

# CP1608 Series

## Multilayer Chip Couplers

### Features

- ❖ Monolithic SMD with ultra-small, low-profiled, and light-weight type.
- ❖ RoHS compliant

### Applications

- ❖ 0.8 ~ 6 GHz wireless communication systems, including DECT/PACS/PHS/GSM/DCS phones, WLAN card, Bluetooth modules, etc.



### Specifications

Part Number	Frequency Range (BW) (MHz)	Insertion Loss @BW (dB)	Directivity (dB)	Coupling (dB)	VSWR @BW
CP1608-25Q0822_	Band1: 698 ~ 960	0.23 max. @-40~85°C	20 min.	698 ~ 915 MHz	1.45 max.
		0.28 max. @-40~105°C		25.5 ± 2	
	Band2: 1710 ~ 2170	0.25 max. @-40~85°C	20 min.	1710 ~ 2025 MHz	
		0.31 max. @-40~105°C		22.5 ± 2	
	Band3: 2300 ~ 2690	0.28 max. @-40~85°C	15 min.	2300 ~ 2620 MHz	
		0.35 max. @-40~105°C		23.5 ± 2	

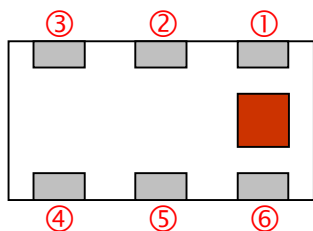
Q'ty/Reel (pcs) : 4,000  
 Operating Temperature Range : -40 ~ +105°C  
 Storage Temperature Range : -40 ~ +105°C  
 Storage Period : 12 months max.  
 Power Capacity : 3W max.  
 MSL : Level 1  
 ESD HBM : ±2000V

### Part Number

**CP**   **1608**   -   **25**   **Q**   **0822**   **□**   **/LF**  
 ①   ②   ③   ④   ⑤   ⑥   ⑦

① Type	CP : Coupler	② Dimensions ( L × W )	1.6 × 0.8 mm
③ Coupling(LB)	25 : 25dB	④ Coupling (HB)	Q:23dB
⑤ Central Frequency	0822=800MHz/2200MHz	⑥ Packaging	T: Tape & Reel B: Bulk
⑦ Soldering	/LF=lead-free		

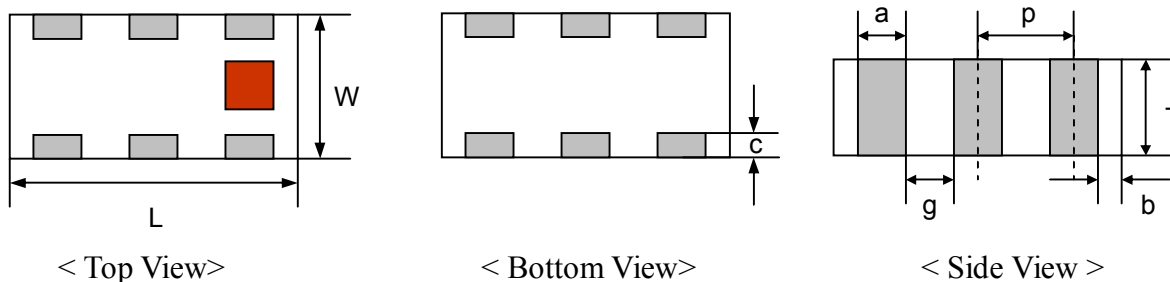
## Terminal Configuration



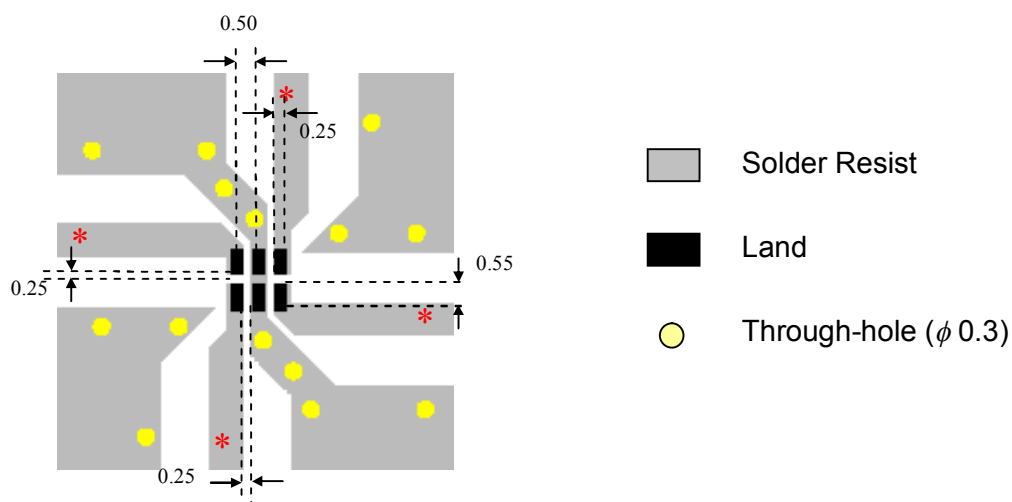
No.	Terminal Name	No.	Terminal Name
①	Main Out	④	Coupled Out
②	GND	⑤	GND
③	IN	⑥	Termination

