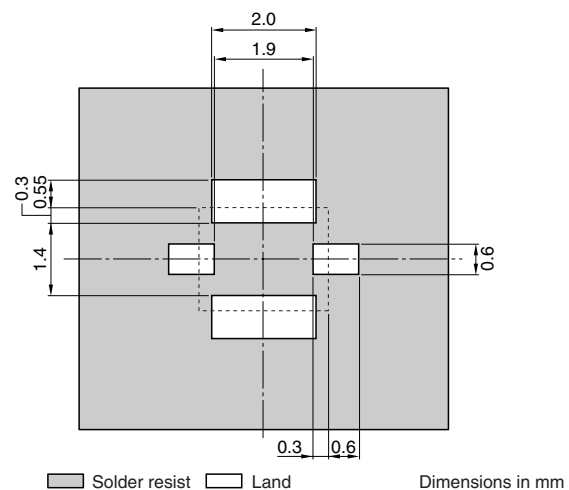
## RECOMMENDED PC BOARD PATTERNS

### LAND



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

### SOLDER RESIST



## ELECTRICAL CHARACTERISTICS

Item			Minimum value	Typical value	Maximum value
Insertion loss	[2400 to 2500MHz]	(dB)	—	1.56	2.0
Return loss	[2400 to 2500MHz]	(dB)	10.0	24.4	—
	[824 to 849MHz]	(dB)	52.0	54.8	—
	[869 to 894MHz]	(dB)	52.0	54.8	—
	[894 to 915MHz]	(dB)	52.0	54.1	—
	[925 to 960MHz]	(dB)	52.0	54.1	—
	[1570 to 1580MHz]	(dB)	54.0	58.2	—
	[1710 to 1785MHz]	(dB)	54.0	68.0	—
	[1805 to 1850MHz]	(dB)	54.0	69.2	—
	[1850 to 1910MHz]	(dB)	54.0	68.4	—
	[1930 to 1990MHz]	(dB)	48.0	51.7	—
	[2100MHz]	(dB)	25.0	32.8	—
	[4800 to 5000MHz]	(dB)	40.0	52.1	—
	[7200 to 7500MHz]	(dB)	21.0	32.7	—
Temperature range	Operating	(°C)	-40	—	+85
	Storage	(°C)	-40	—	+85

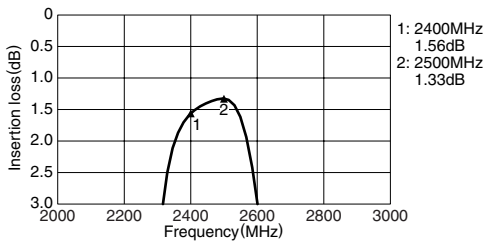
• Ta:+25°C

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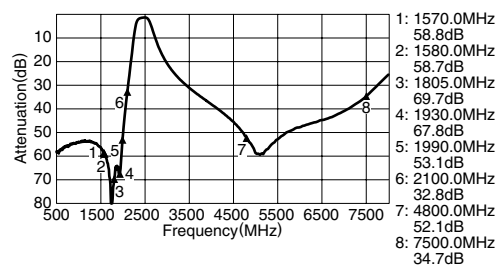
• All specifications are subject to change without notice.

### FREQUENCY CHARACTERISTICS

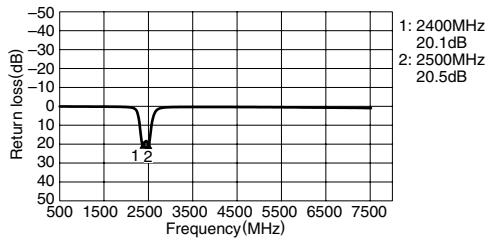
#### INSERTION LOSS



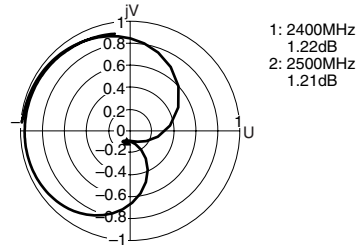
#### ATTENUATION



#### RETURN LOSS



#### VSWR



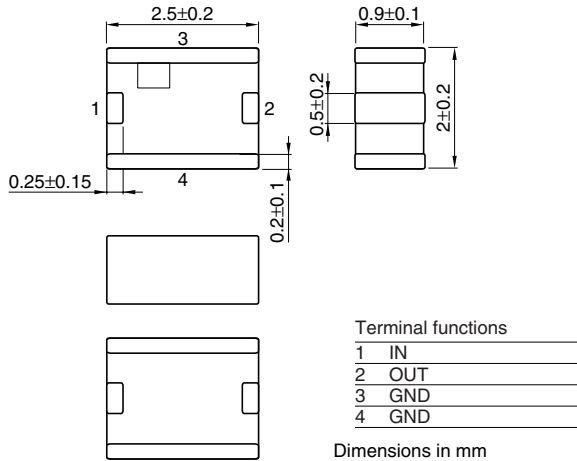
• All specifications are subject to change without notice.

# Multilayer Chip Band Pass Filters For Bluetooth & 2.4GHz W-LAN

Conformity to RoHS Directive

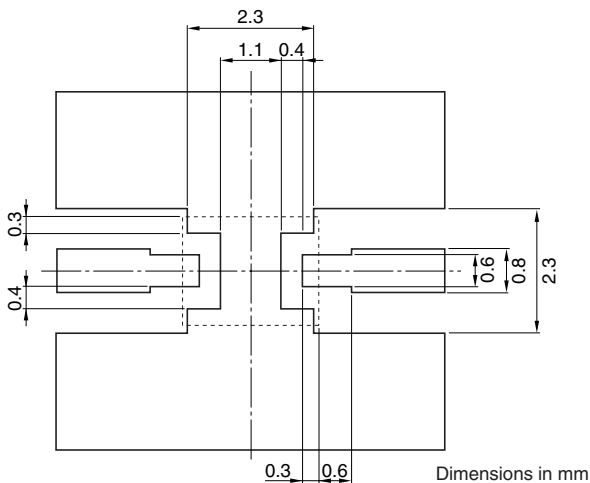
DEA Series DEA252450BT-2024C2

## SHAPES AND DIMENSIONS



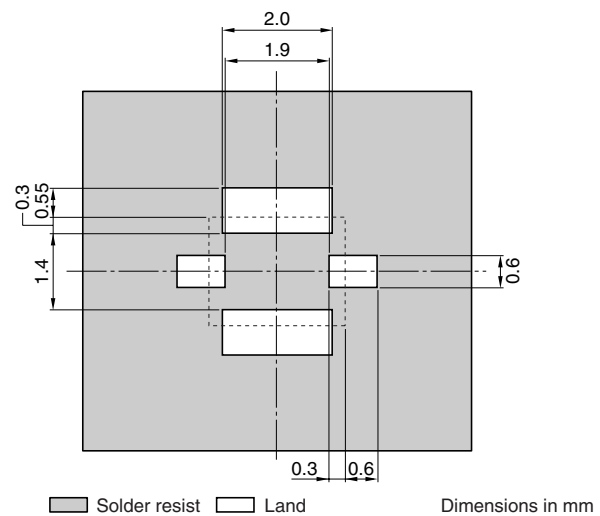
## RECOMMENDED PC BOARD PATTERNS

### LAND



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

### SOLDER RESIST



## ELECTRICAL CHARACTERISTICS

Item			Minimum value	Typical value	Maximum value
Insertion loss	[2400 to 2800MHz]	(dB)	—	—	3.0
Return loss	[2400 to 2800MHz]	(dB)	10.0	—	—
	[880 to 960MHz]	(dB)	50.0	—	—
	[1565 to 1585MHz]	(dB)	50.0	—	—
Attenuation	[1710 to 1880MHz]	(dB)	48.0	—	—
	[1930 to 1990MHz]	(dB)	48.0	—	—
	[2110 to 2170MHz]	(dB)	22.0	—	—
Temperature range	Operating	(°C)	-40	—	+85
	Storage	(°C)	-40	—	+85

