

TDK RF Products for Wireless LAN

2004/10/1

for 2.4GHz

Multilayer BalBPF

Start Freq.	Stop Freq.	Ins. Loss	Bal. imped.	Attenuation (MIN.)				Size	Part No.
MHz	MHz	dB (MAX)	ohm	MHz	dB	MHz	dB	mm (typ.)	
2400	2500	3.1	50	1920	39	4800	20	2.0x1.5x0.9	DEA212450BT-7042A1
2400	2500	2.4	50	1920	25	4800	15	2.5x2.0x0.9	DEA252450BT-7001B1
2400	2500	1.7	50	1910	32	4800	30	2.5x2.0x0.9	DEA252450BT-7014D1
2400	2500	1.5	100	1910	32	4800	30	2.5x2.0x0.9	DEA252450BT-7012D1
2400	2500	2.7	100	2170	25	4800	30	2.5x2.0x0.9	DEA252450BT-7022B1
2400	2500	3.0	18+j28	1990	40	4800	30	2.5x2.0x0.9	DEA252450BT-7030B1
2400	2500	3.3	34+j72	2170	30	4800	25	2.5x2.0x0.9	DEA252450BT-7035B2

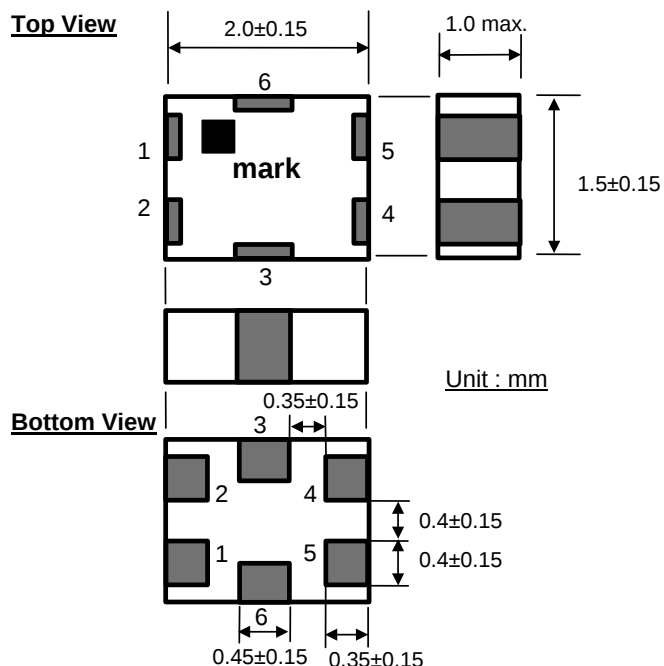
	Sample Available
	New Lineup
	Under Developing

Multilayer Band Pass Filter (Balance output type)

P/N : **DEA212450BT-7042A1**

For Bluetooth & 2.4GHz W-LAN

MECHANICAL DIMENSIONS



PIN CONFIGURATION

PIN ASSIGNMENT	PIN No.
Unbalanced port	1
Balanced port	4
Balanced port	5
GND	3,6
Balanced port DC feed	2

PRELIMINARY ELECTRICAL CHARACTERISTICS

Parameter	Specification	Typical Value	Unit
Frequency Range (Pass Band)	2400 – 2500	-	MHz
RF input power	2400 – 2500 MHz	8 max.	dBm
Insertion Loss	-30 ~ +85 degree C	3.1 max.	dB
Single ended port characteristic impedance	50 (Nominal)	-	ohm
Balanced port differential characteristics Impedance	50 (Nominal)	-	ohm
Single ended Return Loss	2400 – 2500 MHz	9.5 min.	dB
Balanced Return Loss	2400 – 2500 MHz	9.5 min.	dB
Ripple	2400 – 2500 MHz	1.0 max.	dB
Attenuation	500 – 960 MHz	40 min.	dB
	1570 – 1580 MHz	26 min.	dB
	1710 – 1850 MHz	33 min.	dB
	1850 – 1910 MHz	39 min.	dB
	1920 – 1990 MHz	39 min.	dB
	2110 – 2170 MHz	12 min.	dB
	4800 – 5000 MHz	20 min.	dB
Phase Difference at Balanced Port	180 ± 15	-	deg.

Note: All specifications are subject to change and are not guaranteed.

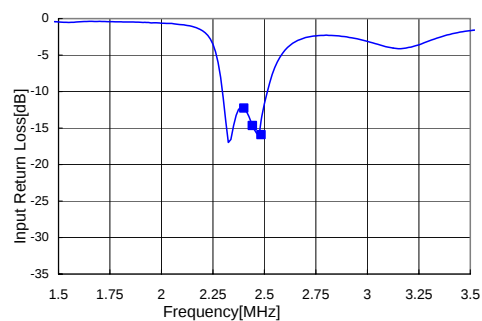
Amplitude Imbalance at Balanced Port	0 ± 2.0	-	dB
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TEMPERATURE RANGE

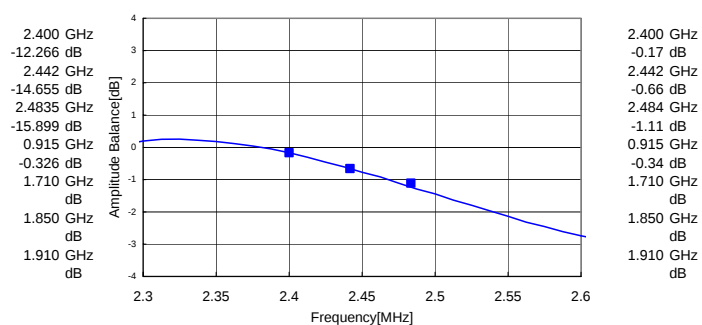
Storage Temperature : -30 ~ +85 degree C
Operating Temperature : -30 ~ +85 degree C

