

# DP 1608 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) | Passband VSWR | Attenuation (dB)                                                                    |
|-------------------------|----------------|---------------------|---------------|-------------------------------------------------------------------------------------|
| <b>DP1608-A2455ATA0</b> | 2400~2500      | 0.45 max.           | 2.0 max.      | 21 min. @ 4800 ~ 5000 MHz<br>23 min. @ 5000 ~ 5950 MHz<br>25 min. @ 7200 ~ 7500 MHz |
|                         | 4900~5950      | 0.60 max.           | 2.0 max.      | 27 min. @ 824 ~ 2170 MHz<br>32 min. @ 2400 ~ 2500 MHz<br>26 min. @ 9800 ~ 11900 MHz |

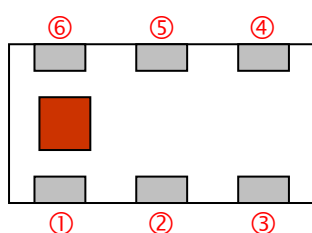
Q'ty/Reel (pcs) : 4000  
 Operating Temperature Range : -40 ~ +85 °C  
 Storage Temperature Range : -40 ~ +85 °C  
 Storage Period : 12 months max.  
 Power Capacity : 2W max.

### Part Number

**DP**   **1608**   **-**   **A**   **2455**   **ATA0**   **□**   **/LF**  
 ①   ②   ③   ④   ⑤   ⑥   ⑦

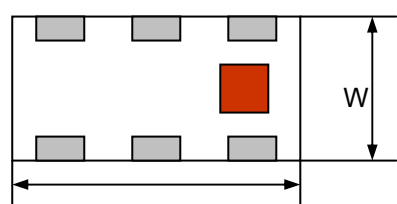
|                      |               |                        |                           |
|----------------------|---------------|------------------------|---------------------------|
| ① Type               | DP : Diplexer | ② Dimensions ( L × W ) | 1.6 × 0.8 mm              |
| ③ Material Code      | A             | ④ Frequency Range      | 2455=2400MHz /5500MHz     |
| ⑤ Specification Code | ATA0          | ⑥ Packaging            | T: Tape & Reel<br>B: Bulk |
| ⑦ Soldering          | /LF=lead-free |                        |                           |

## Terminal Configuration

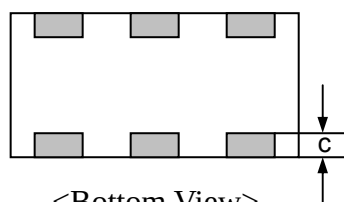


| No. | Terminal Name | No. | Terminal Name     |
|-----|---------------|-----|-------------------|
| ①   | GND           | ④   | Higher Freq. Port |
| ②   | Common Port   | ⑤   | GND               |
| ③   | GND           | ⑥   | Lower Freq. Port  |

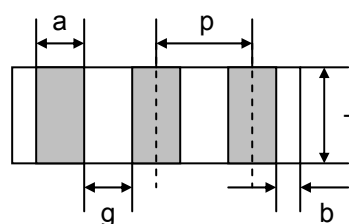
## Dimensions and Recommended PC Board Pattern