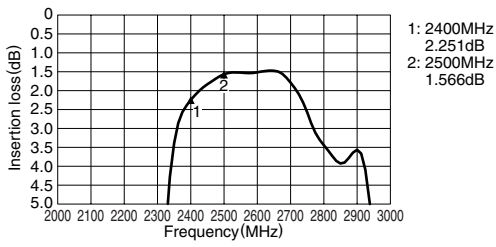
• Ta: +25°C

• 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.

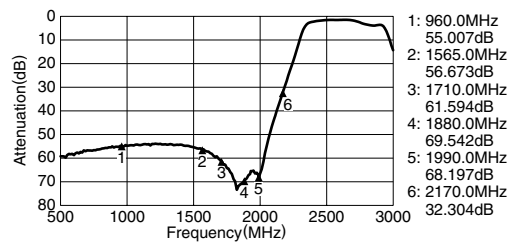
• All specifications are subject to change without notice.

### FREQUENCY CHARACTERISTICS

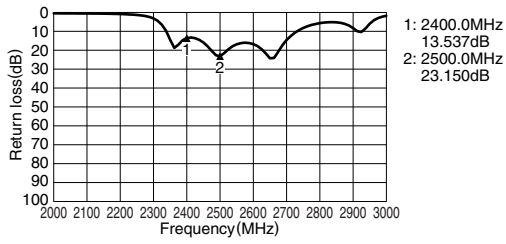
#### INSERTION LOSS



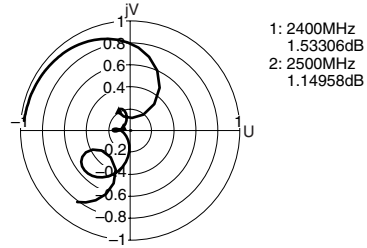
#### ATTENUATION



#### RETURN LOSS



#### VSWR

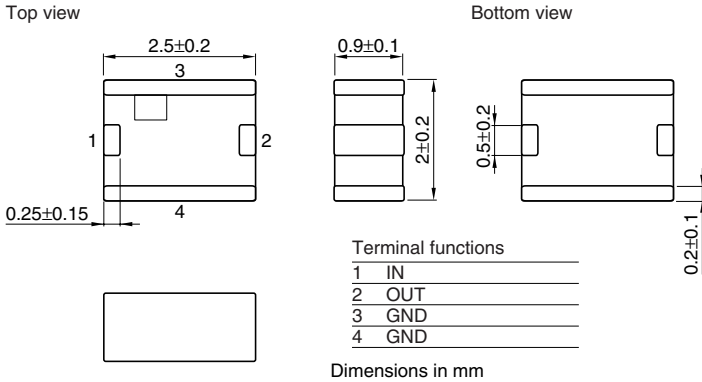


# Multilayer Chip Band Pass Filters For Bluetooth & 2.4GHz W-LAN

Conformity to RoHS Directive

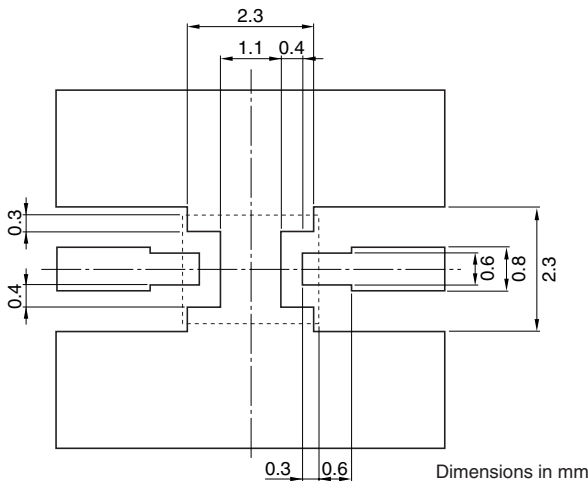
DEA Series DEA252450BT-2024C5

## SHAPES AND DIMENSIONS



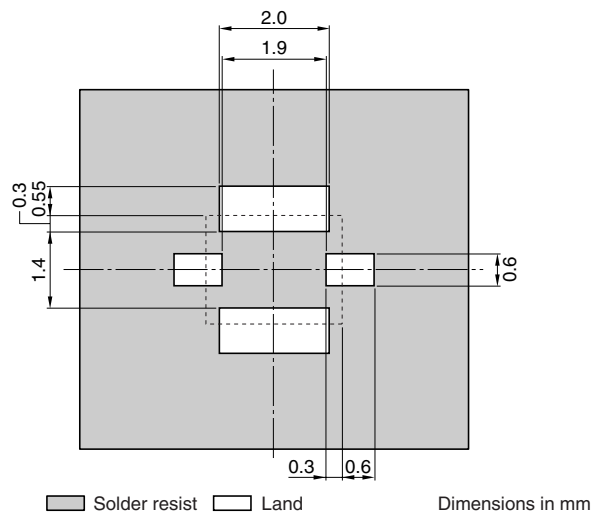
## RECOMMENDED PC BOARD PATTERNS

### LAND



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

### SOLDER RESIST



## ELECTRICAL CHARACTERISTICS

Item			Minimum value	Typical value	Maximum value
Center frequency	[2450MHz]		—	—	
Insertion loss	[2400 to 2500MHz]	(dB)	—	—	2.1
Return loss	[2400 to 2500MHz]	(dB)	10.0	—	—
Attenuation	[880 to 915MHz]	(dB)	45.0	—	—
	[1710 to 1990MHz]	(dB)	48.0	—	—
	[2110 to 2170MHz]	(dB)	20.0	—	—
	[3000MHz]	(dB)	14.0	—	—
	[4800 to 5000MHz]	(dB)	30.0	—	—
Temperature range	Operating	(°C)	-40	—	+85
	Storage	(°C)	-40	—	+85

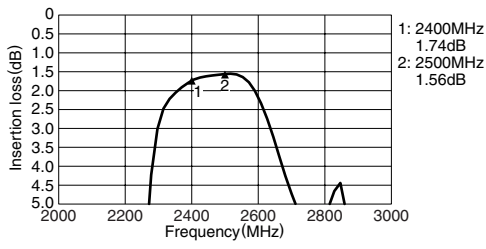
• Ta: +25°C

• 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.