FREQUENCY RESPONSE

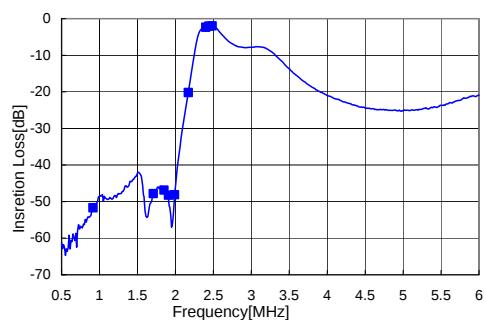
Input Return Loss



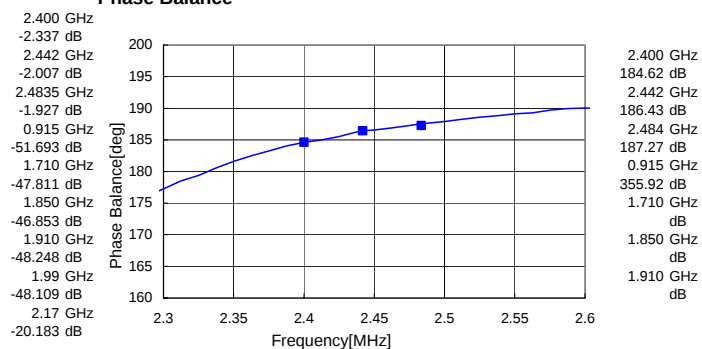
Amplitude Balance



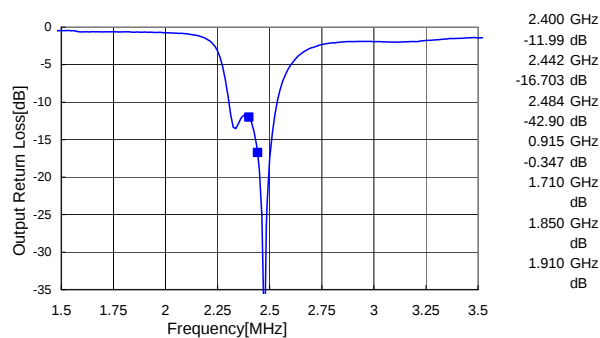
Attenuation



Phase Balance

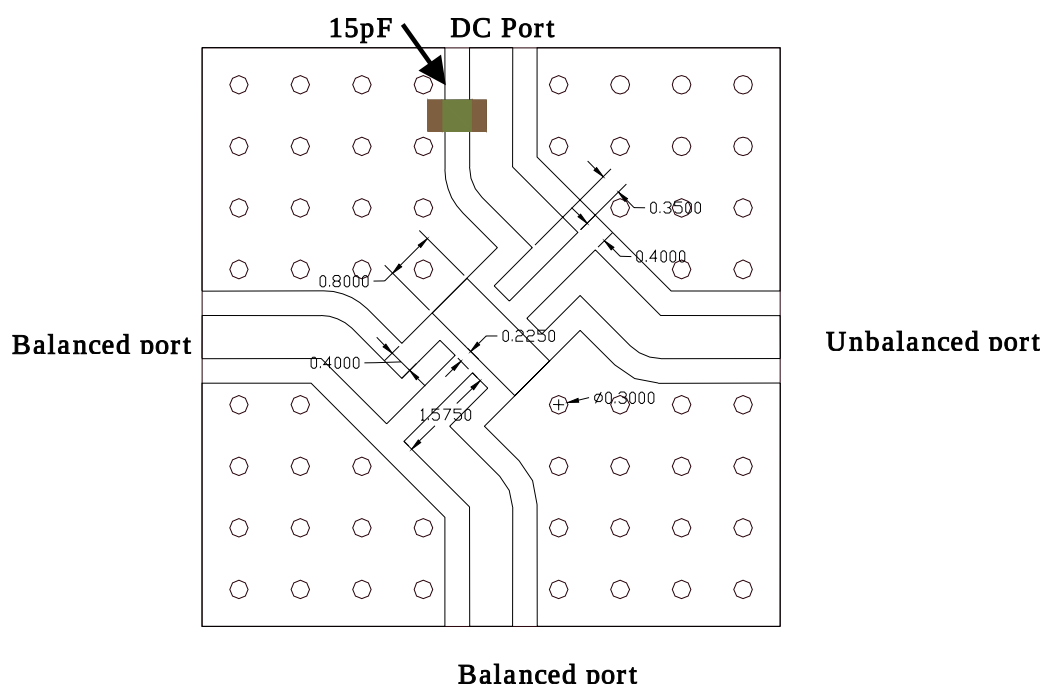


OUT PUT Return Loss



Note: All specifications are subject to change and are not guaranteed.

Evaluation board



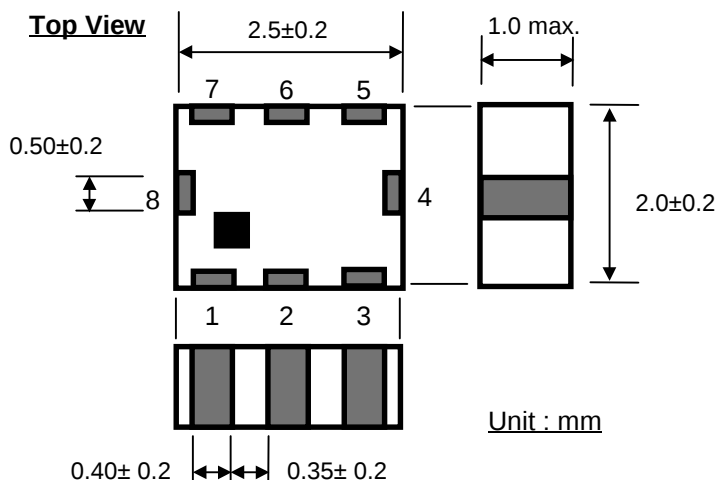
Note: All specifications are subject to change and are not guaranteed.

Multilayer Band Pass Filter (Balance Output type)

P/N : **DEA252450BT-7001B1**

For Bluetooth & 2.4GHz W-LAN

MECHANICAL DIMENSIONS



PIN CONFIGURATION

PIN ASSIGNMENT	PIN No.
Unbalanced	4
Balanced	1
Balanced	2
GND or DC feed	6
GND	3,5,7,8

ELECTRICAL CHARACTERISTICS

Unbalanced Port Characteristics Impedance	50 ohm (Nominal)
Balanced Port Characteristics Impedance	50 ohm (Nominal)
Frequency Range (Pass Band)	2400 – 2500 MHz
Insertion Loss (+25 degree C)	2.4 dB max.
Insertion Loss (-40 ~ +85 degree C)	2.7 dB max.
Attenuation (1710 – 1920 MHz)	25 dB min.
Attenuation (4800 – 5000 MHz)	15 dB min.
Unbalanced Port Return Loss	10 dB min.
Phase Difference at Balanced Ports	180 ± 20 deg.
Amplitude Imbalance at Balanced Ports	0 ± 2.0 dB

TEMPERATURE RANGE

Storage Temperature : -40 ~ +85 degree C

Operating Temperature : -40 ~ +85 degree C

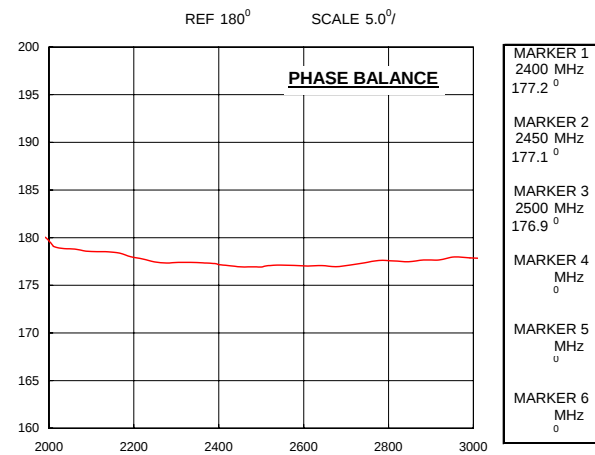
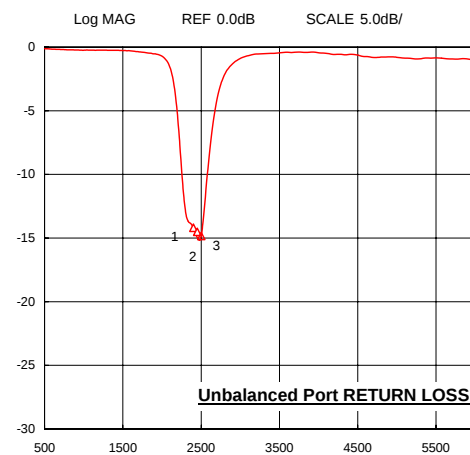
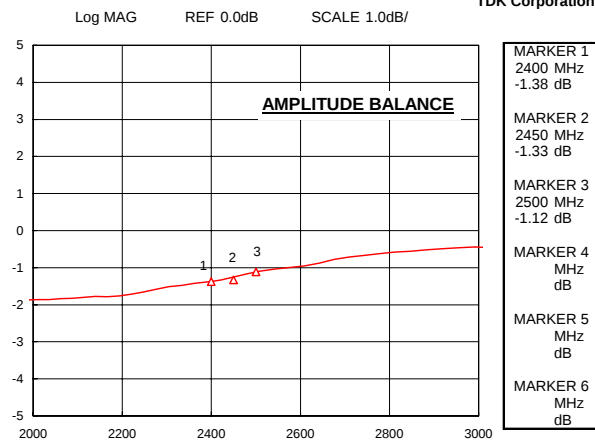
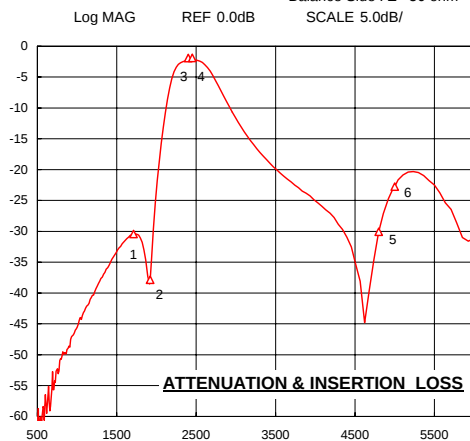
Note: All specifications are subject to change and are not guaranteed.

