

# BF 4532 Series

Multilayer Chip Band-Pass Filters

## Features

- ❖ Ultra small SMD type with low loss at pass-band and high attenuation at stop-band.
- ❖ RoHS compliant.



## Applications

- ❖ 4.4~5.0GHz wireless communication systems.

## Specifications

| Part Number            | Freq. Range (MHz) | Insertion Loss @ BW(dB) | VSWR @ BW | Frequency (MHz) | Attenuation (dB) |
|------------------------|-------------------|-------------------------|-----------|-----------------|------------------|
| <b>BF4532-R4R7DAQ_</b> | 4400 ~ 5000       | 3.0 max.                | 2.0 max.  | 5170 ~ 5850     | 40 min.          |

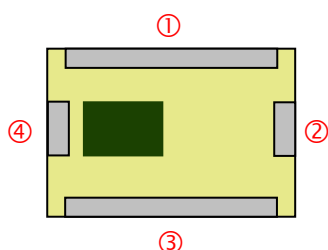
Q'ty/Reel (pcs) : 1000  
 Operating Temperature Range : -40 ~ +85 °C  
 Storage Temperature Range : -40 ~ +85 °C  
 Storage Period : 12 months max.  
 Power Capacity : 3W max.

## Part Number

**BF**   **4532**   -   **R**   **4R7**   **DAQ**   **□**   **/LF**  
 ①   ②   ③   ④   ⑤   ⑥   ⑦

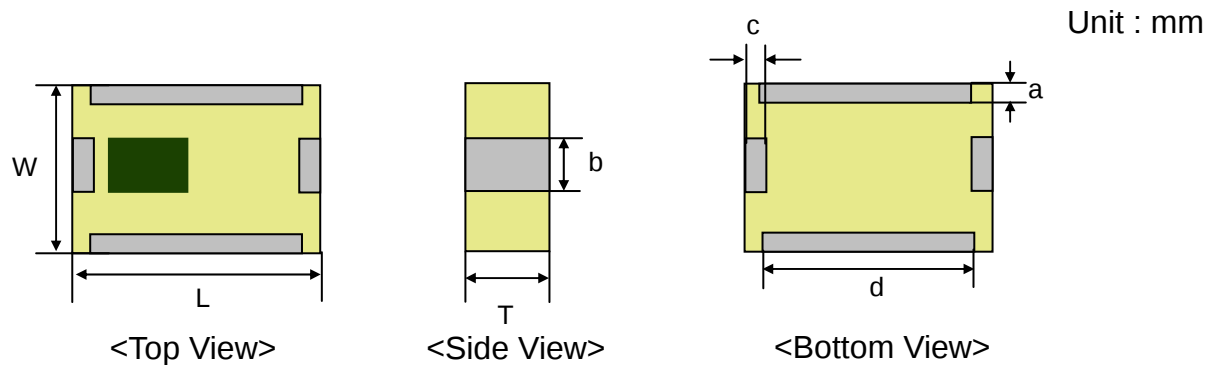
|                      |                       |                        |                           |
|----------------------|-----------------------|------------------------|---------------------------|
| ① Type               | BF : Band-Pass Filter | ② Dimensions ( L × W ) | 4.5 × 3.2 mm              |
| ③ Material Code      | R                     | ④ Frequency Range      | 4R7=4700MHz               |
| ⑤ Specification Code | DAQ                   | ⑥ Packaging            | T: Tape & Reel<br>B: Bulk |
| ⑦ Soldering          | /LF=lead-free         |                        |                           |

## Terminal Configuration

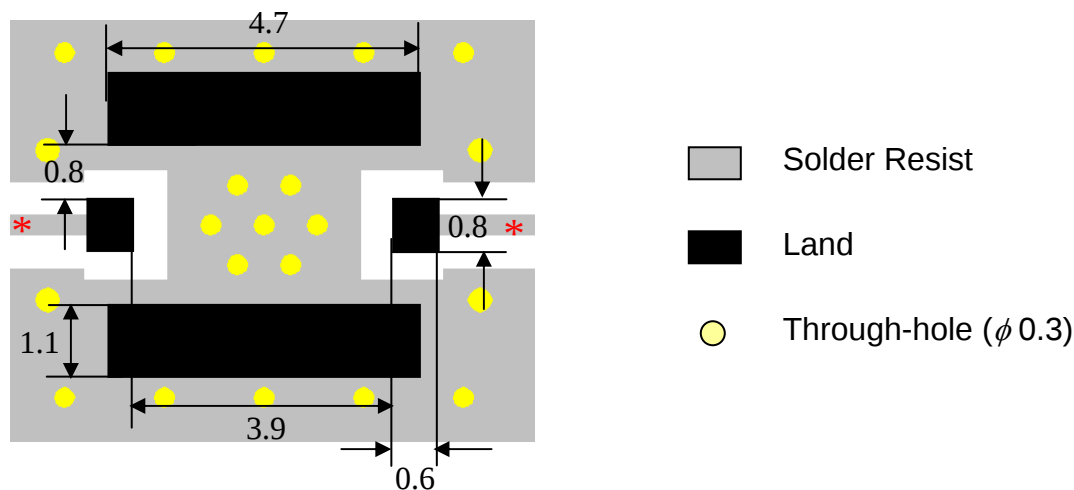


| No. | Terminal Name | No. | Terminal Name |
|-----|---------------|-----|---------------|
| ①   | GND           | ③   | GND           |
| ②   | OUT/IN        | ④   | IN/OUT        |