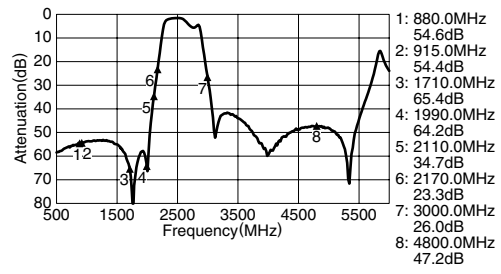
• All specifications are subject to change without notice.

### FREQUENCY CHARACTERISTICS

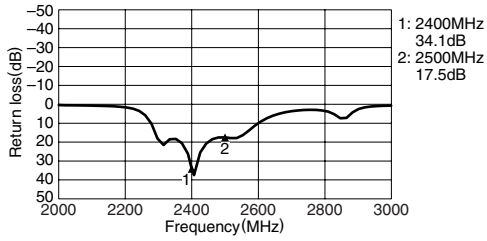
#### INSERTION LOSS



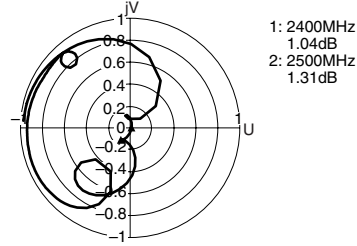
#### ATTENUATION



#### RETURN LOSS



#### VSWR



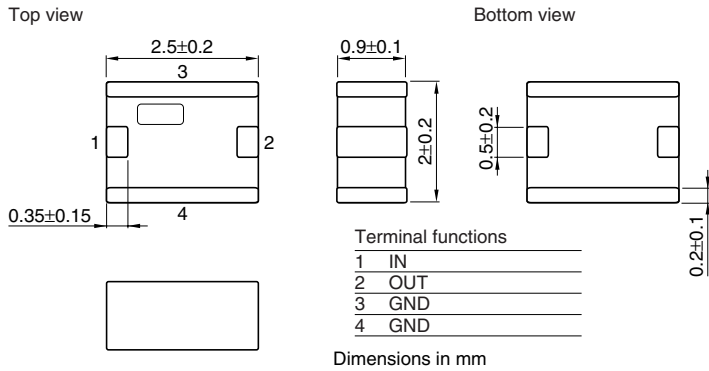
• All specifications are subject to change without notice.

# Multilayer Chip Band Pass Filters For Bluetooth & 2.4GHz W-LAN

Conformity to RoHS Directive

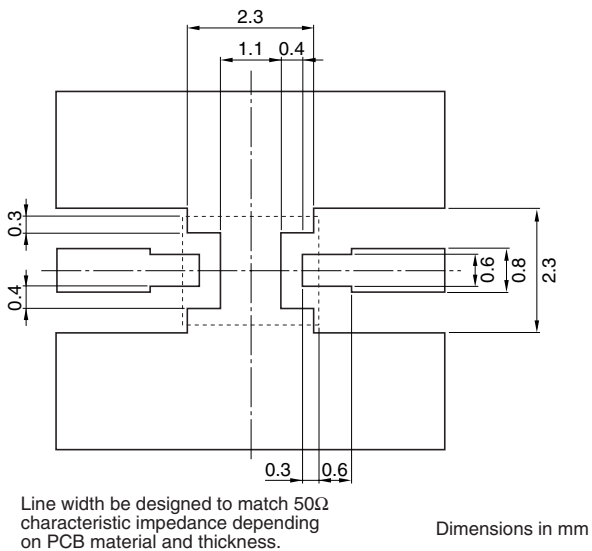
DEA Series DEA252400BT-2030A1

## SHAPES AND DIMENSIONS

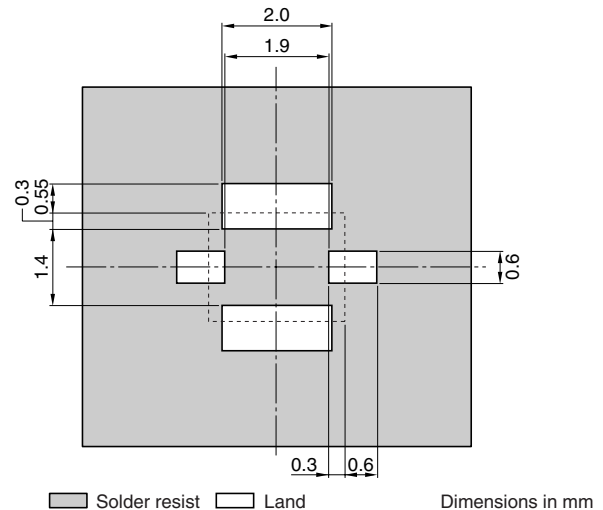


## RECOMMENDED PC BOARD PATTERNS

### LAND



### SOLDER RESIST



## ELECTRICAL CHARACTERISTICS

Item			Minimum value	Typical value	Maximum value
Insertion loss	[2300 to 2500MHz]	(dB)	—	—	1.4
Return loss	[2300 to 2500MHz]	(dB)	10	—	—
Attenuation	[880 to 915MHz]	(dB)	35	—	—
	[1710 to 1785MHz]	(dB)	35	—	—
	[1850 to 1910MHz]	(dB)	35	—	—
Temperature range	Operating	(°C)	-40	—	+85
	Storage	(°C)	-40	—	+85

• Ta: +25°C

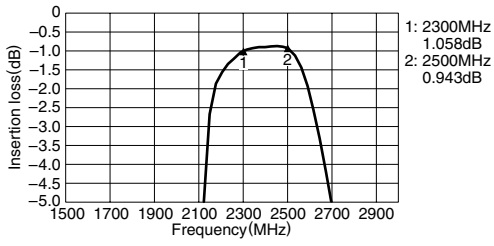
• Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.

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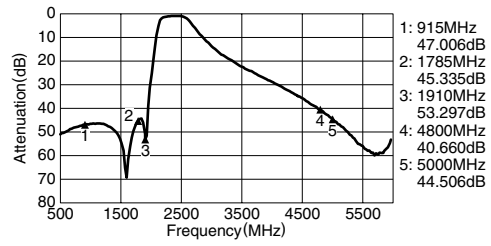


### FREQUENCY CHARACTERISTICS

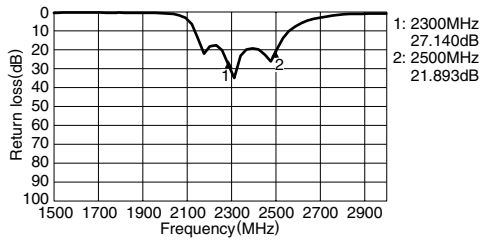
#### INSERTION LOSS



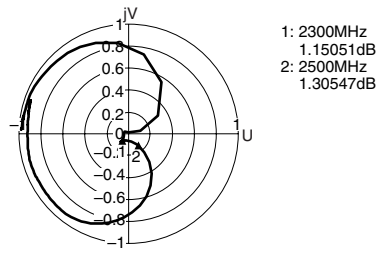
#### ATTENUATION



#### RETURN LOSS



#### VSWR



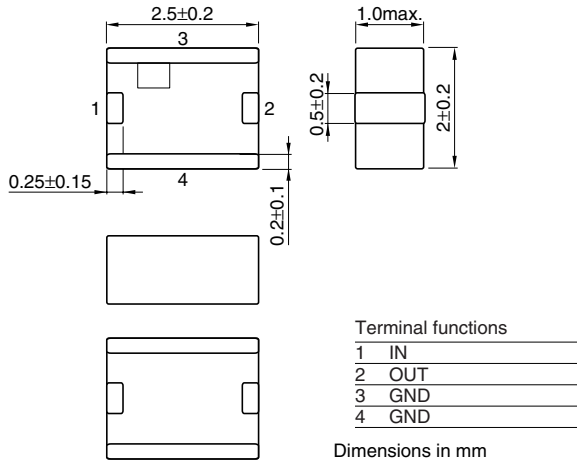
• All specifications are subject to change without notice.

