

# Multilayer Band Pass Filters

For 2.4GHz W-LAN/Bluetooth

## DEA Series

**Type:**

- DEA162450BT-1241A1 (1.6×0.8×0.6mm)**
- DEA162450BT-1260B2 (1.6×0.8×0.6mm)**
- DEA162450BT-1262B1 (1.6×0.8×0.6mm)**
- DEA162450BT-1271A3 (1.6×0.8×0.6mm)**
- DEA162450BT-1247C1 (1.6×0.8×0.6mm max.)**
- DEA162450BT-1247B1 (1.6×0.8×0.6mm max.)**
- DEA162450BT-2092A1-H (1.6×0.8×0.6mm max.)**
- DEA162450BT-2096A1-H (1.6×0.8×0.6mm max.)**
- DEA162450BT-1210A1 (1.6×0.8×0.65mm max.)**

Issue date: December 2010

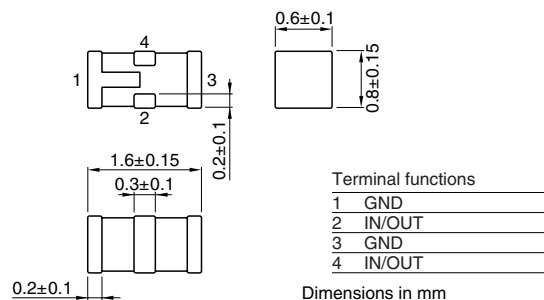
- All specifications are subject to change without notice.
- Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.

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

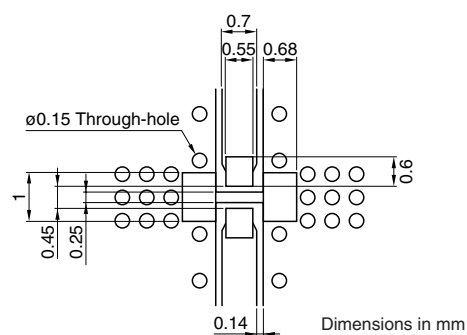
Conformity to RoHS Directive

DEA Series DEA162450BT-1241A1

## SHAPES AND DIMENSIONS



## RECOMMENDED PC BOARD PATTERNS



## ELECTRICAL CHARACTERISTICS

Item			Minimum value	Typical value	Maximum value
Insertion loss	[2400 to 2500MHz]	(dB)	—	—	2
Return loss	[2400 to 2500MHz]	(dB)	10	—	—
Attenuation	[824 to 915MHz]	(dB)	25	—	—
	[1710 to 1910MHz]	(dB)	25	—	—
	[4800 to 5000MHz]	(dB)	20	—	—
	[7200 to 7500MHz]	(dB)	25	—	—
Temperature range	Operating	(°C)	-40	—	+85
	Storage	(°C)	-40	—	+85

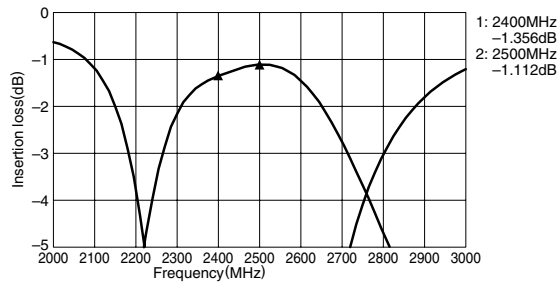
• Ta:+25°C

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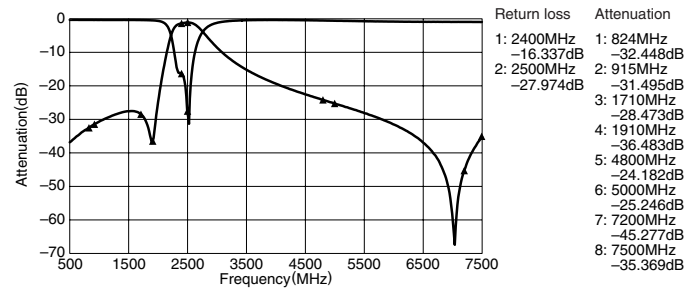
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### FREQUENCY CHARACTERISTICS