FREQUENCY RESPONSE

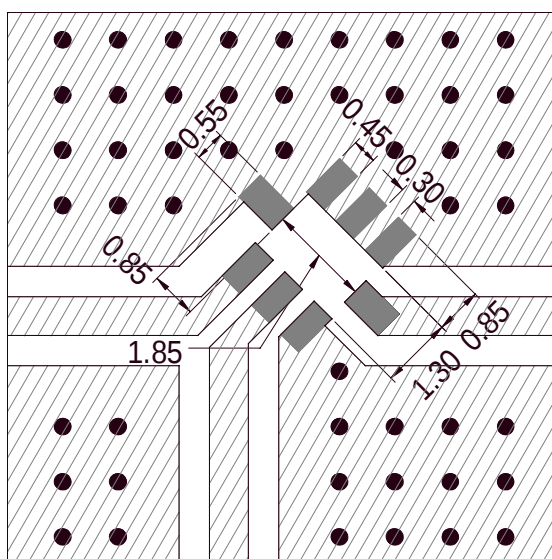
DEA252450BT-7001B1

Unbalance Side : Z= 50 ohm
Balance Side : Z= 50 ohm

29/Jan/2003

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RECOMMENDED LAND PATTERN



Unit : mm

- Land
- Solder Resist
- No pattern and Solder Resist
- Through Hole (0.3mm)

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

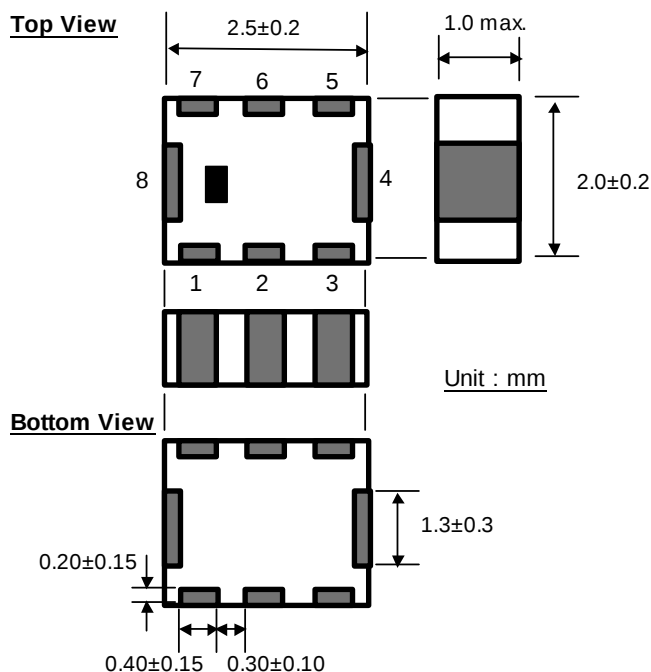
Note: All specifications are subject to change and are not guaranteed.

Multilayer Band Pass Filter (Balance output type)

P/N : **DEA252450BT-7014D1**

For Bluetooth & 2.4GHz W-LAN

MECHANICAL DIMENSIONS



PIN CONFIGURATION

PIN ASSIGNMENT	PIN No.
Unbalanced	2
Balanced	5
Balanced	7
GND	4,8
DC feed or N.C.	3
N.C.	1,6

ELECTRICAL CHARACTERISTICS

Parameter	Specification	Typical Value	Unit
Unbalanced Port Characteristics Impedance	50 (Nominal)	-	ohm
Balanced Port Characteristics Impedance	50 (Nominal)	-	ohm
Frequency Range (Pass Band)	2400 – 2500	-	MHz
Insertion Loss	+25 degree C	1.7 max.	1.2
	-40 ~ +85 degree C	2.0 max.	-
Attenuation	880 – 960 MHz	40 min.	48
	1710 – 1910 MHz	32 min.	38
	4800 – 5000 MHz	30 min.	39
Unbalanced Port Return Loss	10 min.	17	dB
Phase Difference at Balanced Port	180 ± 15	190	deg.
Amplitude Imbalance at Balanced Port	0 ± 1.0	- 0.2	dB

TEMPERATURE RANGE

Storage Temperature : -40 ~ +85 degree C
 Operating Temperature : -40 ~ +85 degree C

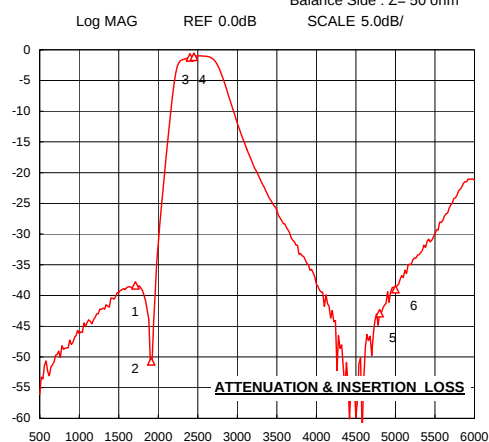
Note: All specifications are subject to change and are not guaranteed.

