

# DP 1005 Series

Multilayer Chip Diplexers



## Features

- ❖ Monolithic structure including one low-pass and one band-pass filters with loss pole at adjacent passband.
- ❖ RoHS compliant

## Applications

- ❖ Dual-band / dual-mode 2.4GHz/5GHz WLAN

## Specifications

Part Number	Passband (MHz)	Insertion Loss (dB)	VSWR @ BW	Attenuation (dB)
DP1005-E2455FB_	2400~2500	0.5 max. @25°C 0.7 max. @-40~105°C	2.0 max.	16 min. @4800~6000MHz 15 min. @7200~7500MHz
	5150~5850	1.5 max. @25°C 1.7max @-40~105°C	2.0 max.	27 min. @700~2025MHz 28 min. @2400~2690MHz 10 min. @3500~3700MHz 11 min. @7250~7800MHz 20 min. @10300~11700MHz

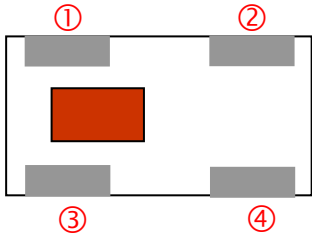
Q'ty/Reel (pcs) : 10000  
 Operating Temperature Range : -40 ~ +105 °C  
 Storage Temperature Range : -40 ~ +85 °C  
 Storage Period : 12 months max.  
 Power Capacity : 3W max.

## Part Number

DP   1005   -   E   2455   FB   □   /LF  
 ①   ②   ③   ④   ⑤   ⑥   ⑦

① Type	DP : Diplexer	② Dimensions ( L × W )	1.0 × 0.5 mm
③ Material Code	E	④ Frequency Range	2455=2400MHz /5500MHz
⑤ Specification Code	FB	⑥ Packaging	T: Tape & Reel B: Bulk
⑦ Soldering	/LF=lead-free		

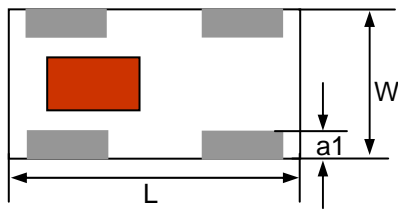
## Terminal Configuration



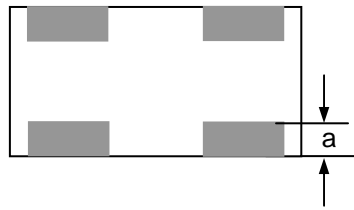
No.	Terminal Name	No.	Terminal Name
①	Lower Freq. Port	③	Common Port
②	Higher Freq. Port	④	GND

## Dimensions and Recommended PC Board Pattern

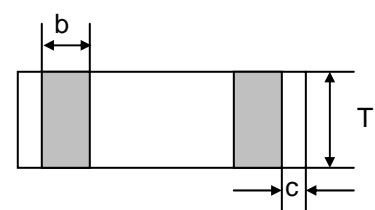
Unit : mm



< Top view >

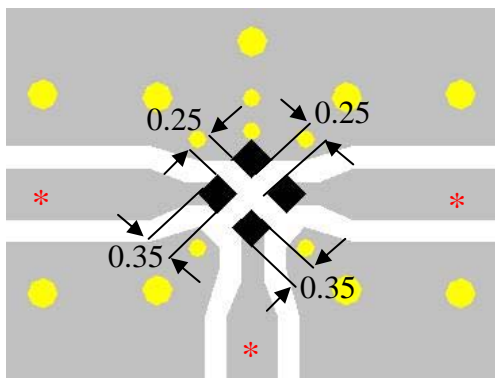





< Bottom view >



< Side view >

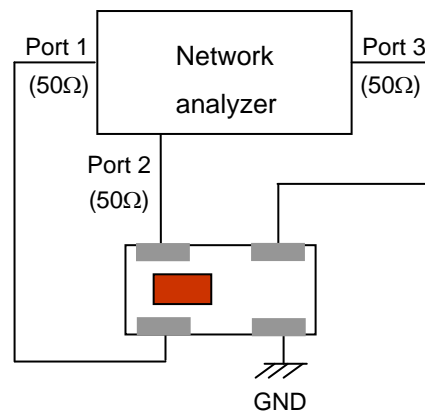
Mark	L	W	T	a1	a	b	c
Dimensions	1.0 ± 0.1	0.5 ± 0.1	0.45 max.	0.1 +0.1/-0.05	0.14 +0.1/-0.05	0.25 +0.1/-0.05	0.1 +0.1/-0.05