#### INSERTION LOSS



#### ATTENUATION



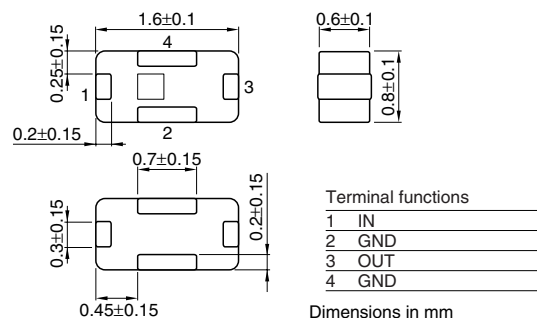
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# Multilayer Chip Band Pass Filters For Bluetooth & 2.4GHz W-LAN

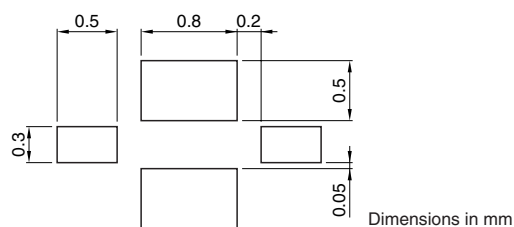
Conformity to RoHS Directive

DEA Series DEA162450BT-1260B2

## SHAPES AND DIMENSIONS



## RECOMMENDED PC BOARD PATTERNS



## ELECTRICAL CHARACTERISTICS

Item		Typical value	
Frequency range(Pass band)	2400 to 2500MHz	—	
Characteristic impedance(Pass band)	50Ω (Nominal)	—	
Insertion loss(Pass band)	2.2dB max.	1.7dB	
VSWR(Pass band)	2.1 max.	1.4	
Attenuation	[960MHz]	25dB min.	34dB
	[1600MHz]	15dB min.	27dB
	[3200MHz]	22dB min.	41dB
	[4800 to 5000MHz]	25dB min.	31dB
Temperature range	Operating	-40 to +85°C	
	Storage	-40 to +85°C	

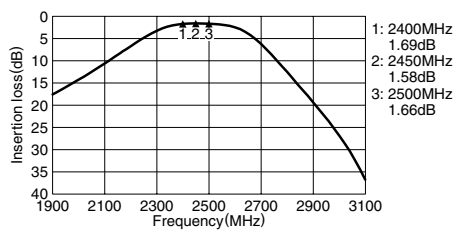
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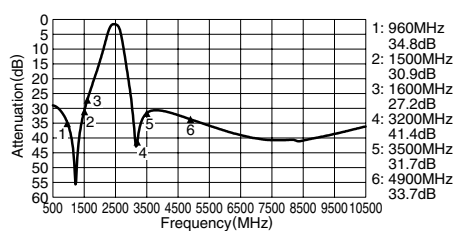
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### FREQUENCY CHARACTERISTICS

