

CP1005 Series

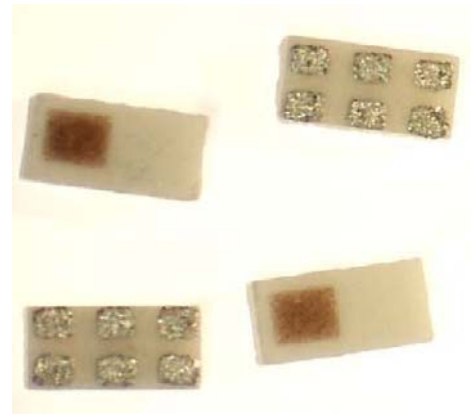
Multilayer Chip Couplers

Features

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

Applications

- ❖ 2.4 ~ 2.5 GHz wireless communication systems.



Target Specifications

Part Number	Passband (MHz)	Insertion Loss (dB)	Coupling (dB)	VSWR	Directivity (dB)
CP1005-15V2450DR_	2400 ~ 2500	0.45 max	15.0+/-1.5	1.4 max.	15 min.

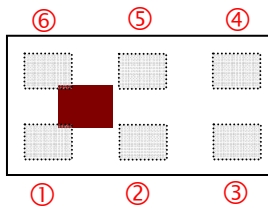
Q'ty/Reel (pcs)	: 10000
Operating Temperature Range	: -40 ~ +85 °C
Storage Temperature Range	: -40 ~ +85 °C
Storage Period	: 12 months max.
Power Capacity	: 3W max.

Part Number

CP **1005** - **15** **V** **2450** **DR** **□** **/LF**
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① Type	CP : Coupler	② Dimensions (L x W)	1.0 x 0.5 mm
③ Coupling	15 : 15 dB	④ Specification Code I	V
⑤ Central Frequency	2450 : 2450MHz	⑥ Specification Code II	DR
⑦ Packaging	T: Tape & Reel B: Bulk	⑧ Soldering	/LF=lead-free

Terminal Configuration

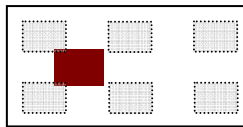


<Top View>

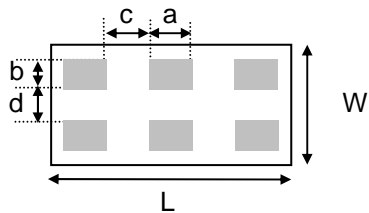
No.	Terminal Name	No.	Terminal Name
①	Coupling	④	Output
②	GND	⑤	GND
③	Termination	⑥	IN

Dimensions and Recommended PC Board Pattern

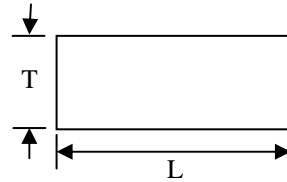
Unit: mm



< Top View >

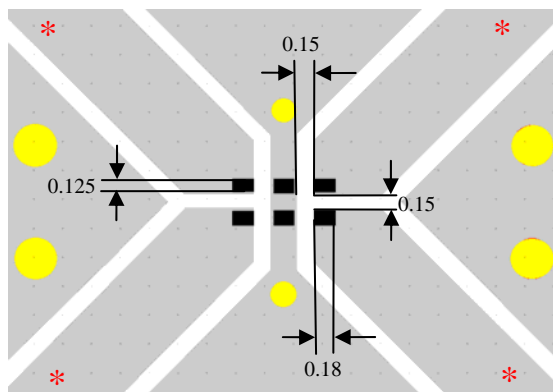


< Bottom View >



< Side View >

Mark	L	W	T	a	b	c	d
Dimensions	1.0 ±0.05	0.5 ±0.05	0.38 ±0.05	0.18 ±0.05	0.125 ±0.05	0.18 ±0.05	0.15 ±0.05

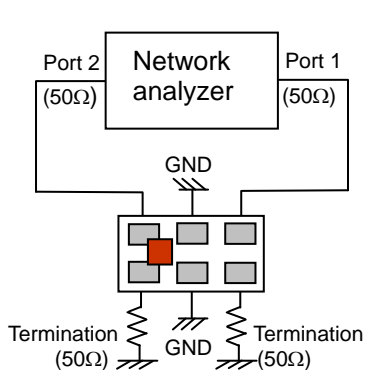


- Solder Resist
- Land
- Through-hole (ϕ 0.2 / 0.35)

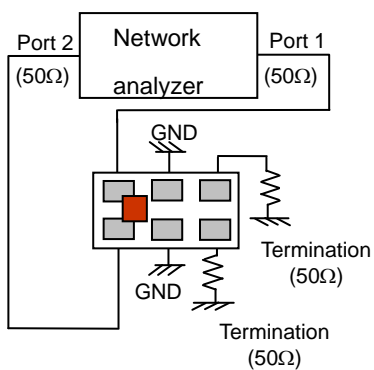
* Line width should be designed to match 50 Ω characteristic impedance, depending on PCB material and thickness.