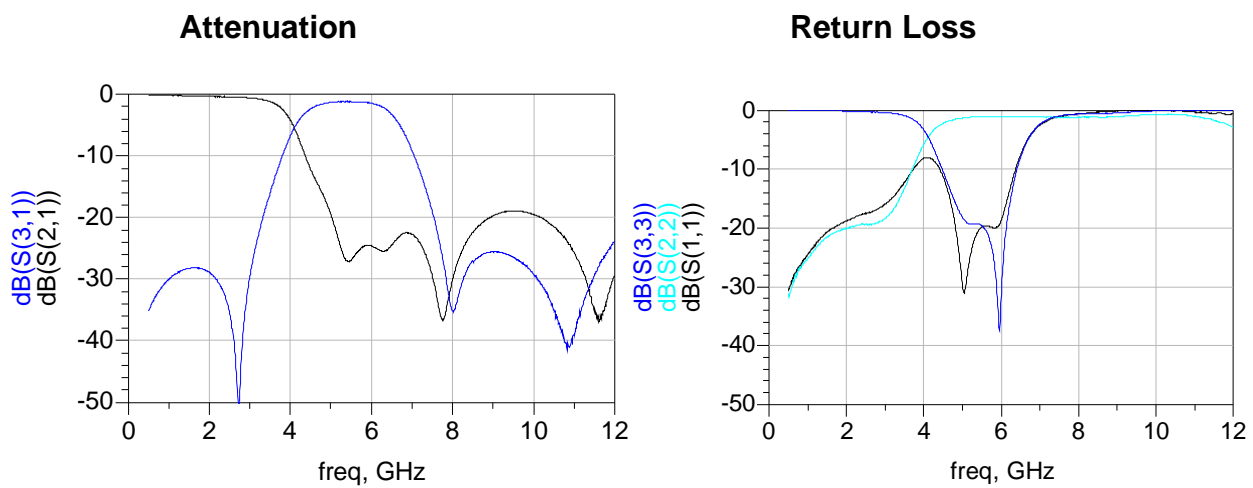
-  Solder Resist
-  Land
-  Through-hole ( $\phi$  0.2 and 0.35)

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

## Measuring Diagram



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

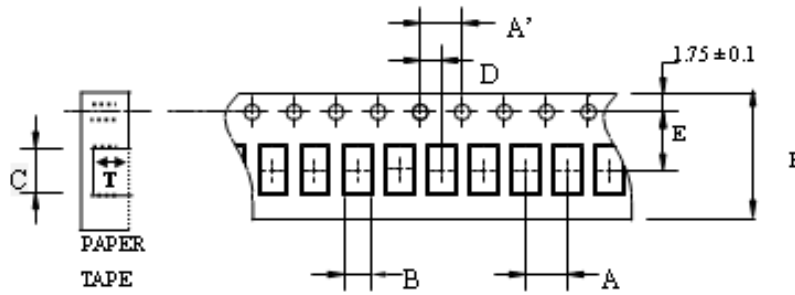


## Notes

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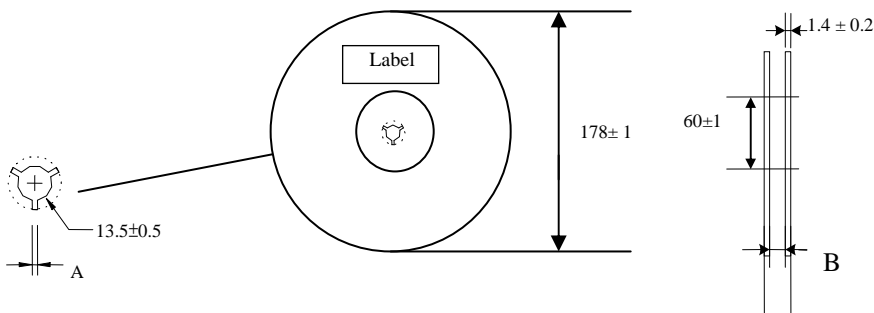
## Taping Specifications