FREQUENCY RESPONSE

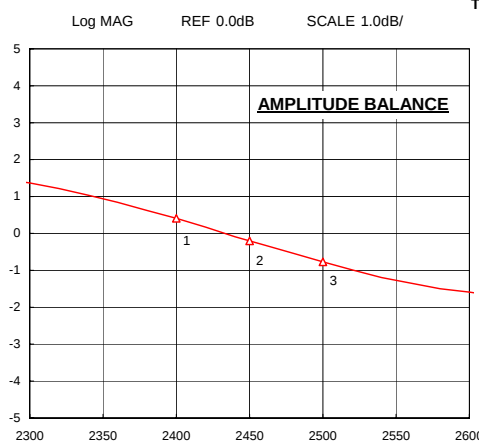
DEA252450BT-7014D1

Unbalance Side : Z= 50 ohm
Balance Side : Z= 50 ohm

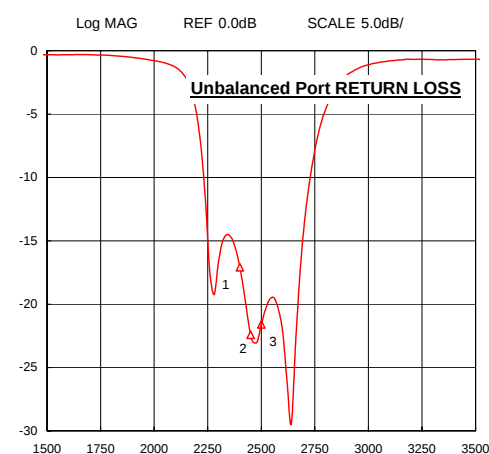
27/Nov/2003
TDK Corporation



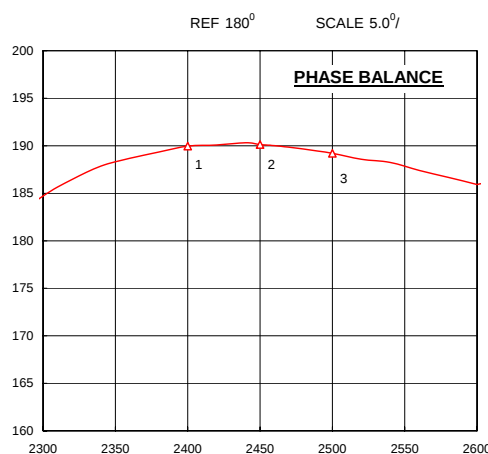
MARKER 1	1710 MHz	-38.3 dB
MARKER 2	1910 MHz	-50.8 dB
MARKER 3	2400 MHz	-1.24 dB
MARKER 4	2500 MHz	-1.05 dB
MARKER 5	4800 MHz	-42.9 dB
MARKER 6	5000 MHz	-39.0 dB



MARKER 1	2400 MHz	0.41 dB
MARKER 2	2450 MHz	-0.20 dB
MARKER 3	2500 MHz	-0.77 dB
MARKER 4	MHz	dB
MARKER 5	MHz	dB
MARKER 6	MHz	dB

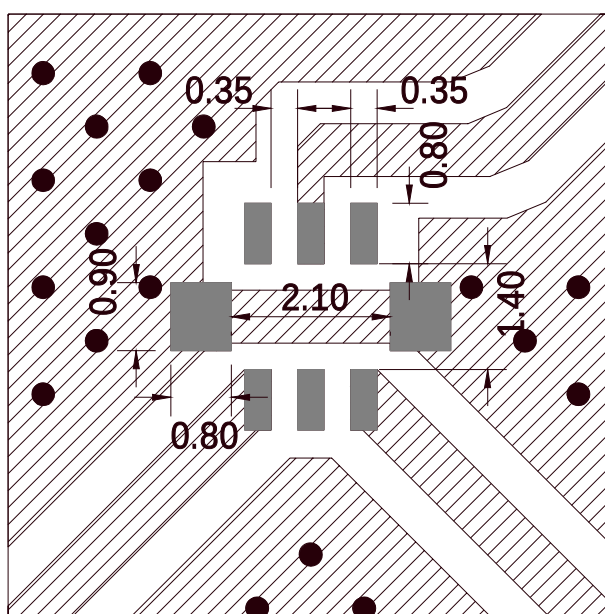


MARKER 1	2400 MHz	-17.1 dB
MARKER 2	2450 MHz	-22.4 dB
MARKER 3	2500 MHz	-21.6 dB
MARKER 4	MHz	dB
MARKER 5	MHz	dB
MARKER 6	MHz	dB



MARKER 1	2400 MHz	190.0 °
MARKER 2	2450 MHz	190.1 °
MARKER 3	2500 MHz	189.2 °
MARKER 4	MHz	°
MARKER 5	MHz	°
MARKER 6	MHz	°

RECOMMENDED PCB PATTERN



- Unit : mm
- Land
 - Solder Resist
 - No pattern and Solder Resist
 - Through Hole (0.3mm)

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

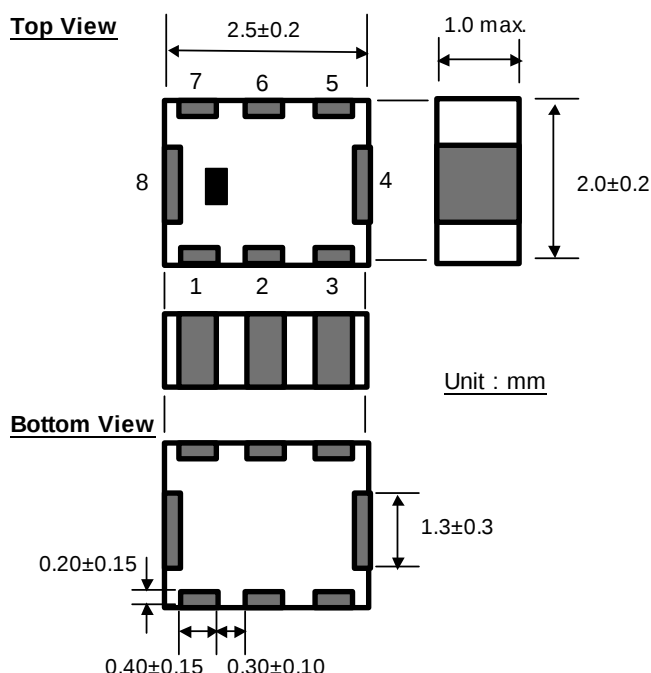
Note: All specifications are subject to change and are not guaranteed.

Multilayer Band Pass Filter (Balance output type)

P/N : **DEA252450BT-7012D1**

For Bluetooth & 2.4GHz W-LAN

MECHANICAL DIMENSIONS



PIN CONFIGURATION

PIN ASSIGNMENT	PIN No.
Unbalanced	2
Balanced	5
Balanced	7
GND	4,8
DC feed or N.C.	3
N.C.	1,6

ELECTRICAL CHARACTERISTICS

Parameter	Specification	Typical Value	Unit
Unbalanced Port Characteristics Impedance	50 (Nominal)	-	ohm
Balanced Port Characteristics Impedance	100 (Nominal)	-	ohm
Frequency Range (Pass Band)	2400 – 2500	-	MHz
Insertion Loss	+25 degree C	1.9 max.	1.5
	-40 ~ +85 degree C	2.2 max.	-
Attenuation	880 – 960 MHz	40 min.	50
	1710 – 1910 MHz	32 min.	42
	4800 – 5000 MHz	30 min.	40
Unbalanced Port Return Loss	10 min.	14	dB
Phase Difference at Balanced Port	180 ± 12	188	deg.
Amplitude Imbalance at Balanced Port	0 ± 1.0	0	dB

TEMPERATURE RANGE

Storage Temperature : -40 ~ +85 degree C
 Operating Temperature : -40 ~ +85 degree C

Note: All specifications are subject to change and are not guaranteed.