## Dimensions and Recommended PC Board Pattern

Unit : mm



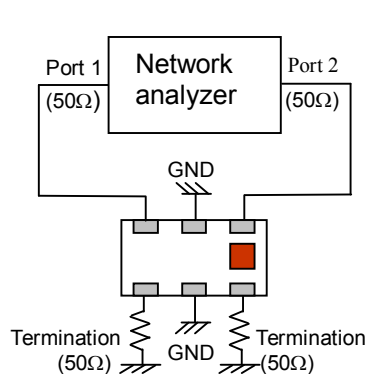
Mark	L	W	T	a	b	c	g	p
Dimensions	1.6 ±	0.8 ±	0.6 ±	0.2 ±	0.2+0.1	0.15 ±	0.3 ±	0.50 ±
	0.1	0.1	0.1	0.1	-0.15	0.1	0.1	0.05



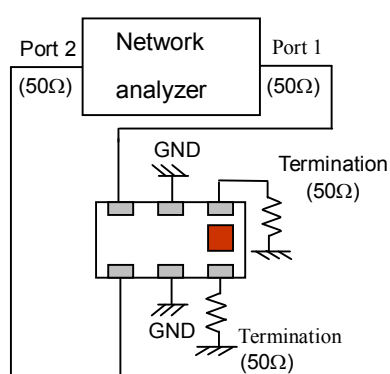
\* Line width should be designed to match 50Ω characteristic impedance, depending on PCB material and thickness.