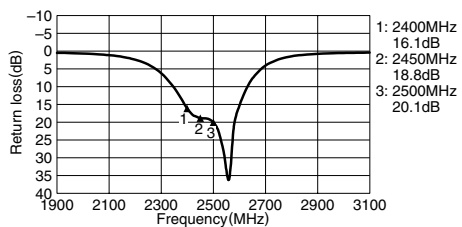
#### INSERTION LOSS



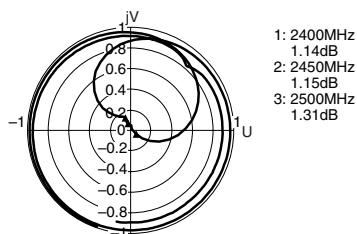
#### ATTENUATION



#### RETURN LOSS



#### VSWR



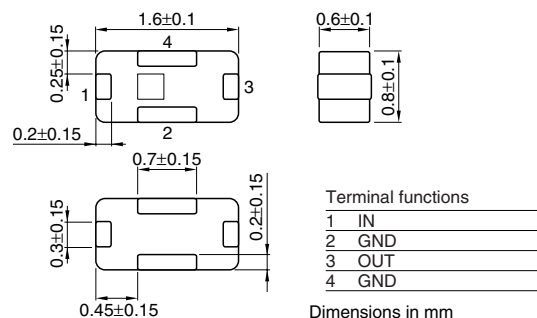
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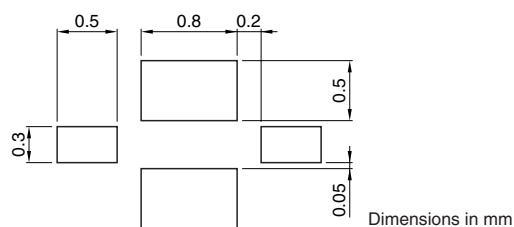
Conformity to RoHS Directive

DEA Series DEA162450BT-1262B1

## SHAPES AND DIMENSIONS



## RECOMMENDED PC BOARD PATTERNS



## ELECTRICAL CHARACTERISTICS

Item		Minimum value	Typical value	Maximum value
Frequency range(Pass band)	(MHz)	2400	—	2500
Characteristic impedance(Pass band)	( $\Omega$ )	—	50[Nominal]	—
Insertion loss(Pass band)	[+25°C]	(dB)	1.5	2.4
Ripple(Pass band)		(dB)	0.3	1.5
VSWR(Pass band)			1.2	2.1
Attenuation	[880 to 960MHz]	(dB)	24.5	30
	[1710 to 1990MHz]	(dB)	20	27
	[2170MHz]	(dB)	8.5	11
	[4800 to 5000MHz]	(dB)	15.5	21
	[7200 to 7500MHz]	(dB)	20	28
Temperature range	Operating	(°C)	-40	+85
	Storage	(°C)	-40	+85

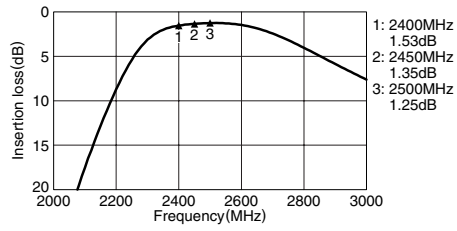
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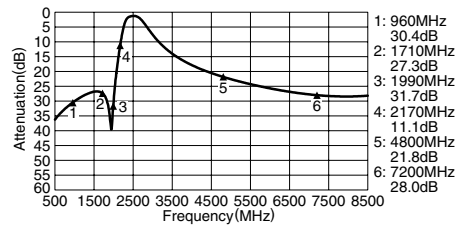
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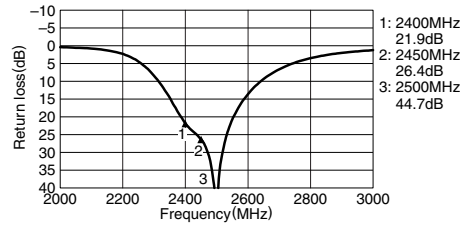
#### INSERTION LOSS



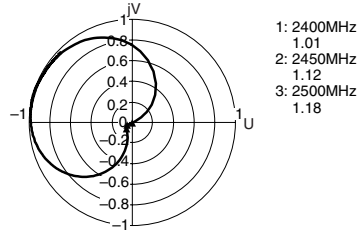
#### ATTENUATION



#### RETURN LOSS



#### VSWR



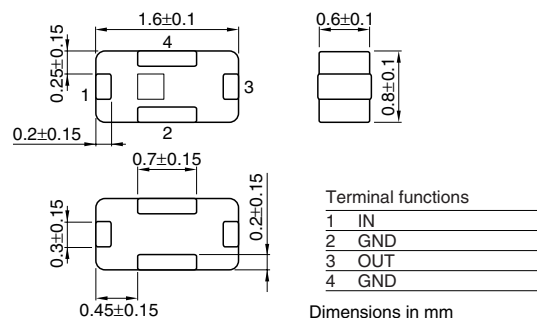
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# Multilayer Chip Band Pass Filters For Bluetooth & 2.4GHz W-LAN

