

# LF 2012 Series

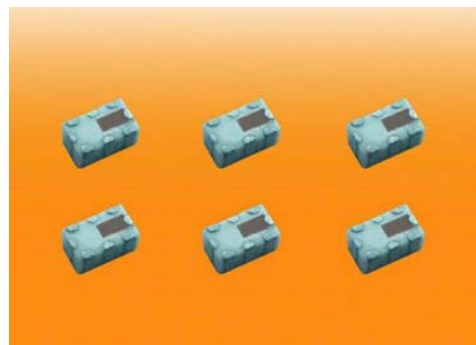
Multilayer Chip Low-Pass Filters

## Features

- ❖ Monolithic structure replacing two inductors and five capacitors.
- ❖ RoHS compliant

## Applications

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



## Specifications

| Part Number            | Frequency Range (MHz) | Insertion Loss @ BW (dB) | Attn. I @ 2 x f <sub>o</sub> (dB) | Attn. II @ 3 x f <sub>o</sub> (dB) | VSWR @ BW | Q'ty/ Reel (pcs) |
|------------------------|-----------------------|--------------------------|-----------------------------------|------------------------------------|-----------|------------------|
| <b>LF2012-AR90FAB_</b> | 902~928               | 0.50 max.                | 30 min.                           | 30 min.                            | 1.5 max.  | 4,000            |

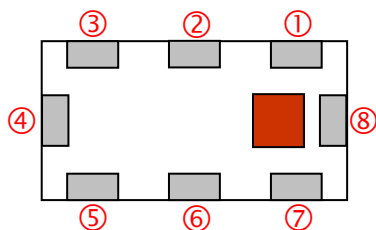
Operating Temperature Range : -40 ~ +85 °C  
 Storage Temperature Range : -40 ~ +85 °C  
 Storage Period : 12 months max.  
 Power Capacity : 3W max.

## Part Number

**LF**   **2012**   **- A**   **R90**   **FAB**   **□**   **/LF**  
 ①   ②   ③   ④   ⑤   ⑥   ⑦

|                      |                      |                        |                           |
|----------------------|----------------------|------------------------|---------------------------|
| ① Type               | LF : Low Pass Filter | ② Dimensions ( L x W ) | 2.0 x 1.2 mm              |
| ③ Material Code      | A                    | ④ Frequency Range      | R90=900MHz                |
| ⑤ Specification Code | FAB                  | ⑥ Packaging            | T: Tape & Reel<br>B: Bulk |
| ⑦ Soldering          | /LF=lead-free        |                        |                           |

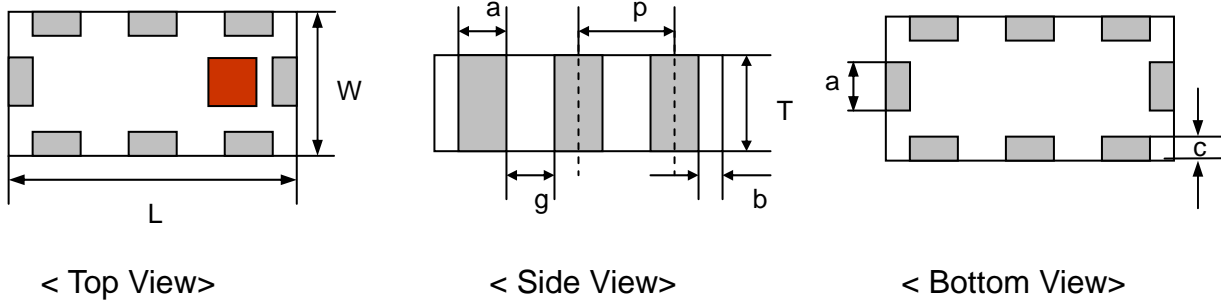
## Terminal Configuration



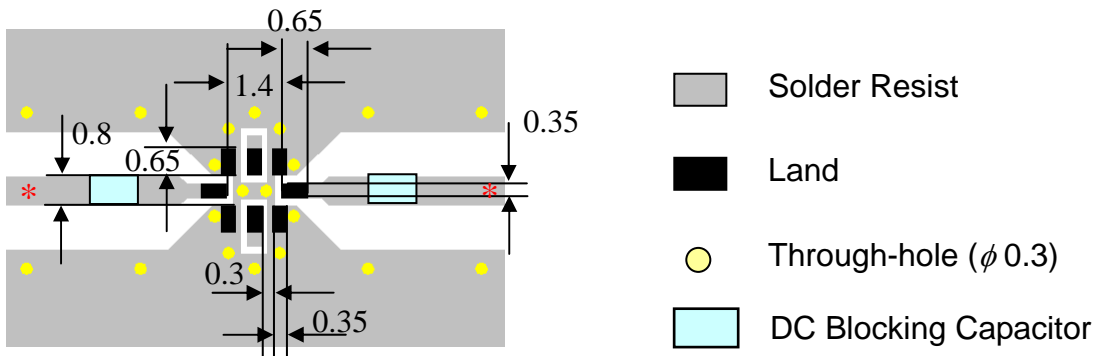
| No. | Terminal Name | No. | Terminal Name |
|-----|---------------|-----|---------------|
| ①   | GND           | ⑤   | GND           |
| ②   | NC            | ⑥   | NC            |
| ③   | GND           | ⑦   | GND           |
| ④   | OUT           | ⑧   | IN            |