## Measuring Diagram

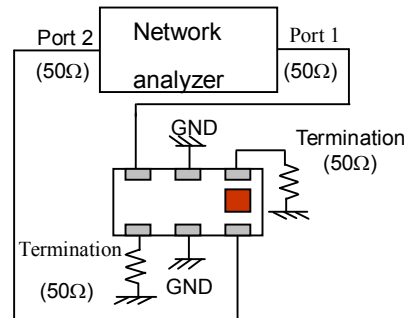
### Attenuation



### Coupling

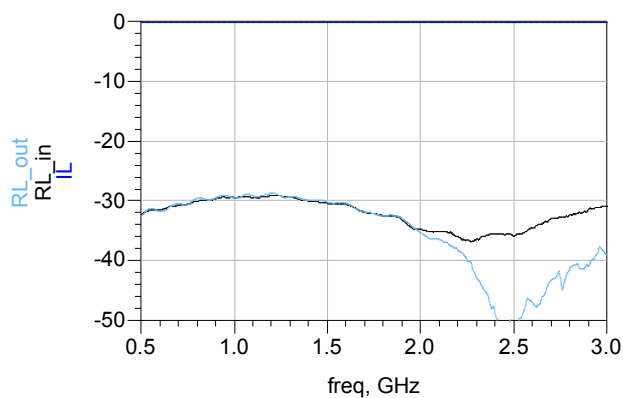


### Isolation

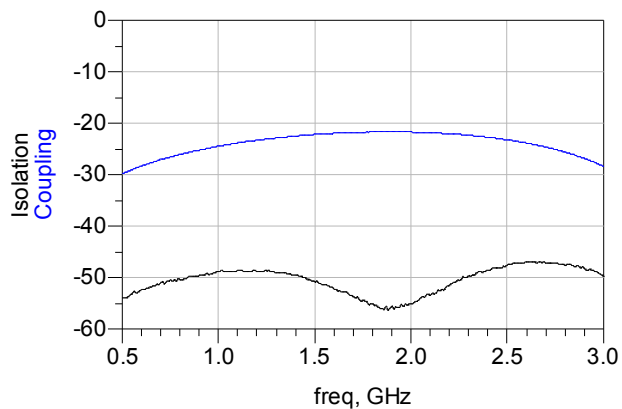


## Typical Electrical Characteristics (T=25°C)

### Attenuation Return Loss



### Coupling Isolation

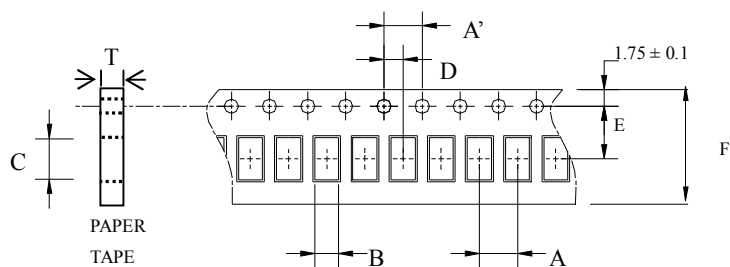


## Notes

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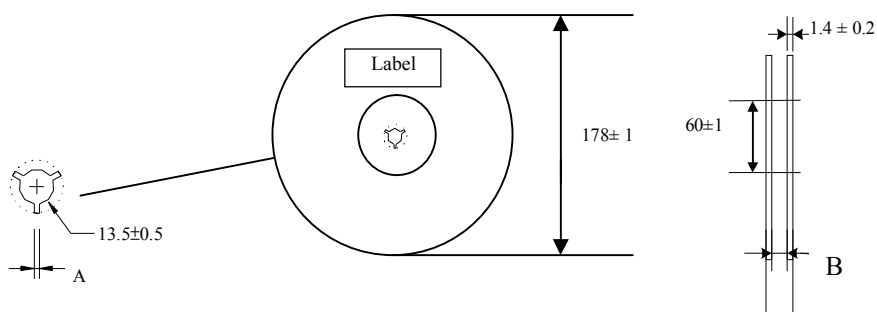
## Taping Specifications

### ❖Tape Dimensions (Unit: mm) & Quantity



Type	A	A'	B	C	D	E	F	T	Quantity/reel	Tape material
1608	4.0±	4.0±	1.10±	1.92±	2.0±	3.5±	8.0±	0.75±	4,000pcs	Paper
	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.05		

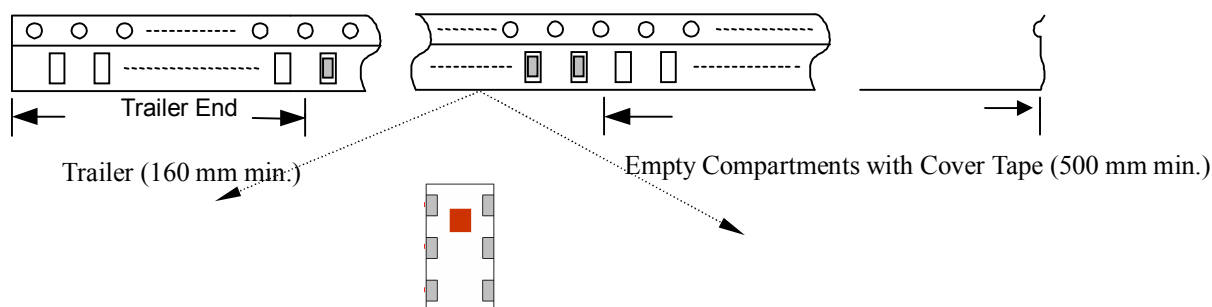
### ❖Reel Dimensions (Unit: mm)



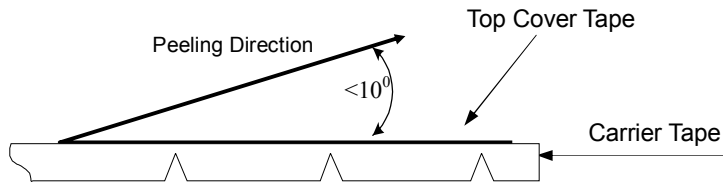
Label: Customer's Name,  
ACX P/N, Q'ty, Date,  
ACX Corp.

Type	A	B
1608	2.3±0.5	9.0±0.3

### ❖Leader and Trailer Tape



❖ **Peel-off Force**



Peel-off force should be in the range of 0.1 – 0.6 N at a peel-off speed of  $300 \pm 10$  mm/min .