# Multilayer Chip Band Pass Filters For Bluetooth & 2.4GHz W-LAN

Conformity to RoHS Directive

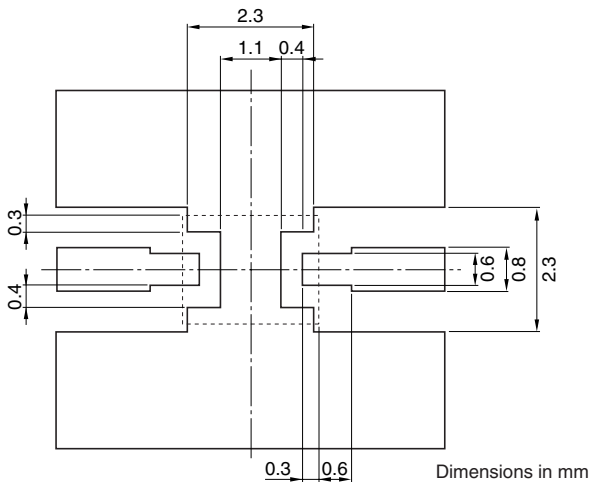
DEA Series DEA252450BT-2024D4

## SHAPES AND DIMENSIONS



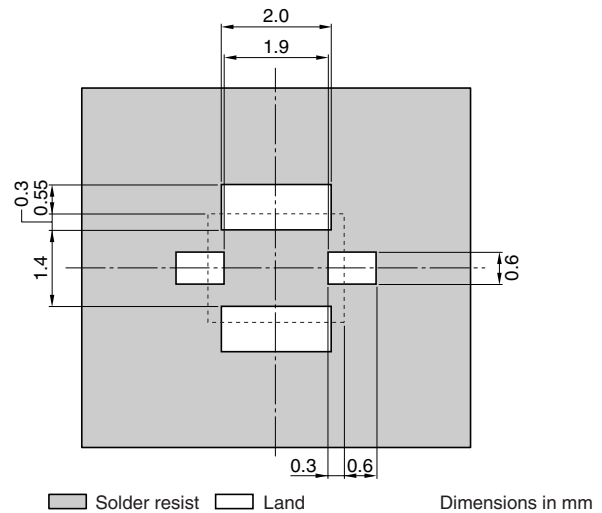
## RECOMMENDED PC BOARD PATTERNS

### LAND



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

### SOLDER RESIST



## ELECTRICAL CHARACTERISTICS

Item			Minimum value	Typical value	Maximum value
Insertion loss	[2400 to 2500MHz]	(dB)	—	2.23	3.0
Return loss	[2400 to 2500MHz]	(dB)	10.0	18.2	—
Attenuation	[880 to 960MHz]	(dB)	50.0	52.6	—
	[1565 to 1585MHz]	(dB)	50.0	55.2	—
	[1710 to 1880MHz]	(dB)	40.0	49.4	—
	[1930 to 1990MHz]	(dB)	40.0	42.9	—
	[2110 to 2170MHz]	(dB)	33.0	42.8	—
Temperature range	Operating	(°C)	−40	—	+85
	Storage	(°C)	−40	—	+85

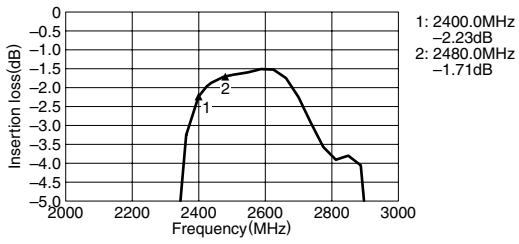
• Ta: +25°C

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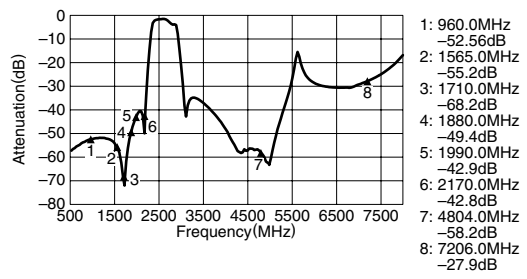
• All specifications are subject to change without notice.

### FREQUENCY CHARACTERISTICS

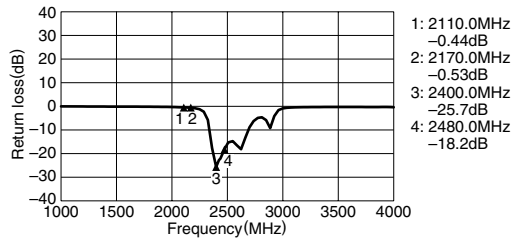
#### INSERTION LOSS



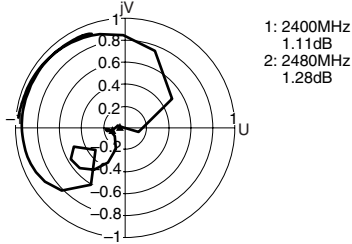
#### ATTENUATION



#### RETURN LOSS



#### VSWR



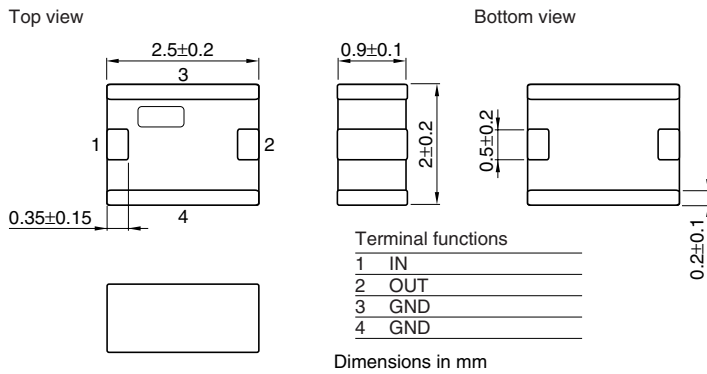
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# Multilayer Chip Band Pass Filters For Bluetooth & 2.4GHz W-LAN