<Top View>



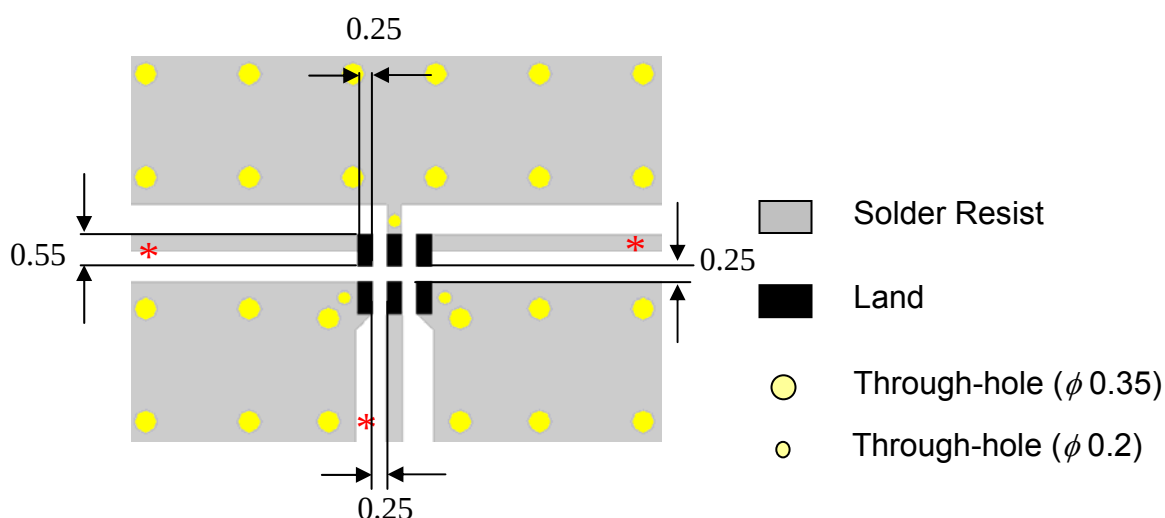
<Bottom View>



<Side View>

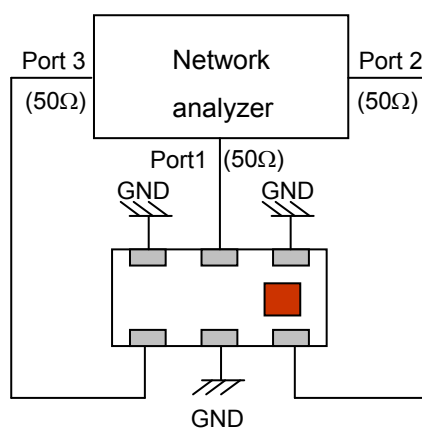
Unit : mm

| Mark       | L       | W       | T       | a       | b                 | c        | g       | p        |
|------------|---------|---------|---------|---------|-------------------|----------|---------|----------|
| Dimensions | 1.6±0.1 | 0.8±0.1 | 0.6±0.1 | 0.2±0.1 | 0.2+0.1<br>/-0.15 | 0.15±0.1 | 0.3±0.1 | 0.5±0.05 |



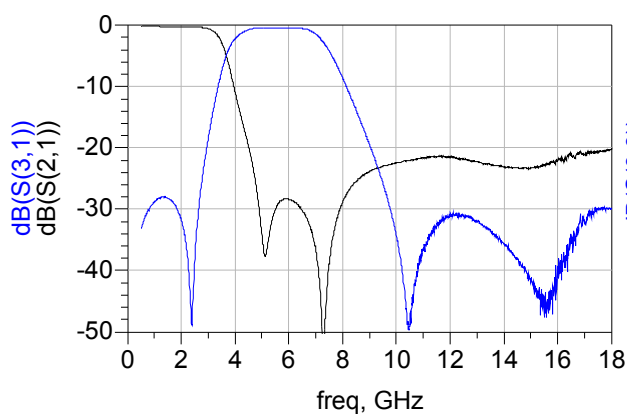
\* Line width should be designed to match 50ohm characteristic impedance, depending on PCB material and thickness.

