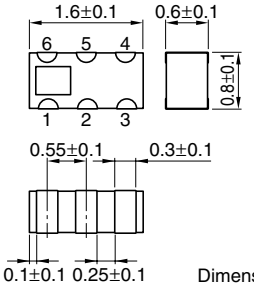
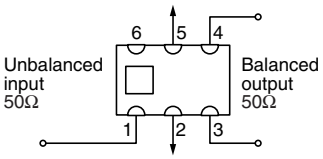
Multilayer Baluns, HHM Series

HHM1710D1 For Bluetooth & IEEE802.11b/g

SHAPES AND DIMENSIONS/CIRCUIT



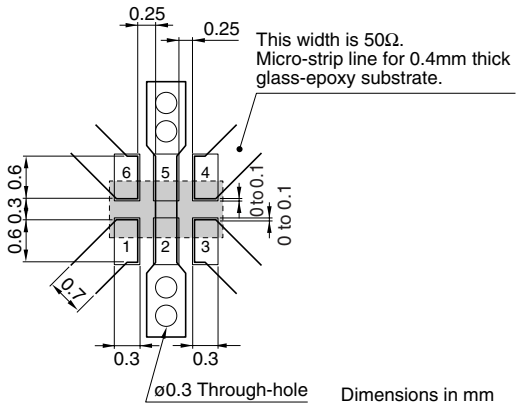
Dimensions in mm



TERMINAL FUNCTIONS

1	Unbalanced Port
2	GND or DC feed+ RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	N.C.

RECOMMENDED PCB PATTERN



Dimensions in mm

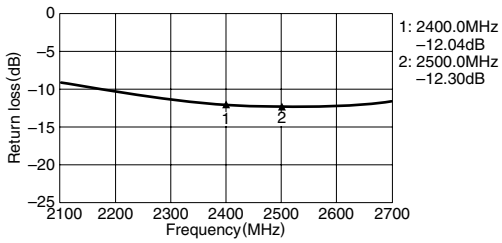
ELECTRICAL CHARACTERISTICS

Unbalanced impedance		50Ω
Balanced impedance		50Ω
Frequency range		2400 to 2500MHz
Unbalanced port return loss		10dB min.
Phase impedance at balanced port		180±10deg
Amplitude impedance at balanced port		0±2.0dB
Insertion loss		1.2dB max.
Temperature range	Operating	–40 to +85°C
	Storage	–40 to +85°C
Packaging style and quantities		4000pieces/reel

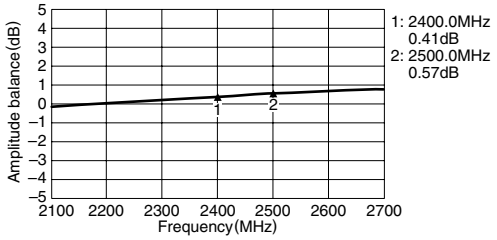
FREQUENCY CHARACTERISTICS

Unbalance 50Ω/Balance 50Ω

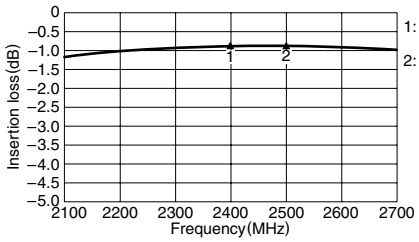
RETURN LOSS



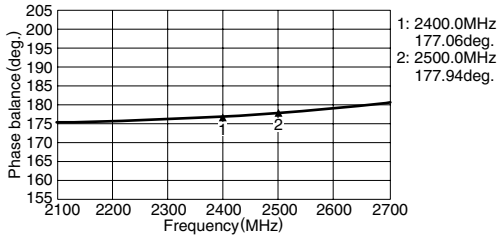
AMPLITUDE BALANCE



INSERTION LOSS



PHASE BALANCE

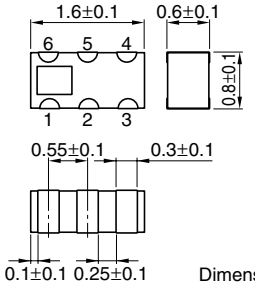


• All specifications are subject to change without notice.

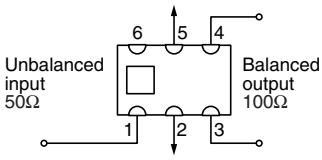
Multilayer Baluns, HHM Series

HHM1711D1 For Bluetooth & IEEE802.11b/g

SHAPES AND DIMENSIONS/CIRCUIT



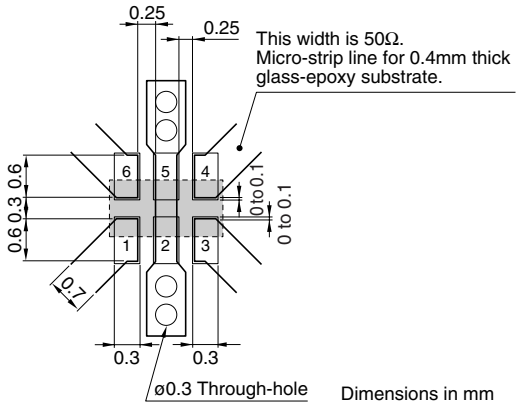
Dimensions in mm



TERMINAL FUNCTIONS

1	Unbalanced Port
2	GND or DC feed+ RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	N.C.

RECOMMENDED PCB PATTERN



Dimensions in mm

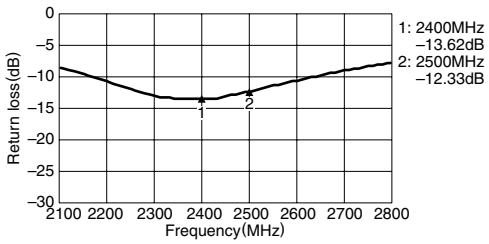
ELECTRICAL CHARACTERISTICS

Unbalanced impedance		50Ω
Balanced impedance		100Ω
Frequency range		2400 to 2500 MHz
Unbalanced port return loss		10dB min.
Phase impedance at balanced port		180±10deg
Amplitude impedance at balanced port		0±2.0dB
Insertion loss		1.2dB max.
Temperature range	Operating	–40 to +85°C
	Storage	–40 to +85°C
Packaging style and quantities		4000pieces/reel

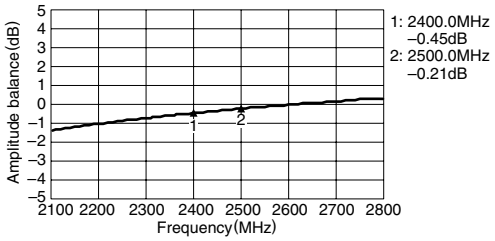
FREQUENCY CHARACTERISTICS

Unbalance 50Ω/Balance 100Ω

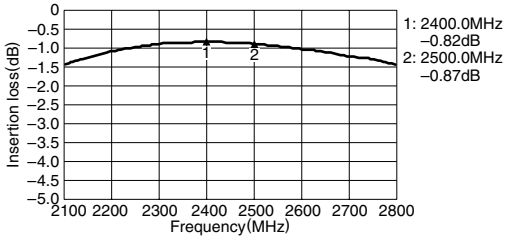
RETURN LOSS



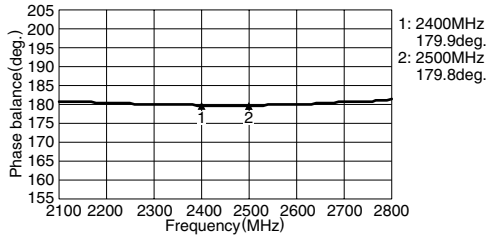
AMPLITUDE BALANCE



INSERTION LOSS



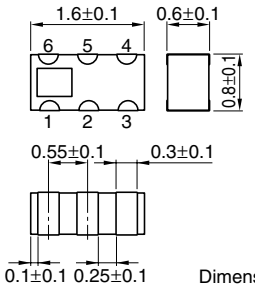
PHASE BALANCE



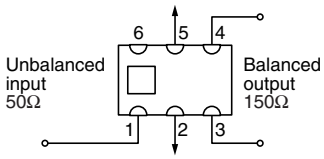
Multilayer Baluns, HHM Series

HHM1712D1 For Bluetooth & IEEE802.11b/g

SHAPES AND DIMENSIONS/CIRCUIT



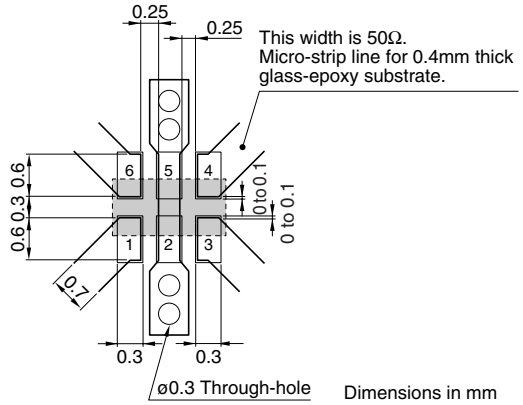
Dimensions in mm



TERMINAL FUNCTIONS

1	Unbalanced Port
2	GND or DC feed+ RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	N.C.

RECOMMENDED PCB PATTERN



Dimensions in mm

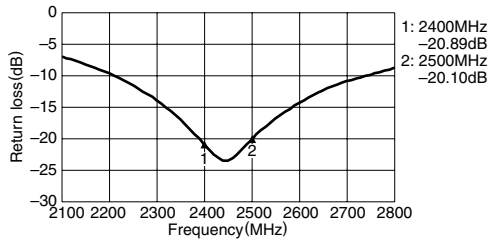
ELECTRICAL CHARACTERISTICS

Unbalanced impedance		50Ω
Balanced impedance		150Ω
Frequency range		2400 to 2500 MHz
Unbalanced port return loss		10dB min.
Phase impedance at balanced port		180±10deg
Amplitude impedance at balanced port		0±2.0dB
Insertion loss		1.2dB max.
Temperature range	Operating	–40 to +85°C
	Storage	–40 to +85°C
Packaging style and quantities		4000pieces/reel

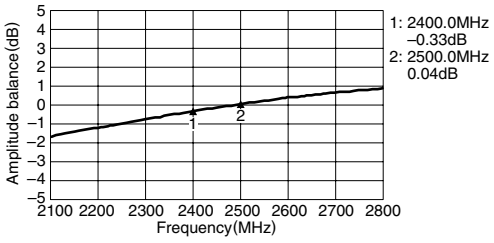
FREQUENCY CHARACTERISTICS

Unbalance 50Ω/Balance 150Ω

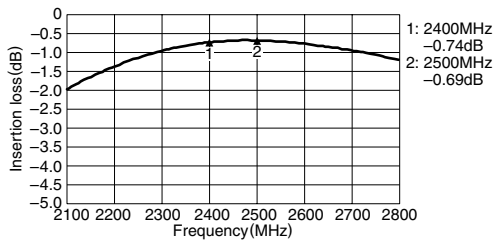
RETURN LOSS



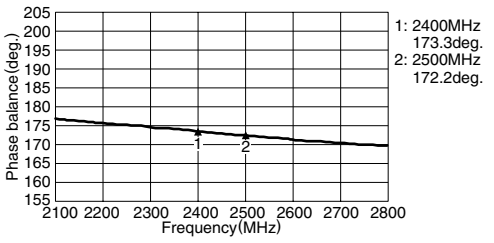
AMPLITUDE BALANCE



INSERTION LOSS



PHASE BALANCE

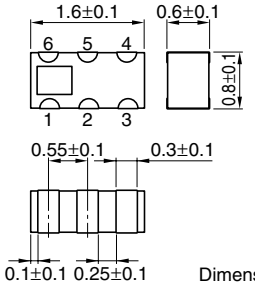


• All specifications are subject to change without notice.

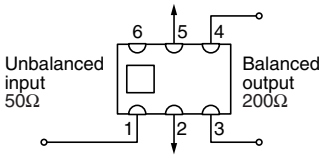
Multilayer Baluns, HHM Series

HHM1713D1 For Bluetooth & IEEE802.11b/g

SHAPES AND DIMENSIONS/CIRCUIT



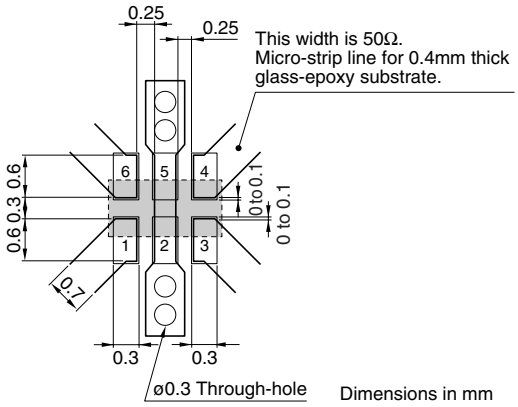
Dimensions in mm



TERMINAL FUNCTIONS

1	Unbalanced Port
2	GND or DC feed+ RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	N.C.

RECOMMENDED PCB PATTERN



Dimensions in mm

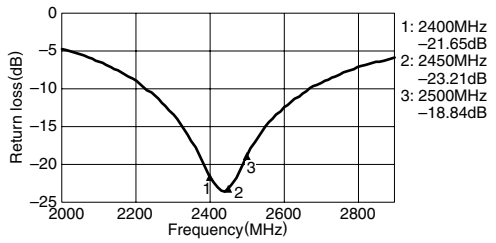
ELECTRICAL CHARACTERISTICS

Unbalanced impedance		50Ω
Balanced impedance		200Ω
Frequency range		2400 to 2500 MHz
Unbalanced port return loss		10dB min.
Phase impedance at balanced port		180±10deg
Amplitude impedance at balanced port		0±2.0dB
Insertion loss		1.2dB max.
Temperature range	Operating	–40 to +85°C
	Storage	–40 to +85°C
Packaging style and quantities		4000pieces/reel

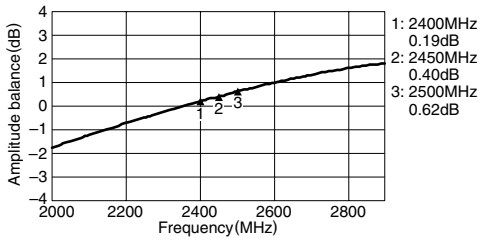
FREQUENCY CHARCTERISTICS

Unbalance 50Ω/Balance 200Ω

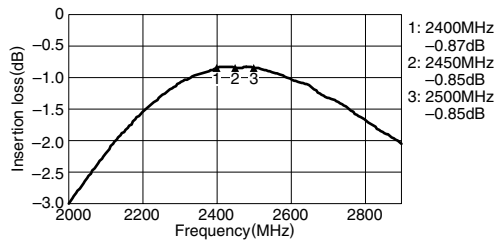
RETURN LOSS



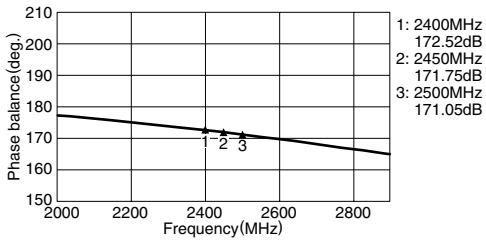
AMPLITUDE BALANCE



INSERTION LOSS



PHASE BALANCE

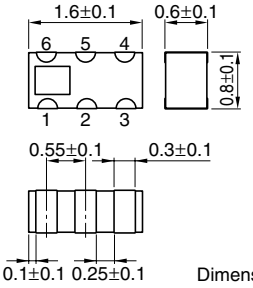


• All specifications are subject to change without notice.

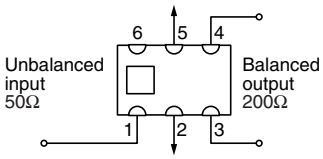
Multilayer Baluns, HHM Series

HHM1720A1 For EGSM

SHAPES AND DIMENSIONS/CIRCUIT



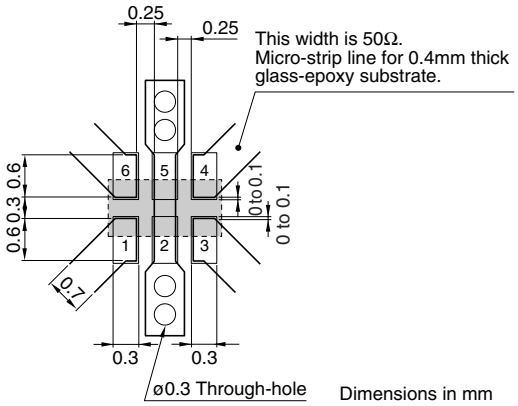
Dimensions in mm



TERMINAL FUNCTIONS

1	Unbalanced Port
2	GND or DC feed+ RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	N.C.

RECOMMENDED PCB PATTERN



Dimensions in mm

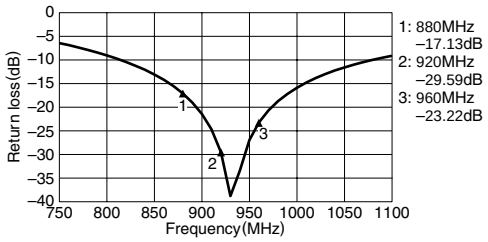
ELECTRICAL CHARACTERISTICS

Unbalanced impedance		50Ω
Balanced impedance		200Ω
Frequency range		880 to 960 MHz
Unbalanced port return loss		10dB min.
Phase impedance at balanced port		180±10deg
Amplitude impedance at balanced port		0±1.0dB
Insertion loss		1.4dB max.
Temperature range	Operating	–40 to +85°C
	Storage	–40 to +85°C
Packaging style and quantities		4000pieces/reel

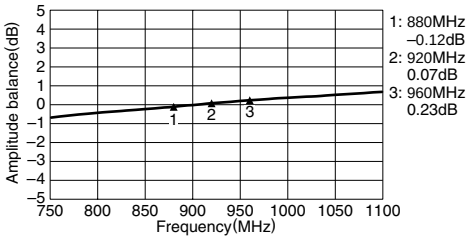
FREQUENCY CHARACTERISTICS

Unbalance 50Ω/Balance 200Ω

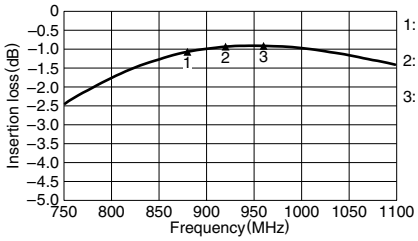
RETURN LOSS



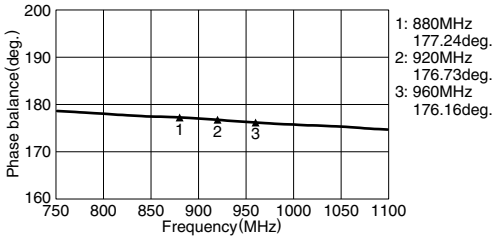
AMPLITUDE BALANCE



INSERTION LOSS



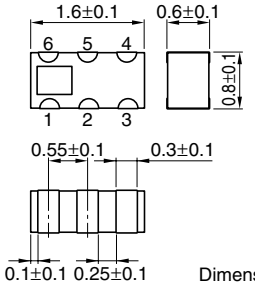
PHASE BALANCE



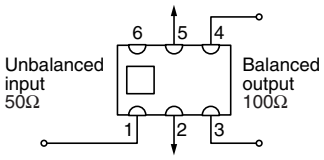
Multilayer Baluns, HHM Series

HHM1726L1 For PDC800/Tx+Rx

SHAPES AND DIMENSIONS/CIRCUIT



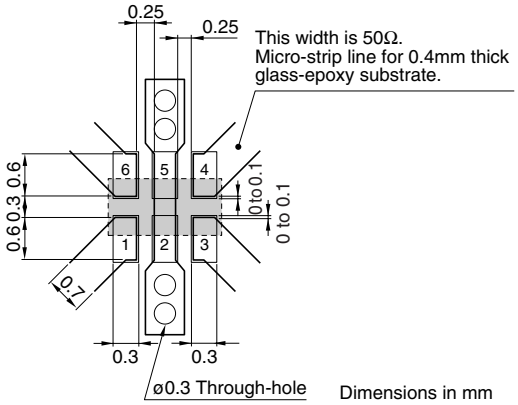
Dimensions in mm



TERMINAL FUNCTIONS

1	Unbalanced Port
2	GND
3	Balanced Port
4	Balanced Port
5	GND
6	N.C.

RECOMMENDED PCB PATTERN



Dimensions in mm

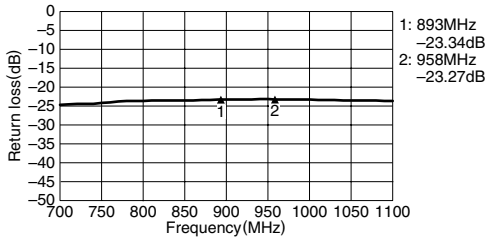
ELECTRICAL CHARACTERISTICS

Unbalanced impedance		50Ω
Balanced impedance		100Ω
Frequency range		893 to 958 MHz
Unbalanced port return loss		10dB min.
Phase impedance at balanced port		180±15deg
Amplitude impedance at balanced port		0±1.5dB
Insertion loss		1.0dB max.
Temperature range	Operating	–40 to +85°C
	Storage	–40 to +85°C
Packaging style and quantities		4000pieces/reel

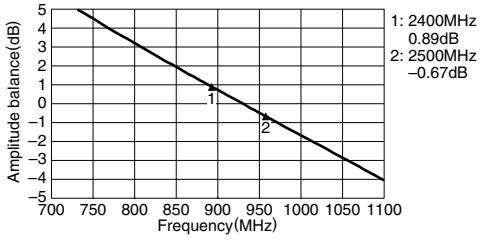
FREQUENCY CHARCTERISTICS

Unbalance 50Ω/Balance 100Ω

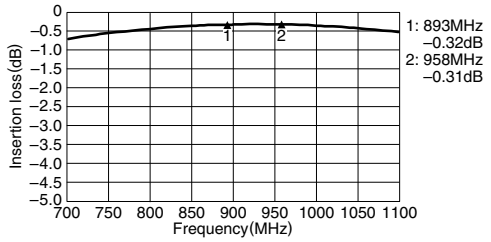
RETURN LOSS



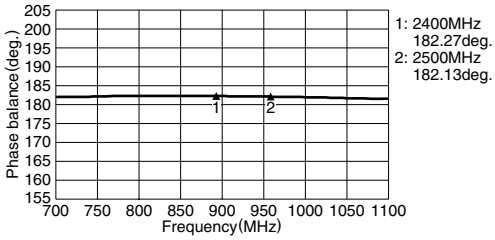
AMPLITUDE BALANCE



INSERTION LOSS



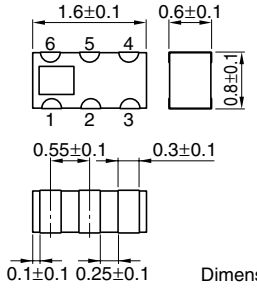
PHASE BALANCE



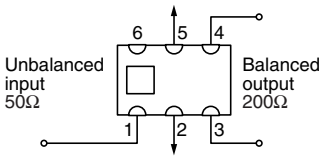
Multilayer Baluns, HHM Series

HHM1731A2 For DCS/Tx+Rx

SHAPES AND DIMENSIONS/CIRCUIT



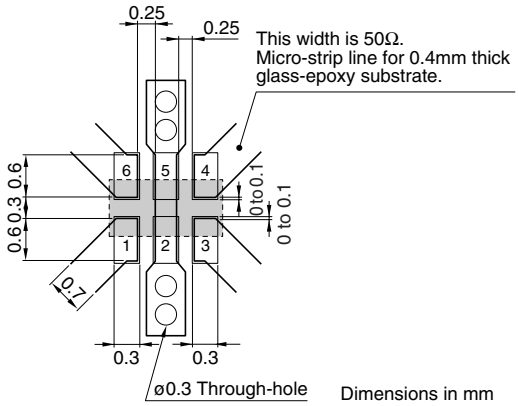
Dimensions in mm



TERMINAL FUNCTIONS

1	Unbalanced Port
2	GND or DC feed+ RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	N.C.

RECOMMENDED PCB PATTERN



Dimensions in mm

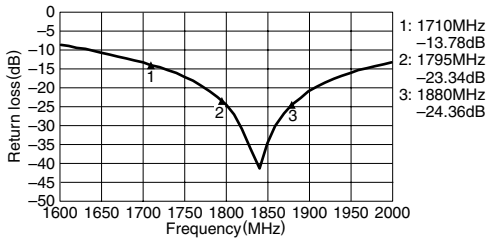
ELECTRICAL CHARACTERISTICS

Unbalanced impedance		50Ω
Balanced impedance		200Ω
Frequency range		1710 to 1880 MHz
Unbalanced port return loss		10dB min.
Phase impedance at balanced port		180±10deg
Amplitude impedance at balanced port		0±2.0dB
Insertion loss		1.2dB max.
Temperature range	Operating	–40 to +85°C
	Storage	–40 to +85°C
Packaging style and quantities		4000pieces/reel