Conformity to RoHS Directive

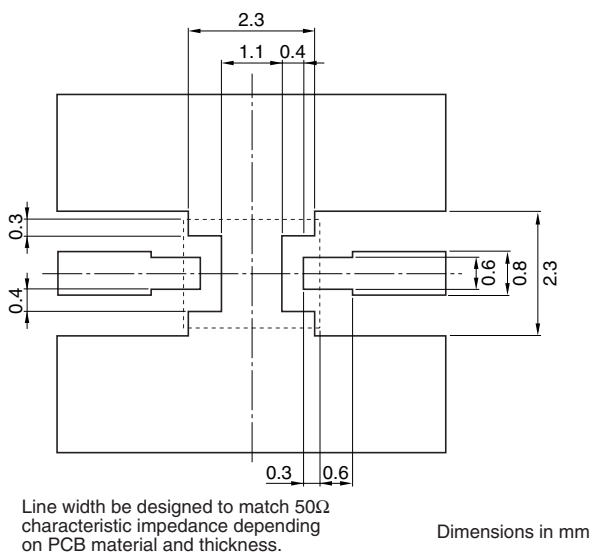
DEA Series DEA252450BT-2027A1

## SHAPES AND DIMENSIONS

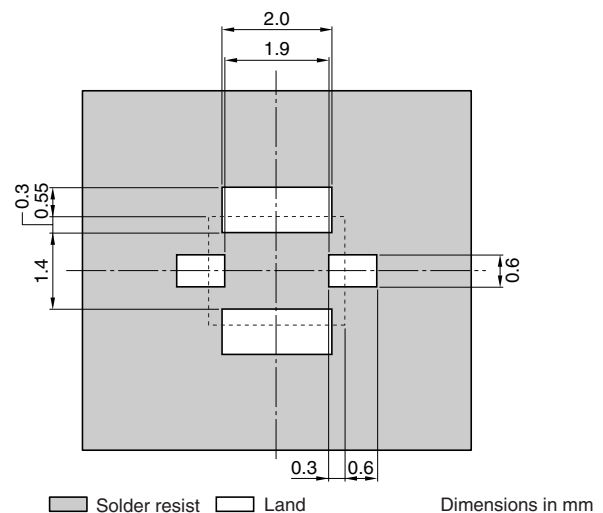


## RECOMMENDED PC BOARD PATTERNS

### LAND



### SOLDER RESIST



## ELECTRICAL CHARACTERISTICS

Item			Minimum value	Typical value	Maximum value
Insertion loss	[2400 to 2500MHz]	(dB)	—	—	1.2
Return loss	[2400 to 2500MHz]	(dB)	10	—	—
Attenuation	[880 to 915MHz]	(dB)	35	—	—
	[1710 to 1785MHz]	(dB)	35	—	—
	[1850 to 1910MHz]	(dB)	35	—	—
	[4800 to 5000MHz]	(dB)	30	—	—
Temperature range	Operating	(°C)	−40	—	+85
	Storage	(°C)	−40	—	+85

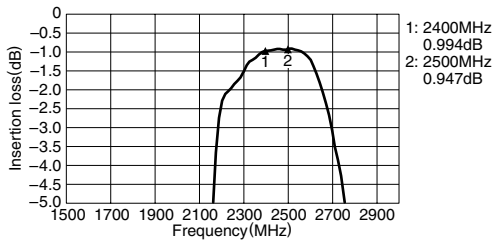
• Ta: +25°C

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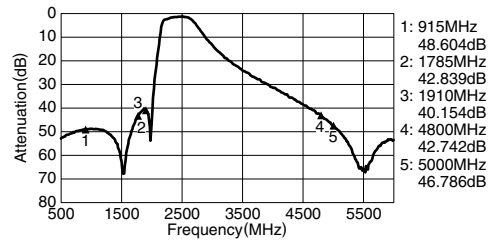
• All specifications are subject to change without notice.

### FREQUENCY CHARACTERISTICS

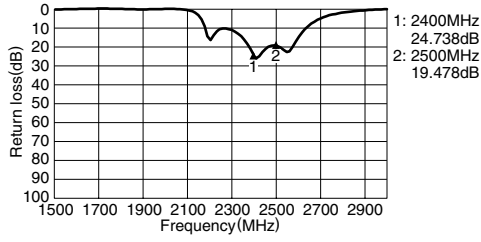
#### INSERTION LOSS



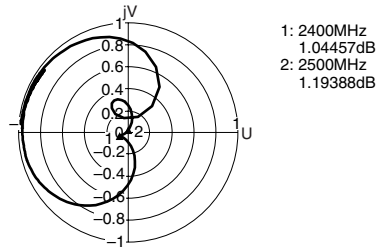
#### ATTENUATION



#### RETURN LOSS



#### VSWR



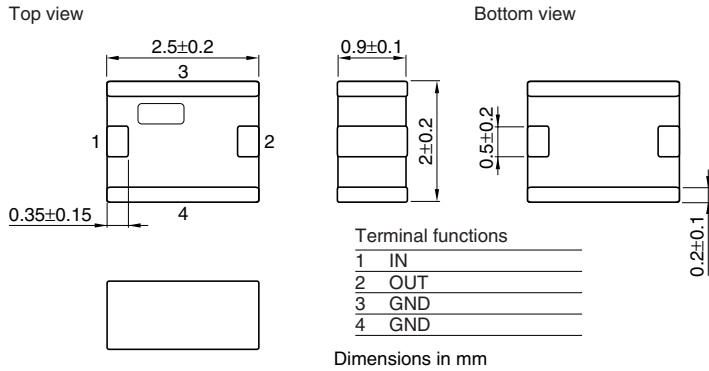
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# Multilayer Chip Band Pass Filters For Bluetooth & 2.4GHz W-LAN