## Dimensions and Recommended PC Board Pattern

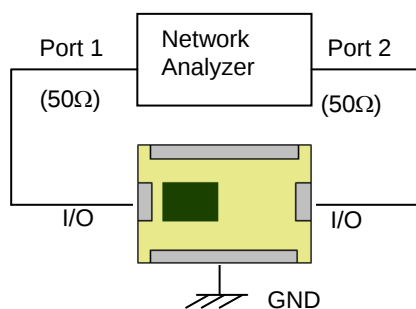


| Mark       | L         | W         | T        | a         | b         | c          | d          |
|------------|-----------|-----------|----------|-----------|-----------|------------|------------|
| Dimensions | 4.5 ± 0.2 | 3.2 ± 0.2 | 2.2 max. | 0.3 ± 0.2 | 0.8 ± 0.2 | 0.3 ± 0.15 | 3.8 ± 0.15 |

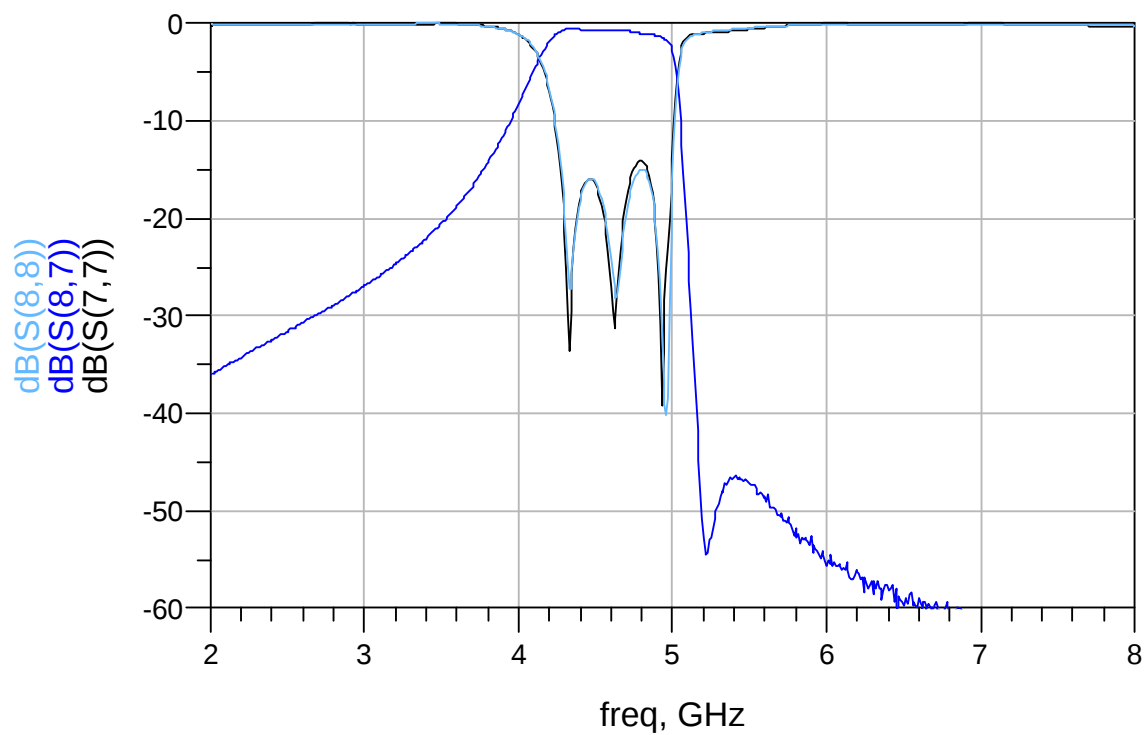


\* Line width should be designed to match 50 $\Omega$  characteristic impedance, depending on PCB material and thickness.