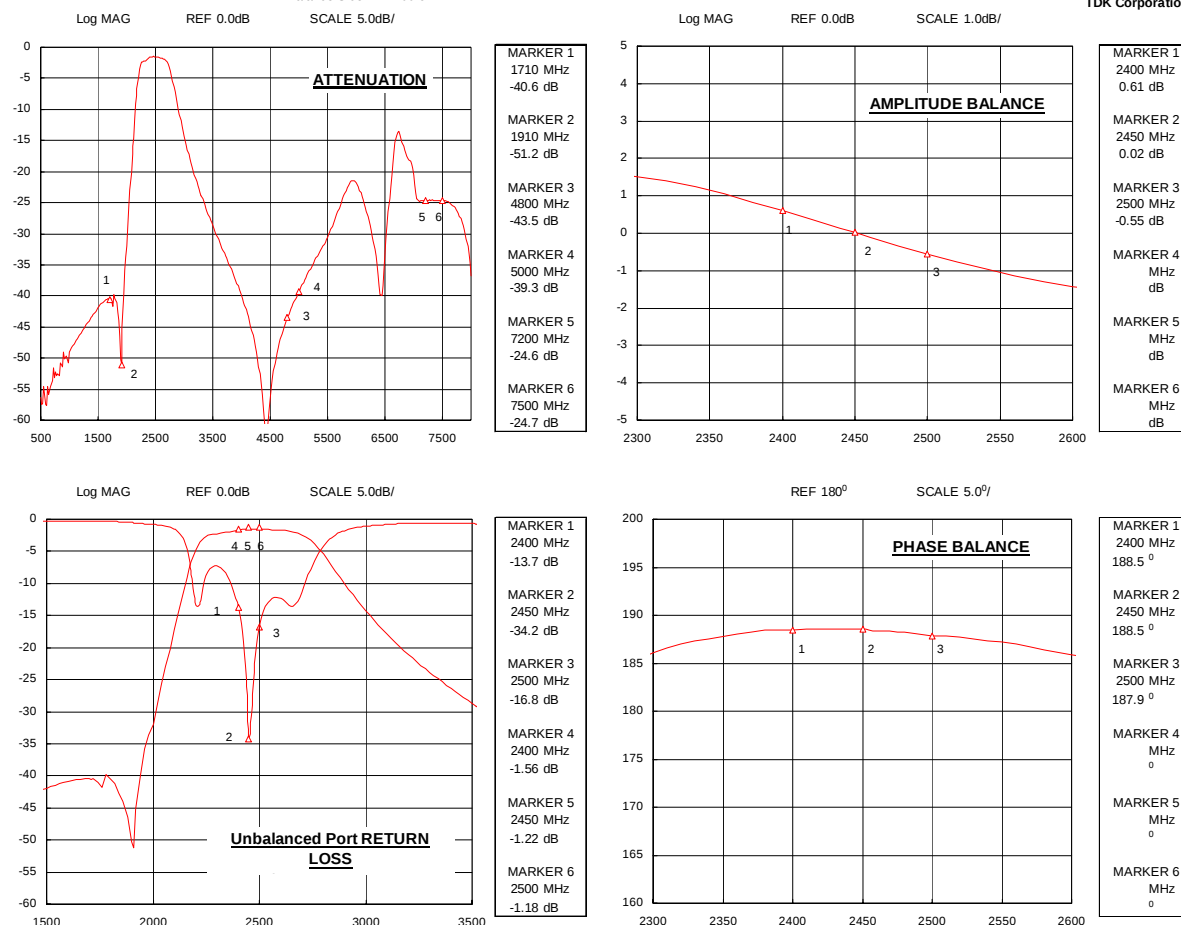
FREQUENCY RESPONSE

DEA252450BT-7012D1

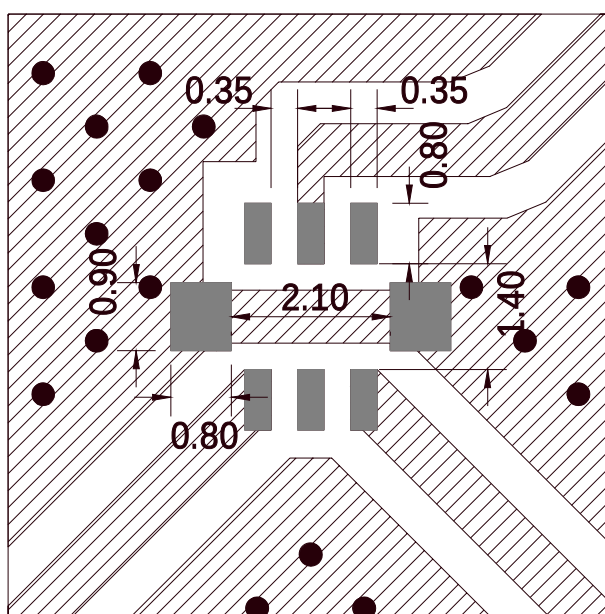
Unbalance Side : Z= 50 ohm
Balance Side : Z= 100 ohm

8/Jul/2004

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RECOMMENDED PCB PATTERN



Unit : mm

- Land
- Solder Resist
- No pattern and Solder Resist
- Through Hole (0.3mm)

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

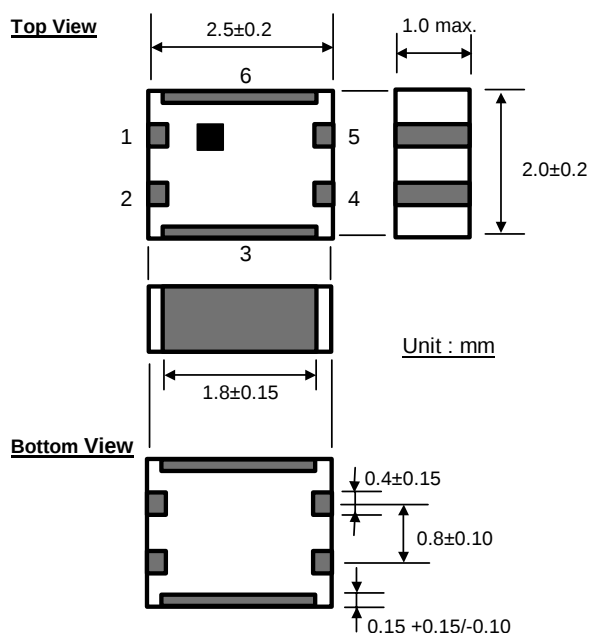
Note: All specifications are subject to change and are not guaranteed.

Multilayer Band Pass Filter (Balance output type)

P/N : **DEA252450BT-7022B1**

For Bluetooth and 2.4GHz W-LAN

MECHANICAL DIMENSIONS



PIN CONFIGURATION

PIN ASSIGNMENT	PIN No.
Unbalanced	1
Balanced	4,5
GND	3,6
DC feed or RF GND	2

Note : Internal DC path from Pin 2 to balanced ports.

ELECTRICAL CHARACTERISTICS

Parameter		Specification	Typical Value	Unit
Frequency Range (Pass Band)		2400 – 2500	-	MHz
Unbalanced Port Characteristics Impedance		50 (Nominal)	-	ohm
Balanced Port Characteristics Impedance		100 (Nominal)	-	ohm
Unbalanced Port Return Loss		9.5 min.	-	dB
Insertion Loss (Pass Band)	+25 degree C	3.0 max.	2.7	dB
	-40 ~ +85 degree C	3.3 max.	3.0	dB
Ripple (Pass Band)		1.0 max.	0.2	dB
Attenuation	880 - 960 MHz	48 min.	52	dB
	1710 - 1880 MHz	45 min.	51	dB
	1880 - 1980 MHz	40 min.	54	dB
	2110 - 2170 MHz	25 min.	33	dB
	4800 - 5000 MHz	30 min.	38	dB
Amplitude Imbalance at Balanced Port		1.0 max.	-0.2	dB
Phase Difference at Balanced Port	+25 degree C	180 ± 8	183	deg.
	-40 ~ +85 degree C	180 ± 10	-	deg.

Note: All specifications are subject to change and are not guaranteed.