Measuring Diagram

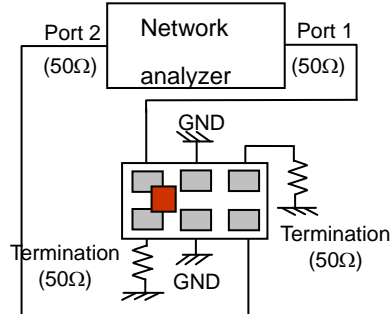
Insertion Loss



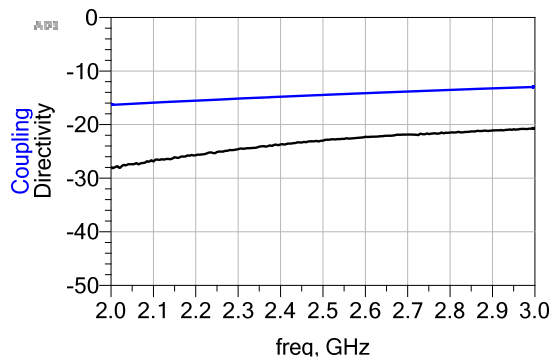
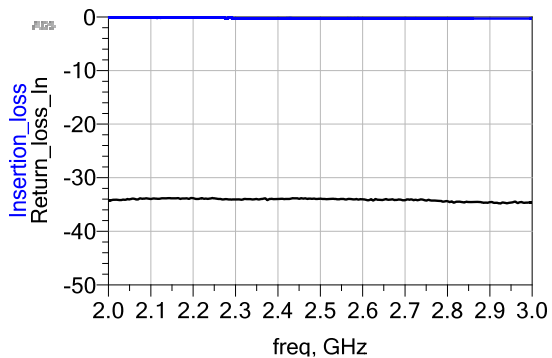
Coupling



Isolation



Typical Electrical Characteristics (T=25°C)

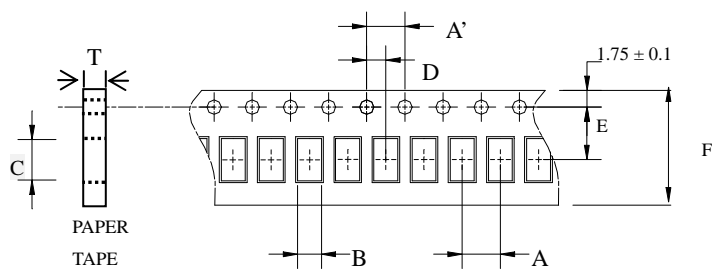


Notes

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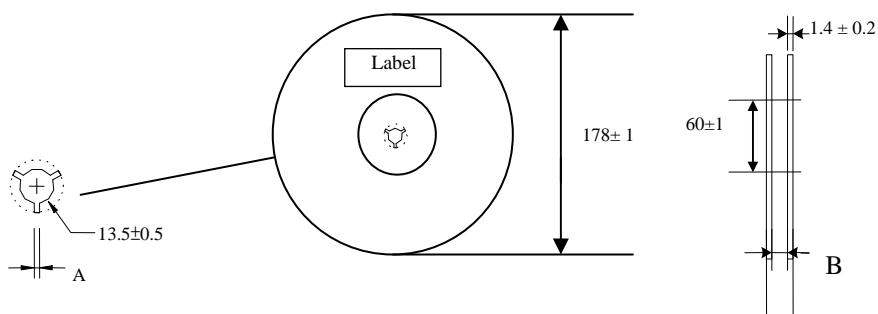
Taping Specifications

❖Tape Dimensions (Unit: mm) & Quantity



Type	A	A'	B	C	D	E	F	T	Quantity/reel	Tape material
1005	2.0±	4.0±	0.62±	1.12±	2.0±	3.5±	8.0±	0.43±	10,000pcs	Paper
	0.05	0.1	0.03	0.03	0.05	0.05	0.1	0.03		

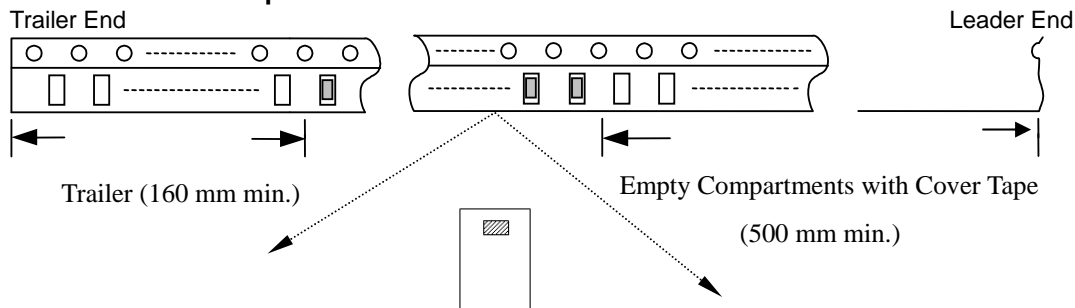
❖Reel Dimensions (Unit: mm)