### ❖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±	0.45±	10,000pcs	Paper
	0.05	0.1	0.03	0.03	0.05	0.05	0.1	0.03		

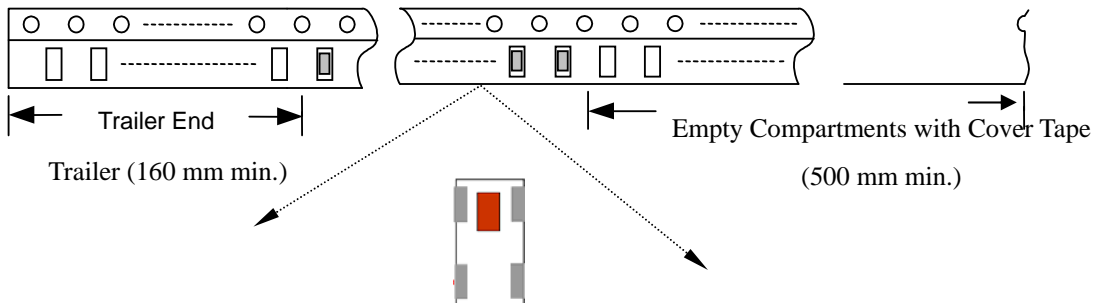
### ❖Reel Dimensions (Unit: mm)



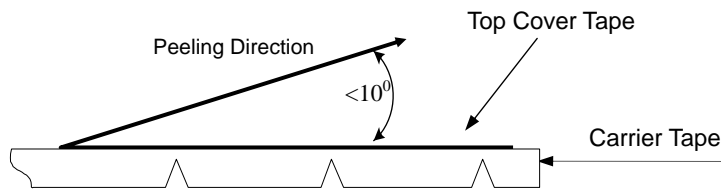
Label: Customer's Name,  
ACX P/N, Q'ty, Date,  
ACX Corp.

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  $300 \pm 10$  mm/min .

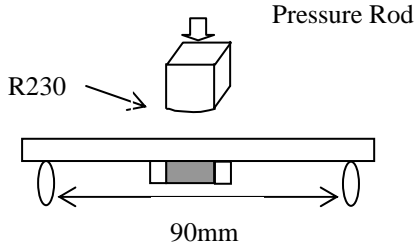
❖ Storage Conditions

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

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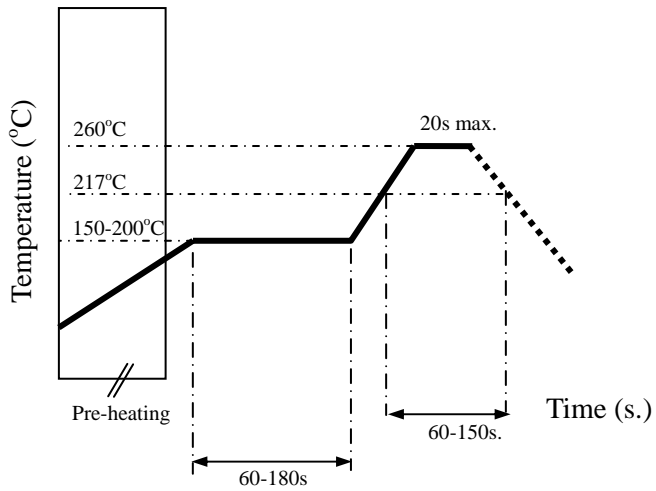
## Mechanical & Environmental Characteristics

Item	Requirements	Procedure
Solderability	<ol style="list-style-type: none"> <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>3N 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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