TEMPERATURE RANGE

Storage Temperature : -40 ~ +85 degree C

Operating Temperature : -40 ~ +85 degree C

FREQUENCY RESPONSE

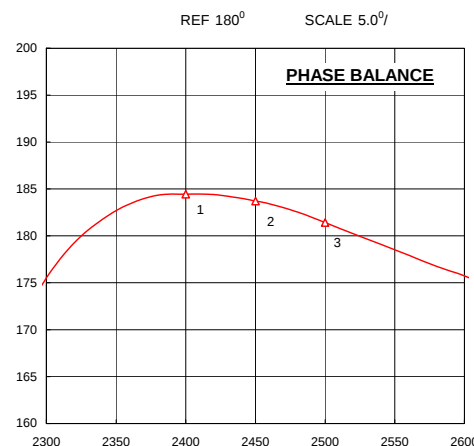
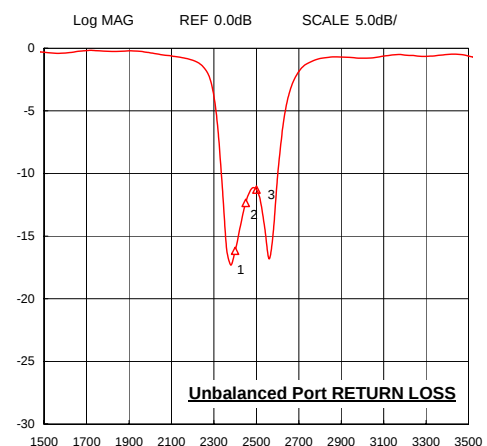
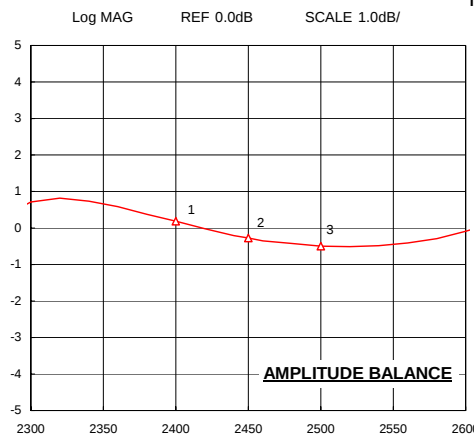
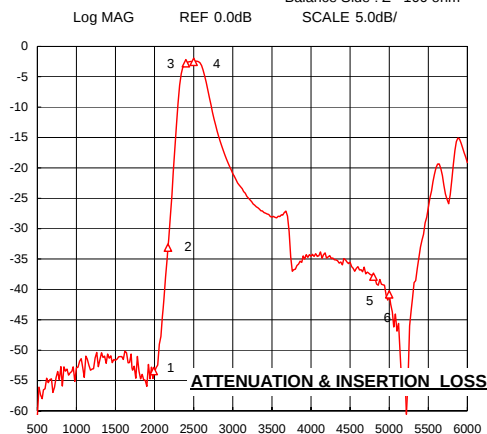
DEA252450BT-7022B

Unbalance Side : Z= 50 ohm
Balance Side : Z= 100 ohm
SCALE 5.0dB/

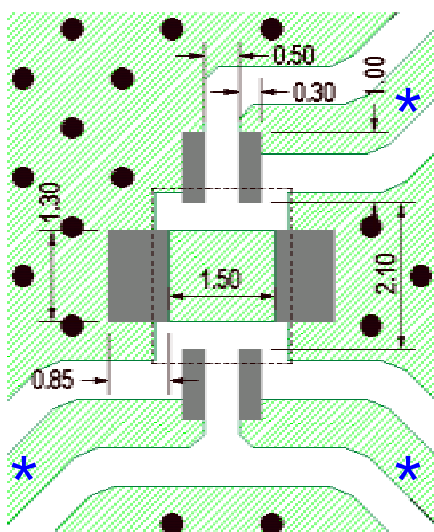
182

23/Jan/2004

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RECOMMENDED PCB PATTERN



Unit : mm

- Land
- Solder Resist
- No pattern and Solder Resist
- Through Hole (0.3mm)

* Coplanar waveguide (Line width and Gap of Line to GND) to be designed to match 50ohm characteristic impedance , depending on PCB material and thickness.

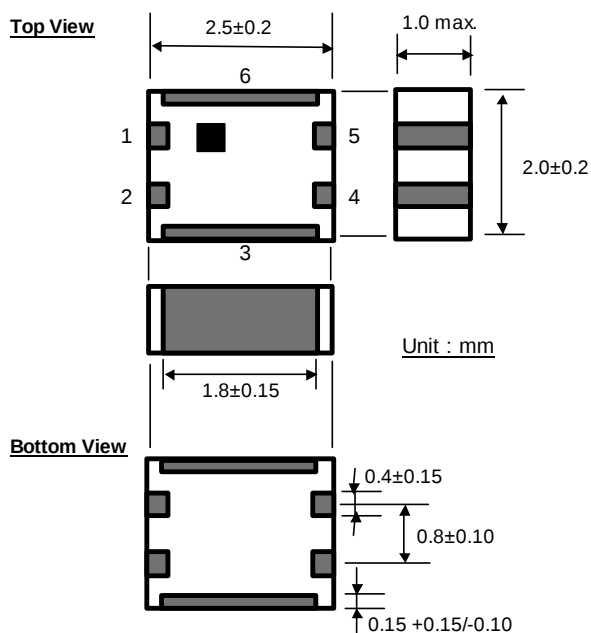
Note: All specifications are subject to change and are not guaranteed.

Multilayer Band Pass Filter (Balance output type)

P/N : **DEA252450BT-7030B1**

For Bluetooth and 2.4GHz W-LAN

MECHANICAL DIMENSIONS



PIN CONFIGURATION

PIN ASSIGNMENT	PIN No.
Unbalanced	1
Balanced	4,5
GND	3,6
DC feed or RF GND	2

Note : Internal DC path from Pin 2 to balanced ports.

ELECTRICAL CHARACTERISTICS

Parameter		Specification	Typ.Value	Unit
Frequency Range (Pass Band)		2400 – 2500	-	MHz
Unbalanced Port Characteristics Impedance		50 (Nominal)	-	ohm
Balanced Port Characteristics Impedance		18+j28 (Nominal)	-	ohm
Unbalanced Port Return Loss		6.0 min.	10	dB
Insertion Loss (Pass Band)	+25 degree C	3.3 max.	3.1	dB
	-40 ~ +85 degree C	3.6 max.	3.4	dB
Ripple (Pass Band)		1.0 max.	0.3	dB
Attenuation	880 - 960 MHz	48 min.	57	dB
	1710 - 1990 MHz	40 min.	43	dB
	3900 - 4100 MHz	30 min.	37	dB
	4800 - 5000 MHz	30 min.	50	dB
Amplitude Imbalance at Balanced Port		1.8 max.	1.4	dB
Phase Difference at Balanced Port	+25 degree C	180 ± 7	183	deg
	-40 ~ +85 degree C	180 ± 10	-	deg

Note: All specifications are subject to change and are not guaranteed.