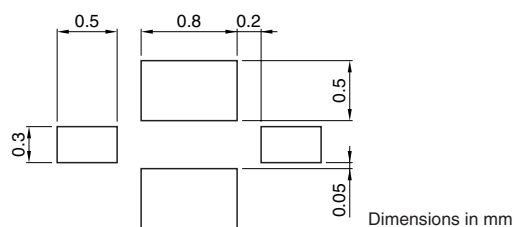
Conformity to RoHS Directive

DEA Series DEA162450BT-1271A3

## SHAPES AND DIMENSIONS



## RECOMMENDED PC BOARD PATTERNS



## 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]	(dB)	2.3	3.0
Return loss(Pass band)		(dB)	10	16
Attenuation	[695 to 800MHz]	(dB)	25	45
	[1910MHz]	(dB)	22	28
	[3200MHz]	(dB)	35	46
	[4800 to 5000MHz]	(dB)	20	27
	[7200 to 7500MHz]	(dB)	20	27
Temperature range	Operating	(°C)	-40	+85
	Storage	(°C)	-40	+85

• Ta:+25°C

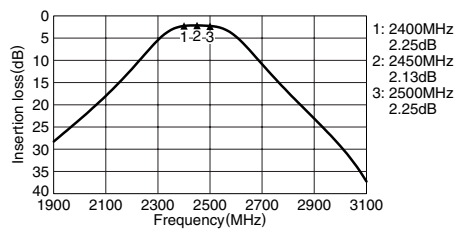
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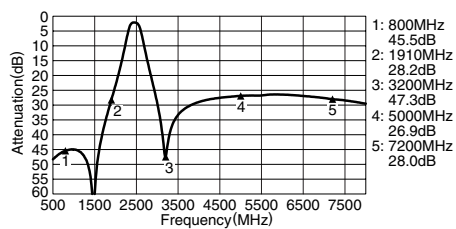


### FREQUENCY CHARACTERISTICS

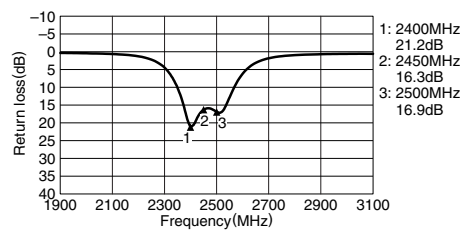
#### INSERTION LOSS



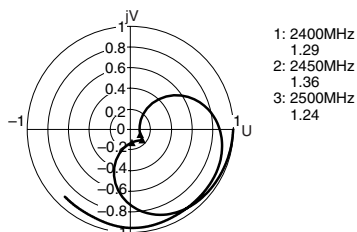
#### ATTENUATION



#### RETURN LOSS



#### VSWR

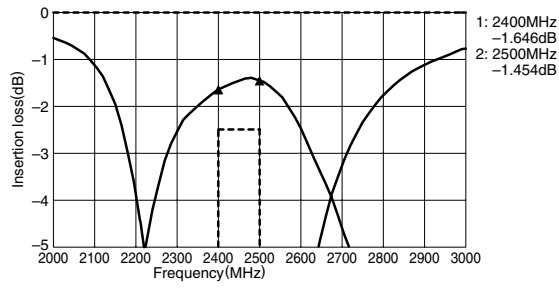


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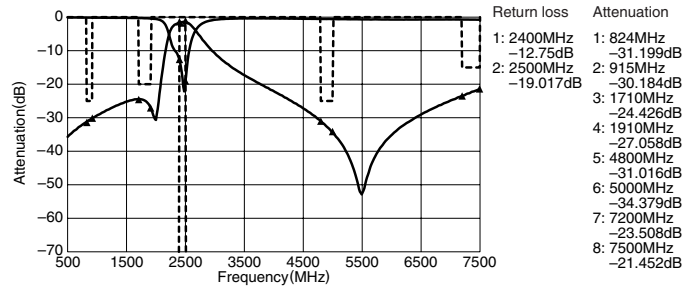