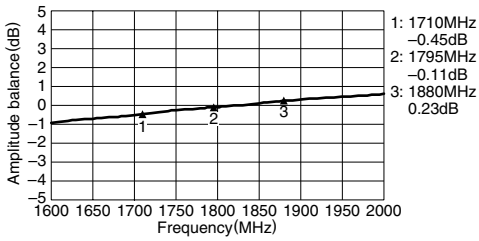
FREQUENCY CHARACTERISTICS

Unbalance 50Ω/Balance 200Ω

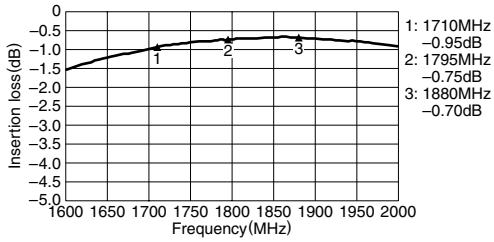
RETURN LOSS



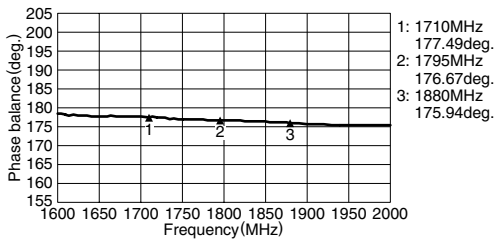
AMPLITUDE BALANCE



INSERTION LOSS



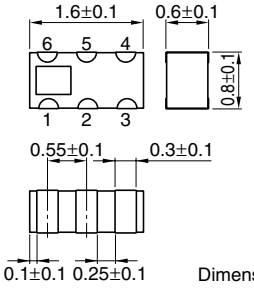
PHASE BALANCE



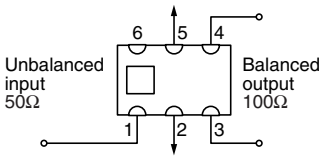
Multilayer Baluns, HHM Series

HHM1732B1 For W-LAN

SHAPES AND DIMENSIONS/CIRCUIT



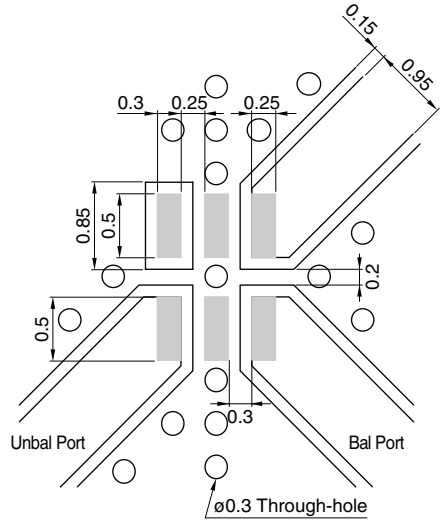
Dimensions in mm



TERMINAL FUNCTIONS

1	Unbalanced Port
2	GND or DC feed+ RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	N.C.

RECOMMENDED PCB PATTERN



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

Dimensions in mm

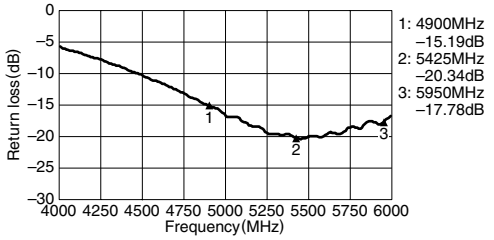
ELECTRICAL CHARACTERISTICS

Unbalanced impedance		50Ω
Balanced impedance		100Ω
Frequency range		4900 to 5950 MHz
Unbalanced port return loss		10dB min.
Phase impedance at balanced port		180±10deg
Amplitude impedance at balanced port		0±2.0dB
Insertion loss		1.0dB max.
Temperature range	Operating	–40 to +85°C
	Storage	–40 to +85°C
Packaging style and quantities		4000pieces/reel

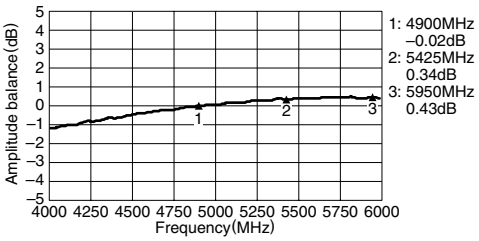
FREQUENCY CHARACTERISTICS

Unbalance 50Ω/Balance 100Ω

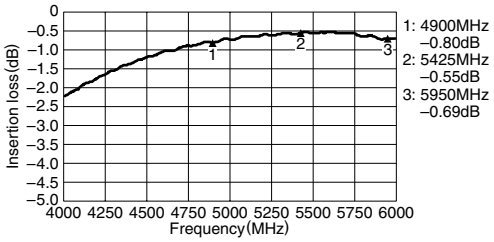
RETURN LOSS



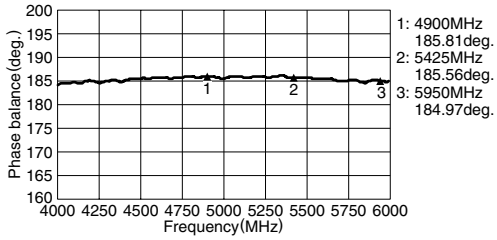
AMPLITUDE BALANCE



INSERTION LOSS



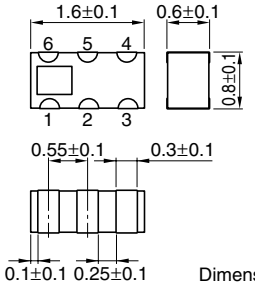
PHASE BALANCE



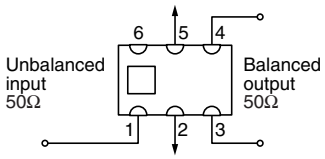
Multilayer Baluns, HHM Series

HHM1733B1 For W-LAN

SHAPES AND DIMENSIONS/CIRCUIT



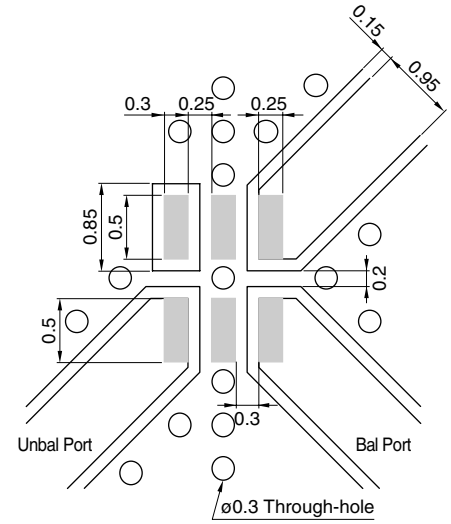
Dimensions in mm



TERMINAL FUNCTIONS

1	Unbalanced Port
2	GND or DC feed+ RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	N.C.

RECOMMENDED PCB PATTERN



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

Dimensions in mm

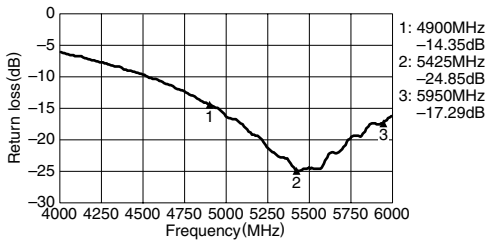
ELECTRICAL CHARACTERISTICS

Unbalanced impedance		50Ω
Balanced impedance		50Ω
Frequency range		4900 to 5950 MHz
Unbalanced port return loss		10dB min.
Phase impedance at balanced port		180±10deg
Amplitude impedance at balanced port		0±1.0dB
Insertion loss		1.2dB max.
Temperature range	Operating	–40 to +85°C
	Storage	–40 to +85°C
Packaging style and quantities		4000pieces/reel

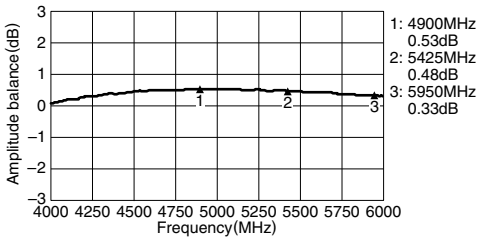
FREQUENCY CHARCTERISTICS

Unbalance 50Ω/Balance 50Ω

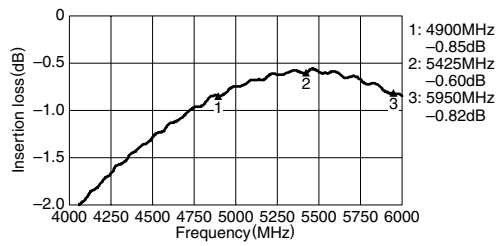
RETURN LOSS



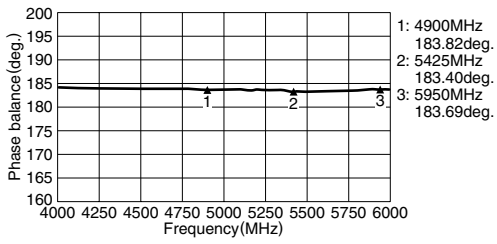
AMPLITUDE BALANCE



INSERTION LOSS



PHASE BALANCE

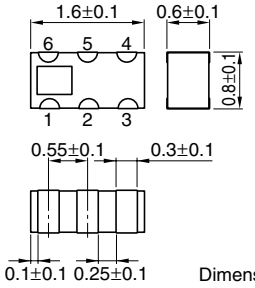


• All specifications are subject to change without notice.

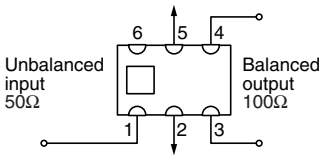
Multilayer Baluns, HHM Series

HHM1743L1 For PDC1500/Local

SHAPES AND DIMENSIONS/CIRCUIT



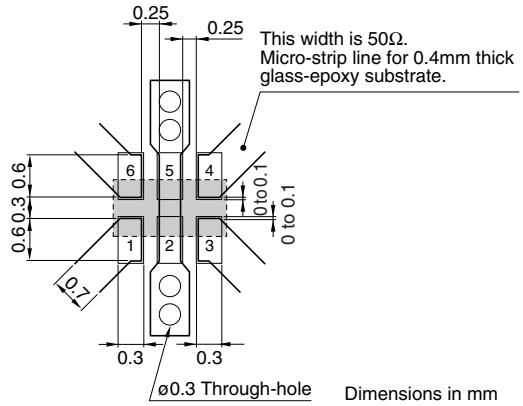
Dimensions in mm



TERMINAL FUNCTIONS

1	Unbalanced Port
2	GND
3	Balanced Port
4	Balanced Port
5	GND
6	N.C.

RECOMMENDED PCB PATTERN



Dimensions in mm

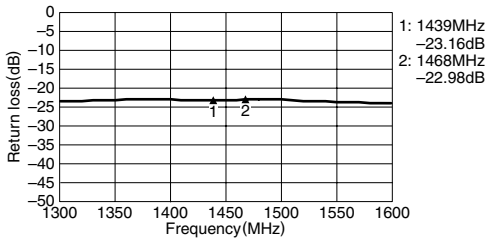
ELECTRICAL CHARACTERISTICS

Unbalanced impedance		50Ω
Balanced impedance		100Ω
Frequency range		1439 to 1468 MHz
Unbalanced port return loss		10dB min.
Phase impedance at balanced port		180±15deg
Amplitude impedance at balanced port		0±1.5dB
Insertion loss		1.0dB max.
Temperature range	Operating	–40 to +85°C
	Storage	–40 to +85°C
Packaging style and quantities		4000pieces/reel

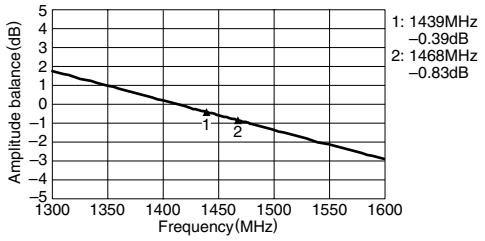
FREQUENCY CHARCTERISTICS

Unbalance 50Ω/Balance 100Ω

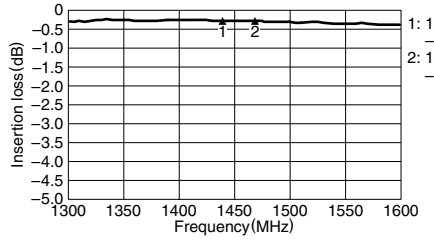
RETURN LOSS



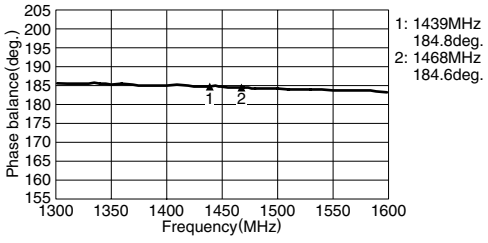
AMPLITUDE BALANCE



INSERTION LOSS



PHASE BALANCE

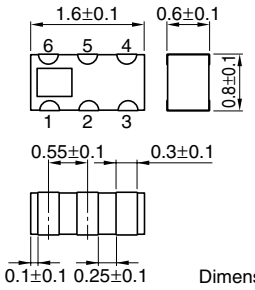


• All specifications are subject to change without notice.

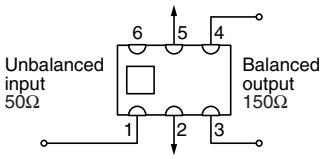
Multilayer Baluns, HHM Series

HHM1748A2 For DCS/Tx+Rx

SHAPES AND DIMENSIONS/CIRCUIT



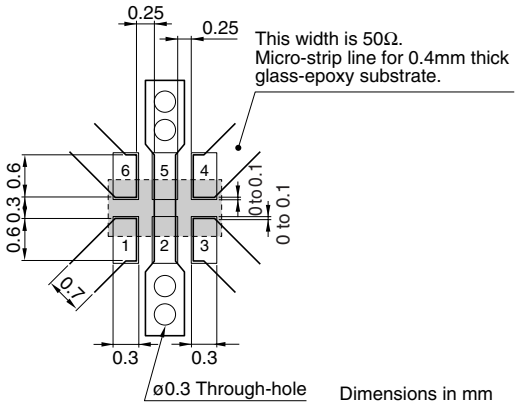
Dimensions in mm



TERMINAL FUNCTIONS

1	Unbalanced Port
2	GND or DC feed+ RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	N.C.

RECOMMENDED PCB PATTERN



Dimensions in mm

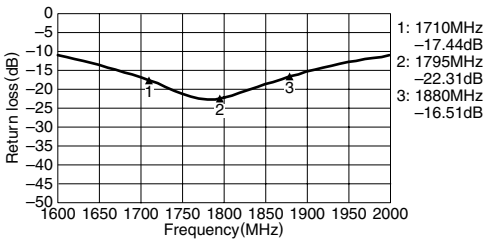
ELECTRICAL CHARACTERISTICS

Unbalanced impedance		50Ω
Balanced impedance		150Ω
Frequency range		1710 to 1880 MHz
Unbalanced port return loss		10dB min.
Phase impedance at balanced port		180±10deg
Amplitude impedance at balanced port		0±2.0dB
Insertion loss		1.2dB max.
Temperature range	Operating	–40 to +85°C
	Storage	–40 to +85°C
Packaging style and quantities		4000pieces/reel

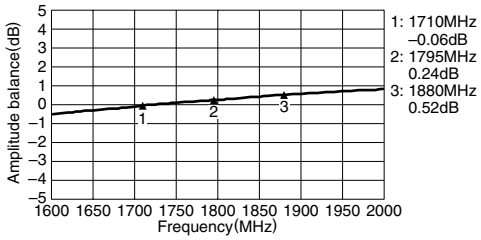
FREQUENCY CHARACTERISTICS

Unbalance 50Ω/Balance 150Ω

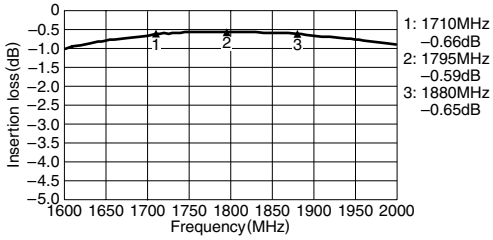
RETURN LOSS



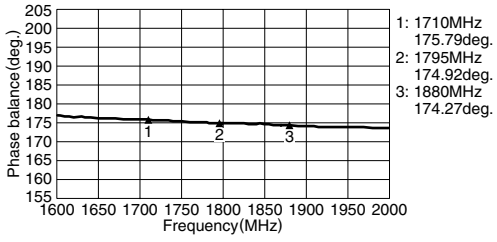
AMPLITUDE BALANCE



INSERTION LOSS



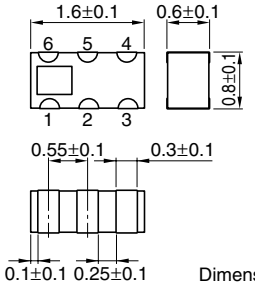
PHASE BALANCE



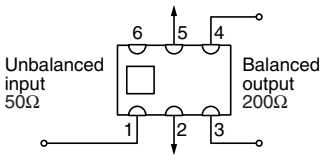
Multilayer Baluns, HHM Series

HHM1752A1 For W-LAN

SHAPES AND DIMENSIONS/CIRCUIT



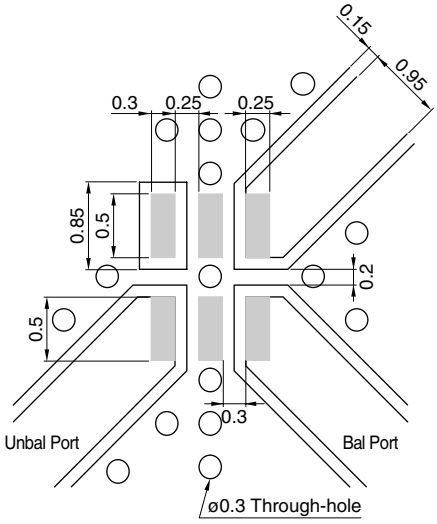
Dimensions in mm



TERMINAL FUNCTIONS

1	Unbalanced Port
2	GND or DC feed+ RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	N.C.

RECOMMENDED PCB PATTERN



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

Dimensions in mm

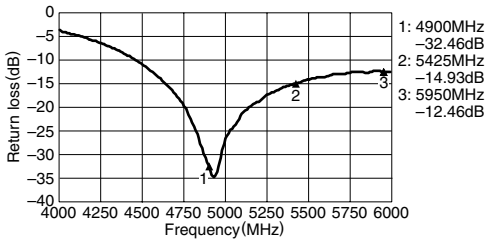
ELECTRICAL CHARACTERISTICS

Unbalanced impedance		50Ω
Balanced impedance		200Ω
Frequency range		4900 to 5950 MHz
Unbalanced port return loss		10dB min.
Phase impedance at balanced port		180±10deg
Amplitude impedance at balanced port		0±2.0dB
Insertion loss		1.2dB max.
Temperature range	Operating	–40 to +85°C
	Storage	–40 to +85°C
Packaging style and quantities		4000pieces/reel

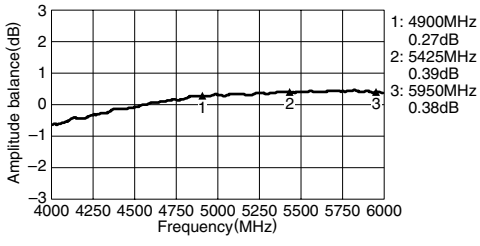
FREQUENCY CHARCTERISTICS

Unbalance 50Ω/Balance 200Ω

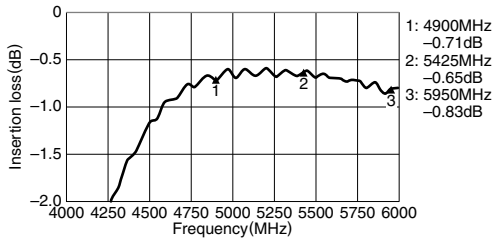
RETURN LOSS



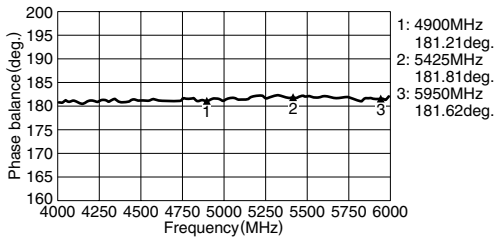
AMPLITUDE BALANCE



INSERTION LOSS



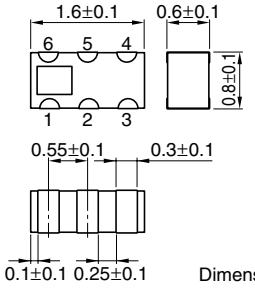
PHASE BALANCE



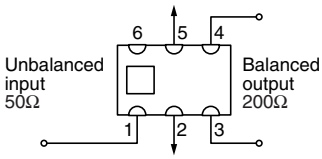
Multilayer Baluns, HHM Series

HHM1752A2 For W-LAN

SHAPES AND DIMENSIONS/CIRCUIT



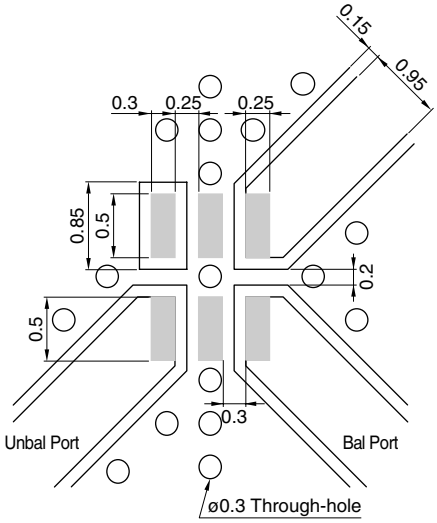
Dimensions in mm



TERMINAL FUNCTIONS

1	Unbalanced Port
2	GND or DC feed+ RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	N.C.

RECOMMENDED PCB PATTERN



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

Dimensions in mm

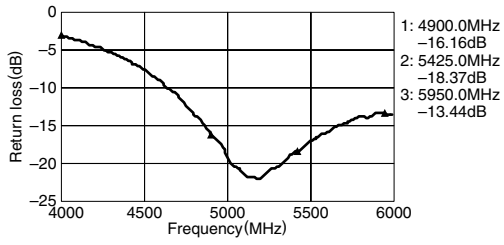
ELECTRICAL CHARACTERISTICS

Unbalanced impedance		50Ω
Balanced impedance		200Ω
Frequency range		4900 to 5950 MHz
Unbalanced port return loss		10dB min.
Phase impedance at balanced port		180±10deg
Amplitude impedance at balanced port		0±1.5dB
Insertion loss		1.2dB max.
Temperature range	Operating	–40 to +85°C
	Storage	–40 to +85°C
Packaging style and quantities		4000pieces/reel

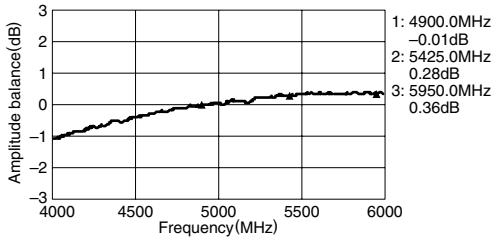
FREQUENCY CHARCTERISTICS

Unbalance 50Ω/Balance 200Ω

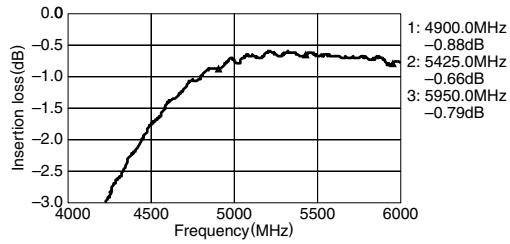
RETURN LOSS



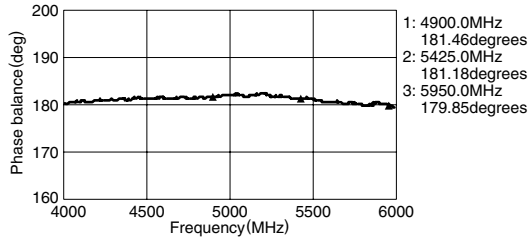
AMPLITUDE BALANCE



INSERTION LOSS



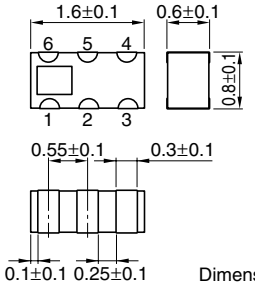
PHASE BALANCE



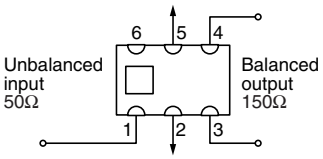
Multilayer Baluns, HHM Series

HHM1763A1 For EGSM

SHAPES AND DIMENSIONS/CIRCUIT



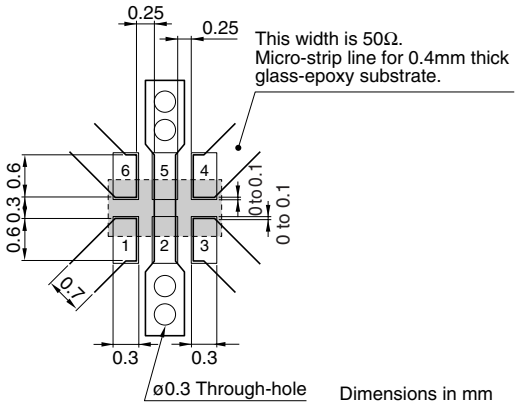
Dimensions in mm



TERMINAL FUNCTIONS

1	Unbalanced Port
2	GND or DC feed+ RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	N.C.

RECOMMENDED PCB PATTERN



Dimensions in mm

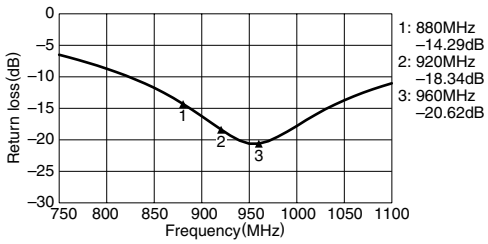
ELECTRICAL CHARACTERISTICS

Unbalanced impedance		50Ω
Balanced impedance		150Ω
Frequency range		880 to 960 MHz
Unbalanced port return loss		10dB min.
Phase impedance at balanced port		180±10deg
Amplitude impedance at balanced port		0±1.0dB
Insertion loss		1.4dB max.
Temperature range	Operating	–40 to +85°C
	Storage	–40 to +85°C
Packaging style and quantities		4000pieces/reel

