

# Multilayer Directional Couplers

For W-CDMA Tx

## HHM Series

Type:            **HHM2207SB1 (1.6×0.8×0.6mm)**  
                     **HHM2218SA1 (1.6×0.8×0.6mm)**  
                     **HHM2220SA3 (1.6×0.8×0.6mm)**

Issue date:     December 2010

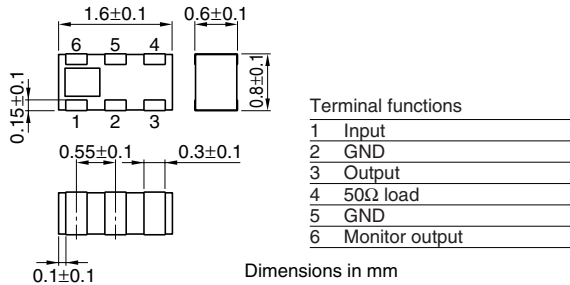
- All specifications are subject to change without notice.
  - Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.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

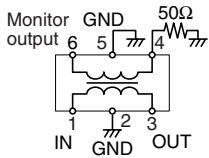
Conformity to RoHS Directive

## HHM Series HHM2207SB1

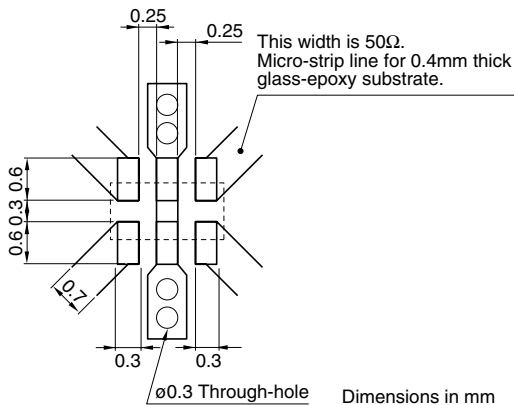
### SHAPES AND DIMENSIONS



### CIRCUIT DIAGRAM



### RECOMMENDED PC BOARD PATTERNS



### ELECTRICAL CHARACTERISTICS

Frequency range	1920 to 1980MHz
Coupling factor	13.5±1.0dB
Insertion loss	0.30dB max.*1 0.35dB max.*2
Isolation	25dB min.
VSWR	1.4 max.
Temperature range	Operating -40 to +85°C Storage -40 to +85°C

\*1 25°C

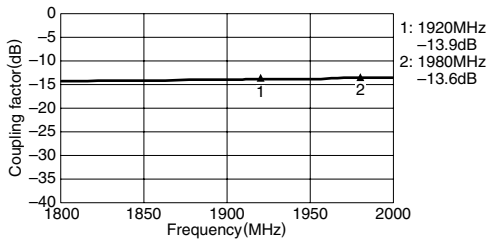
\*2 Operating temperature

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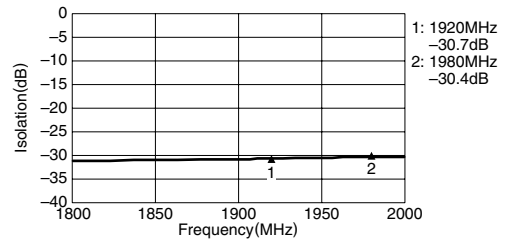
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### FREQUENCY CHARACTERISTICS