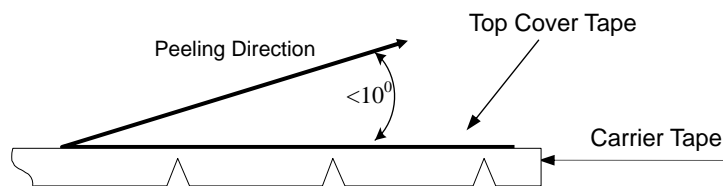
Label: Customer's Name,
ACX P/N, Q'ty, Date,
ACX Corp.

Type	A	B
1005	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 ± 10 mm/min .

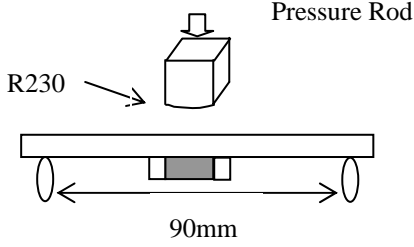
❖ **Storage Conditions**

- (1) Temperature: 5 ~35°C, relative humidity (RH): 45~75%.
- (2) Non-corrosive environment.

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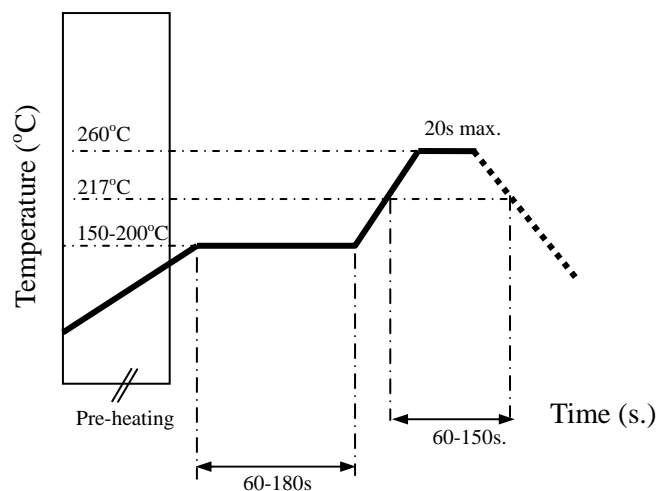
Mechanical & Environmental Characteristics

Item	Requirements	Procedure
Solderability	<ol style="list-style-type: none"> No apparent damage More than 95% of the terminal electrode shall be covered with new solder. 	<ol style="list-style-type: none"> Preheat: $120 \pm 5^\circ\text{C}$ Solder: $245 \pm 5^\circ\text{C}$ for 5 ± 1 sec
Soldering strength (Termination Adhesion)	<ol style="list-style-type: none"> 3N minimum 	<ol style="list-style-type: none"> Solder specimen onto test jig. Apply push force at 0.5mm/s until electrode pads are peeled off or ceramic are broken. Pushing force is applied to longitude direction
Deflection (Substrate Bending)	<ol style="list-style-type: none"> No apparent damage 	<ol style="list-style-type: none"> Solder specimen onto test jig (FR4, 1.6mm) using the recommend soldering profile. Apply a bending force of 2mm deflection 
Heat/Humidity Resistance	<ol style="list-style-type: none"> No apparent damage Fulfill the electrical specification after test 	<ol style="list-style-type: none"> Temperature: $85 \pm 2^\circ\text{C}$ Humidity: 90% ~ 95% RH Duration: 1000 ± 48hrs Recovery: 1-2hrs
Thermal shock (Temperature Cycle)	<ol style="list-style-type: none"> No apparent damage Fulfill the electrical specification after test 	<ol style="list-style-type: none"> One cycle/step 1 : $125 \pm 5^\circ\text{C}$ for 30 min step 2 : $-40 \pm 5^\circ\text{C}$ for 30 min No of cycles : 100 Recovery: 1-2 hrs
Low Temperature Resistance	<ol style="list-style-type: none"> No apparent damage Fulfill the electrical specification after test 	<ol style="list-style-type: none"> Temperature: $-40 \pm 5^\circ\text{C}$ Duration: 500 ± 24hrs Recovery: 1-2hrs

Soldering Conditions

❖ Typical Soldering Profile for Lead-free Process

Reflow Soldering :



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