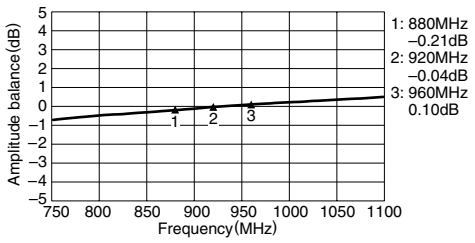
FREQUENCY CHARACTERISTICS

Unbalance 50Ω/Balance 150Ω

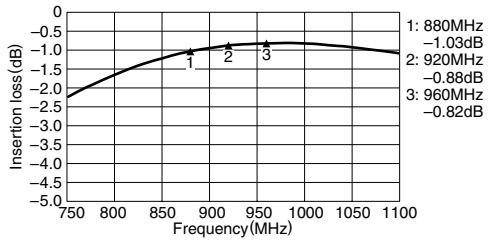
RETURN LOSS



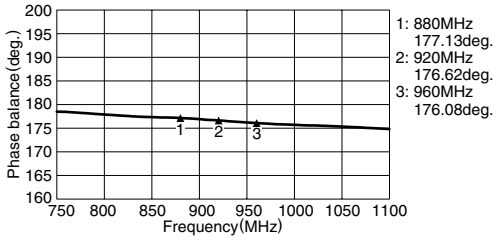
AMPLITUDE BALANCE



INSERTION LOSS



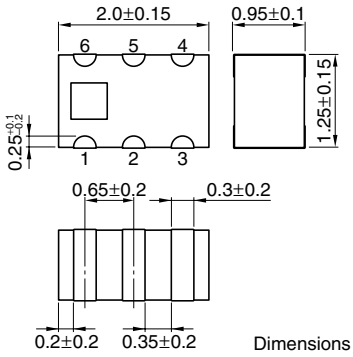
PHASE BALANCE



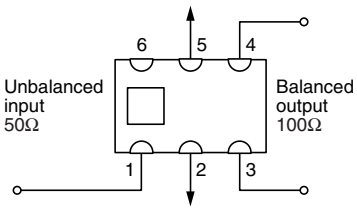
Multilayer Baluns, HHM Series

HHM1502 For DCS/Local

SHAPES AND DIMENSIONS/CIRCUIT



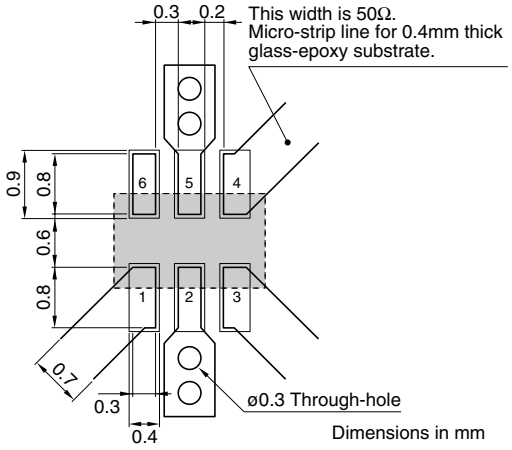
Dimensions in mm



TERMINAL FUNCTIONS

1	Unbalanced Port
2	GND or DC feed+ RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	N.C.

RECOMMENDED PCB PATTERN



Dimensions in mm

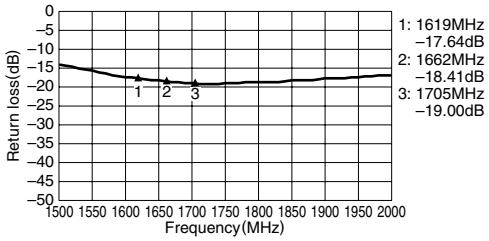
ELECTRICAL CHARACTERISTICS

Unbalanced impedance		50Ω
Balanced impedance		100Ω
Frequency range		1662±43 MHz
Unbalanced port return loss		12dB min.
Phase impedance at balanced port		180±5deg.
Amplitude impedance at balanced port		0±1.0dB
Insertion loss		0.8dB max.
Temperature range	Operating	–40 to +85°C
	Storage	–40 to +85°C
Packaging style and quantities		2000pieces/reel

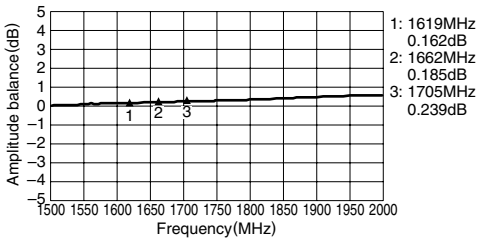
FREQUENCY CHARACTERISTICS

Unbalance 50Ω/Balance 100Ω

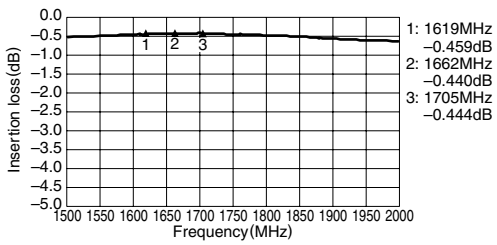
RETURN LOSS



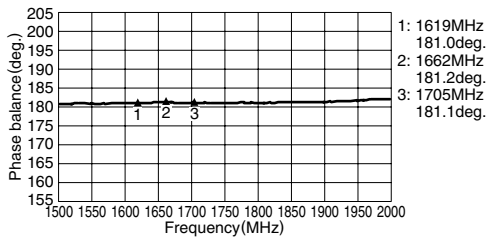
AMPLITUDE BALANCE



INSERTION LOSS



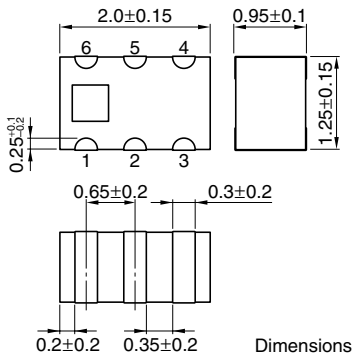
PHASE BALANCE



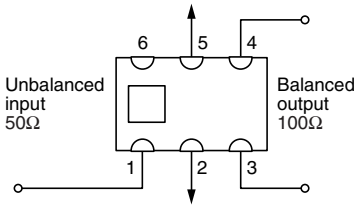
Multilayer Baluns, HHM Series

HHM1506 For W-CDMA/Tx-Rx

SHAPES AND DIMENSIONS/CIRCUIT



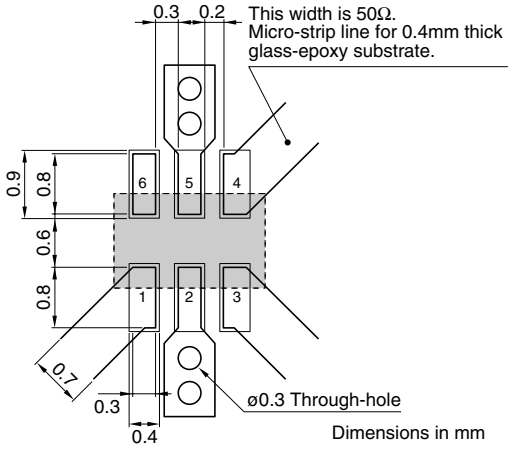
Dimensions in mm



TERMINAL FUNCTIONS

1	Unbalanced Port
2	GND or DC feed+ RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	N.C.

RECOMMENDED PCB PATTERN



Dimensions in mm

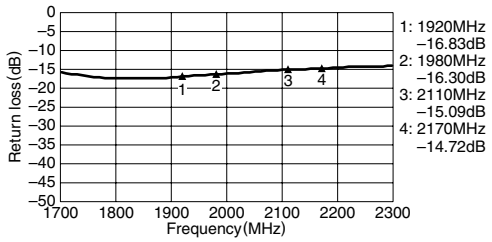
ELECTRICAL CHARACTERISTICS

Unbalanced impedance		50Ω
Balanced impedance		100Ω
Frequency range		1920 to 1980, 2110 to 2170MHz
Unbalanced port return loss		10dB min.
Phase impedance at balanced port		180±10deg.
Amplitude impedance at balanced port		0±2.0dB
Insertion loss		1.0dB max.
Temperature range	Operating	–40 to +85°C
	Storage	–40 to +85°C
Packaging style and quantities		2000pieces/reel

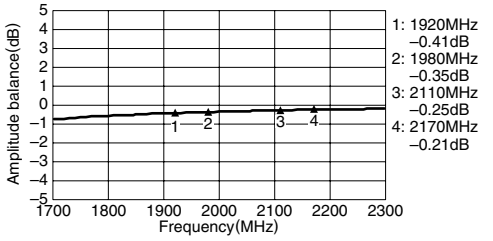
FREQUENCY CHARACTERISTICS

Unbalance 50Ω/Balance 100Ω

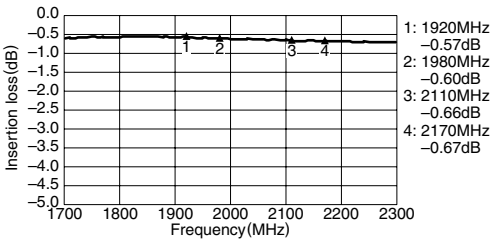
RETURN LOSS



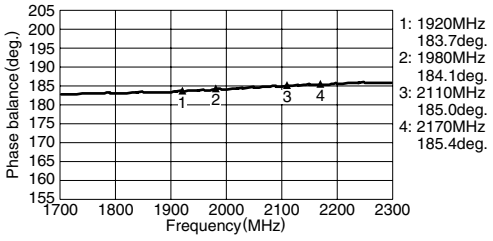
AMPLITUDE BALANCE



INSERTION LOSS



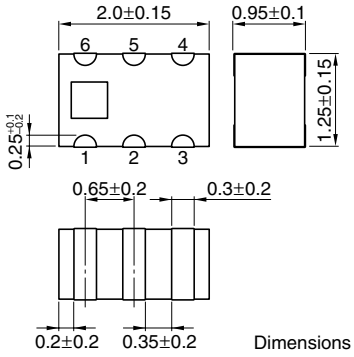
PHASE BALANCE



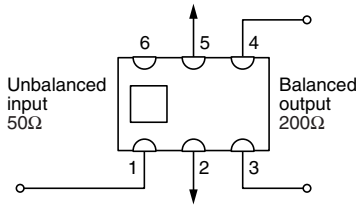
Multilayer Baluns, HHM Series

HHM1509 For EGSM-DCS/Local

SHAPES AND DIMENSIONS/CIRCUIT



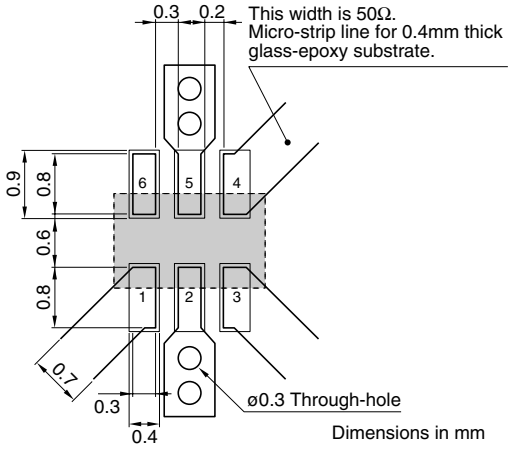
Dimensions in mm



TERMINAL FUNCTIONS

1	Unbalanced Port
2	GND or DC feed+ RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	N.C.

RECOMMENDED PCB PATTERN



Dimensions in mm

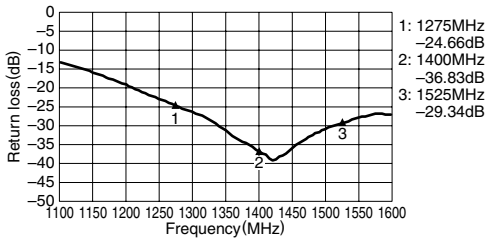
ELECTRICAL CHARACTERISTICS

Unbalanced impedance		50Ω
Balanced impedance		200Ω
Frequency range		1275 to 1525MHz
Unbalanced port return loss		10dB min.
Phase impedance at balanced port		180±10deg.
Amplitude impedance at balanced port		0±2.0dB
Insertion loss		1.0dB max.
Temperature range	Operating	–40 to +85°C
	Storage	–40 to +85°C
Packaging style and quantities		2000pieces/reel

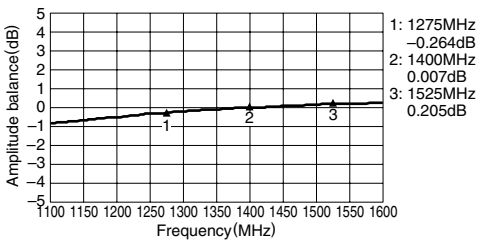
FREQUENCY CHARACTERISTICS

Unbalance 50Ω/Balance 200Ω

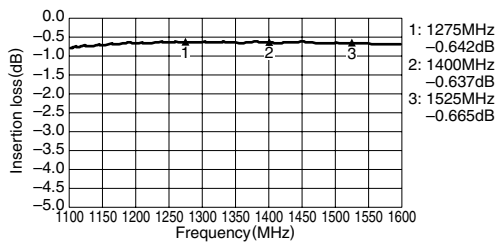
RETURN LOSS



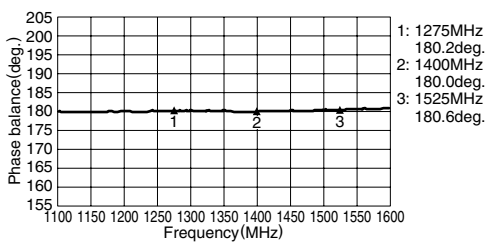
AMPLITUDE BALANCE



INSERTION LOSS



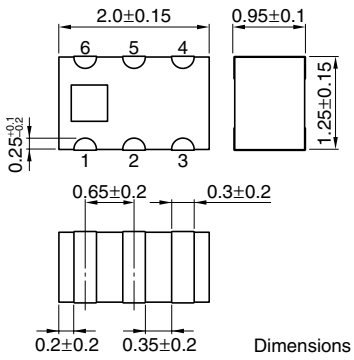
PHASE BALANCE



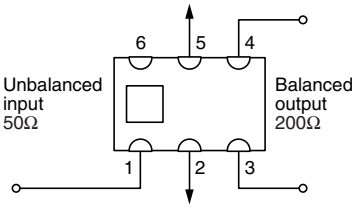
Multilayer Baluns, HHM Series

HHM1515B2 For EGSM/Tx-Rx

SHAPES AND DIMENSIONS/CIRCUIT



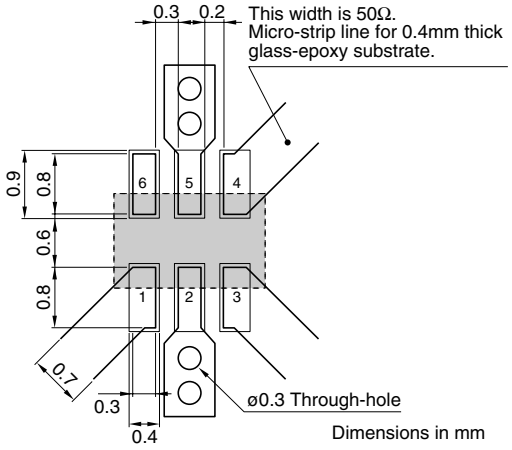
Dimensions in mm



TERMINAL FUNCTIONS

1	Unbalanced Port
2	GND or DC feed+ RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	N.C.

RECOMMENDED PCB PATTERN



Dimensions in mm

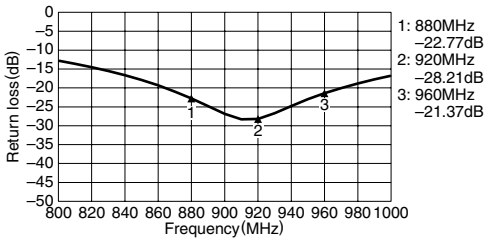
ELECTRICAL CHARACTERISTICS

Unbalanced impedance		50Ω
Balanced impedance		200Ω
Frequency range		880 to 960MHz
Unbalanced port return loss		10dB min.
Phase impedance at balanced port		180±10deg.
Amplitude impedance at balanced port		0±1.0dB
Insertion loss		1.0dB max.
Temperature range	Operating	–40 to +85°C
	Storage	–40 to +85°C
Packaging style and quantities		2000pieces/reel

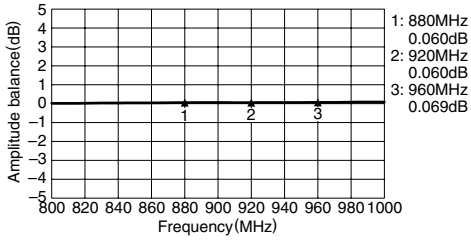
FREQUENCY CHARACTERISTICS

Unbalance 50Ω/Balance 200Ω

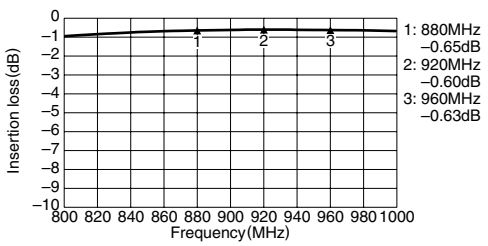
RETURN LOSS



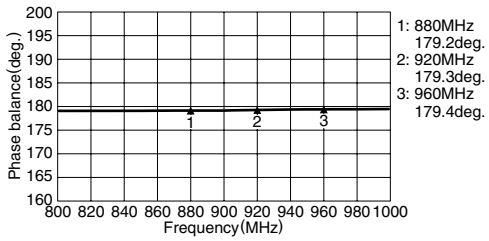
AMPLITUDE BALANCE



INSERTION LOSS



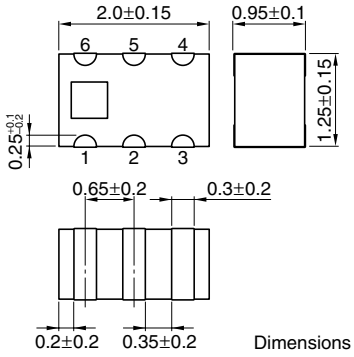
PHASE BALANCE



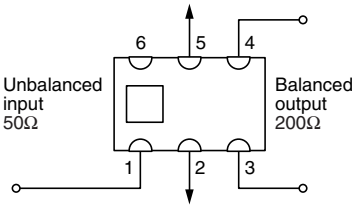
Multilayer Baluns, HHM Series

HHM1516 For DCS-PCS/Tx-Rx

SHAPES AND DIMENSIONS/CIRCUIT



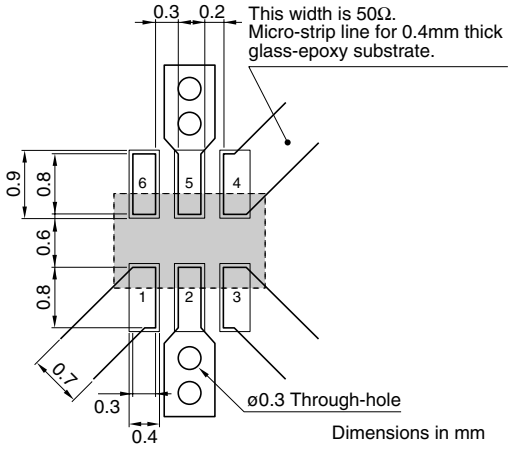
Dimensions in mm



TERMINAL FUNCTIONS

1	Unbalanced Port
2	GND or DC feed+ RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	N.C.

RECOMMENDED PCB PATTERN



Dimensions in mm

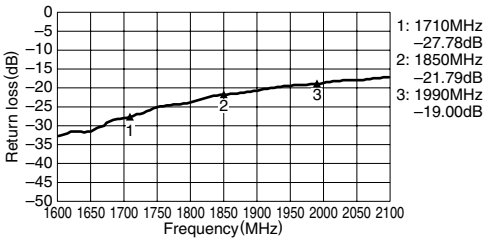
ELECTRICAL CHARACTERISTICS

Unbalanced impedance		50Ω
Balanced impedance		200 Ω
Frequency range		1710 to 1990MHz
Unbalanced port return loss		10dB Min.
Phase impedance at balanced port		180±10deg.
Amplitude impedance at balanced port		0±1.0dB
Insertion loss		1.0dB max.
Temperature range	Operating	–40 to +85°C
	Storage	–40 to +85°C
Packaging style and quantities		2000pieces/reel

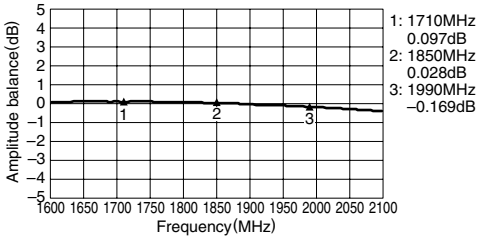
FREQUENCY CHARACTERISTICS

Unbalance 50Ω/Balance 200Ω

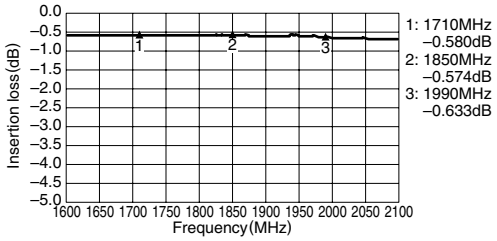
RETURN LOSS



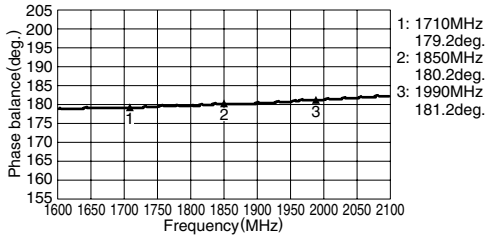
AMPLITUDE BALANCE



INSERTION LOSS



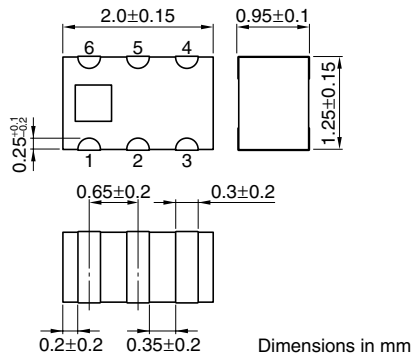
PHASE BALANCE



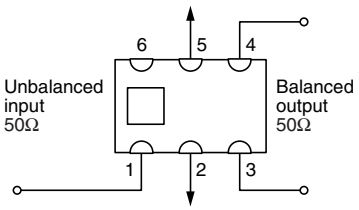
Multilayer Baluns, HHM Series

HHM1517 For Bluetooth&IEEE802.11b/g

SHAPES AND DIMENSIONS/CIRCUIT



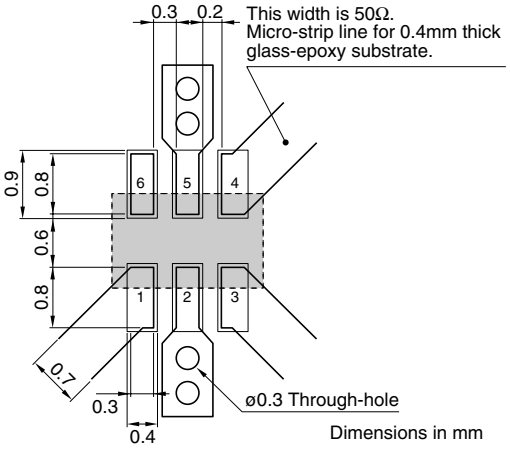
Dimensions in mm



TERMINAL FUNCTIONS

1	Unbalanced Port
2	GND or DC feed+ RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	N.C.

RECOMMENDED PCB PATTERN



Dimensions in mm

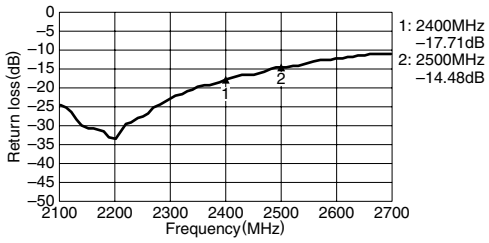
ELECTRICAL CHARACTERISTICS

Unbalanced impedance		50Ω
Balanced impedance		50 Ω
Frequency range		2400 to 2500MHz
Unbalanced port return loss		10dB min.
Phase impedance at balanced port		180±10deg.
Amplitude impedance at balanced port		0±2.0dB
Insertion loss		1.2dB max.
Temperature range	Operating	–40 to +85°C
	Storage	–40 to +85°C
Packaging style and quantities		2000pieces/reel

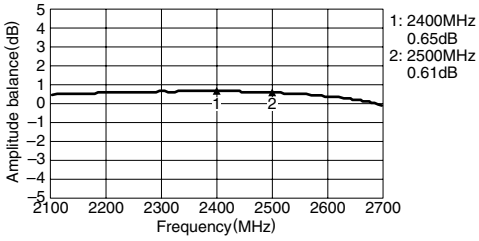
FREQUENCY CHARACTERISTICS

Unbalance 50Ω/Balance 50Ω

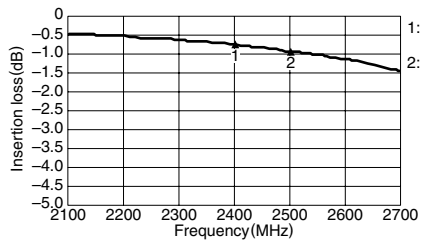
RETURN LOSS



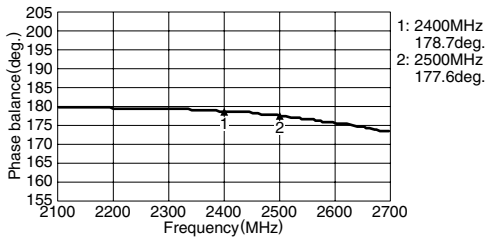
AMPLITUDE BALANCE



INSERTION LOSS



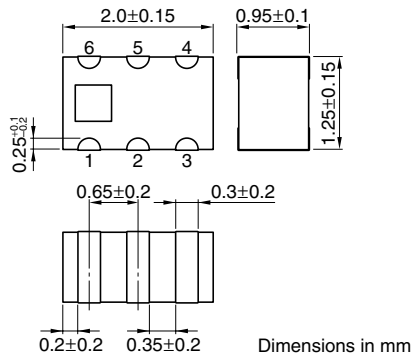
PHASE BALANCE



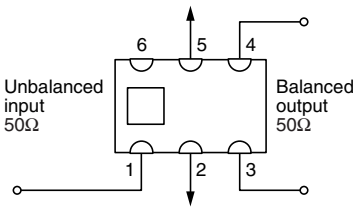
Multilayer Baluns, HHM Series

HHM1517A2 For Bluetooth&IEEE802.11b/g

SHAPES AND DIMENSIONS/CIRCUIT



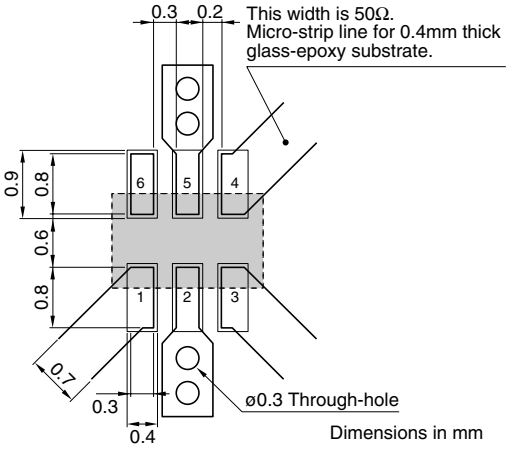
Dimensions in mm



TERMINAL FUNCTIONS

1	Unbalanced Port
2	GND or DC feed+ RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	N.C.

RECOMMENDED PCB PATTERN



Dimensions in mm

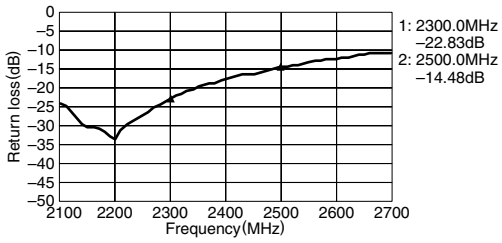
ELECTRICAL CHARACTERISTICS

Unbalanced impedance		50Ω
Balanced impedance		50Ω
Frequency range		2300 to 2500MHz
Unbalanced port return loss		10dB min.
Phase impedance at balanced port		180±10deg.
Amplitude impedance at balanced port		0±2.0dB
Insertion loss		1.2dB max.
Temperature range	Operating	–40 to +85°C
	Storage	–40 to +85°C
Packaging style and quantities		2000pieces/reel