TEMPERATURE RANGE

Storage Temperature : -40 ~ +85 degree C

Operating Temperature : -40 ~ +85 degree C

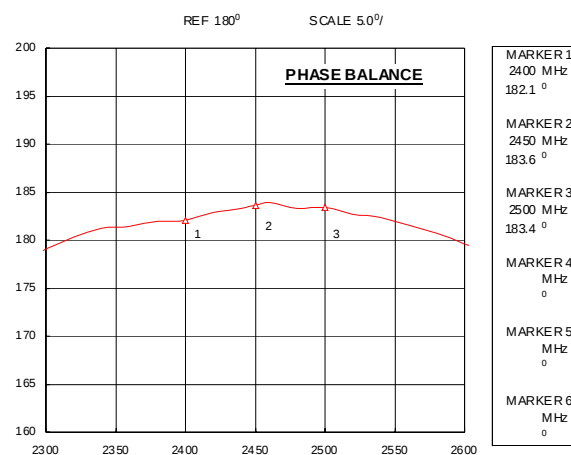
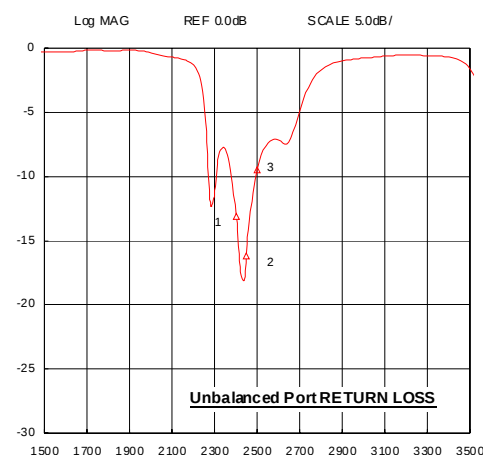
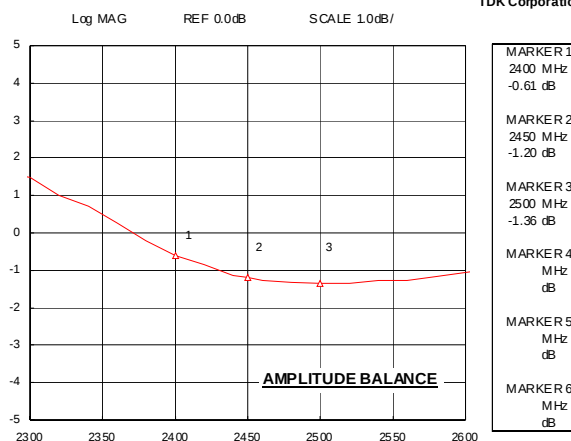
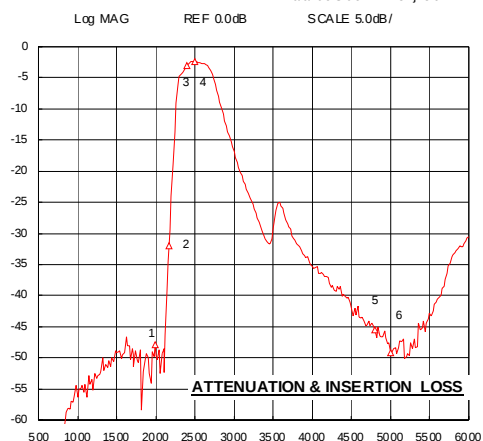
FREQUENCY RESPONSE

DEA252450BT-7030B

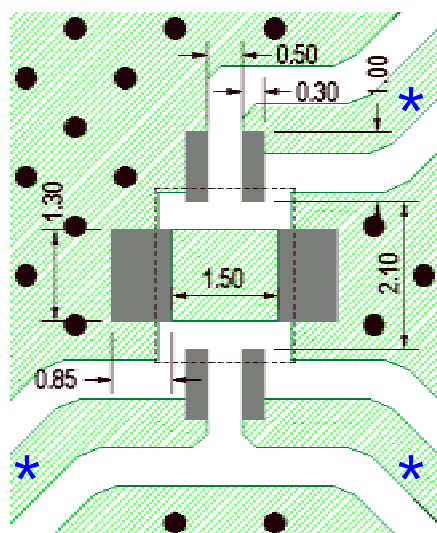
Unbalance Side : Z= 50 ohm
Balance Side : Z= 18+j28 ohm

s15k

27/Feb/2004
TDK Corporation



RECOMMENDED PCB PATTERN



Unit : mm

- Land
- Solder Resist
- No pattern and Solder Resist
- Through Hole (0.3mm)

* Coplanar waveguide (Line width and Gap of Line to GND) to be designed to match 50ohm characteristic impedance, depending on PCB material and thickness.

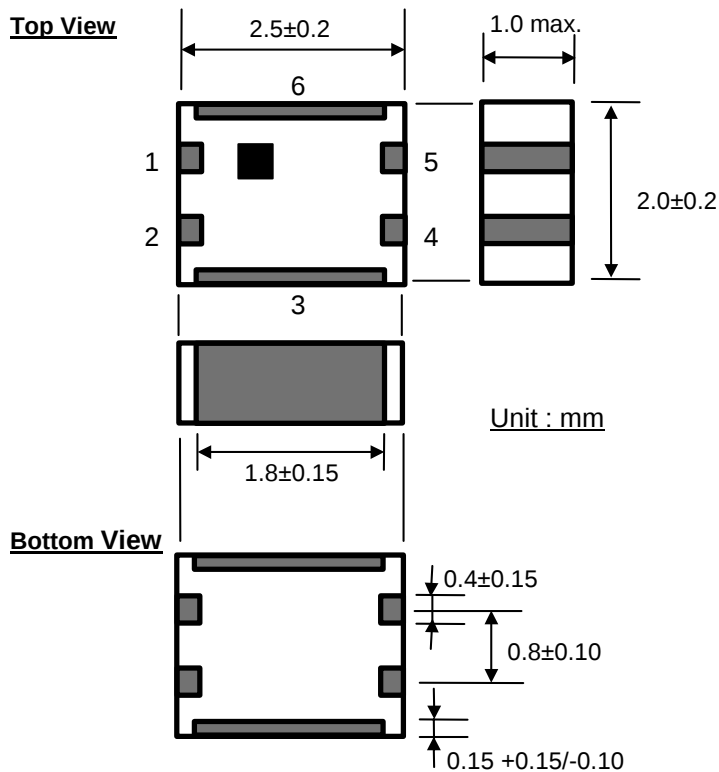
Note: All specifications are subject to change and are not guaranteed.

Multilayer Band Pass Filter (Balance output type)

P/N : **DEA252450BT-7035B2**

For Bluetooth

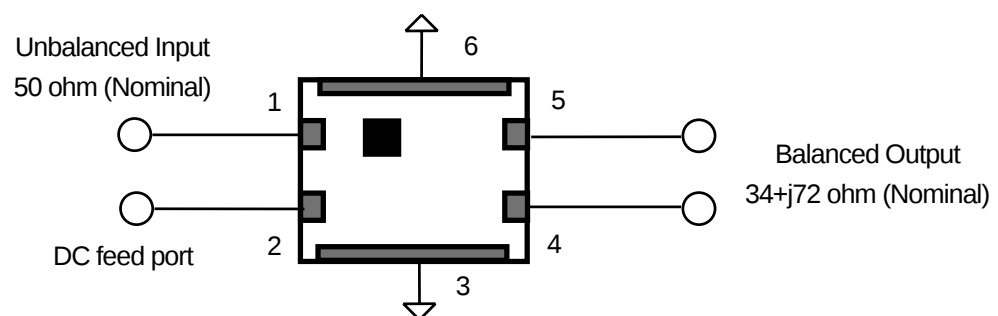
MECHANICAL DIMENSIONS



PIN CONFIGURATION

PIN ASSIGNMENT	PIN No.
Unbalanced	1
Balanced	4,5
GND	3,6
DC feed or RF GND	2

Note : Internal DC path from Pin 2 to balanced ports.