Conformity to RoHS Directive

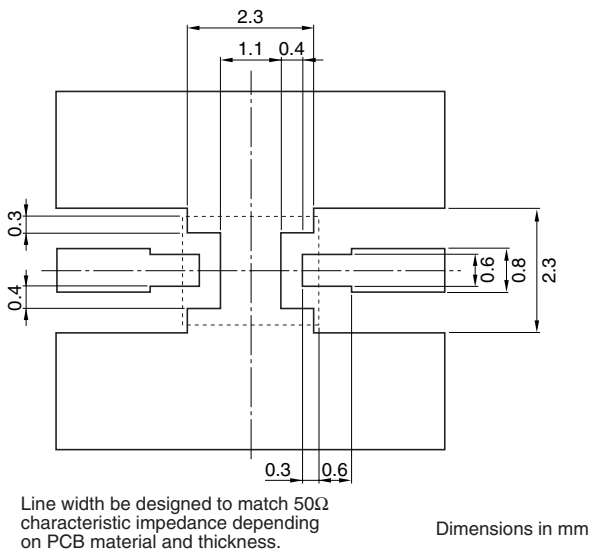
DEA Series DEA252450BT-2031A1

## SHAPES AND DIMENSIONS

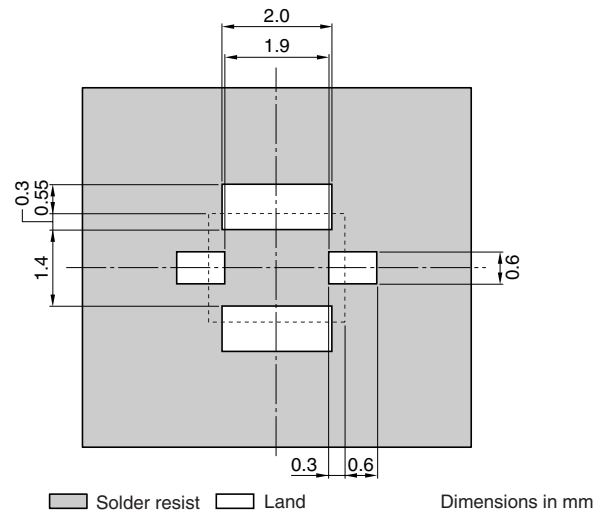


## RECOMMENDED PC BOARD PATTERNS

### LAND



### SOLDER RESIST



## ELECTRICAL CHARACTERISTICS

Item			Minimum value	Typical value	Maximum value
Insertion loss	[2400 to 2500MHz]	(dB)	—	—	1.5
Return loss	[2400 to 2500MHz]	(dB)	10	—	—
Attenuation	[915MHz]	(dB)	35	—	—
	[1750MHz]	(dB)	30	—	—
	[2100MHz]	(dB)	20	—	—
	[4800 to 5000MHz]	(dB)	23	—	—
Temperature range	Operating	(°C)	−40	—	+85
	Storage	(°C)	−40	—	+85

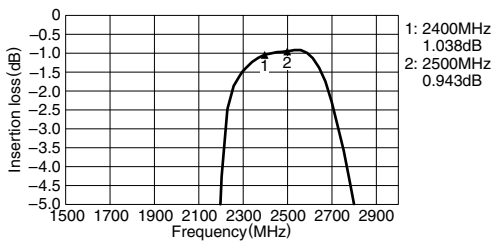
• Ta: +25°C

• 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.

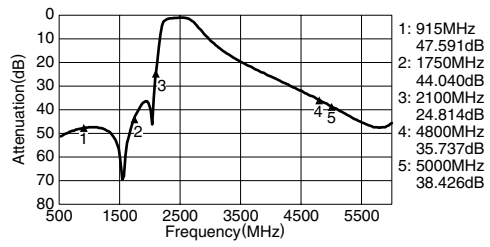
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### FREQUENCY CHARACTERISTICS

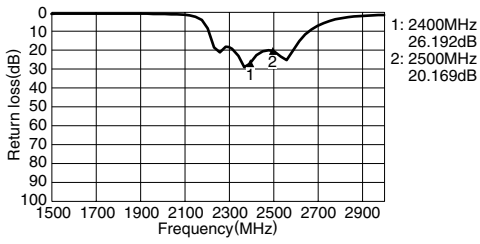
#### INSERTION LOSS



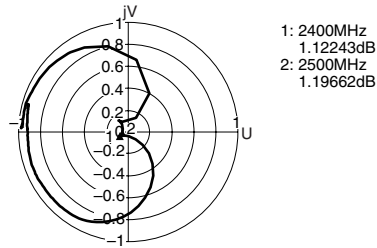
#### ATTENUATION



#### RETURN LOSS



#### VSWR

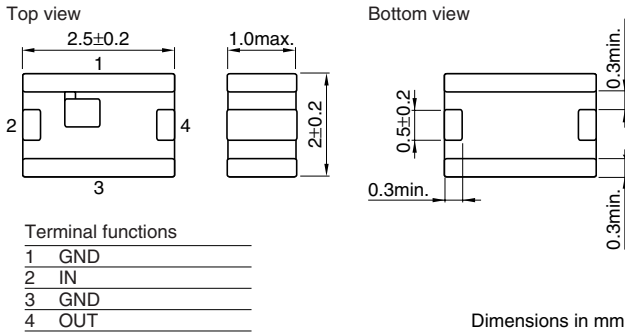


# Multilayer Chip Band Pass Filters For Bluetooth & 2.4GHz W-LAN

Conformity to RoHS Directive

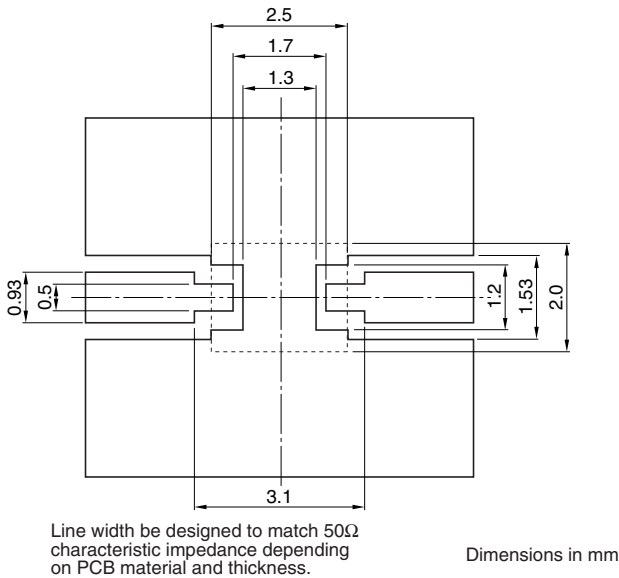
DEA Series DEA252450BT-2063C1

## SHAPES AND DIMENSIONS

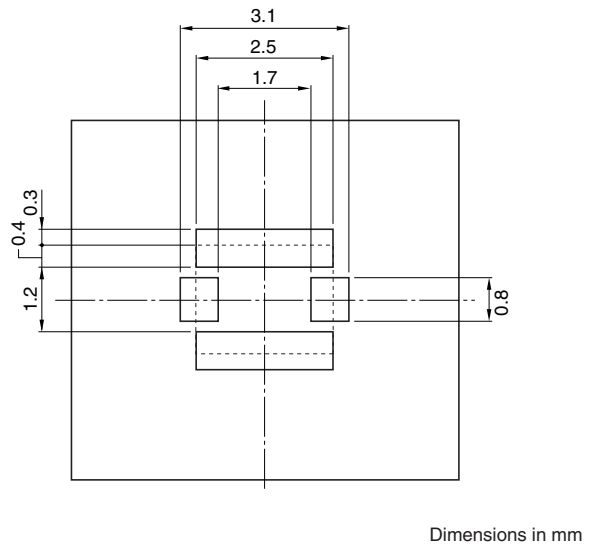


## RECOMMENDED PC BOARD PATTERNS

### LAND



### SOLDER RESIST



- 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.

- All specifications are subject to change without notice.