### FREQUENCY CHARACTERISTICS

#### INSERTION LOSS



#### ATTENUATION



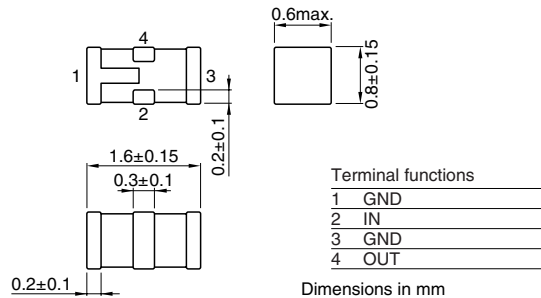
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# Multilayer Chip Band Pass Filters For Bluetooth & 2.4GHz W-LAN

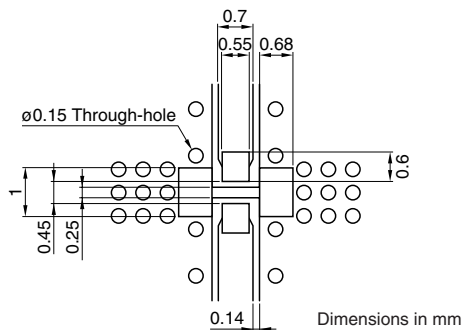
Conformity to RoHS Directive

DEA Series DEA162450BT-1247B1

## SHAPES AND DIMENSIONS



## RECOMMENDED PC BOARD PATTERNS



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

## ELECTRICAL CHARACTERISTICS

Item		Minimum value	Typical value	Maximum value
Insertion loss	[2400 to 2500MHz]	(dB)	—	2.0
Return loss	[2400 to 2500MHz]	(dB)	10	—
Attenuation	[824 to 915MHz]	(dB)	25	—
	[1710 to 1910MHz]	(dB)	20	—
	[4800 to 5000MHz]	(dB)	20	—
Temperature range	[7200 to 7500MHz]	(dB)	30	—
	Operating	(°C)	—	+85
	Storage	(°C)	—	+85

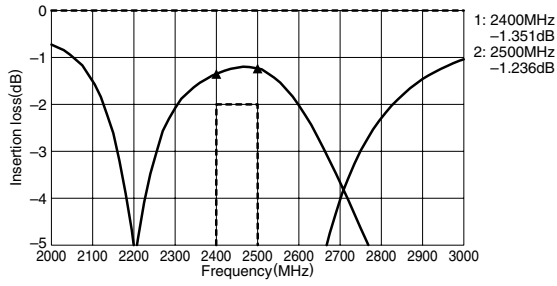
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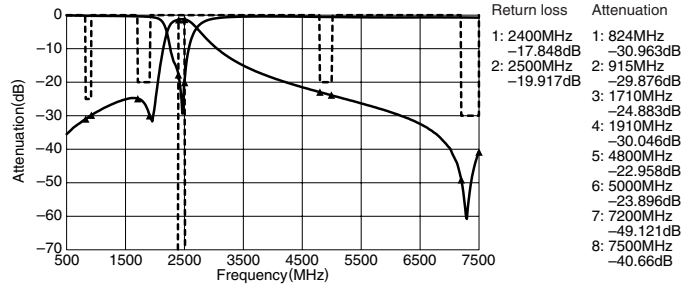
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### FREQUENCY CHARACTERISTICS

#### INSERTION LOSS



#### ATTENUATION



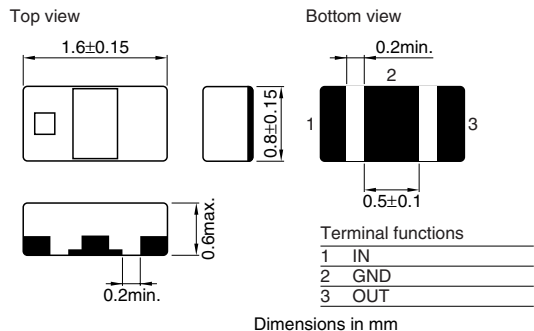
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# Multilayer Chip Band Pass Filters For Bluetooth & 2.4GHz W-LAN