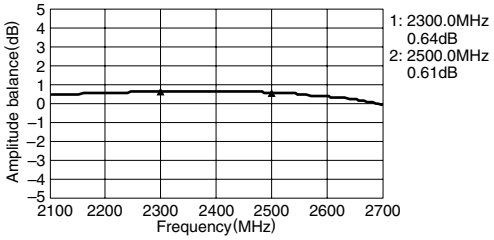
FREQUENCY CHARACTERISTICS

Unbalance 50Ω/Balance 50Ω

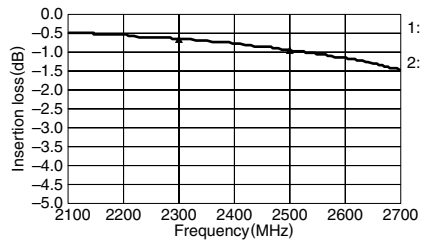
RETURN LOSS



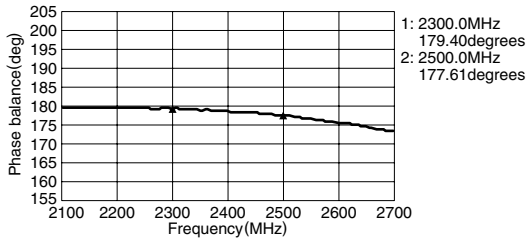
AMPLITUDE BALANCE



INSERTION LOSS



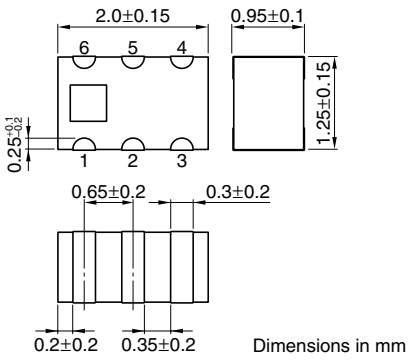
PHASE BALANCE



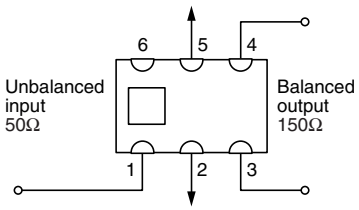
Multilayer Baluns, HHM Series

HHM1518A3 For DCS-PCS/Tx-Rx

SHAPES AND DIMENSIONS/CIRCUIT



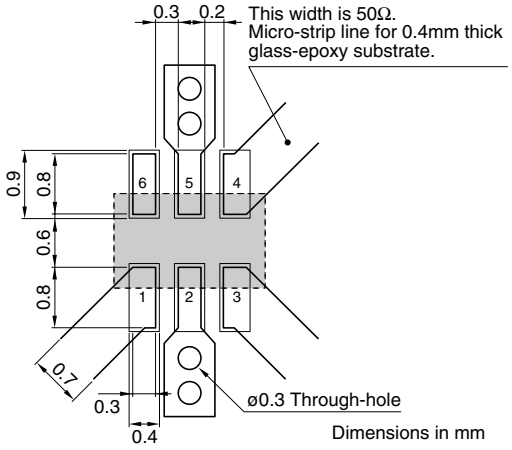
Dimensions in mm



TERMINAL FUNCTIONS

1	Unbalanced Port
2	GND or DC feed+ RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	N.C.

RECOMMENDED PCB PATTERN



Dimensions in mm

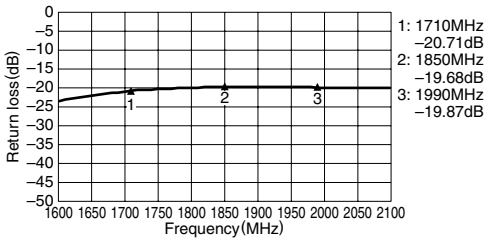
ELECTRICAL CHARACTERISTICS

Unbalanced impedance		50Ω
Balanced impedance		150Ω
Frequency range		1710 to 1990MHz
Unbalanced port return loss		10dB min.
Phase impedance at balanced port		180±10deg.
Amplitude impedance at balanced port		0±1.0dB
Insertion loss		1.0dB max.
Temperature range	Operating	–40 to +85°C
	Storage	–40 to +85°C
Packaging style and quantities		2000pieces/reel

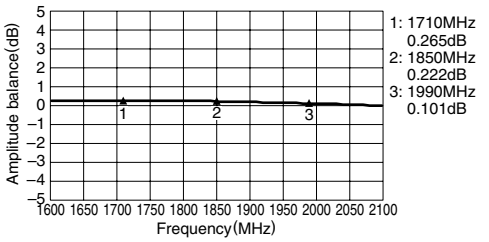
FREQUENCY CHARACTERISTICS

Unbalance 50Ω/Balance 150Ω

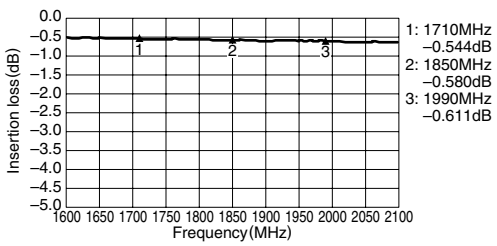
RETURN LOSS



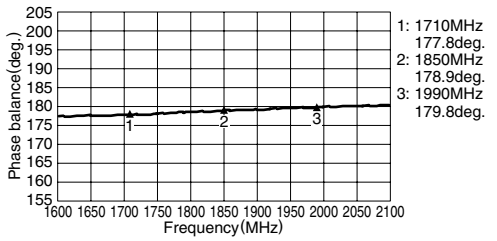
AMPLITUDE BALANCE



INSERTION LOSS



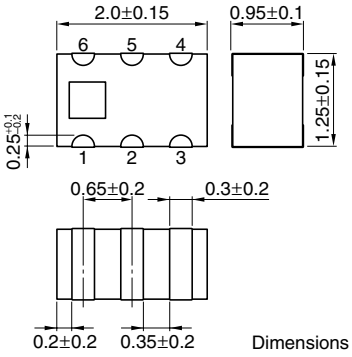
PHASE BALANCE



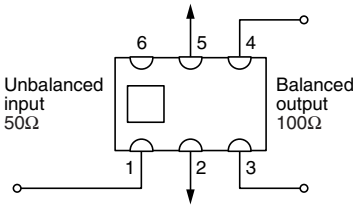
Multilayer Baluns, HHM Series

HHM1520 For Bluetooth&IEEE802.11b/g

SHAPES AND DIMENSIONS/CIRCUIT



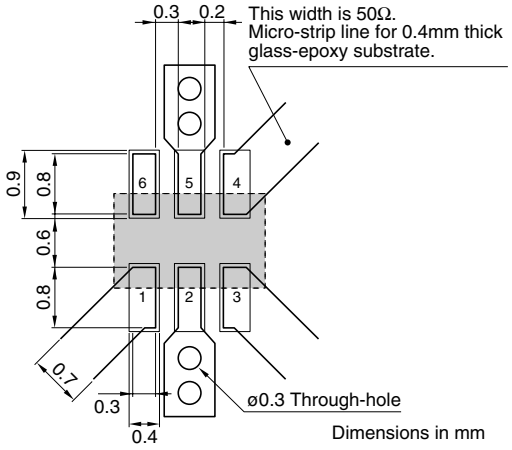
Dimensions in mm



TERMINAL FUNCTIONS

1	Unbalanced Port
2	GND or DC feed+ RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	N.C.

RECOMMENDED PCB PATTERN



Dimensions in mm

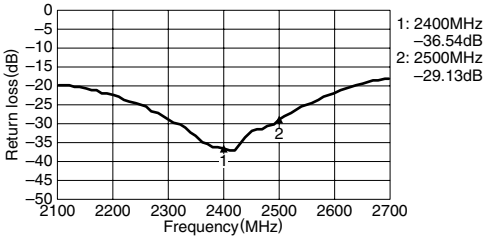
ELECTRICAL CHARACTERISTICS

Unbalanced impedance		50Ω
Balanced impedance		100Ω
Frequency range		2400 to 2500MHz
Unbalanced port return loss		10dB min.
Phase impedance at balanced port		180±10deg.
Amplitude impedance at balanced port		0±2.0dB
Insertion loss		1.0dB max.
Temperature range	Operating	–40 to +85°C
	Storage	–40 to +85°C
Packaging style and quantities		2000pieces/reel

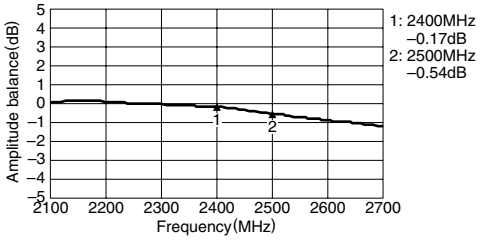
FREQUENCY CHARACTERISTICS

Unbalance 50Ω/Balance 100Ω

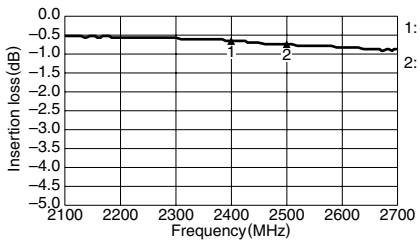
RETURN LOSS



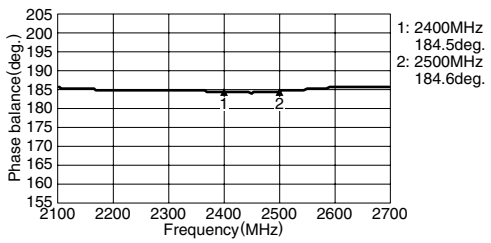
AMPLITUDE BALANCE



INSERTION LOSS



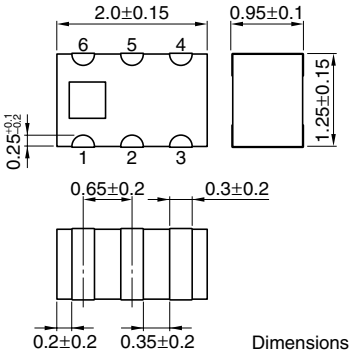
PHASE BALANCE



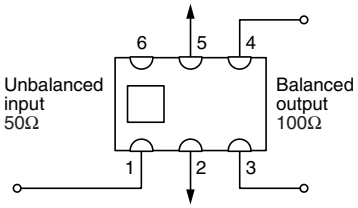
Multilayer Baluns, HHM Series

HHM1520A2 For Bluetooth&IEEE802.11b/g

SHAPES AND DIMENSIONS/CIRCUIT



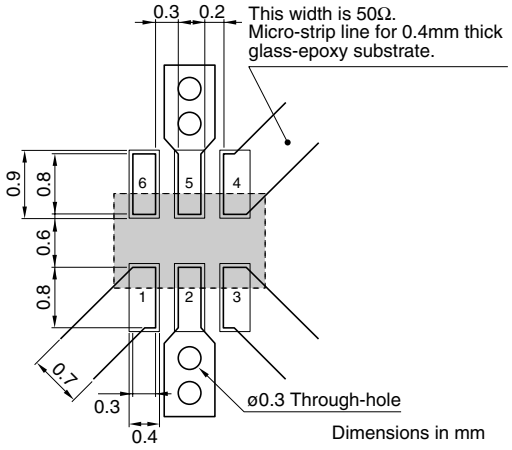
Dimensions in mm



TERMINAL FUNCTIONS

1	Unbalanced Port
2	GND or DC feed+ RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	N.C.

RECOMMENDED PCB PATTERN



Dimensions in mm

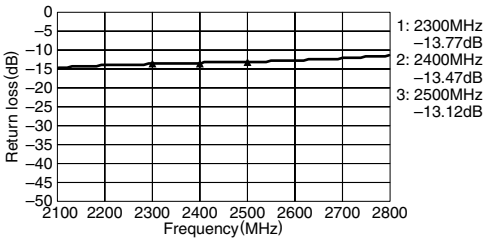
ELECTRICAL CHARACTERISTICS

Unbalanced impedance		50Ω
Balanced impedance		100Ω
Frequency range		2300 to 2500MHz
Unbalanced port return loss		10dB min.
Phase impedance at balanced port		180±10deg.
Amplitude impedance at balanced port		0±2.0dB
Insertion loss		1.0dB max.
Temperature range	Operating	–40 to +85°C
	Storage	–40 to +85°C
Packaging style and quantities		2000pieces/reel

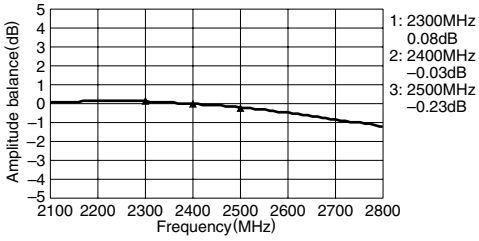
FREQUENCY CHARACTERISTICS

Unbalance 50Ω/Balance 100Ω

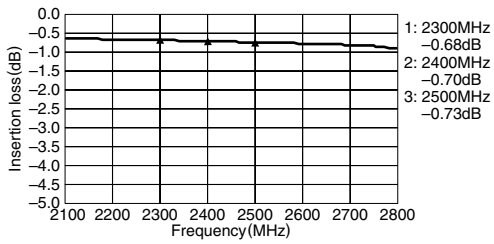
RETURN LOSS



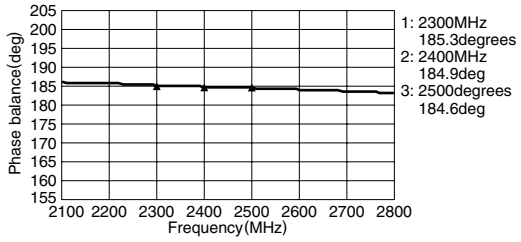
AMPLITUDE BALANCE



INSERTION LOSS



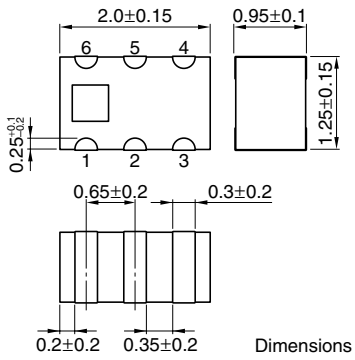
PHASE BALANCE



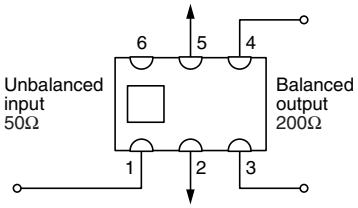
Multilayer Baluns, HHM Series

HHM1521 For Bluetooth&IEEE802.11b/g

SHAPES AND DIMENSIONS/CIRCUIT



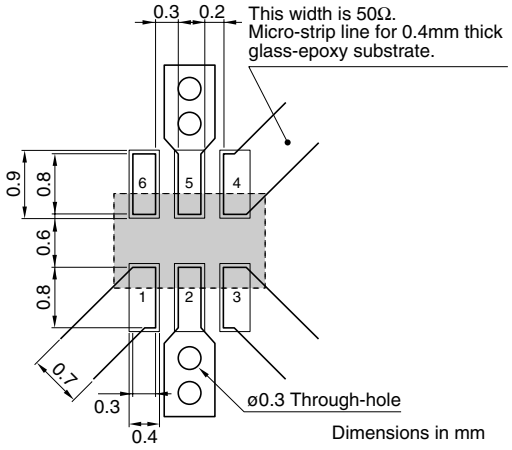
Dimensions in mm



TERMINAL FUNCTIONS

1	Unbalanced Port
2	GND or DC feed+ RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	N.C.

RECOMMENDED PCB PATTERN



Dimensions in mm

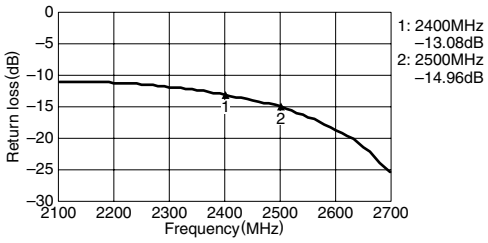
ELECTRICAL CHARACTERISTICS

Unbalanced impedance		50Ω
Balanced impedance		200Ω
Frequency range		2400 to 2500MHz
Unbalanced port return loss		10dB min.
Phase impedance at balanced port		180±10deg.
Amplitude impedance at balanced port		0±2.0dB
Insertion loss		1.0dB max.
Temperature range	Operating	–40 to +85°C
	Storage	–40 to +85°C
Packaging style and quantities		2000pieces/reel

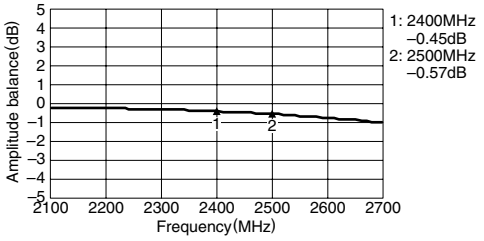
FREQUENCY CHARACTERISTICS

Unbalance 50Ω/Balance 200Ω

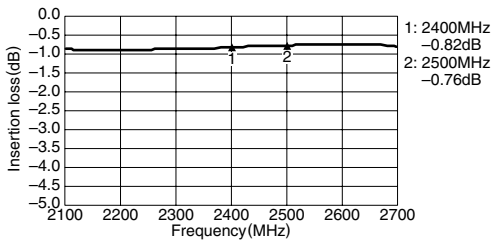
RETURN LOSS



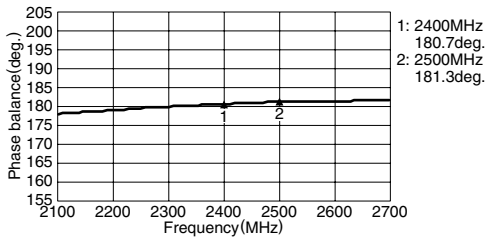
AMPLITUDE BALANCE



INSERTION LOSS



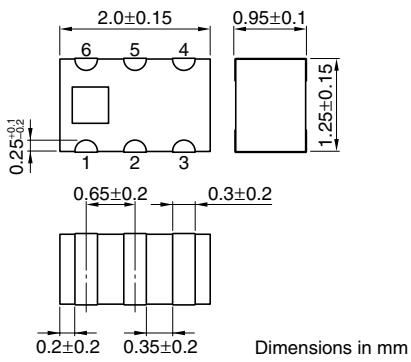
PHASE BALANCE



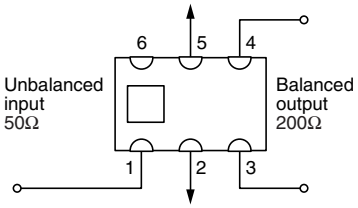
Multilayer Baluns, HHM Series

HHM1521A2 For Bluetooth&IEEE802.11b/g

SHAPES AND DIMENSIONS/CIRCUIT



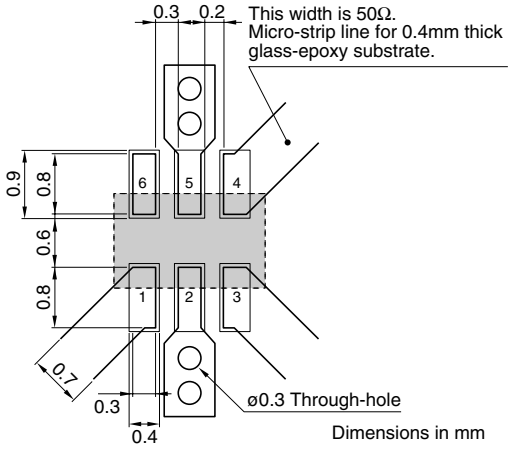
Dimensions in mm



TERMINAL FUNCTIONS

1	Unbalanced Port
2	GND or DC feed+ RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	N.C.

RECOMMENDED PCB PATTERN



Dimensions in mm

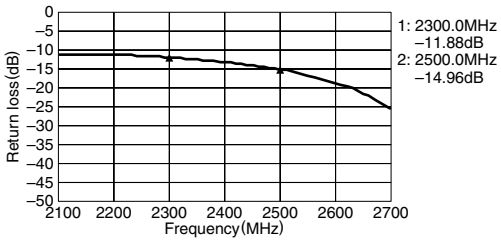
ELECTRICAL CHARACTERISTICS

Unbalanced impedance		50Ω
Balanced impedance		200Ω
Frequency range		2300 to 2500MHz
Unbalanced port return loss		9.5dB min.
Phase impedance at balanced port		180±10deg.
Amplitude impedance at balanced port		0±2.0dB
Insertion loss		1.1dB max.
Temperature range	Operating	–40 to +85°C
	Storage	–40 to +85°C
Packaging style and quantities		2000pieces/reel

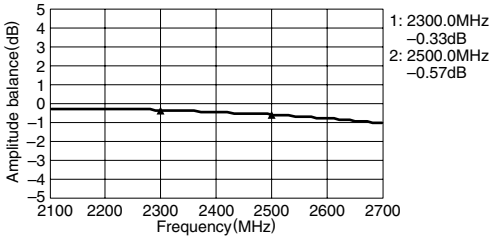
FREQUENCY CHARACTERISTICS

Unbalance 50Ω/Balance 200Ω

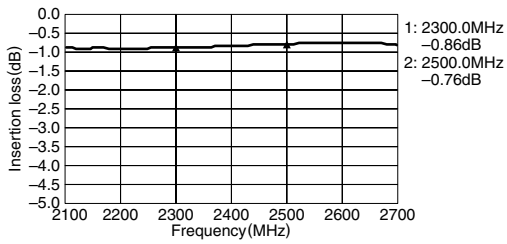
RETURN LOSS



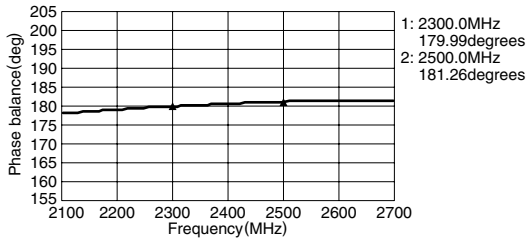
AMPLITUDE BALANCE



INSERTION LOSS



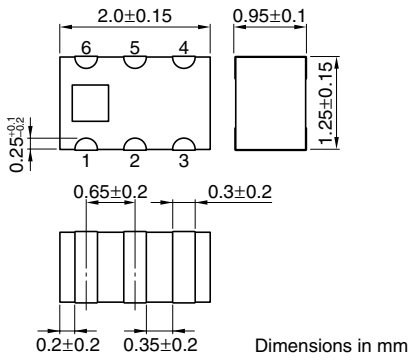
PHASE BALANCE



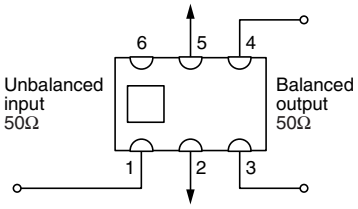
Multilayer Baluns, HHM Series

HHM1522A7 For AGSM/Tx-Rx

SHAPES AND DIMENSIONS/CIRCUIT



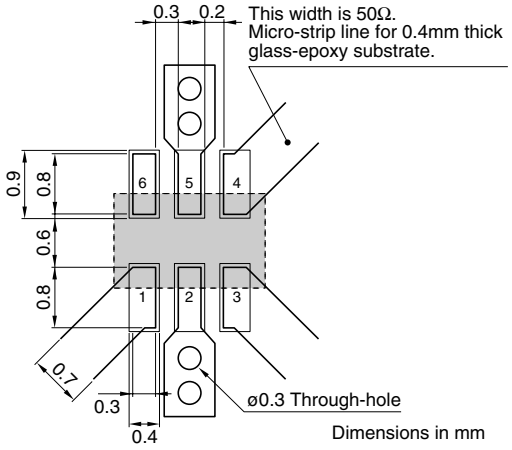
Dimensions in mm



TERMINAL FUNCTIONS

1	Unbalanced Port
2	GND or DC feed+ RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	N.C.

RECOMMENDED PCB PATTERN



Dimensions in mm

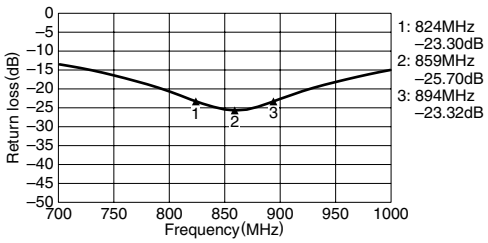
ELECTRICAL CHARACTERISTICS

Unbalanced impedance		50Ω
Balanced impedance		50Ω
Frequency range		824 to 894MHz
Unbalanced port return loss		10dB min.
Phase impedance at balanced port		180±10deg.
Amplitude impedance at balanced port		0±1.0dB
Insertion loss		1.4dB max.
Temperature range	Operating	–40 to +85°C
	Storage	–40 to +85°C
Packaging style and quantities		2000pieces/reel