## Measuring Diagram



## Electrical Characteristics (T=25°C)

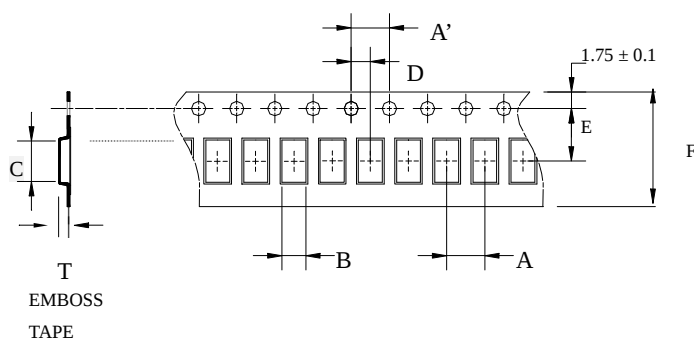


## Notes

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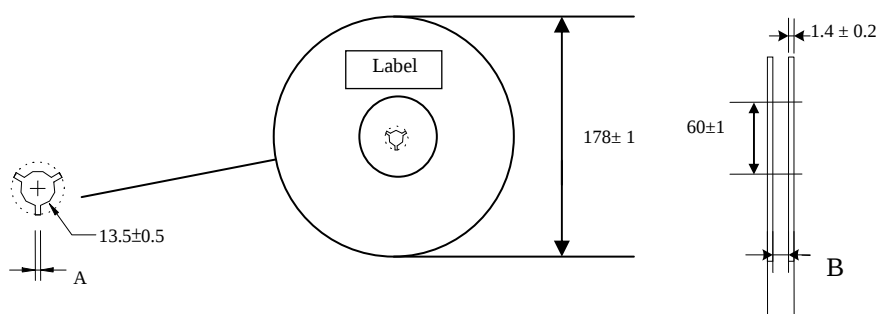
## Taping Specifications

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



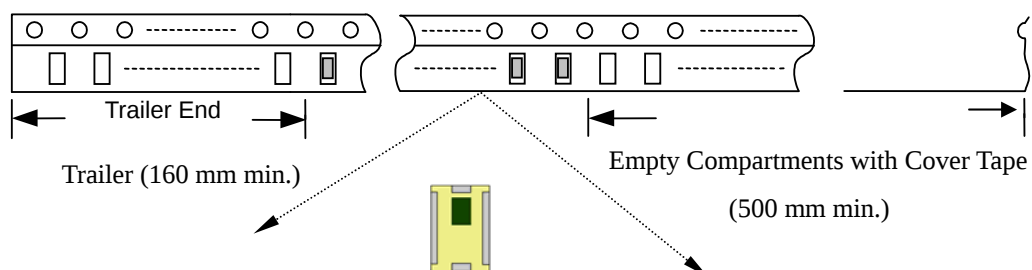
| Type | A            | A'           | B             | C             | D            | E             | F             | T             | Quantity/per reel | Tape material         |
|------|--------------|--------------|---------------|---------------|--------------|---------------|---------------|---------------|-------------------|-----------------------|
| 4532 | 8.0±<br>0.10 | 4.0±<br>0.10 | 3.50±<br>0.10 | 4.90±<br>0.10 | 2.0±<br>0.10 | 5.50±<br>0.10 | 12.0±<br>0.10 | 2.20±<br>0.10 | 1,000pcs          | Plastic<br>(Embossed) |

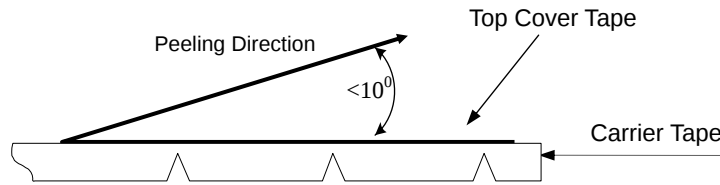
### ❖Reel Dimensions (Unit: mm)



| Type | A       | B        |
|------|---------|----------|
| 4532 | 2.3±0.5 | 17.0±0.5 |

### ❖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 .

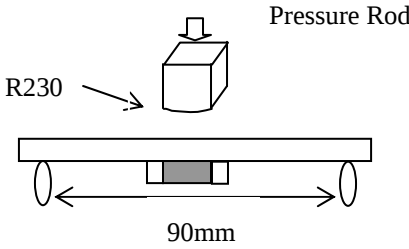
**❖Storage Conditions**

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

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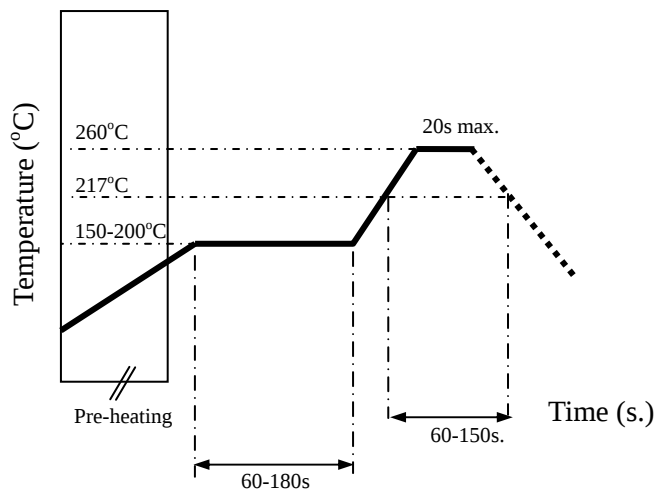
## Mechanical & Environmental Characteristics

| 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<br>(Termination Adhesion) | <ol style="list-style-type: none"> <li>10N 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<br>(Substrate Bending)            | <ol style="list-style-type: none"> <li>No apparent damage</li> </ol>                                                                                   | <ol style="list-style-type: none"> <li>Solder specimen onto test jig (FR4, 1.6mm) using the recommend soldering profile.</li> <li>Apply a bending force of 1 mm 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<br>(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<br/>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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