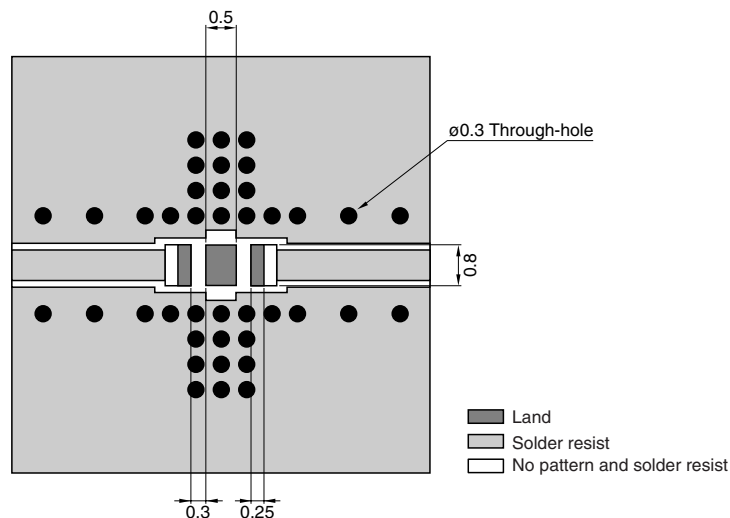
Conformity to RoHS Directive

DEA Series DEA162450BT-2092A1-H

## SHAPES AND DIMENSIONS



## RECOMMENDED PCB BOARD PATTERNS



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

Dimensions in mm

## ELECTRICAL CHARACTERISTICS

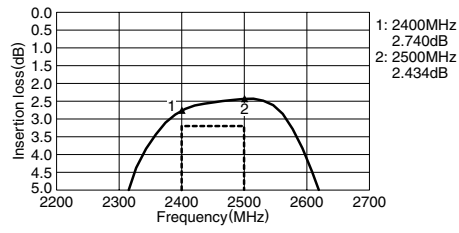
Item	
Frequency range(Pass band)	2400 to 2500MHz
Insertion loss	[+25°C] 3.2dB max.
	[-40 to +85°C] 3.5dB max.
Return loss	[2400 to 2500MHz] 10dB min.
	[880 to 915MHz] 40dB min.
Attenuation	[1710 to 1850MHz] 40dB min.
	[1850 to 1910MHz] 40dB min.
	[1920 to 1990MHz] 40dB min.
	[2110 to 2170MHz] 35dB min.
	[4800 to 5000MHz] 30dB min.
	[7200 to 7500MHz] 30dB min.
Temperature range	Operating -40 to +85°C
	Storage -40 to +85°C

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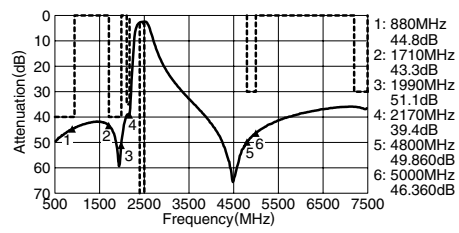
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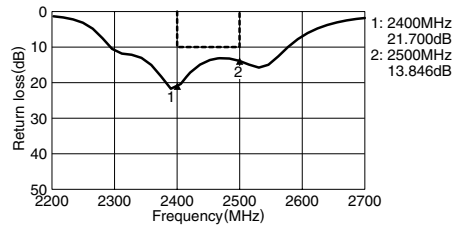
#### INSERTION LOSS