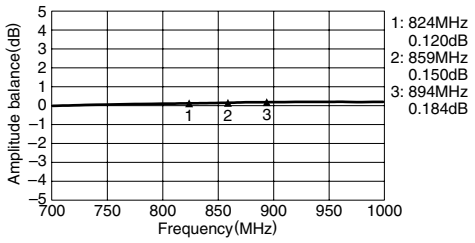
FREQUENCY CHARACTERISTICS

Unbalance 50Ω/Balance 50Ω

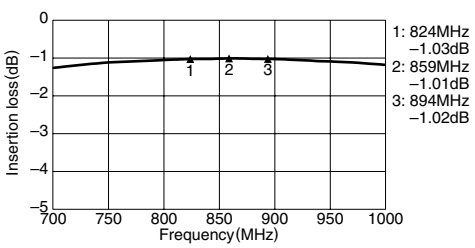
RETURN LOSS



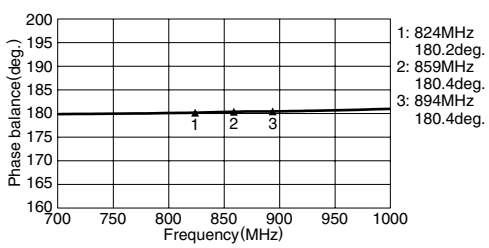
AMPLITUDE BALANCE



INSERTION LOSS



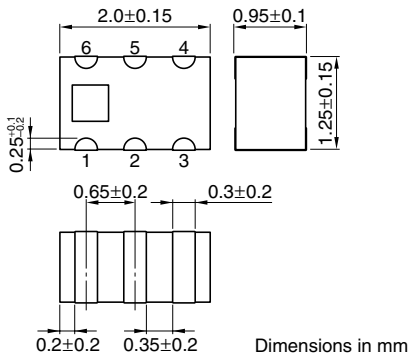
PHASE BALANCE



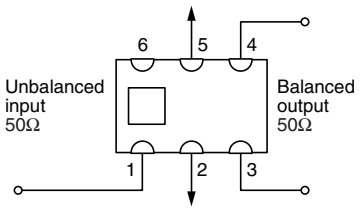
Multilayer Baluns, HHM Series

HHM1522B1 For EGSM/Tx-Rx

SHAPES AND DIMENSIONS/CIRCUIT



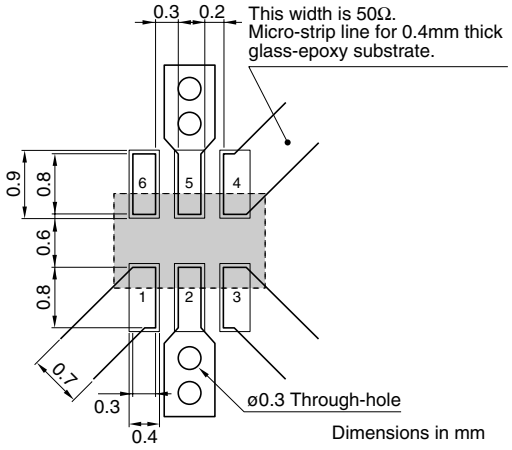
Dimensions in mm



TERMINAL FUNCTIONS

1	Unbalanced Port
2	GND or DC feed+ RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	N.C.

RECOMMENDED PCB PATTERN



Dimensions in mm

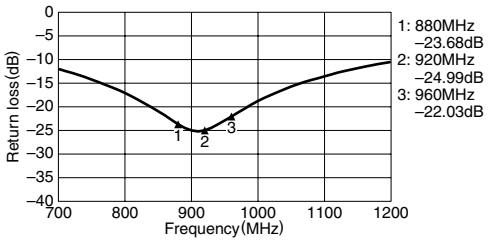
ELECTRICAL CHARACTERISTICS

Unbalanced impedance		50Ω
Balanced impedance		50Ω
Frequency range		880 to 960MHz
Unbalanced port return loss		12dB min.
Phase impedance at balanced port		180±10deg.
Amplitude impedance at balanced port		0±1.0dB
Insertion loss		1.3dB max.
Temperature range	Operating	–40 to +85°C
	Storage	–40 to +85°C
Packaging style and quantities		2000pieces/reel

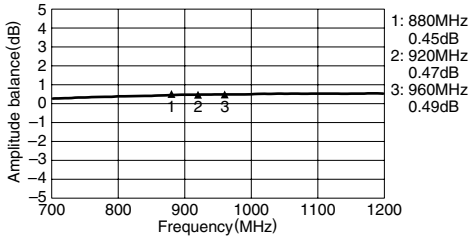
FREQUENCY CHARACTERISTICS

Unbalance 50Ω/Balance 50Ω

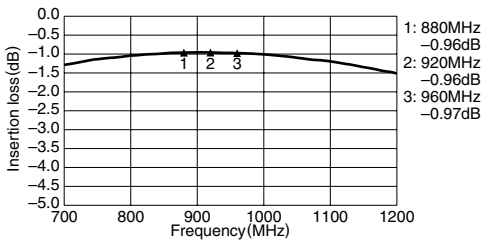
RETURN LOSS



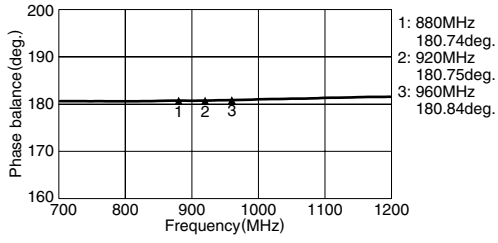
AMPLITUDE BALANCE



INSERTION LOSS



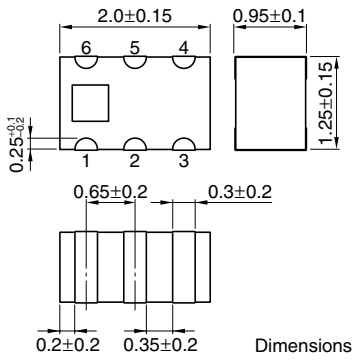
PHASE BALANCE



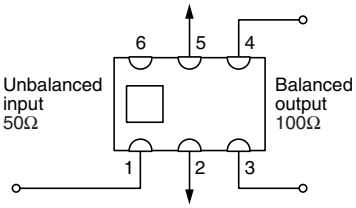
Multilayer Baluns, HHM Series

HHM1523B3 For AGSM/Tx-Rx

SHAPES AND DIMENSIONS/CIRCUIT



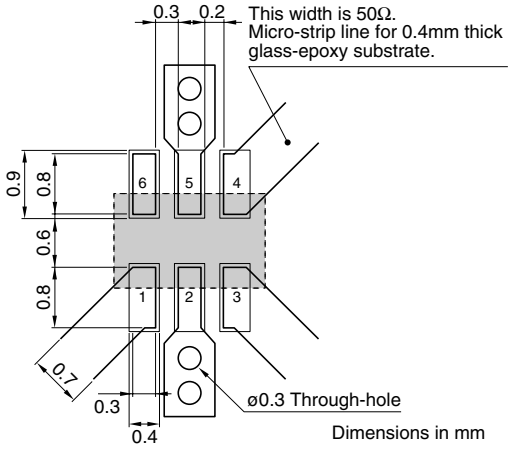
Dimensions in mm



TERMINAL FUNCTIONS

1	Unbalanced Port
2	GND or DC feed+ RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	N.C.

RECOMMENDED PCB PATTERN



Dimensions in mm

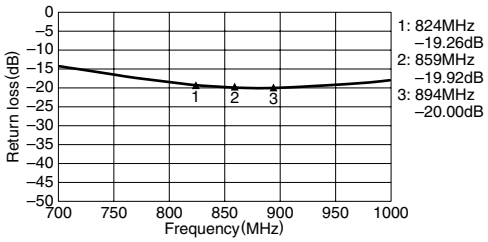
ELECTRICAL CHARACTERISTICS

Unbalanced impedance		50Ω
Balanced impedance		100Ω
Frequency range		824 to 894MHz
Unbalanced port return loss		10dB min.
Phase impedance at balanced port		180±10deg.
Amplitude impedance at balanced port		0±1.0dB
Insertion loss		1.2dB max.
Temperature range	Operating	–40 to +85°C
	Storage	–40 to +85°C
Packaging style and quantities		2000pieces/reel

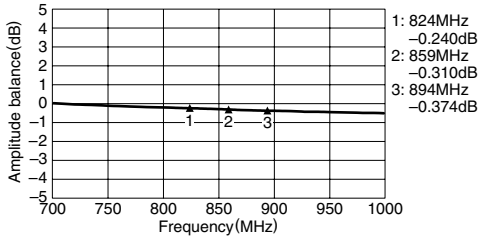
FREQUENCY CHARACTERISTICS

Unbalance 50Ω/Balance 100Ω

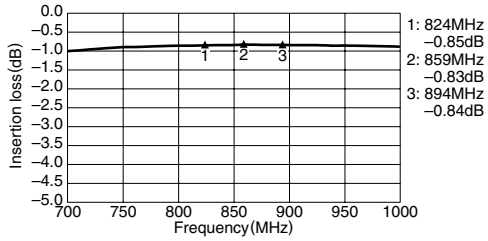
RETURN LOSS



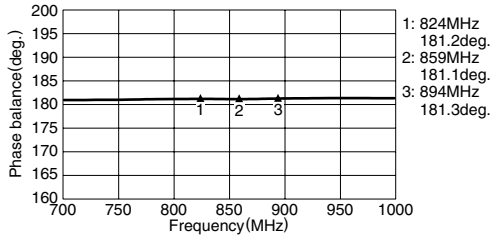
AMPLITUDE BALANCE



INSERTION LOSS



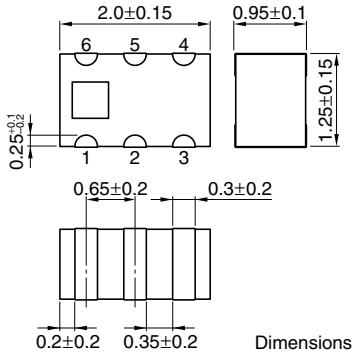
PHASE BALANCE



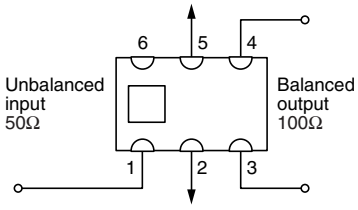
Multilayer Baluns, HHM Series

HHM1523C1 For EGSM/Tx-Rx

SHAPES AND DIMENSIONS/CIRCUIT



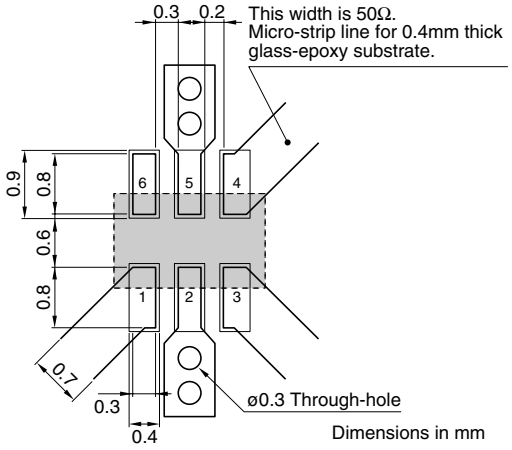
Dimensions in mm



TERMINAL FUNCTIONS

1	Unbalanced Port
2	GND or DC feed+ RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	N.C.

RECOMMENDED PCB PATTERN



Dimensions in mm

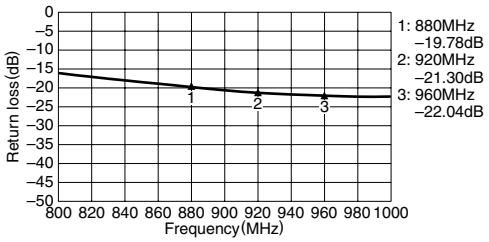
ELECTRICAL CHARACTERISTICS

Unbalanced impedance		50Ω
Balanced impedance		100Ω
Frequency range		880 to 960MHz
Unbalanced port return loss		10dB min.
Phase impedance at balanced port		180±10deg.
Amplitude impedance at balanced port		0±1.0dB
Insertion loss		1.1dB max.
Temperature range	Operating	–40 to +85°C
	Storage	–40 to +85°C
Packaging style and quantities		2000pieces/reel

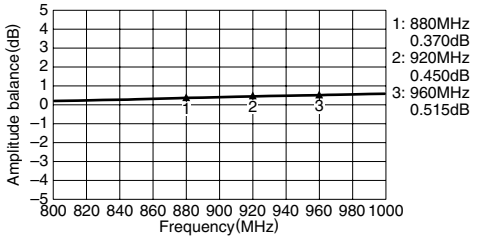
FREQUENCY CHARACTERISTICS

Unbalance 50Ω/Balance 100Ω

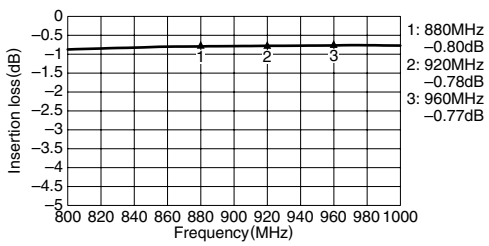
RETURN LOSS



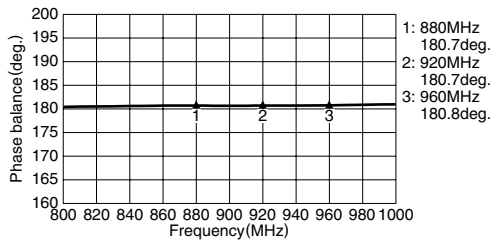
AMPLITUDE BALANCE



INSERTION LOSS



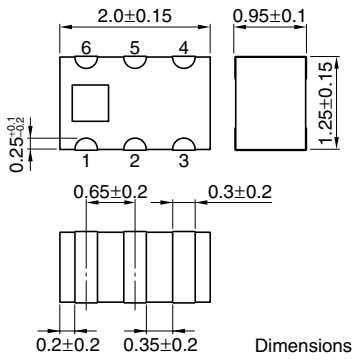
PHASE BALANCE



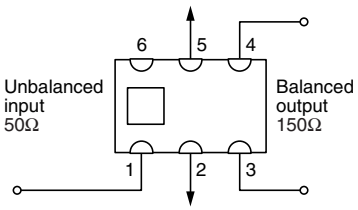
Multilayer Baluns, HHM Series

HHM1524B1 For EGSM/Tx-Rx

SHAPES AND DIMENSIONS/CIRCUIT



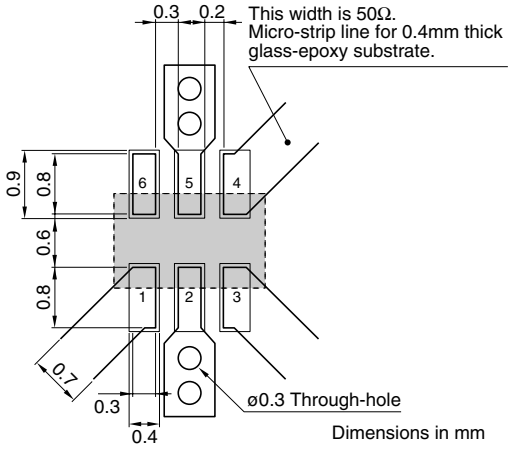
Dimensions in mm



TERMINAL FUNCTIONS

1	Unbalanced Port
2	GND or DC feed+ RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	N.C.

RECOMMENDED PCB PATTERN



Dimensions in mm

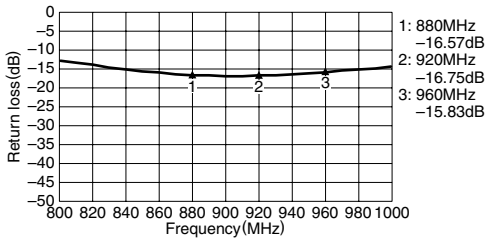
ELECTRICAL CHARACTERISTICS

Unbalanced impedance		50Ω
Balanced impedance		150Ω
Frequency range		880 to 960MHz
Unbalanced port return loss		10dB min.
Phase impedance at balanced port		180±10deg.
Amplitude impedance at balanced port		0±1.0dB
Insertion loss		1.0dB max.
Temperature range	Operating	–40 to +85°C
	Storage	–40 to +85°C
Packaging style and quantities		2000pieces/reel

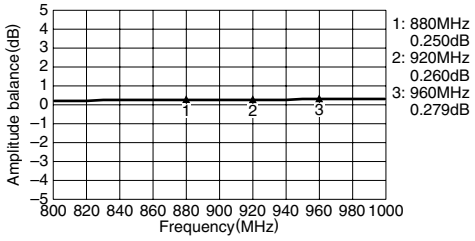
FREQUENCY CHARACTERISTICS

Unbalance 50Ω/Balance 150Ω

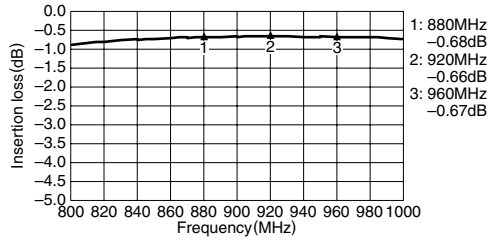
RETURN LOSS



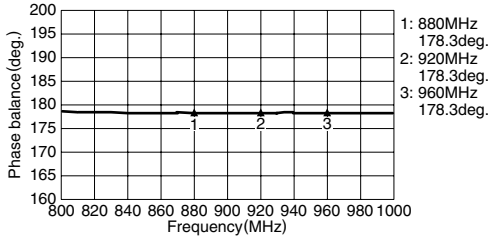
AMPLITUDE BALANCE



INSERTION LOSS



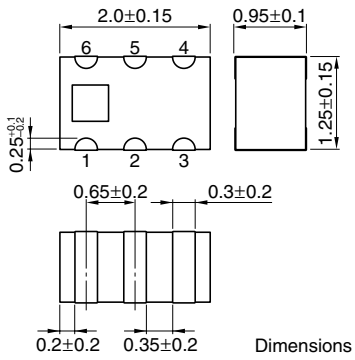
PHASE BALANCE



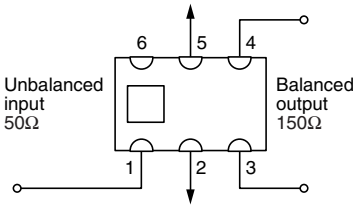
Multilayer Baluns, HHM Series

HHM1524B4 For AGSM/Tx-Rx

SHAPES AND DIMENSIONS/CIRCUIT



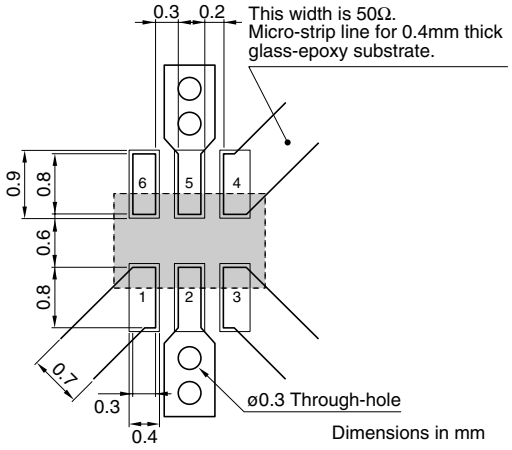
Dimensions in mm



TERMINAL FUNCTIONS

1	Unbalanced Port
2	GND or DC feed+ RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	N.C.

RECOMMENDED PCB PATTERN



Dimensions in mm

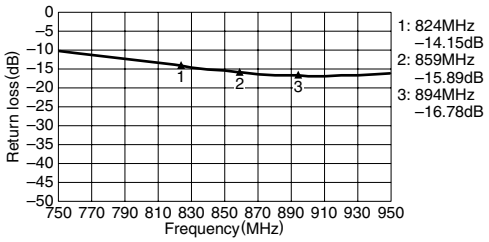
ELECTRICAL CHARACTERISTICS

Unbalanced impedance		50Ω
Balanced impedance		150Ω
Frequency range		824 to 894MHz
Unbalanced port return loss		10dB min.
Phase impedance at balanced port		180±10deg.
Amplitude impedance at balanced port		0±1.0dB
Insertion loss		1.0dB max.
Temperature range	Operating	–40 to +85°C
	Storage	–40 to +85°C
Packaging style and quantities		2000pieces/reel

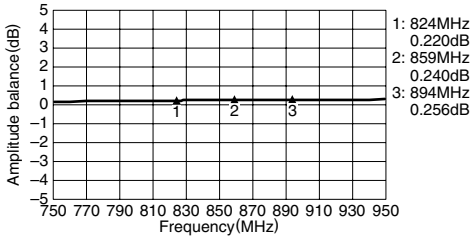
FREQUENCY CHARACTERISTICS

Unbalance 50Ω/Balance 150Ω

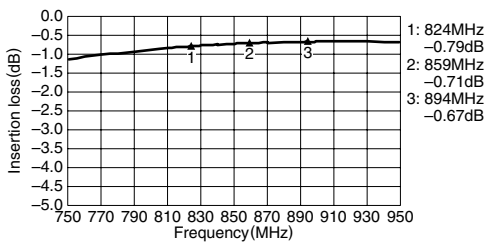
RETURN LOSS



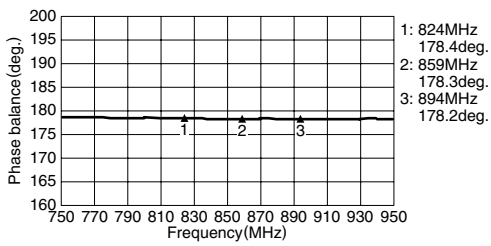
AMPLITUDE BALANCE



INSERTION LOSS



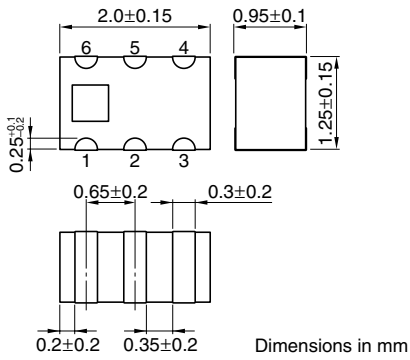
PHASE BALANCE



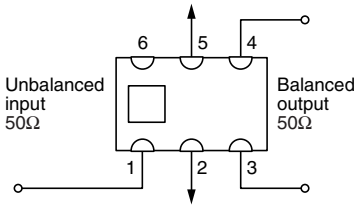
Multilayer Baluns, HHM Series

HHM1525 For DCS-PCS/Tx-Rx

SHAPES AND DIMENSIONS/CIRCUIT



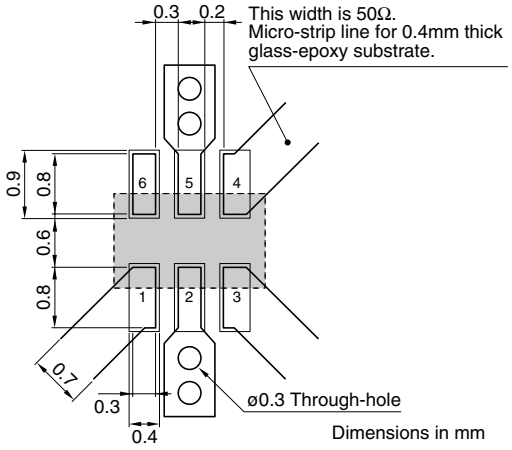
Dimensions in mm



TERMINAL FUNCTIONS

1	Unbalanced Port
2	GND or DC feed+ RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	N.C.

RECOMMENDED PCB PATTERN



Dimensions in mm

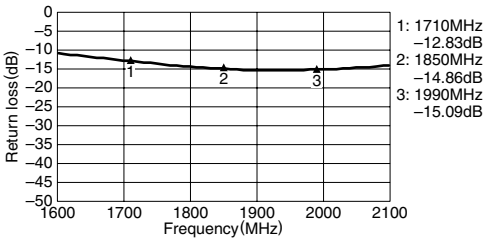
ELECTRICAL CHARACTERISTICS

Unbalanced impedance		50Ω
Balanced impedance		50Ω
Frequency range		1710 to 1990MHz
Unbalanced port return loss		10dB min.
Phase impedance at balanced port		180±10deg.
Amplitude impedance at balanced port		0±1.0dB
Insertion loss		1.0dB max.
Temperature range	Operating	–40 to +85°C
	Storage	–40 to +85°C
Packaging style and quantities		2000pieces/reel

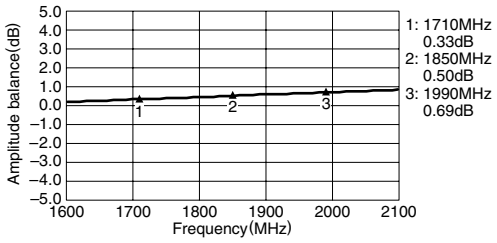
FREQUENCY CHARACTERISTICS

Unbalance 50Ω/Balance 50Ω

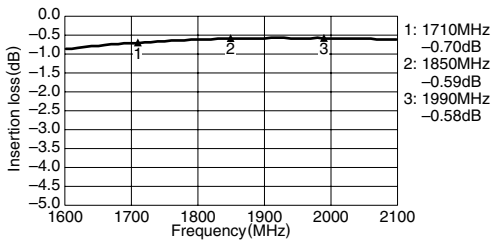
RETURN LOSS



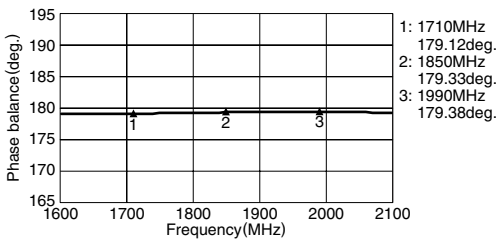
AMPLITUDE BALANCE



INSERTION LOSS



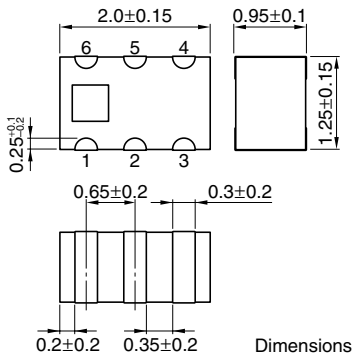
PHASE BALANCE



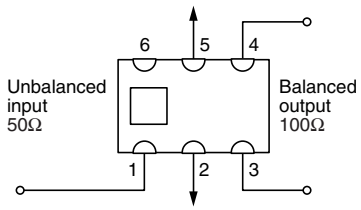
Multilayer Baluns, HHM Series

HHM1526 For DCS-PCS/Tx-Rx

SHAPES AND DIMENSIONS/CIRCUIT



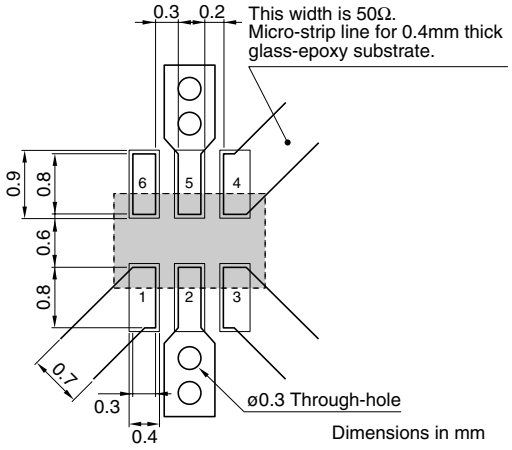
Dimensions in mm



TERMINAL FUNCTIONS

1	Unbalanced Port
2	GND or DC feed+ RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	N.C.

RECOMMENDED PCB PATTERN



Dimensions in mm

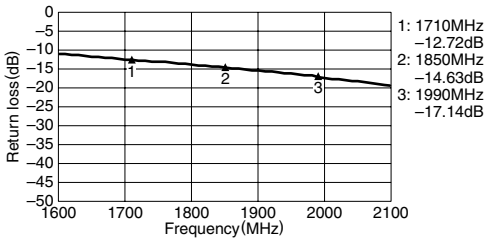
ELECTRICAL CHARACTERISTICS

Unbalanced impedance		50Ω
Balanced impedance		100Ω
Frequency range		1710 to 1990MHz
Unbalanced port return loss		10dB min.
Phase impedance at balanced port		180±9deg.
Amplitude impedance at balanced port		0±1.0dB
Insertion loss		0.8dB max.
Temperature range	Operating	–40 to +85°C
	Storage	–40 to +85°C
Packaging style and quantities		2000pieces/reel