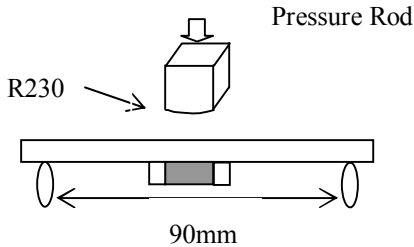
❖ **Storage Conditions**

- (1) Temperature:  $+5 \sim 35^\circ\text{C}$  , relative humidity (RH): 45~75%.
- (2) Non-corrosive environment.

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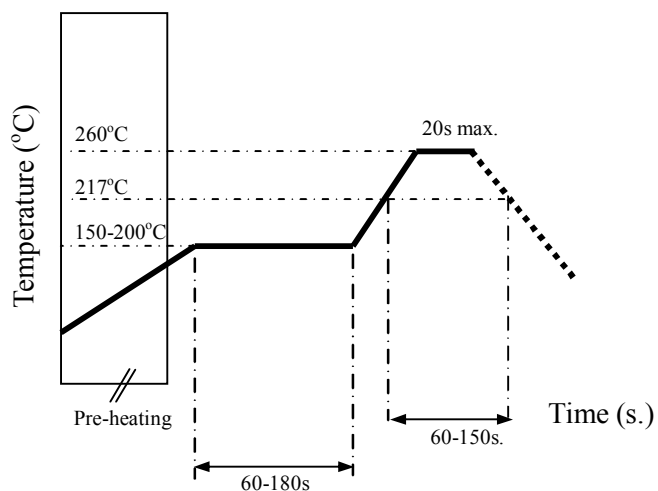
## Mechanical & Environmental Characteristics

Item	Requirements	Procedure
Solderability	<ol style="list-style-type: none"> <li>No apparent damage</li> <li>More than 95% of the terminal electrode shall be covered with new solder</li> </ol>	<ol style="list-style-type: none"> <li>Preheat: <math>120 \pm 5^{\circ}\text{C}</math></li> <li>Solder: <math>245 \pm 5^{\circ}\text{C}</math> for <math>5 \pm 1</math> sec</li> </ol>
Soldering strength (Termination Adhesion)	<ol style="list-style-type: none"> <li>7N minimum</li> </ol>	<ol style="list-style-type: none"> <li>Solder specimen onto test jig.</li> <li>Apply push force at 0.5mm/s until electrode pads are peeled off or ceramic are broken. Pushing force is applied to longitude direction</li> </ol>
Deflection (Substrate Bending)	<ol style="list-style-type: none"> <li>No apparent damage</li> <li>Fulfill the electrical specification</li> </ol>	<ol style="list-style-type: none"> <li>Solder specimen onto test jig (FR4, 0.8mm) using the recommend soldering profile.</li> <li>Apply a bending force of 2mm deflection</li> </ol> 
Heat/Humidity Resistance	<ol style="list-style-type: none"> <li>No apparent damage</li> <li>Fulfill the electrical specification after test</li> </ol>	<ol style="list-style-type: none"> <li>Temperature: <math>85 \pm 2^{\circ}\text{C}</math></li> <li>Humidity: 90% ~ 95% RH</li> <li>Duration: <math>1000 \pm 48</math>hrs</li> <li>Recovery: 1-2hrs</li> </ol>
Thermal shock (Temperature Cycle)	<ol style="list-style-type: none"> <li>No apparent damage</li> <li>Fulfill the electrical specification after test</li> </ol>	<ol style="list-style-type: none"> <li>One cycle/step 1 : <math>125 \pm 5^{\circ}\text{C}</math> for 30 min step 2 : <math>-40 \pm 5^{\circ}\text{C}</math> for 30 min</li> <li>No of cycles : 100</li> <li>Recovery: 1-2 hrs</li> </ol>
Low Temperature Resistance	<ol style="list-style-type: none"> <li>No apparent damage</li> <li>Fulfill the electrical specification after test</li> </ol>	<ol style="list-style-type: none"> <li>Temperature: <math>-40 \pm 5^{\circ}\text{C}</math></li> <li>Duration: <math>500 \pm 24</math>hrs</li> <li>Recovery: 1-2hrs</li> </ol>

## Soldering Conditions

### ❖ Typical Soldering Profile for Lead-free Process

Reflow Soldering :



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