Note: All specifications are subject to change and are not guaranteed.

ELECTRICAL CHARACTERISTICS

Parameter		Specification	Typical Value	Unit
Frequency Range (Pass Band)		2400 – 2500	-	MHz
Unbalanced Port Characteristics Impedance		50 (Nominal)	-	ohm
Balanced Port Characteristics Impedance		34+j72 (Nominal)	-	ohm
Unbalanced Port Return Loss		8.0 min.	10.9	dB
Insertion Loss (Pass Band)	-40 ~ +85 degree C	3.6 max.	3.1	dB
Ripple (Pass Band)		1.0 max.	0.2	dB
Attenuation	880 - 960 MHz	50 min.	62	dB
	1710 - 1880 MHz	48 min.	53	dB
	1880 - 1990 MHz	38 min.	43	dB
	2110 - 2170 MHz	30 min.	38	dB
	4800 - 5000 MHz	25 min.	32	dB
	7200 - 7500 MHz	20 min.	35	dB
Amplitude Imbalance at Balanced Port		1.0 max.	0.3	dB
Phase Difference at Balanced Port	+25 degree C	180 ± 8	180 ± 4	deg.
	-40 ~ +85 degree C	180 ± 10	-	deg.

TEMPERATURE RANGE

Storage Temperature : -40 ~ +85 degree C

Operating Temperature : -40 ~ +85 degree C

FREQUENCY RESPONSE

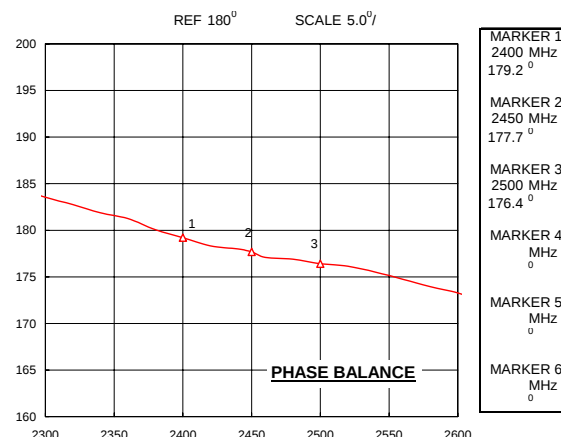
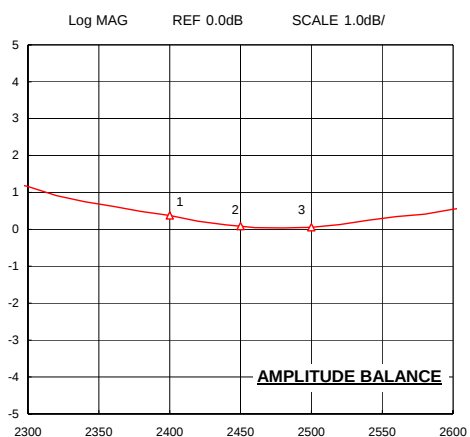
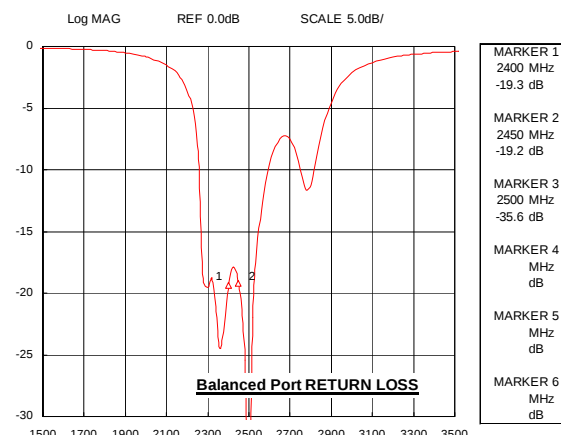
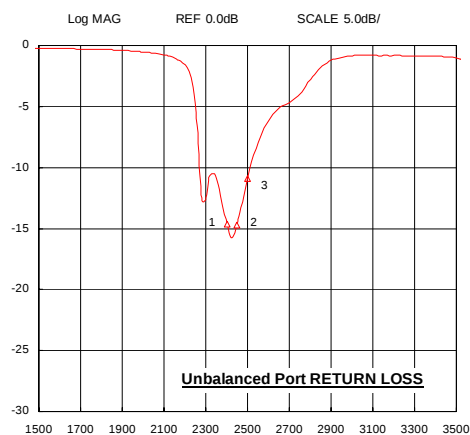
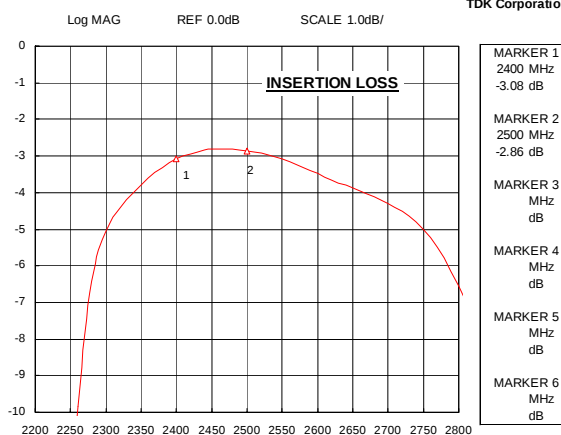
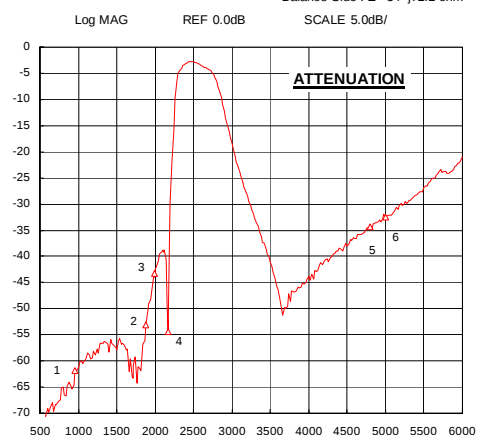
DEA252450BT-7035B

Unbalance Side : Z= 50 ohm
Balance Side : Z= 34+j72.2 ohm

s23e

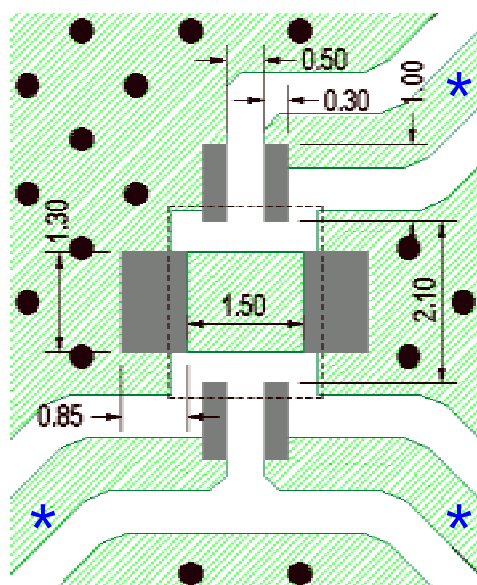
20/May/2004

TDK Corporation



Note: All specifications are subject to change and are not guaranteed.

RECOMMENDED PCB PATTERN



- Unit : mm
-  Land
 -  Solder Resist
 -  No pattern and Solder Resist
 -  Through Hole (0.3mm)

* Coplanar waveguide (Line width and Gap of Line to GND) to be designed to match 50ohm characteristic impedance , depending on PCB material and thickness.