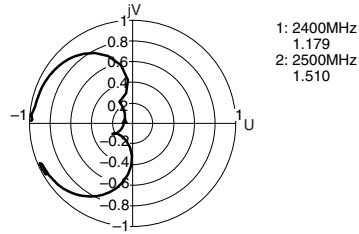
#### ATTENUATION



#### RETURN LOSS



#### VSWR



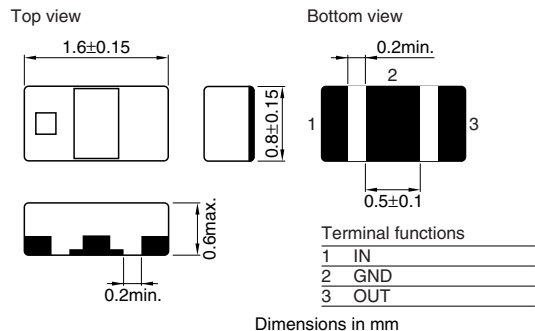
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# Multilayer Chip Band Pass Filters For Bluetooth & 2.4GHz W-LAN

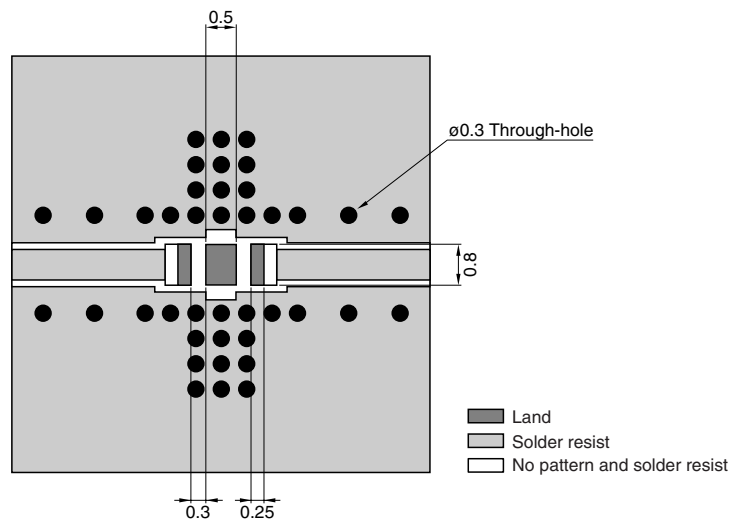
Conformity to RoHS Directive

DEA Series DEA162450BT-2096A1-H

## SHAPES AND DIMENSIONS



## RECOMMENDED PC BOARD PATTERNS



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

Dimensions in mm

## ELECTRICAL CHARACTERISTICS

Item		
Frequency range(Pass band)		2400 to 2500MHz
Insertion loss	[+25°C]	2.5dB max.
	[-40 to +85°C]	2.8dB max.
Return loss	[2400 to 2500MHz]	10dB min.
	[880 to 915MHz]	40dB min.
	[1710 to 1850MHz]	40dB min.
	[1850 to 1910MHz]	40dB min.
	[1920 to 1990MHz]	40dB min.
	[2110 to 2170MHz]	25dB min.
Attenuation	[4800 to 5000MHz]	30dB min.
	[7200 to 7500MHz]	20dB min.
	Operating	-40 to +85°C
	Storage	-40 to +85°C

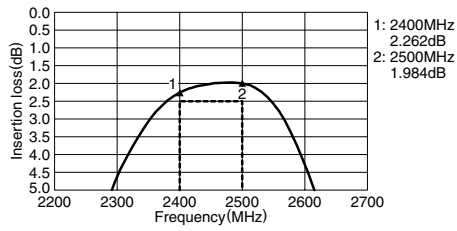
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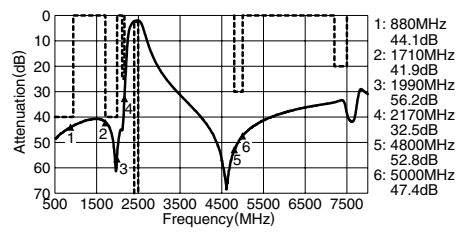