## Measuring Diagram

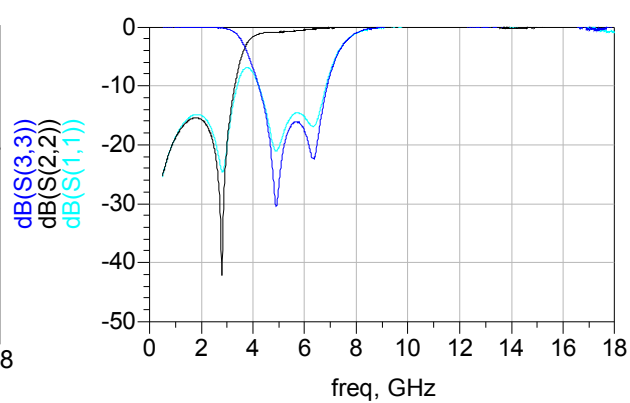


## Electrical Characteristics (T=25oC)

### Attenuation



### Return Loss

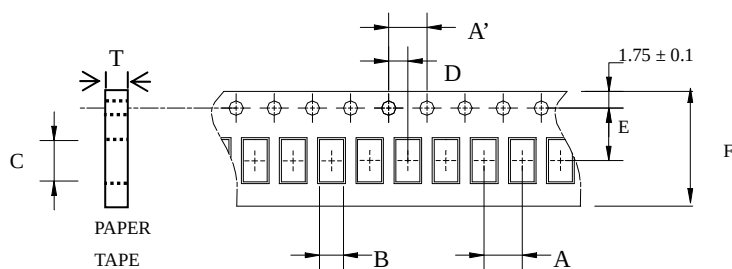


## Notes

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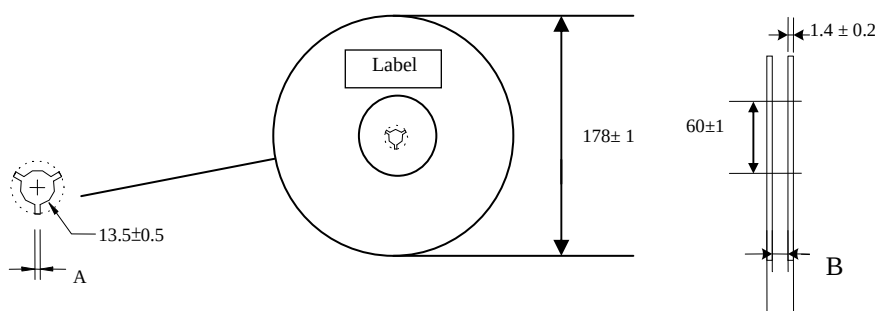
## Taping Specifications

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



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

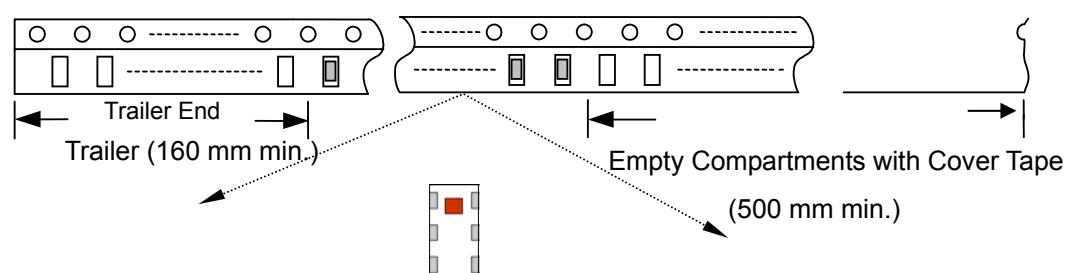
### ❖Reel Dimensions (Unit: mm)



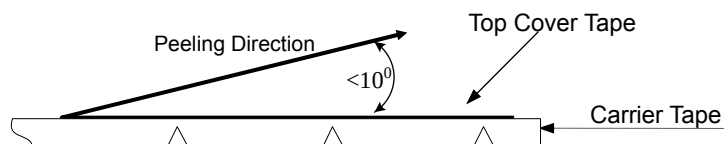
Label: Customer's Name,  
ACX P/N, Q'ty, Date,  
ACX Corp.

| 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 .