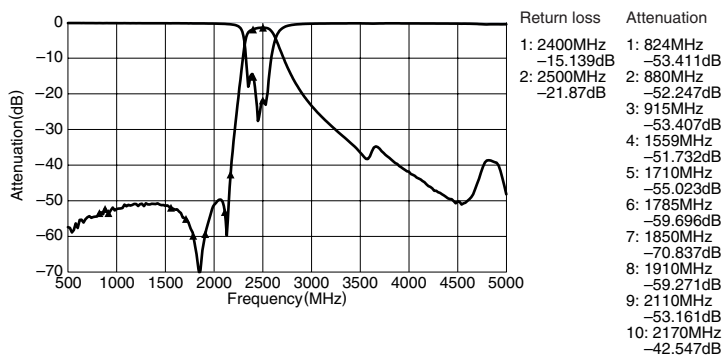
## ELECTRICAL CHARACTERISTICS

Frequency range(Pass band)		2400 to 2500MHz
Insertion loss	[+25°C]	2.5dB max.
	[-40 to +85°C]	2.8dB max.
Single ended port characteristic impedance		50Ω (Nominal)
Return loss	[2400 to 2500MHz]	10dB min.
Ripple	[2400 to 2500MHz]	1.0dB max.
	[824 to 829MHz]	47dB min.
	[880 to 915MHz]	47dB min.
	[1525 to 1559MHz]	42dB min.
	[1710 to 1785MHz]	47dB min.
	[1850 to 1910MHz]	47dB min.
	[2110 to 2170MHz]	35dB min.
Temperature range	Operating	-40 to +85°C
	Storage	-40 to +85°C

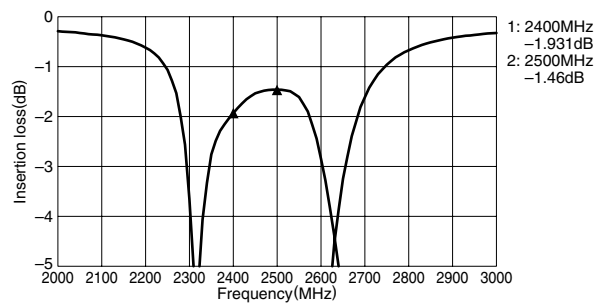
• Ta:+25°C

## FREQUENCY CHARACTERISTICS

### ATTENUATION



### INSERTION LOSS



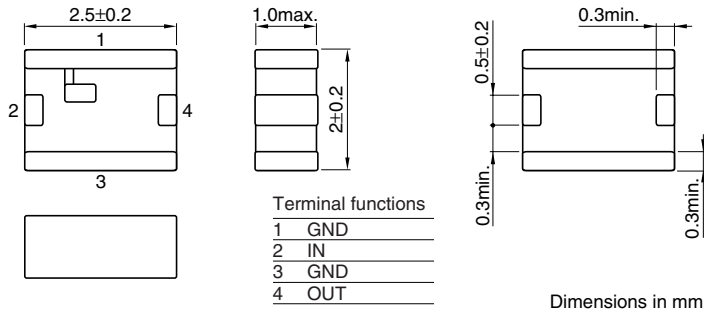
• All specifications are subject to change without notice.

# Multilayer Chip Band Pass Filters For Bluetooth & 2.4GHz W-LAN

Conformity to RoHS Directive

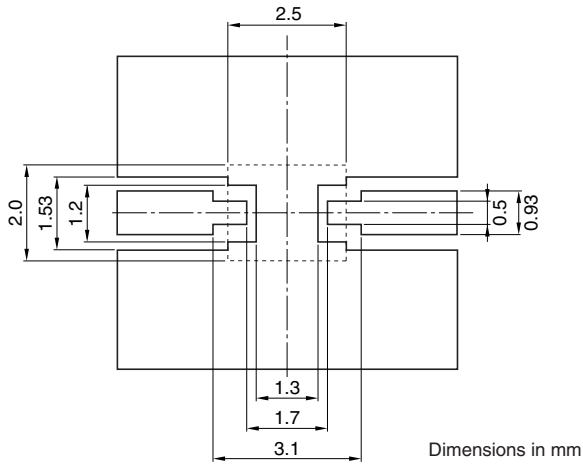
DEA Series DEA252450BT-2109C3

## SHAPES AND DIMENSIONS

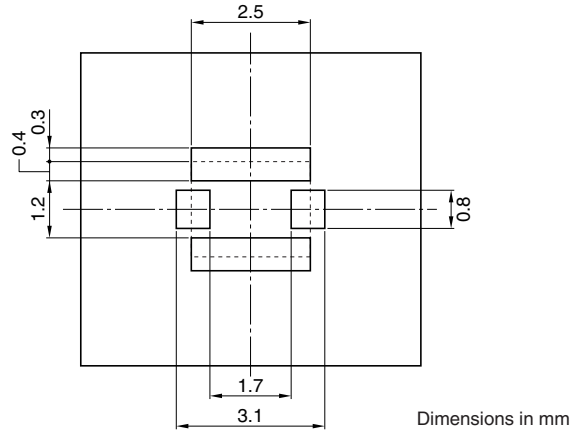


## RECOMMENDED PC BOARD PATTERNS

### LAND



### SOLDER RESIST



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

• 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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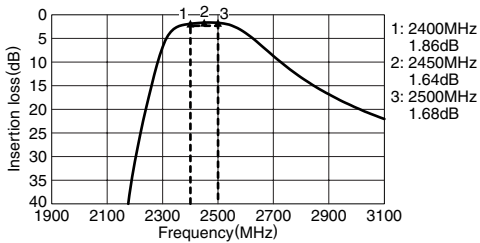
**ELECTRICAL CHARACTERISTICS**

Item		Minimum value	Typical value	Maximum value	
Frequency range(Pass band)	(MHz)	2400	—	2500	
Characteristic impedance(Pass band)	(Ω)	—	50[Nominal]	—	
Insertion loss(Pass band)	[+25°C]	—	—	2.3	
	[-40 to +85°C]	—	—	2.5	
Return loss(Pass band)	(dB)	10	—	—	
	[DC to 76MHz]	(dB)	45	—	—
	[76 to 108MHz]	(dB)	45	—	—
	[480MHz]	(dB)	45	—	—
	[746 to 764MHz]	(dB)	45	—	—
	[776 to 794MHz]	(dB)	45	—	—
	[824 to 849MHz]	(dB)	45	—	—
	[869 to 880MHz]	(dB)	45	—	—
	[880 to 915MHz]	(dB)	45	—	—
	[925 to 960MHz]	(dB)	45	—	—
	[1570 to 1580MHz]	(dB)	43	—	—
	[1710 to 1785MHz]	(dB)	44	—	—
	[1805 to 1850MHz]	(dB)	40	—	—
	[1850 to 1910MHz]	(dB)	40	—	—
	[1920 to 1980MHz]	(dB)	38	—	—
	[1980 to 1990MHz]	(dB)	38	—	—
	[2110 to 2170MHz]	(dB)	30	—	—
[2750 to 3000MHz]	(dB)	5	—	—	
[3000 to 4800MHz]	(dB)	15	—	—	
[4800 to 5000MHz]	(dB)	30	—	—	
[5150 to 5850MHz]	(dB)	30	—	—	
[7200 to 7500MHz]	(dB)	20	—	—	
Temperature range	Operating	(°C)	-40	+85	
	Storage	(°C)	-40	+85	