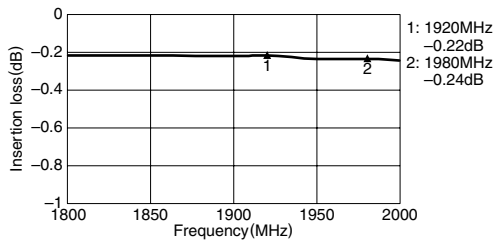
#### COUPLING



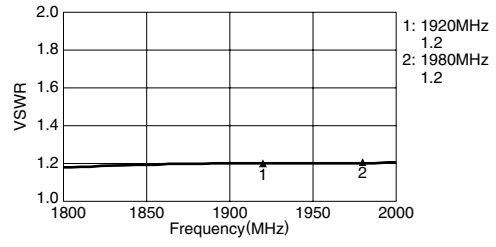
#### ISOLATION



#### INSERTION LOSS



#### VSWR



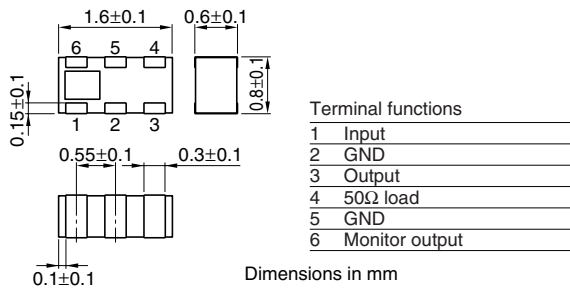
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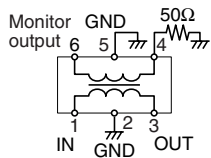
Conformity to RoHS Directive

## HHM Series HHM2218SA1

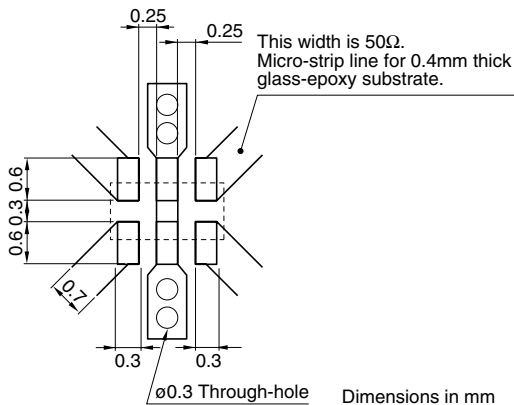
### SHAPES AND DIMENSIONS



### CIRCUIT DIAGRAM



### RECOMMENDED PC BOARD PATTERNS



### ELECTRICAL CHARACTERISTICS

Frequency range	1920 to 1980MHz
Coupling factor	11.0±1.0dB
Insertion loss	0.60dB max.*1 0.65dB max.*2
Isolation	24dB min.
VSWR	1.5 max.
Temperature range	Operating -40 to +85°C Storage -40 to +85°C

\*1 25°C

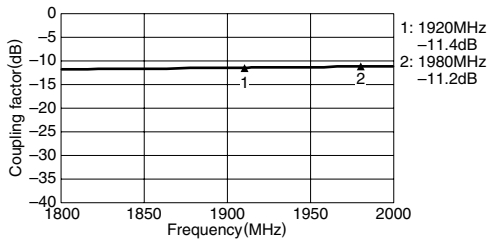
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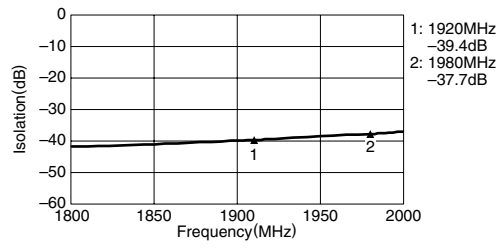
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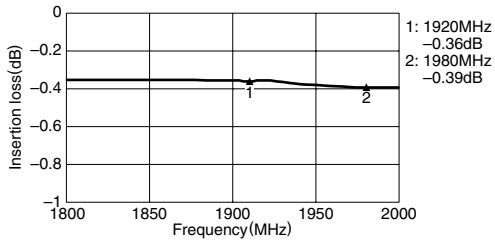
#### COUPLING