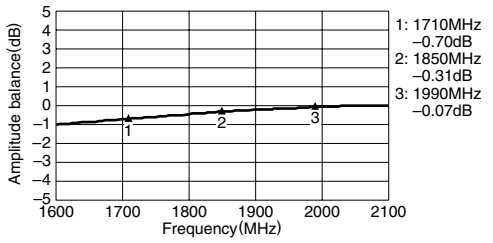
FREQUENCY CHARACTERISTICS

Unbalance 50Ω/Balance 100Ω

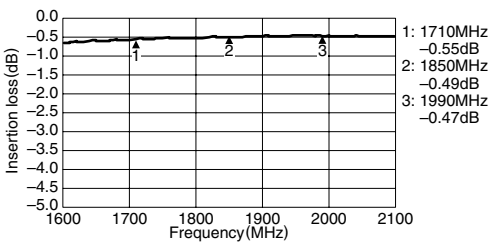
RETURN LOSS



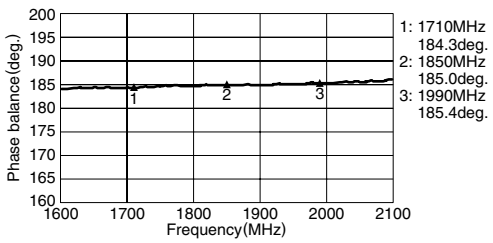
AMPLITUDE BALANCE



INSERTION LOSS



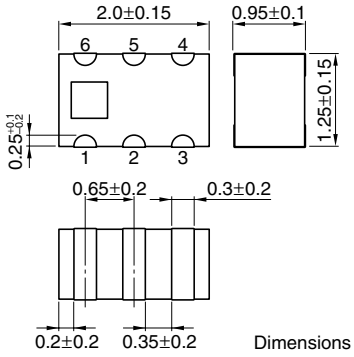
PHASE BALANCE



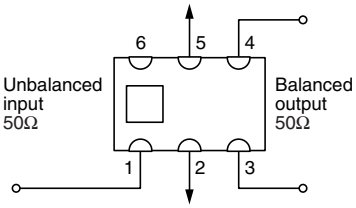
Multilayer Baluns, HHM Series

HHM1533 For W-CDMA/Tx-Rx

SHAPES AND DIMENSIONS/CIRCUIT



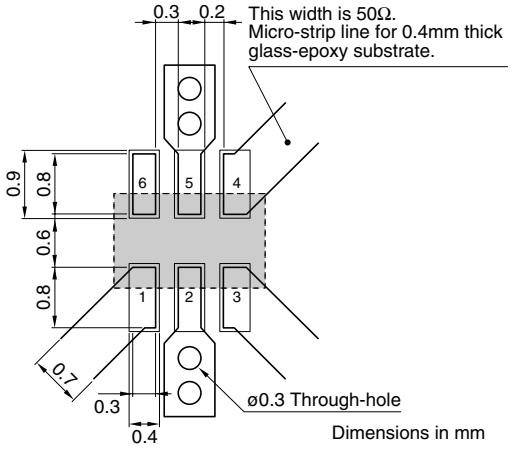
Dimensions in mm



TERMINAL FUNCTIONS

1	Unbalanced Port
2	GND or DC feed+ RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	N.C.

RECOMMENDED PCB PATTERN



Dimensions in mm

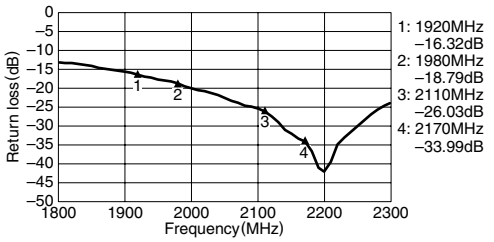
ELECTRICAL CHARACTERISTICS

Unbalanced impedance		50Ω
Balanced impedance		50Ω
Frequency range		1920 to 1980, 2110 to 2170MHz
Unbalanced port return loss		10dB min.
Phase impedance at balanced port		180±10deg.
Amplitude impedance at balanced port		0±2.0dB
Insertion loss		0.8dB max.
Temperature range	Operating	–40 to +85°C
	Storage	–40 to +85°C
Packaging style and quantities		2000pieces/reel

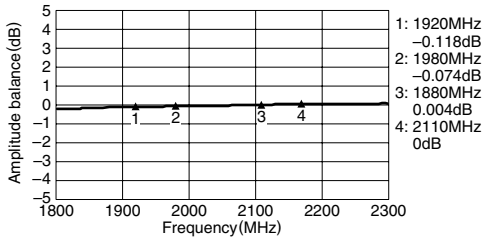
FREQUENCY CHARACTERISTICS

Unbalance 50Ω/Balance 50Ω

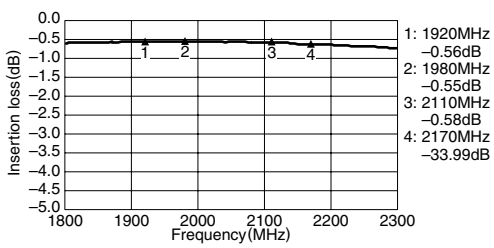
RETURN LOSS



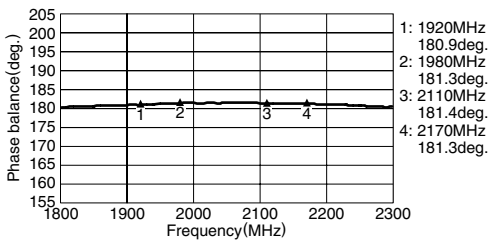
AMPLITUDE BALANCE



INSERTION LOSS



PHASE BALANCE

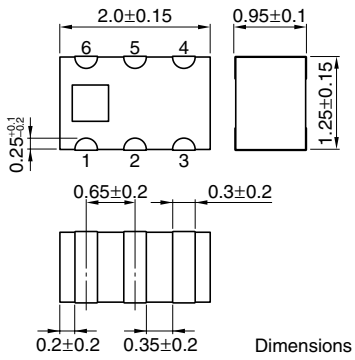


• All specifications are subject to change without notice.

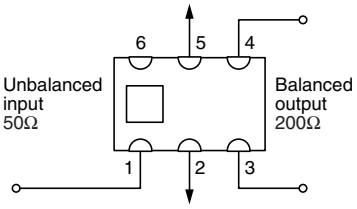
Multilayer Baluns, HHM Series

HHM1534 For W-CDMA/Tx-Rx

SHAPES AND DIMENSIONS/CIRCUIT



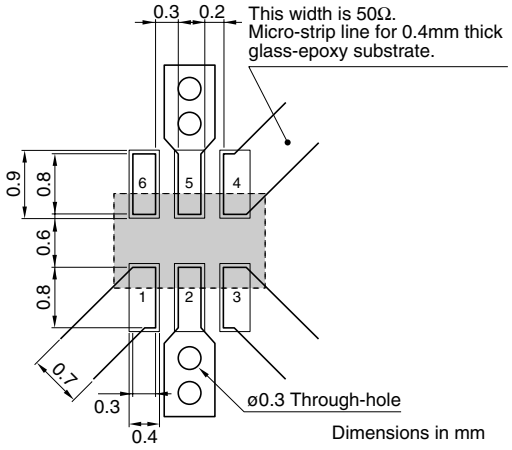
Dimensions in mm



TERMINAL FUNCTIONS

1	Unbalanced Port
2	GND or DC feed+ RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	N.C.

RECOMMENDED PCB PATTERN



Dimensions in mm

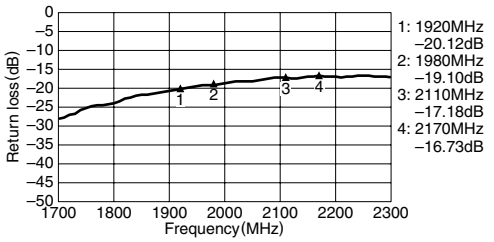
ELECTRICAL CHARACTERISTICS

Unbalanced impedance		50Ω
Balanced impedance		200Ω
Frequency range		1920 to 1980, 2110 to 2170MHz
Unbalanced port return loss		10dB min.
Phase impedance at balanced port		180±10deg.
Amplitude impedance at balanced port		0±2.0dB
Insertion loss		1.0dB max.
Temperature range	Operating	–40 to +85°C
	Storage	–40 to +85°C
Packaging style and quantities		2000pieces/reel

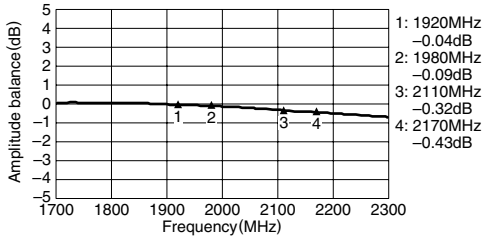
FREQUENCY CHARACTERISTICS

Unbalance 50Ω/Balance 200Ω

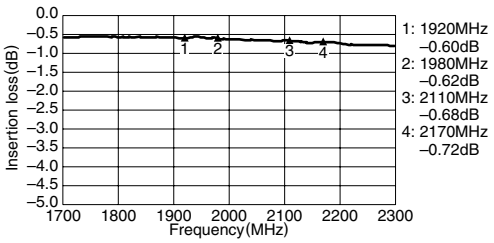
RETURN LOSS



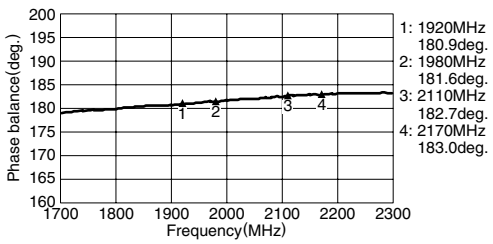
AMPLITUDE BALANCE



INSERTION LOSS



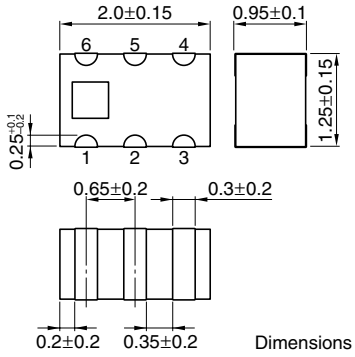
PHASE BALANCE



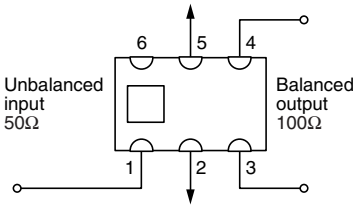
Multilayer Baluns, HHM Series

HHM1536B1 For 3.7GHz

SHAPES AND DIMENSIONS/CIRCUIT



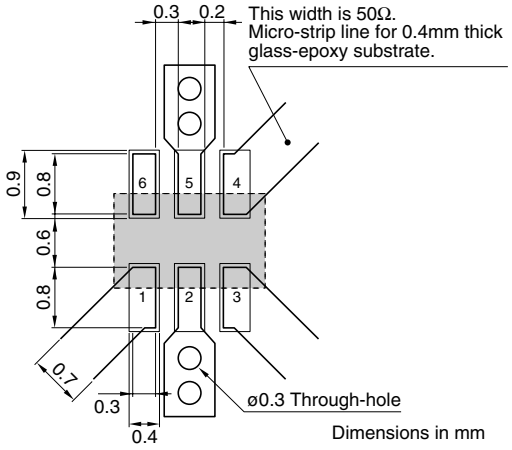
Dimensions in mm



TERMINAL FUNCTIONS

1	Unbalanced Port
2	GND
3	Balanced Port
4	Balanced Port
5	GND
6	N.C.

RECOMMENDED PCB PATTERN



Dimensions in mm

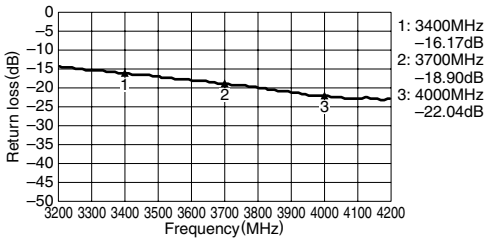
ELECTRICAL CHARACTERISTICS

Unbalanced impedance		50Ω
Balanced impedance		100Ω
Frequency range		3400 to 4000MHz
Unbalanced port return loss		10dB min.
Phase impedance at balanced port		180±20deg.
Amplitude impedance at balanced port		0±2.0dB
Insertion loss		1.2dB max.
Temperature range	Operating	–40 to +85°C
	Storage	–40 to +85°C
Packaging style and quantities		2000pieces/reel

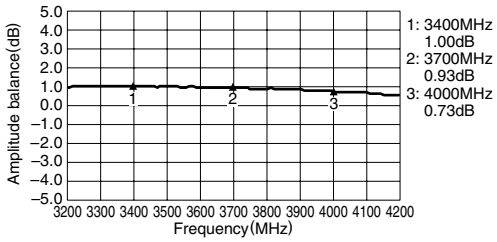
FREQUENCY CHARACTERISTICS

Unbalance 50Ω/Balance 100Ω

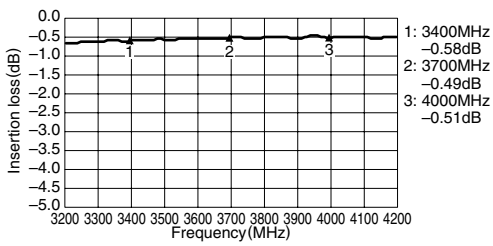
RETURN LOSS



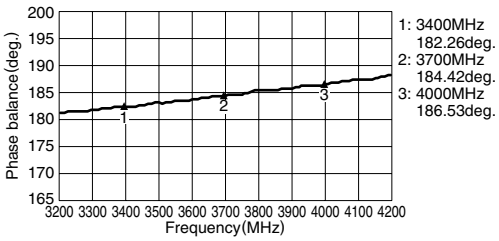
AMPLITUDE BALANCE



INSERTION LOSS



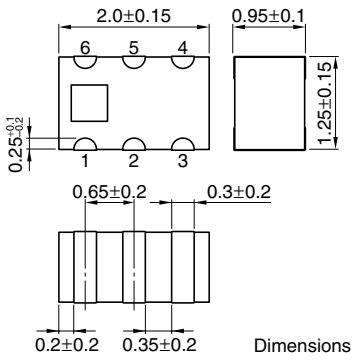
PHASE BALANCE



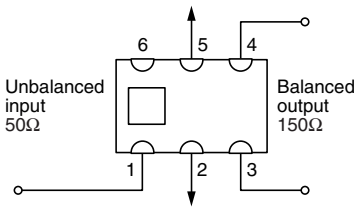
Multilayer Baluns, HHM Series

HHM1537 For W-CDMA/Tx-Rx

SHAPES AND DIMENSIONS/CIRCUIT



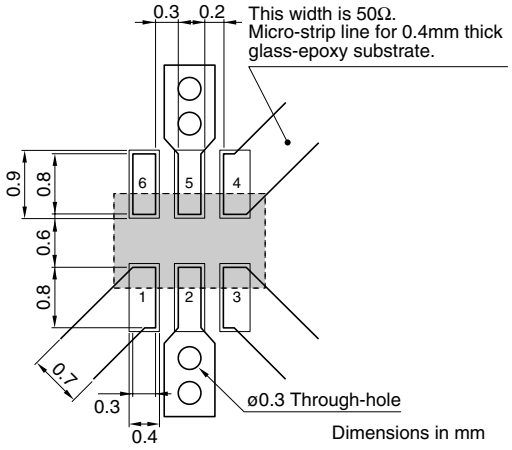
Dimensions in mm



TERMINAL FUNCTIONS

1	Unbalanced Port
2	GND or DC feed+ RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	N.C.

RECOMMENDED PCB PATTERN



Dimensions in mm

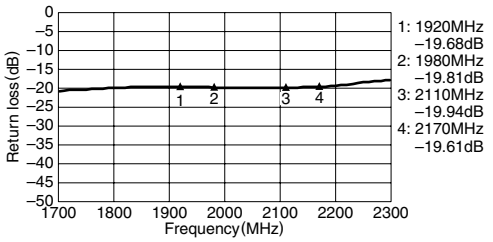
ELECTRICAL CHARACTERISTICS

Unbalanced impedance		50Ω
Balanced impedance		150Ω
Frequency range		1920 to 1980, 2110 to 2170MHz
Unbalanced port return loss		10dB min.
Phase impedance at balanced port		180±10deg.
Amplitude impedance at balanced port		0±2.0dB
Insertion loss		1.0dB max.
Temperature range	Operating	–40 to +85°C
	Storage	–40 to +85°C
Packaging style and quantities		2000pieces/reel

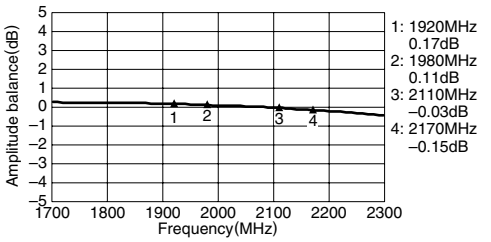
FREQUENCY CHARACTERISTICS

Unbalance 50Ω/Balance 150Ω

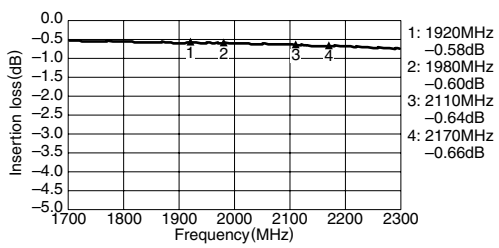
RETURN LOSS



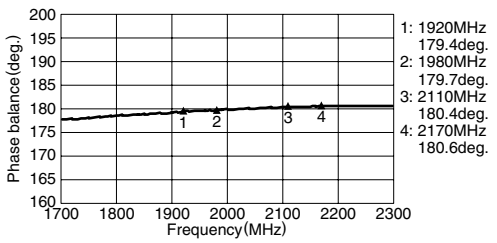
AMPLITUDE BALANCE



INSERTION LOSS



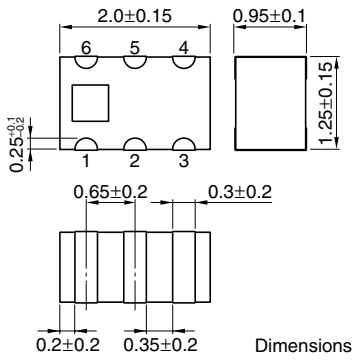
PHASE BALANCE



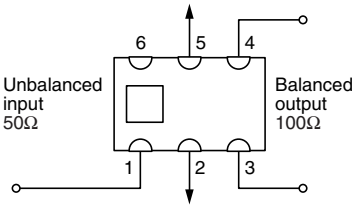
Multilayer Baluns, HHM Series

HHM1538 For DCS/Local

SHAPES AND DIMENSIONS/CIRCUIT



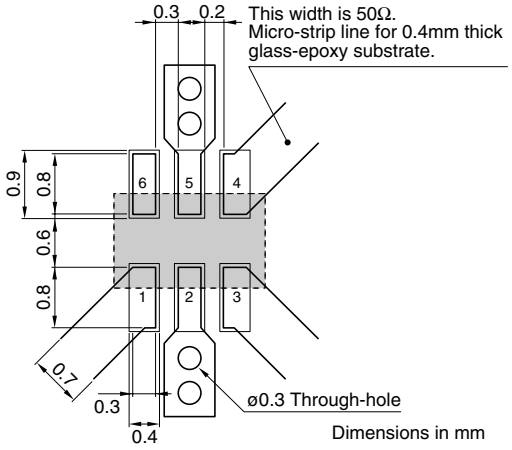
Dimensions in mm



TERMINAL FUNCTIONS

1	Unbalanced Port
2	GND or DC feed+ RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	N.C.

RECOMMENDED PCB PATTERN



Dimensions in mm

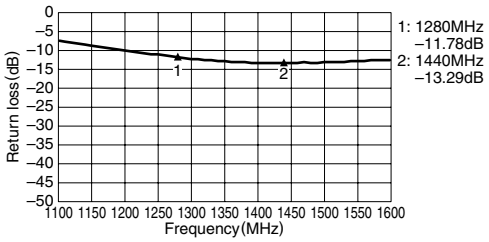
ELECTRICAL CHARACTERISTICS

Unbalanced impedance		50Ω
Balanced impedance		100Ω
Frequency range		1280 to 1440MHz
Unbalanced port return loss		10dB min.
Phase impedance at balanced port		180±10deg.
Amplitude impedance at balanced port		0±2.0dB
Insertion loss	25°C	0.9dB max.
	–40 to +85°C	1.0dB max.
Temperature range	Operating	–40 to +85°C
	Storage	–40 to +85°C
Packaging style and quantities		2000pieces/reel

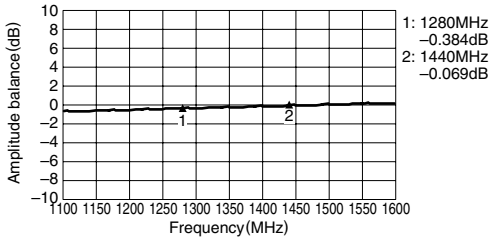
FREQUENCY CHARACTERISTICS

Unbalance 50Ω/Balance 100Ω

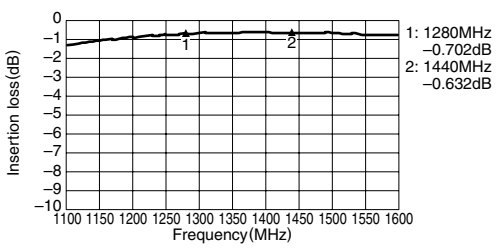
RETURN LOSS



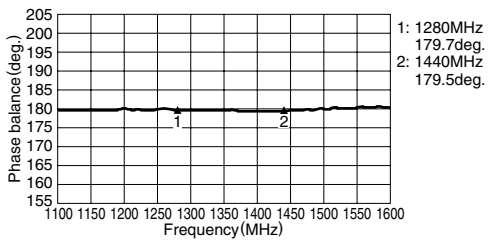
AMPLITUDE BALANCE



INSERTION LOSS



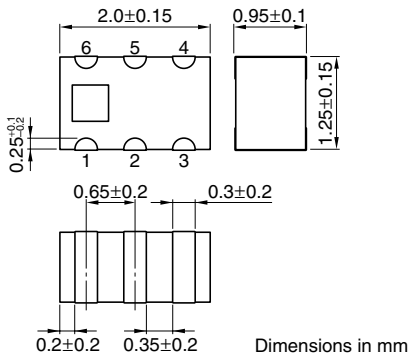
PHASE BALANCE



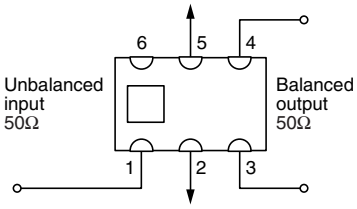
Multilayer Baluns, HHM Series

HHM1541 For Bluetooth&IEEE802.11b/g

SHAPES AND DIMENSIONS/CIRCUIT



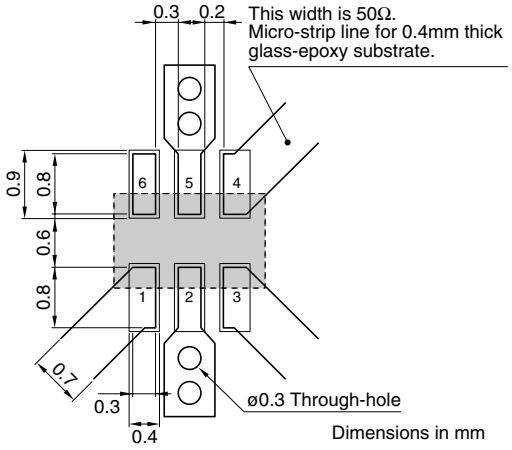
Dimensions in mm



TERMINAL FUNCTIONS

1	Unbalanced Port
2	GND or DC feed+ RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	N.C.

RECOMMENDED PCB PATTERN



Dimensions in mm

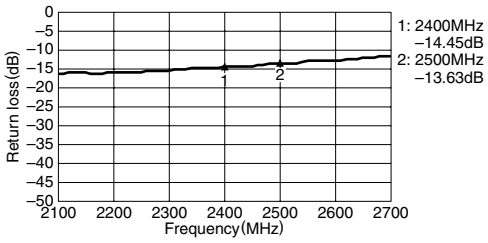
ELECTRICAL CHARACTERISTICS

Unbalanced impedance		50Ω
Balanced impedance		75Ω
Frequency range		2400 to 2500MHz
Unbalanced port return loss		10dB min.
Phase impedance at balanced port		180±10deg.
Amplitude impedance at balanced port		0±2.0dB
Insertion loss		1.2dB max.
Temperature range	Operating	–40 to +85°C
	Storage	–40 to +85°C
Packaging style and quantities		2000pieces/reel