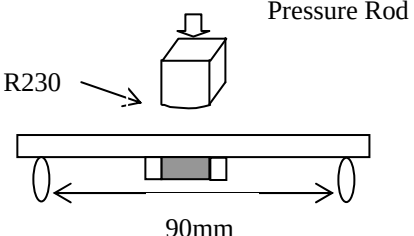
#### ❖ Storage Conditions

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

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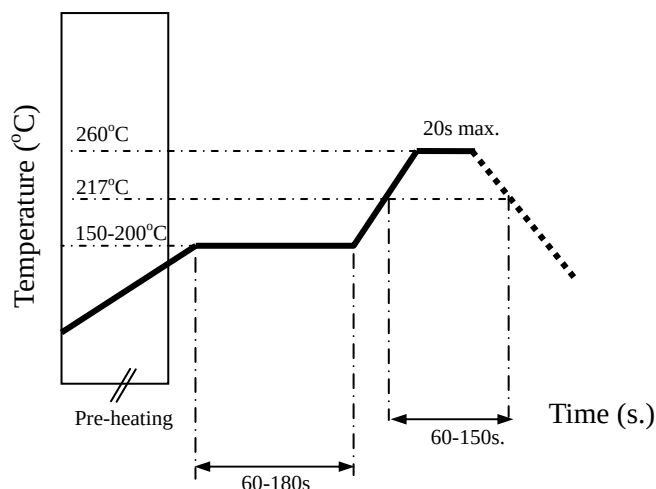
## Mechanical & Environmental Characteristics

| Item                                         | Requirements                                                                                                                                                 | Procedure                                                                                                                                                                                                                                                                                             |
|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Solderability                                | <ol style="list-style-type: none"> <li>1. No apparent damage</li> <li>2. More than 95% of the terminal electrode shall be covered with new solder</li> </ol> | <ol style="list-style-type: none"> <li>1. Preheat: <math>120 \pm 5^{\circ}\text{C}</math></li> <li>2. Solder: <math>245 \pm 5^{\circ}\text{C}</math> for <math>5 \pm 1</math> sec</li> </ol>                                                                                                          |
| Soldering strength<br>(Termination Adhesion) | <ol style="list-style-type: none"> <li>1. 1kg minimum</li> </ol>                                                                                             | <ol style="list-style-type: none"> <li>1. Solder specimen onto test jig.</li> <li>2. 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<br>(Substrate Bending)            | <ol style="list-style-type: none"> <li>1. No apparent damage</li> </ol>                                                                                      | <ol style="list-style-type: none"> <li>1. Solder specimen onto test jig (FR4, 0.8mm) using the recommend soldering profile.</li> <li>2. Apply a bending force of 2mm deflection. (Chip length&lt;4.5mm)</li> </ol>  |
| Heat/Humidity Resistance                     | <ol style="list-style-type: none"> <li>1. No apparent damage</li> <li>2. Fulfill the electrical specification after test</li> </ol>                          | <ol style="list-style-type: none"> <li>1. Temperature: <math>85 \pm 2^{\circ}\text{C}</math></li> <li>2. Humidity: 90% ~ 95% RH</li> <li>3. Duration: <math>1000 \pm 48</math>hrs</li> <li>4. Recovery: 1-2hrs</li> </ol>                                                                             |
| Thermal shock<br>(Temperature Cycle)         | <ol style="list-style-type: none"> <li>1. No apparent damage</li> <li>2. Fulfill the electrical specification after test</li> </ol>                          | <ol style="list-style-type: none"> <li>1. One cycle/step 1 : <math>125 \pm 5^{\circ}\text{C}</math> for 30 min<br/>step 2 : <math>-40 \pm 5^{\circ}\text{C}</math> for 30 min</li> <li>2. No of cycles : 100</li> <li>3. Recovery: 1-2 hrs</li> </ol>                                                 |
| Low Temperature Resistance                   | <ol style="list-style-type: none"> <li>1. No apparent damage</li> <li>2. Fulfill the electrical specification after test</li> </ol>                          | <ol style="list-style-type: none"> <li>1. Temperature: <math>-40 \pm 5^{\circ}\text{C}</math></li> <li>2. Duration: <math>500 \pm 24</math>hrs</li> <li>3. Recovery: 1-2hrs</li> </ol>                                                                                                                |

## Soldering Conditions

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

Reflow Soldering :



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