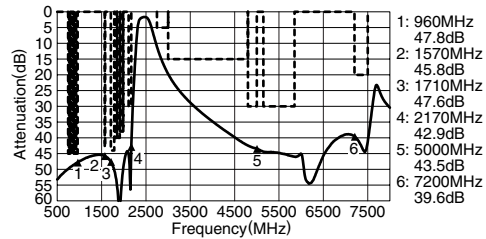
• Ta:+25°C

**FREQUENCY CHARACTERISTICS**

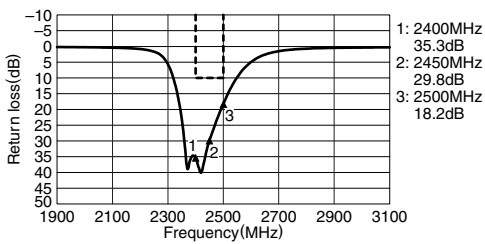
**INSERTION LOSS**



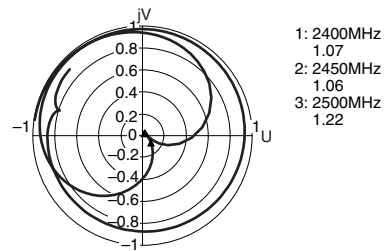
**ATTENUATION**



**RETURN LOSS**



**VSWR**



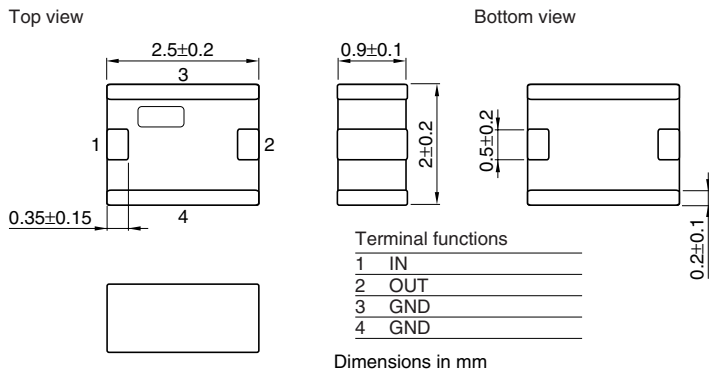
• All specifications are subject to change without notice.

# Multilayer Chip Band Pass Filters For Bluetooth & 2.4GHz W-LAN

Conformity to RoHS Directive

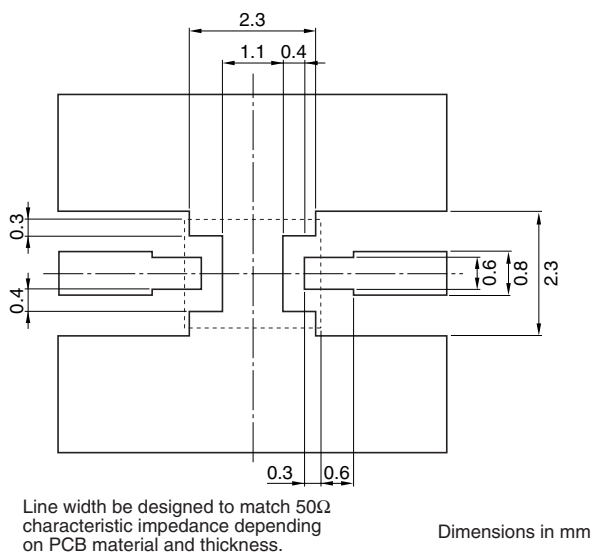
DEA Series DEA252450BT-2037C1

## SHAPES AND DIMENSIONS

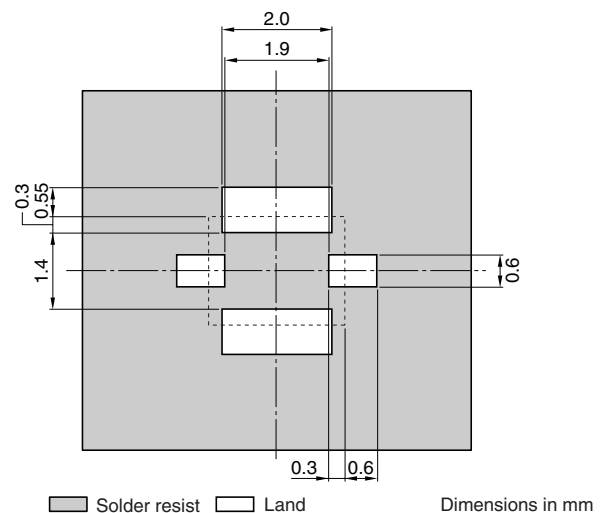


## RECOMMENDED PC BOARD PATTERNS

### LAND



### SOLDER RESIST



## ELECTRICAL CHARACTERISTICS

Item		Minimum value	Typical value	Maximum value
Center frequency	[2450MHz]			
Insertion loss	[2400 to 2500MHz]	(dB) —	—	3
Return loss	[2400 to 2500MHz]	(dB) 10	—	—
Attenuation	[880 to 915MHz]	(dB) 43	—	—
	[1710 to 1990MHz]	(dB) 24	—	—
	[2110 to 2170MHz]	(dB) 14	—	—
	[2700MHz]	(dB) 25	—	—
Temperature range	Operating	(°C) -40	—	+85
	Storage	(°C) -40	—	+85

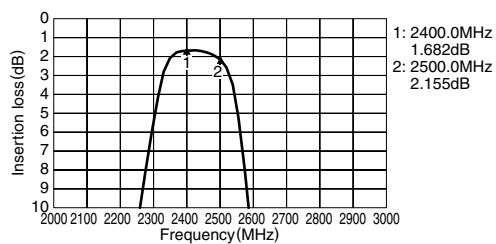
• Ta: +25°C

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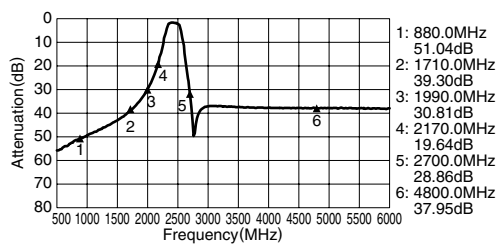
• All specifications are subject to change without notice.

### FREQUENCY CHARACTERISTICS

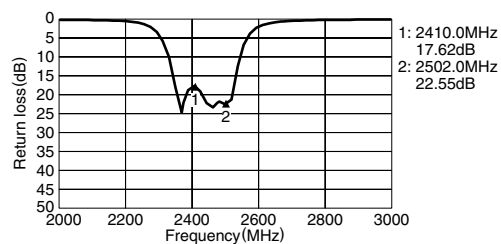
#### INSERTION LOSS



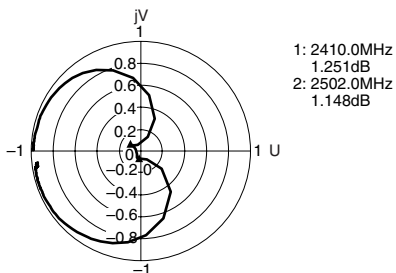
#### ATTENUATION



#### RETURN LOSS



#### VSWR



• All specifications are subject to change without notice.