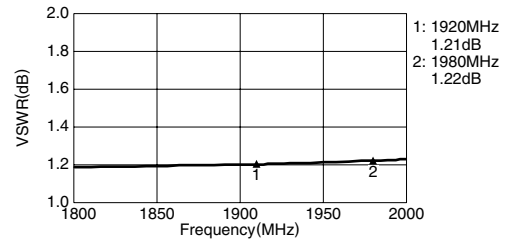
#### ISOLATION



#### INSERTION LOSS



#### VSWR



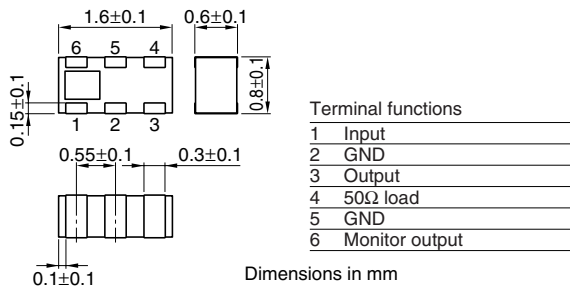
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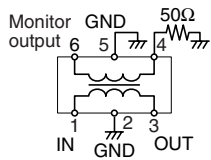
Conformity to RoHS Directive

## HHM Series HHM2220SA3

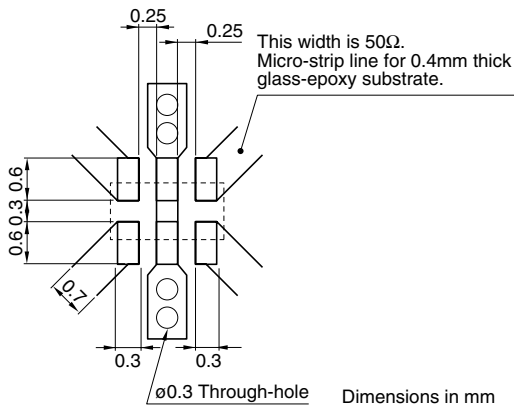
### SHAPES AND DIMENSIONS



### CIRCUIT DIAGRAM



### RECOMMENDED PC BOARD PATTERNS



### ELECTRICAL CHARACTERISTICS

Frequency range	1920 to 1980MHz	
Coupling factor	16.0±1.0dB	
Insertion loss	0.30dB max.*1	
	0.35dB max.*2	
Isolation	25dB min.	
VSWR	1.4 max.	
Temperature range	Operating	-40 to +85°C
	Storage	-40 to +85°C

\*1 25°C

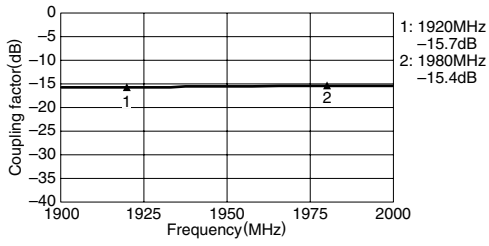
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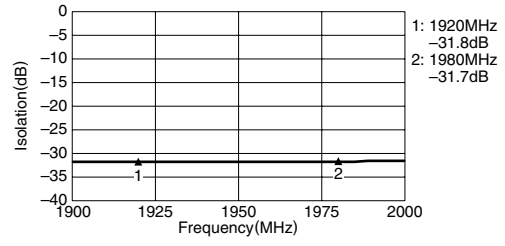
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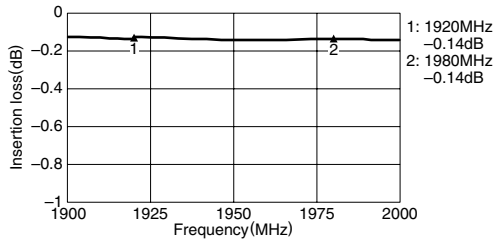
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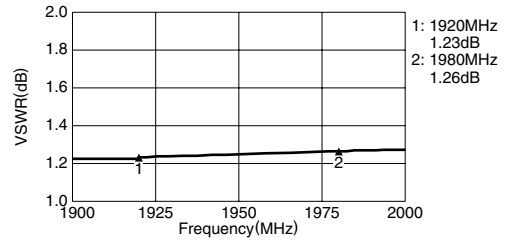
#### ISOLATION



#### INSERTION LOSS



#### VSWR



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