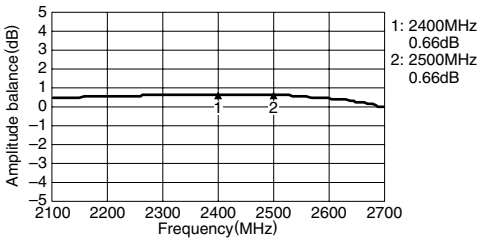
FREQUENCY CHARACTERISTICS

Unbalance 50Ω/Balance 75Ω

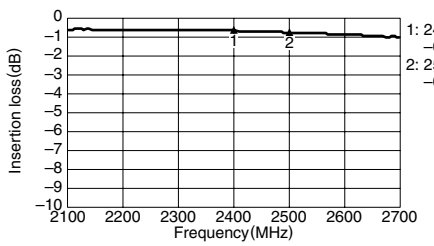
RETURN LOSS



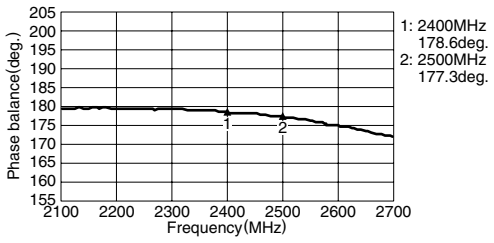
AMPLITUDE BALANCE



INSERTION LOSS



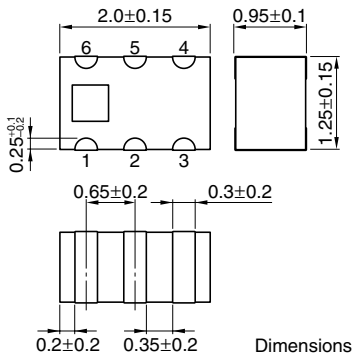
PHASE BALANCE



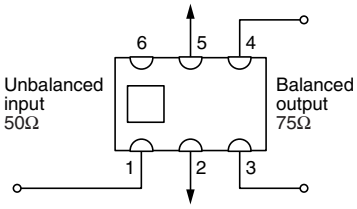
Multilayer Baluns, HHM Series

HHM1541E1 For Bluetooth

SHAPES AND DIMENSIONS/CIRCUIT



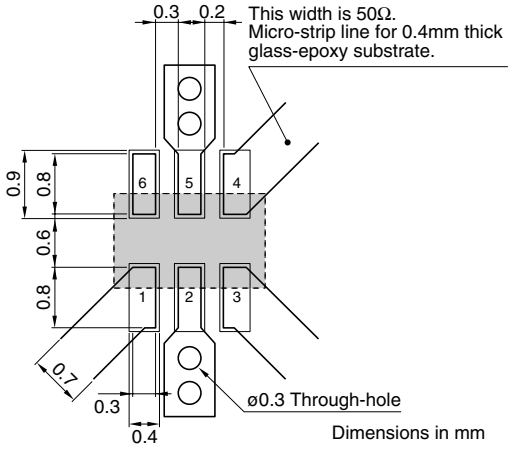
Dimensions in mm



TERMINAL FUNCTIONS

1	Unbalanced Port
2	GND or DC feed+ RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	N.C.

RECOMMENDED PCB PATTERN



Dimensions in mm

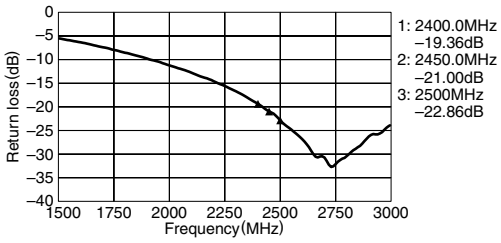
ELECTRICAL CHARACTERISTICS

Unbalanced impedance		50Ω
Balanced impedance		75Ω
Frequency range		2300 to 2500MHz
Unbalanced port return loss		10dB min.
Phase impedance at balanced port		180±10deg.
Amplitude impedance at balanced port		0±1.5dB
Insertion loss		1.0dB max.
Temperature range	Operating	–40 to +85°C
	Storage	–40 to +85°C
Packaging style and quantities		2000pieces/reel

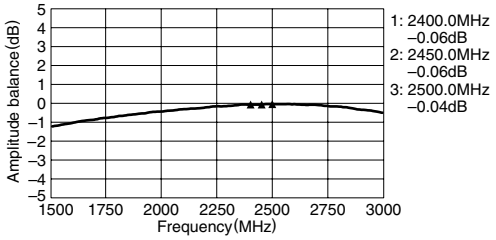
FREQUENCY CHARACTERISTICS

Unbalance 50Ω/Balance 75Ω

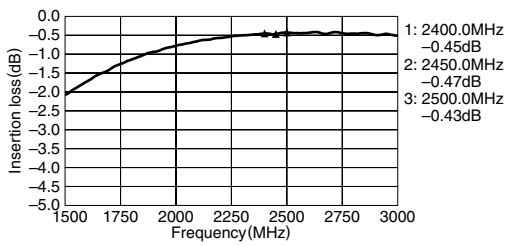
RETURN LOSS



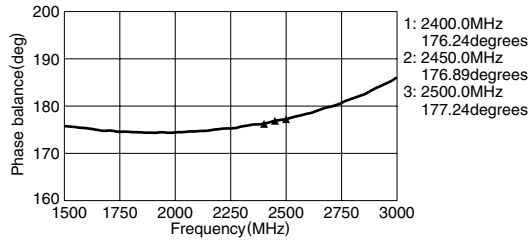
AMPLITUDE BALANCE



INSERTION LOSS



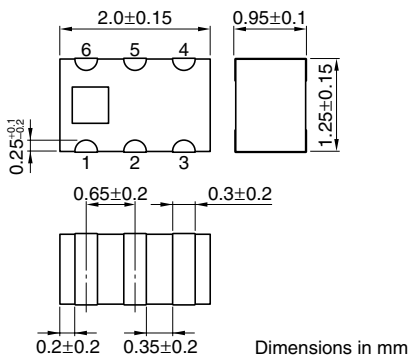
PHASE BALANCE

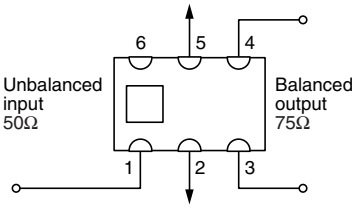


Multilayer Baluns, HHM Series

HHM1541E2 For Bluetooth&IEEE802.11b/g

SHAPES AND DIMENSIONS/CIRCUIT

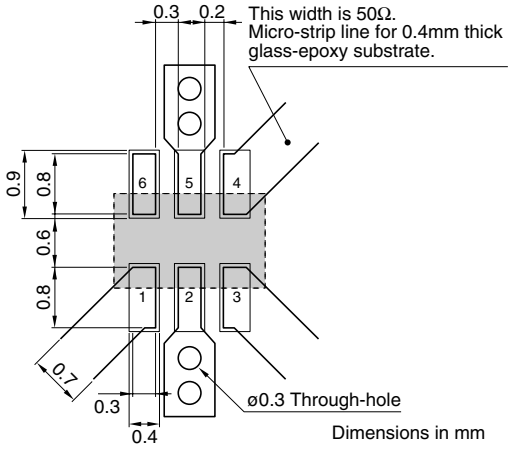




TERMINAL FUNCTIONS

1	Unbalanced Port
2	GND or DC feed+ RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	N.C.

RECOMMENDED PCB PATTERN



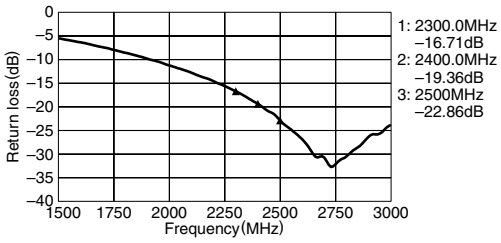
ELECTRICAL CHARACTERISTICS

Unbalanced impedance		50Ω
Balanced impedance		75Ω
Frequency range		2300 to 2500MHz
Unbalanced port return loss		10dB min.
Phase impedance at balanced port		180±10deg.
Amplitude impedance at balanced port		0±1.5dB
Insertion loss		1.0dB max.
Temperature range	Operating	–40 to +85°C
	Storage	–40 to +85°C
Packaging style and quantities		2000pieces/reel

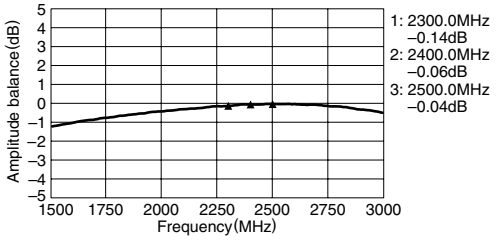
FREQUENCY CHARACTERISTICS

Unbalance 50Ω/Balance 75Ω

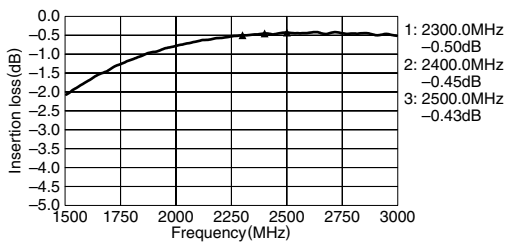
RETURN LOSS



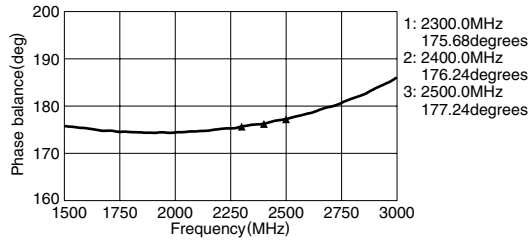
AMPLITUDE BALANCE



INSERTION LOSS



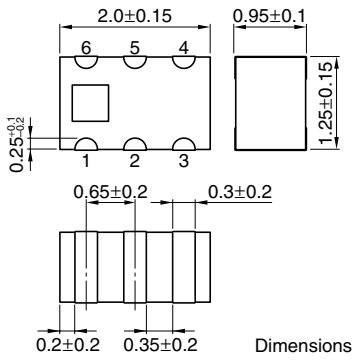
PHASE BALANCE



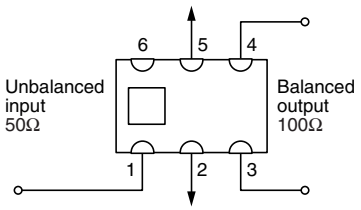
Multilayer Baluns, HHM Series

HHM1544 For W-LAN

SHAPES AND DIMENSIONS/CIRCUIT



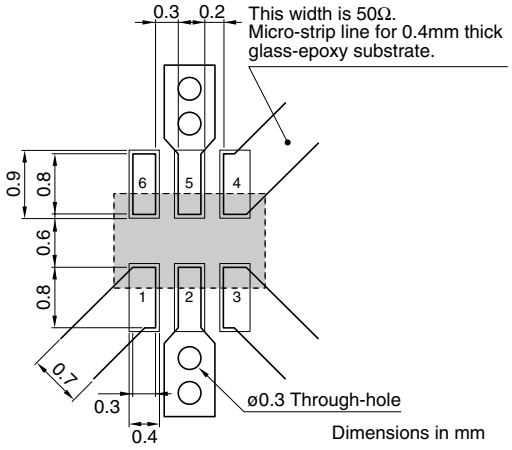
Dimensions in mm



TERMINAL FUNCTIONS

1	Unbalanced Port
2	GND or DC feed+ RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	N.C.

RECOMMENDED PCB PATTERN



Dimensions in mm

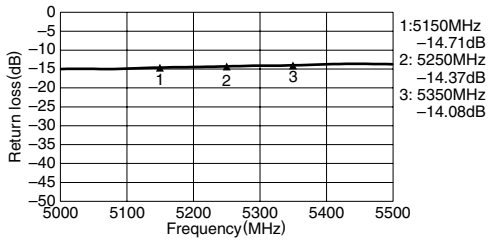
ELECTRICAL CHARACTERISTICS

Unbalanced impedance		50Ω
Balanced impedance		100Ω
Frequency range		5150 to 5350MHz
Unbalanced port return loss		10dB min.
Phase impedance at balanced port		180±20deg.
Amplitude impedance at balanced port		0±1.5dB
Insertion loss		1.2dB max.
Temperature range	Operating	–40 to +85°C
	Storage	–40 to +85°C
Packaging style and quantities		2000pieces/reel

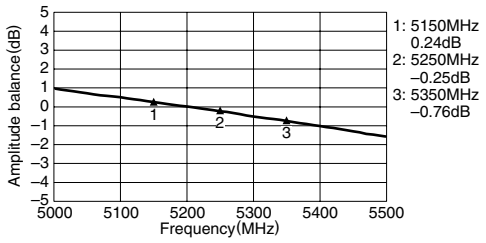
FREQUENCY CHARACTERISTICS

Unbalance 50Ω/Balance 100Ω

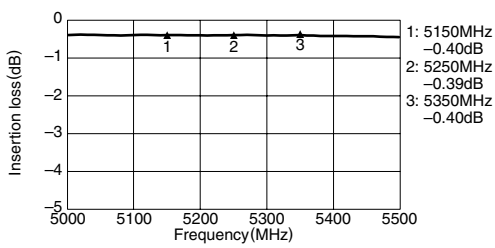
RETURN LOSS



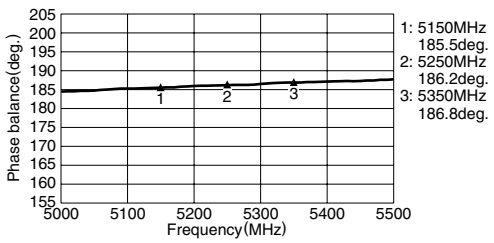
AMPLITUDE BALANCE



INSERTION LOSS



PHASE BALANCE

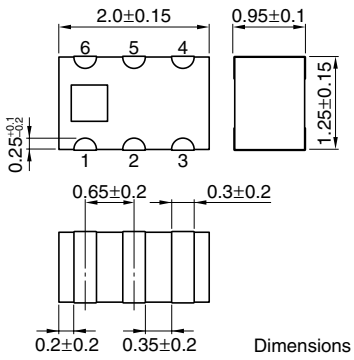


• All specifications are subject to change without notice.

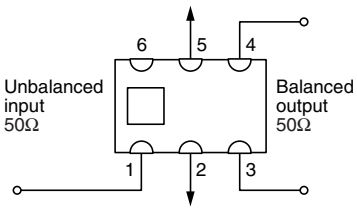
Multilayer Baluns, HHM Series

HHM1545 For 3.7GHz

SHAPES AND DIMENSIONS/CIRCUIT



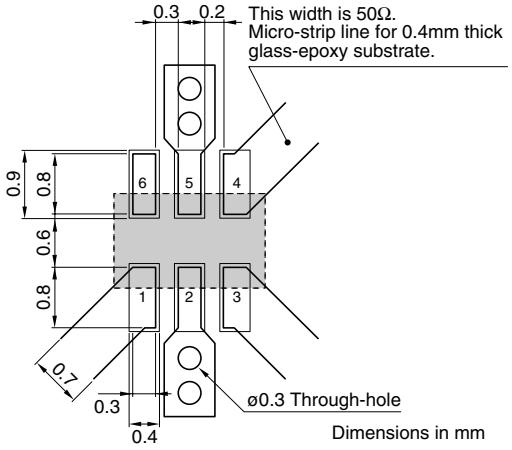
Dimensions in mm



TERMINAL FUNCTIONS

1	Unbalanced Port
2	GND
3	Balanced Port
4	Balanced Port
5	GND
6	N.C.

RECOMMENDED PCB PATTERN



Dimensions in mm

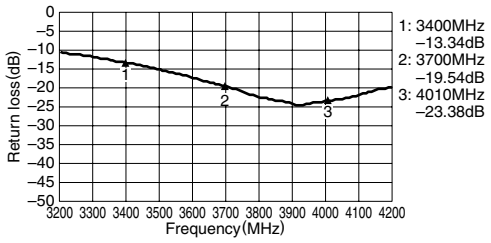
ELECTRICAL CHARACTERISTICS

Unbalanced impedance		50Ω
Balanced impedance		50Ω
Frequency range		3400 to 4010MHz
Unbalanced port return loss		10dB min.
Phase impedance at balanced port		180±10deg.
Amplitude impedance at balanced port		0±1.0dB
Insertion loss		1.2dB max.
Temperature range	Operating	–40 to +85°C
	Storage	–40 to +85°C
Packaging style and quantities		2000pieces/reel

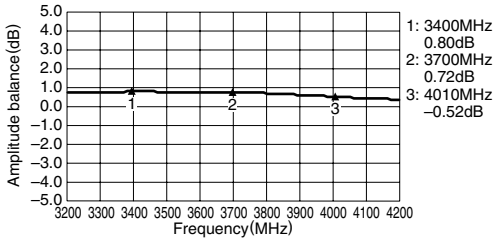
FREQUENCY CHARACTERISTICS

Unbalance 50Ω/Balance 50Ω

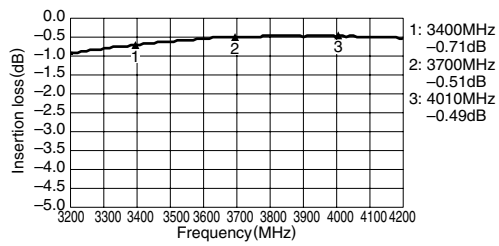
RETURN LOSS



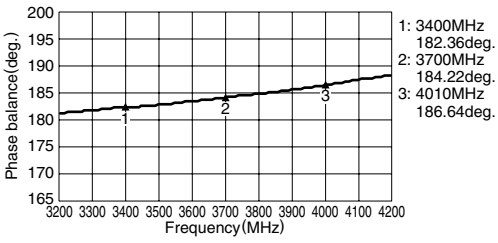
AMPLITUDE BALANCE



INSERTION LOSS



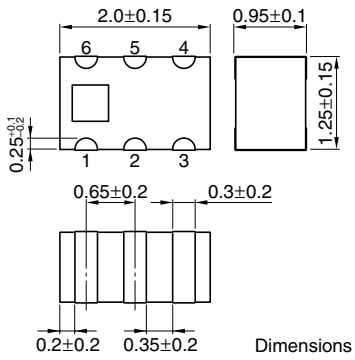
PHASE BALANCE



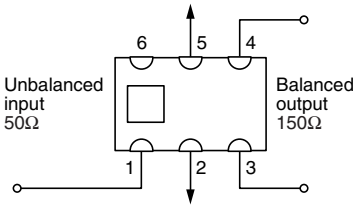
Multilayer Baluns, HHM Series

HHM1547 For 3.7GHz

SHAPES AND DIMENSIONS/CIRCUIT



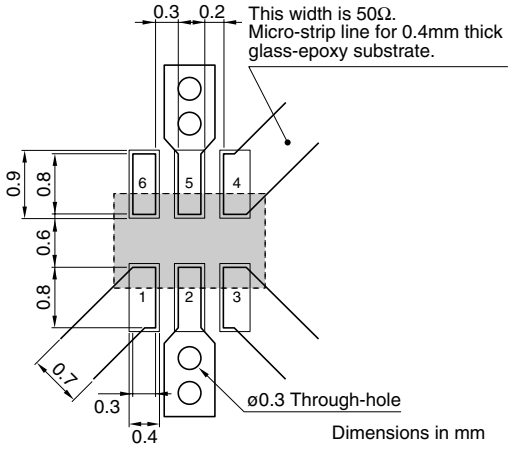
Dimensions in mm



TERMINAL FUNCTIONS

1	Unbalanced Port
2	GND
3	Balanced Port
4	Balanced Port
5	GND
6	N.C.

RECOMMENDED PCB PATTERN



Dimensions in mm

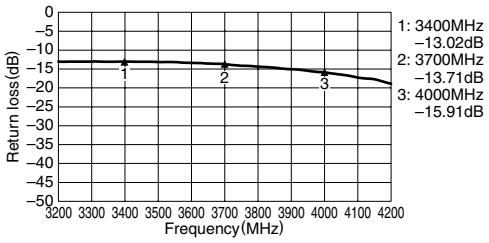
ELECTRICAL CHARACTERISTICS

Unbalanced impedance		50Ω
Balanced impedance		150Ω
Frequency range		3400 to 4000MHz
Unbalanced port return loss		10dB min.
Phase impedance at balanced port		180±20deg.
Amplitude impedance at balanced port		0±2.0dB
Insertion loss		1.2dB max.
Temperature range	Operating	–40 to +85°C
	Storage	–40 to +85°C
Packaging style and quantities		2000pieces/reel

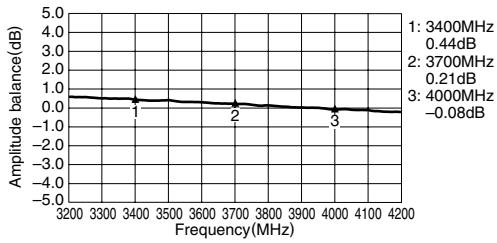
FREQUENCY CHARACTERISTICS

Unbalance 50Ω/Balance 150Ω

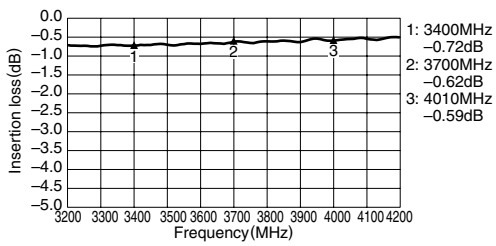
RETURN LOSS



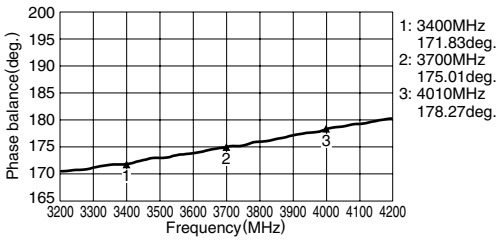
AMPLITUDE BALANCE



INSERTION LOSS



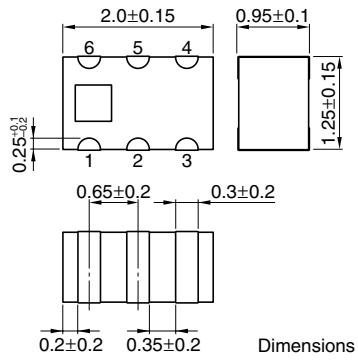
PHASE BALANCE



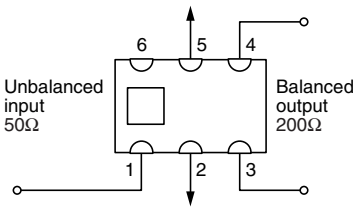
Multilayer Baluns, HHM Series

HHM1548A2 For 3.7GHz

SHAPES AND DIMENSIONS/CIRCUIT



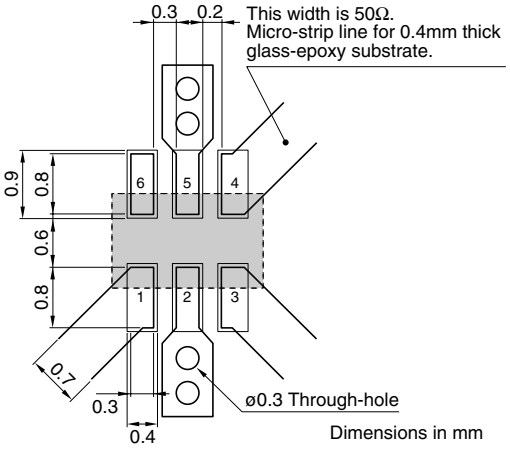
Dimensions in mm



TERMINAL FUNCTIONS

1	Unbalanced Port
2	GND
3	Balanced Port
4	Balanced Port
5	GND
6	N.C.

RECOMMENDED PCB PATTERN



Dimensions in mm

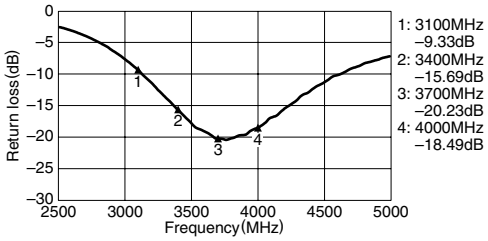
ELECTRICAL CHARACTERISTICS

Unbalanced impedance		50Ω	50Ω
Balanced impedance		200Ω	200Ω
Frequency range		3100 to 3400MHz	3400 to 4000MHz
Unbalanced port return loss		6dB min.	9dB min.
Phase impedance at balanced port		177±20deg.	178±20deg. at 3400MHz 180±20deg. at 3700MHz 185±20deg. at 4000MHz
Amplitude impedance at balanced port		1±2.0dB	1±2.0dB
Insertion loss		1.5db max.	1.2dB max.
Temperature range	Operating	–40 to +85°C	
	Storage	–40 to +85°C	
Packaging style and quantities		2000pieces/reel	

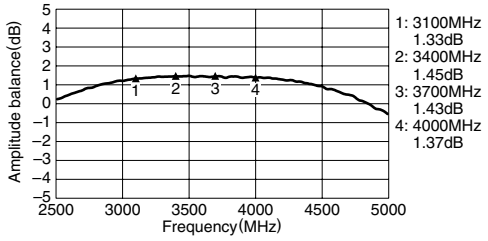
FREQUENCY CHARACTERISTICS

Unbalance 50Ω/Balance 200Ω

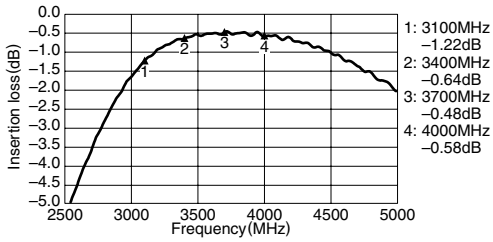
RETURN LOSS



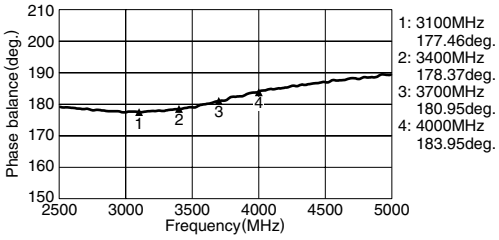
AMPLITUDE BALANCE



INSERTION LOSS



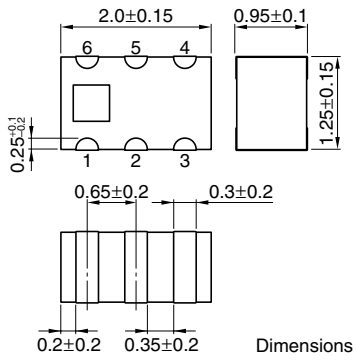
PHASE BALANCE



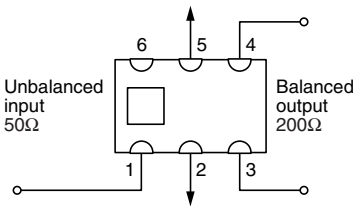
Multilayer Baluns, HHM Series

HHM1548C2 For 3.7GHz

SHAPES AND DIMENSIONS/CIRCUIT



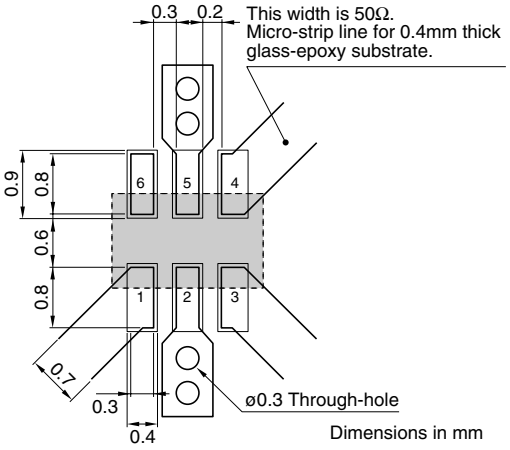
Dimensions in mm



TERMINAL FUNCTIONS

1	Unbalanced Port
2	GND
3	Balanced Port
4	Balanced Port
5	GND
6	N.C.

RECOMMENDED PCB PATTERN



Dimensions in mm

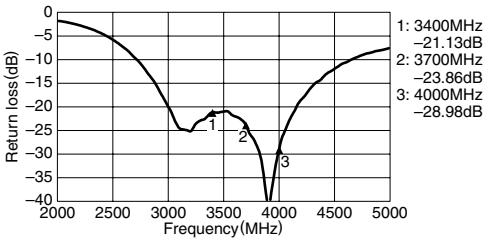
ELECTRICAL CHARACTERISTICS

Unbalanced impedance		50Ω
Balanced impedance		200Ω
Frequency range		3400 to 4000MHz
Unbalanced port return loss		10dB min.
Phase impedance at balanced port		180±20deg.
Amplitude impedance at balanced port		0±2.0dB
Insertion loss		1.0dB max.
Temperature range	Operating	–40 to +85°C
	Storage	–40 to +85°C
Packaging style and quantities		2000pieces/reel