### FREQUENCY CHARACTERISTICS

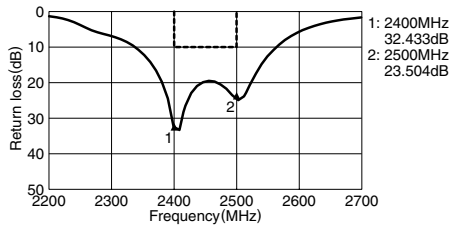
#### INSERTION LOSS



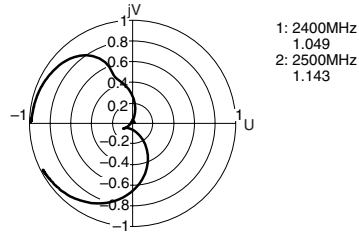
#### ATTENUATION



#### RETURN LOSS



#### VSWR



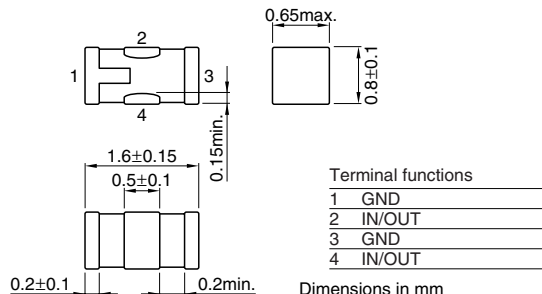
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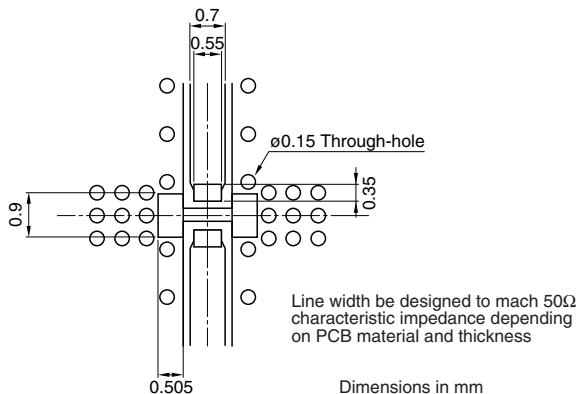
Conformity to RoHS Directive

DEA Series DEA162450BT-1210A1

## SHAPES AND DIMENSIONS



## RECOMMENDED PC BOARD PATTERNS

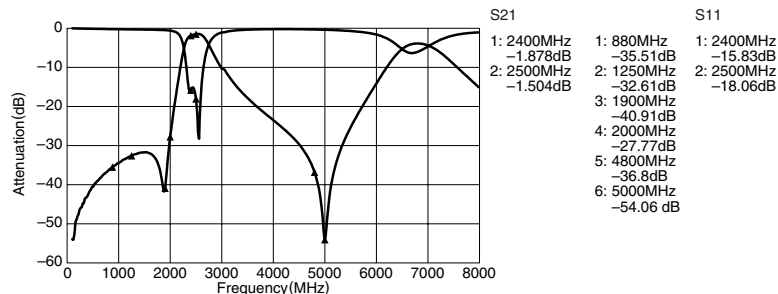


## ELECTRICAL CHARACTERISTICS

Item			Minimum value	Typical value	Maximum value
Center frequency	[25°C]	[2450MHz]			
Insertion loss	[25°C]	[2400 to 2500MHz]	(dB)	—	3.0
	[−40 to +85°C]	[2400 to 2500MHz]	(dB)	—	3.3
Return loss		[2400 to 2500MHz]	(dB)	7	—
		[880 to 915MHz]	(dB)	32	—
Attenuation		[915 to 1250MHz]	(dB)	30	—
		[1710 to 1900MHz]	(dB)	30	—
		[1900 to 2000MHz]	(dB)	20	24
		[4800 to 5000MHz]	(dB)	25	—
Temperature range	Operating	(°C)	−40	—	+85
	Storage	(°C)	−40	—	+85

• Ta:+25°C

## FREQUENCY CHARACTERISTICS



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