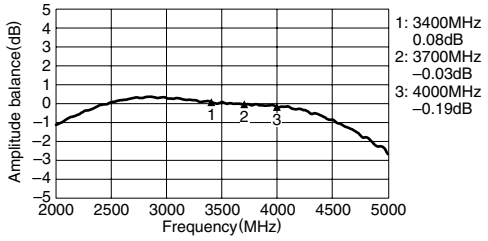
FREQUENCY CHARACTERISTICS

Unbalance 50Ω/Balance 200Ω

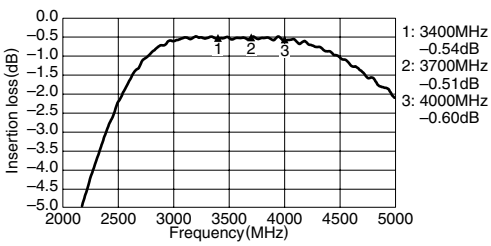
RETURN LOSS



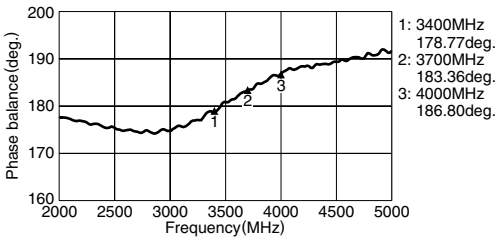
AMPLITUDE BALANCE



INSERTION LOSS



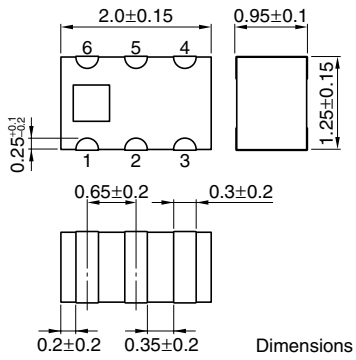
PHASE BALANCE



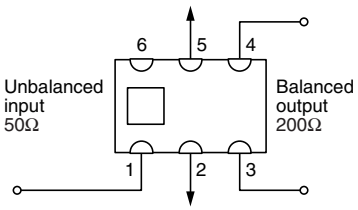
Multilayer Baluns, HHM Series

HHM1548E1 For 3.7GHz

SHAPES AND DIMENSIONS/CIRCUIT



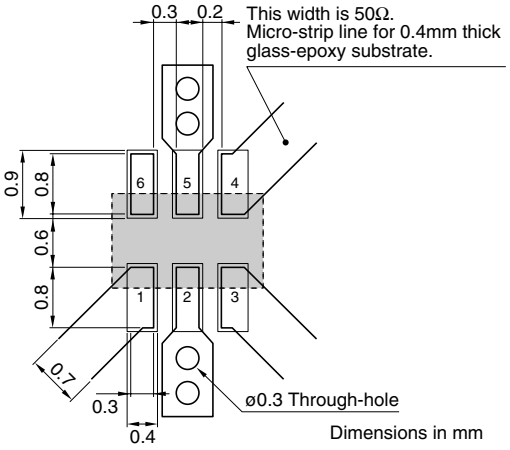
Dimensions in mm



TERMINAL FUNCTIONS

1	Unbalanced Port
2	GND
3	Balanced Port
4	Balanced Port
5	GND
6	N.C.

RECOMMENDED PCB PATTERN



Dimensions in mm

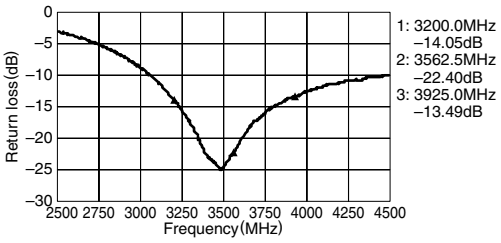
ELECTRICAL CHARACTERISTICS

Unbalanced impedance		50Ω
Balanced impedance		200Ω
Frequency range		3200 to 3925MHz
Unbalanced port return loss		10dB min.
Phase impedance at balanced port		180±10deg.
Amplitude impedance at balanced port		0±1.0dB
Insertion loss		1.2dB max.
Temperature range	Operating	–40 to +85°C
	Storage	–40 to +85°C
Packaging style and quantities		2000pieces/reel

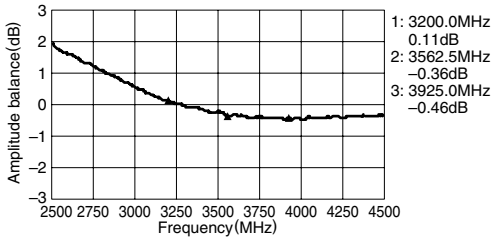
FREQUENCY CHARACTERISTICS

Unbalance 50Ω/Balance 200Ω

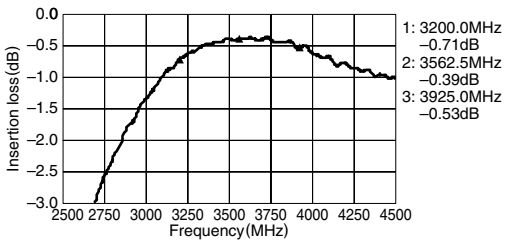
RETURN LOSS



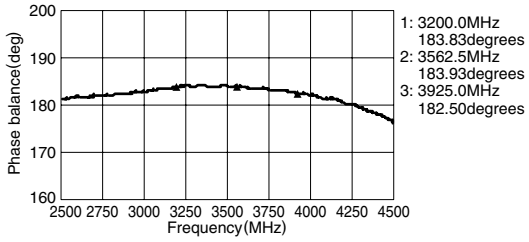
AMPLITUDE BALANCE



INSERTION LOSS



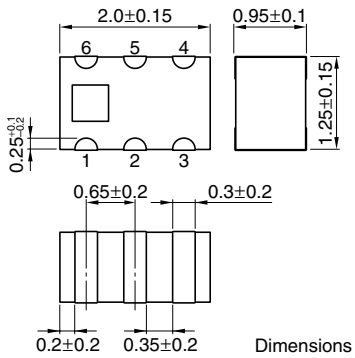
PHASE BALANCE



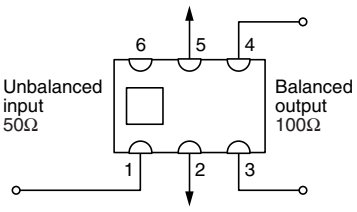
Multilayer Baluns, HHM Series

HHM1562B For W-LAN

SHAPES AND DIMENSIONS/CIRCUIT



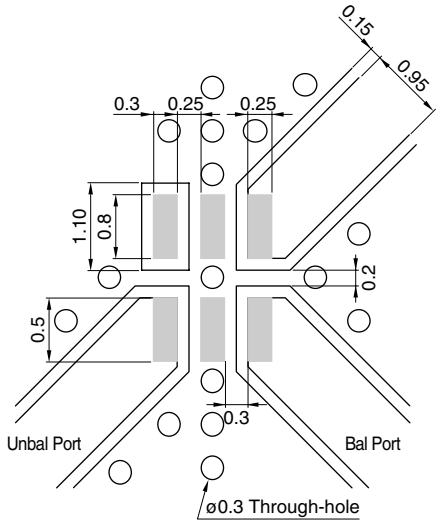
Dimensions in mm



TERMINAL FUNCTIONS

1	Unbalanced Port
2	GND or DC feed+ RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	N.C.

RECOMMENDED PCB PATTERN



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

Dimensions in mm

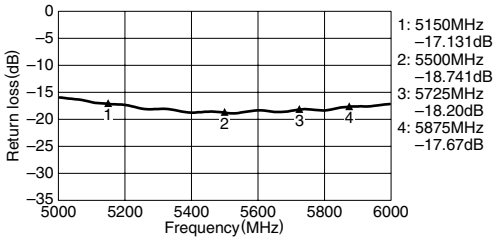
ELECTRICAL CHARACTERISTICS

Unbalanced impedance		50Ω
Balanced impedance		100Ω
Frequency range		5150 to 5875MHz
Unbalanced port return loss		10dB min.
Phase impedance at balanced port		180±10deg.
Amplitude impedance at balanced port		0±2.0dB
Insertion loss		1.0 max.
Temperature range	Operating	–40 to +85°C
	Storage	–40 to +85°C
Packaging style and quantities		2000pieces/reel

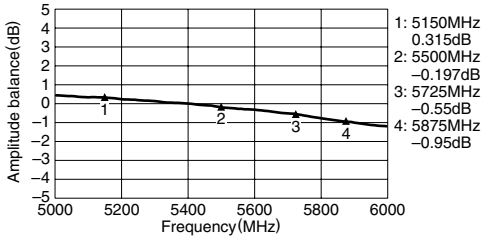
FREQUENCY CHARACTERISTICS

Unbalance 50Ω/Balance 100Ω

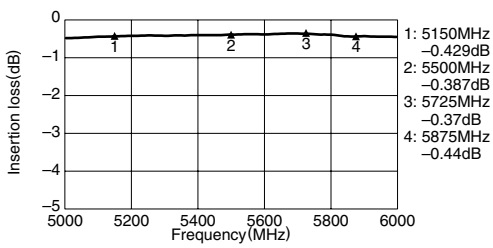
RETURN LOSS



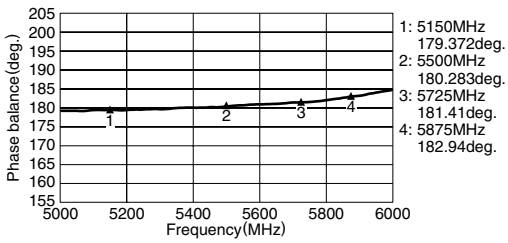
AMPLITUDE BALANCE



INSERTION LOSS



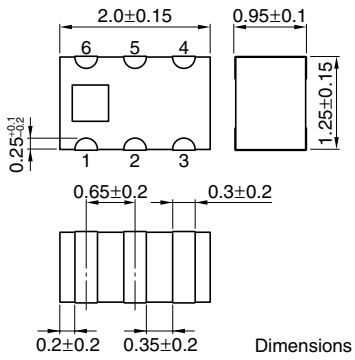
PHASE BALANCE



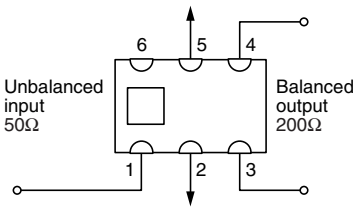
Multilayer Baluns, HHM Series

HHM1564A4 For AGSM/Tx-Rx

SHAPES AND DIMENSIONS/CIRCUIT



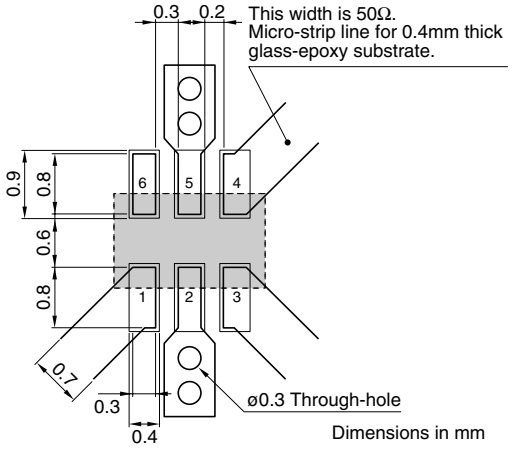
Dimensions in mm



TERMINAL FUNCTIONS

1	Unbalanced Port
2	GND or DC feed+ RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	N.C.

RECOMMENDED PCB PATTERN



Dimensions in mm

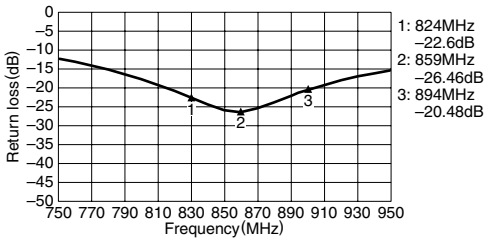
ELECTRICAL CHARACTERISTICS

Unbalanced impedance		50Ω
Balanced impedance		200Ω
Frequency range		824 to 894MHz
Unbalanced port return loss		10dB min.
Phase impedance at balanced port		180±10deg.
Amplitude impedance at balanced port		0±1.0dB
Insertion loss		1.0dB max.
Temperature range	Operating	–40 to +85°C
	Storage	–40 to +85°C
Packaging style and quantities		2000pieces/reel

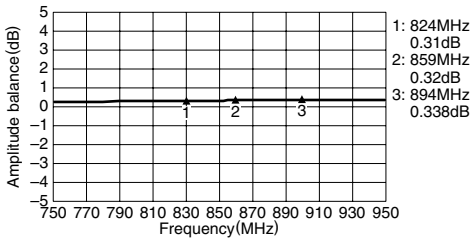
FREQUENCY CHARACTERISTICS

Unbalance 50Ω/Balance 200Ω

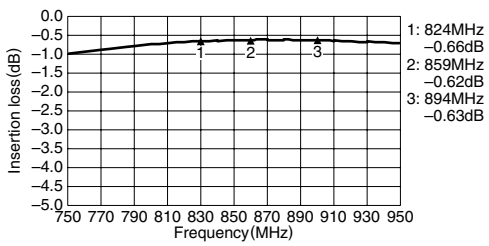
RETURN LOSS



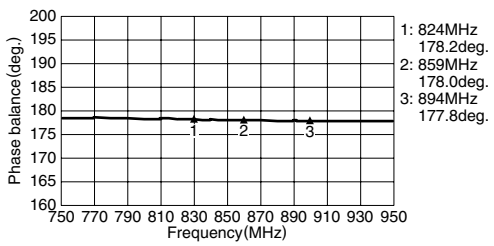
AMPLITUDE BALANCE



INSERTION LOSS



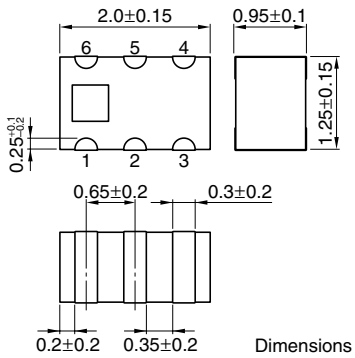
PHASE BALANCE



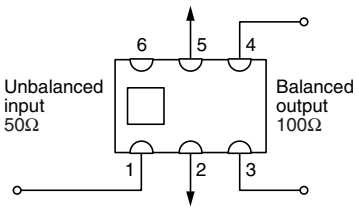
Multilayer Baluns, HHM Series

HHM1570B1 For W-LAN

SHAPES AND DIMENSIONS/CIRCUIT



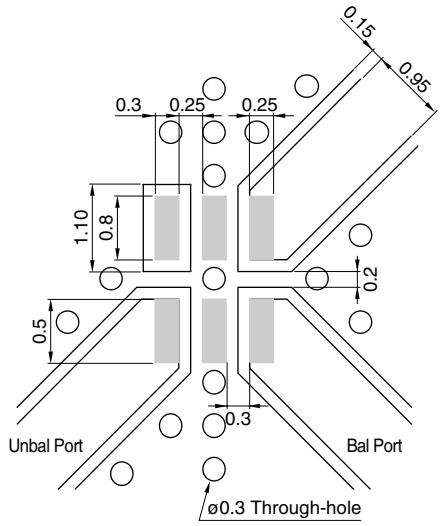
Dimensions in mm



TERMINAL FUNCTIONS

1	Unbalanced Port
2	GND or DC feed+ RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	N.C.

RECOMMENDED PCB PATTERN



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

Dimensions in mm

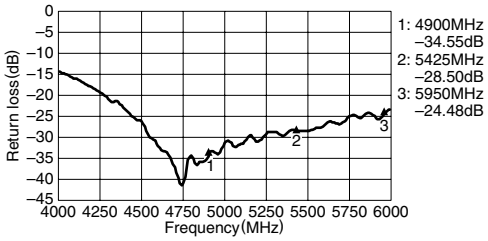
ELECTRICAL CHARACTERISTICS

Unbalanced impedance		50Ω
Balanced impedance		100Ω
Frequency range		4900 to 5950MHz
Unbalanced port return loss		10dB min.
Phase impedance at balanced port		180±10deg.
Amplitude impedance at balanced port		0±2.0dB
Insertion loss		1.0 max.
Temperature range	Operating	–40 to +85°C
	Storage	–40 to +85°C
Packaging style and quantities		2000pieces/reel

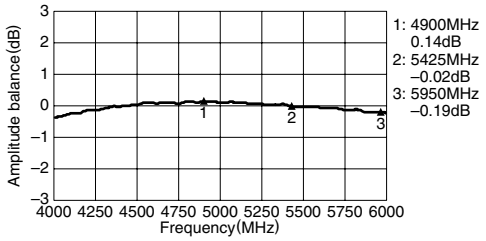
FREQUENCY CHARACTERISTICS

Unbalance 50Ω/Balance 100Ω

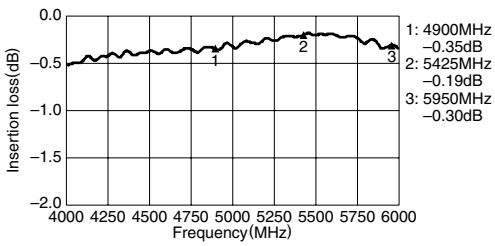
RETURN LOSS



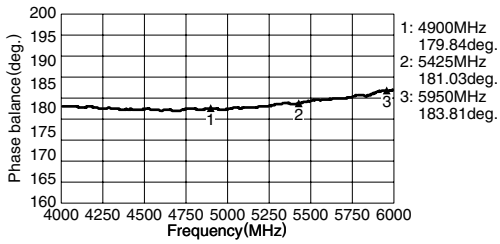
AMPLITUDE BALANCE



INSERTION LOSS



PHASE BALANCE

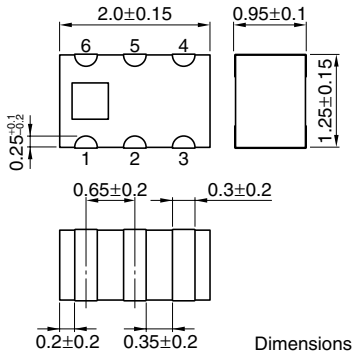


• All specifications are subject to change without notice.

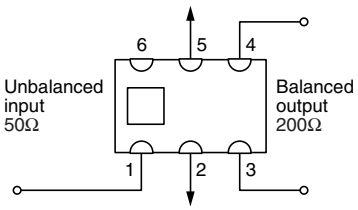
Multilayer Baluns, HHM Series

HHM1582A1 For 2218 to 2458MHz

SHAPES AND DIMENSIONS/CIRCUIT



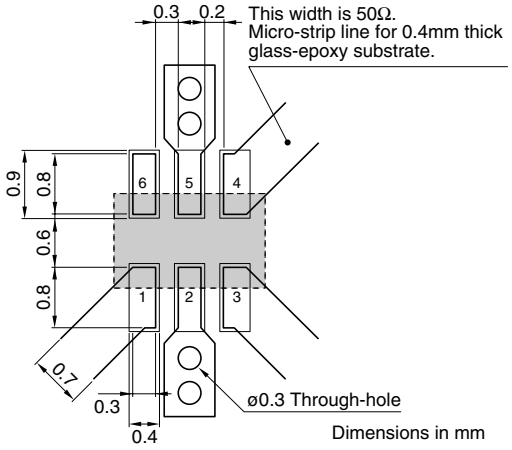
Dimensions in mm



TERMINAL FUNCTIONS

1	Unbalanced Port
2	GND or DC feed+ RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	N.C.

RECOMMENDED PCB PATTERN



Dimensions in mm

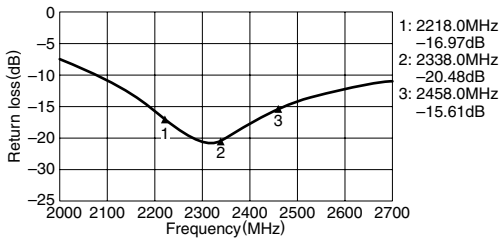
ELECTRICAL CHARACTERISTICS

Unbalanced impedance		50Ω
Balanced impedance		200Ω
Frequency range		2218 to 2458MHz
Unbalanced port return loss		10dB min.
Phase impedance at balanced port		180±10deg.
Amplitude impedance at balanced port		0±2.0dB
Insertion loss		0.9dB max.
Temperature range	Operating	–40 to +85°C
	Storage	–40 to +85°C
Packaging style and quantities		2000pieces/reel

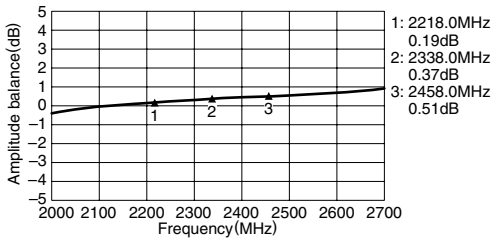
FREQUENCY CHARACTERISTICS

Unbalance 50Ω/Balance 200Ω

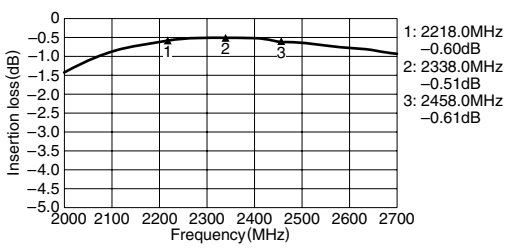
RETURN LOSS



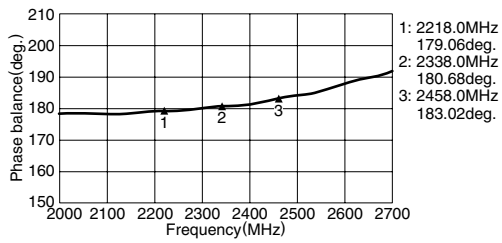
AMPLITUDE BALANCE



INSERTION LOSS



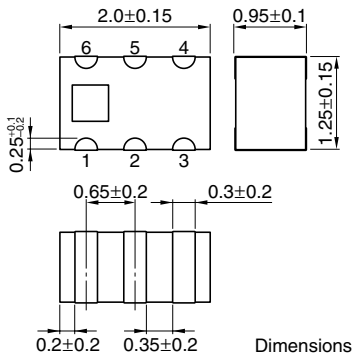
PHASE BALANCE



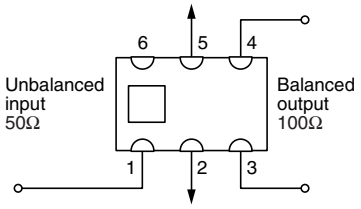
Multilayer Baluns, HHM Series

HHM1583B1 For UWB

SHAPES AND DIMENSIONS/CIRCUIT



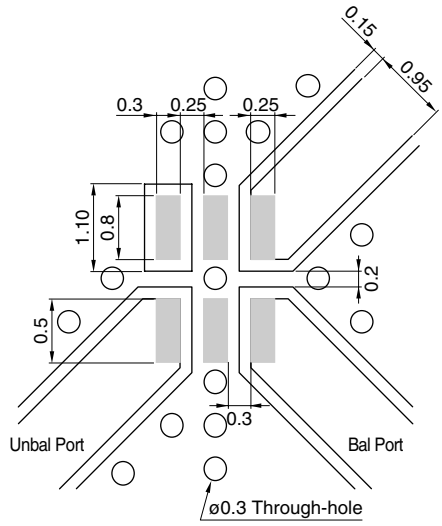
Dimensions in mm



TERMINAL FUNCTIONS

1	Unbalanced Port
2	GND or DC feed+ RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	N.C.

RECOMMENDED PCB PATTERN



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

Dimensions in mm

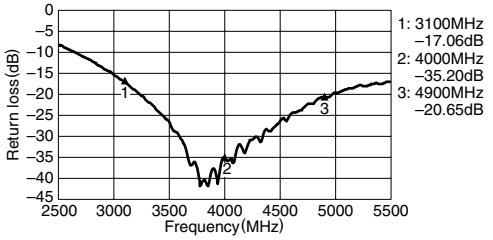
ELECTRICAL CHARACTERISTICS

Unbalanced impedance		50Ω
Balanced impedance		100Ω
Frequency range		3100 to 4900MHz
Unbalanced port return loss		10.0dB min.
Phase impedance at balanced port		180±10deg.
Amplitude impedance at balanced port		0±1.5dB
Insertion loss		1.0 max.
Temperature range	Operating	–40 to +85°C
	Storage	–40 to +85°C
Packaging style and quantities		2000pieces/reel

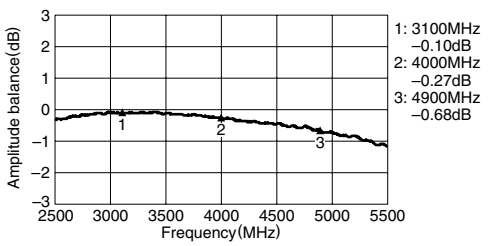
FREQUENCY CHARACTERISTICS

Unbalance 50Ω/Balance 100Ω

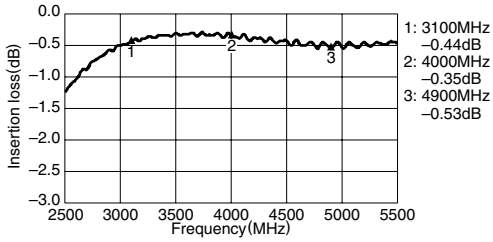
RETURN LOSS



AMPLITUDE BALANCE



INSERTION LOSS



PHASE BALANCE