## Dimensions and Recommended PC Board Pattern

Unit : mm



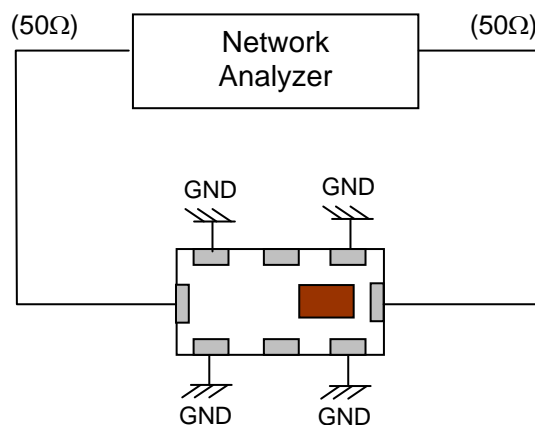
| Mark       | L            | W             | T             | a            | b            | c                | g             | p              |
|------------|--------------|---------------|---------------|--------------|--------------|------------------|---------------|----------------|
| Dimensions | 2.0 ±<br>0.1 | 1.25 ±<br>0.1 | 0.95 ±<br>0.1 | 0.3 ±<br>0.1 | 0.2 ±<br>0.1 | 0.3+0.1<br>/-0.2 | 0.35 ±<br>0.1 | 0.65 ±<br>0.05 |



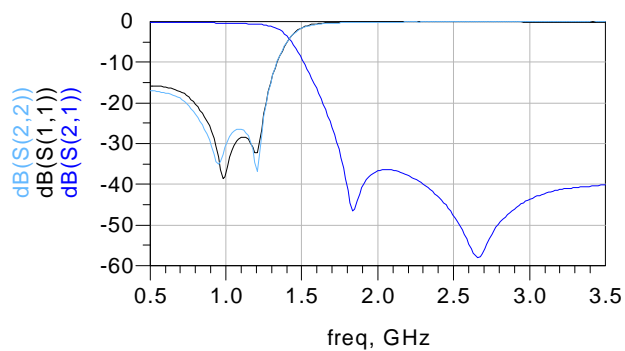
\* Line width should be designed to match 50  $\Omega$  characteristic impedance, depending on PCB material and thickness.

\* DC Blocking capacitor is connected in series at each In/Out Port.

## Measuring Diagram



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

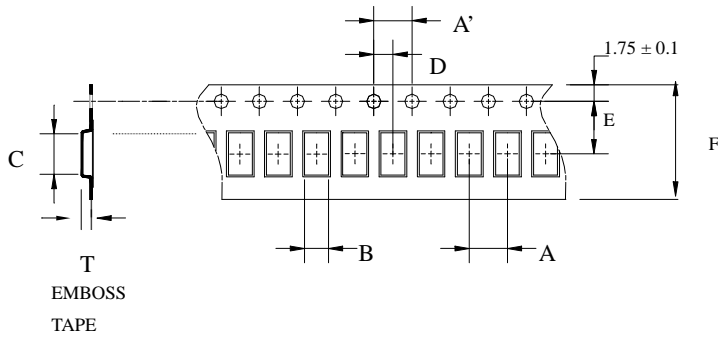


### Notes

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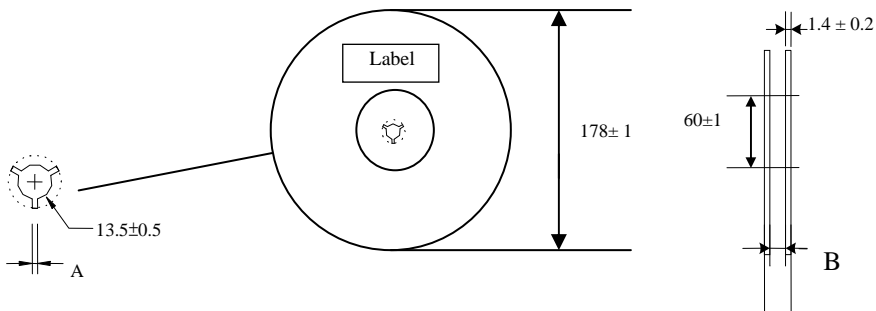
## Taping Specifications

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



| Type | A    | A'   | B     | C     | D    | E    | F    | T     | Quantity/reel | Tape material         |
|------|------|------|-------|-------|------|------|------|-------|---------------|-----------------------|
| 2012 | 4.0± | 4.0± | 1.35± | 2.15± | 2.0± | 3.5± | 8.0± | 1.08± | 4,000pcs      | Plastic<br>(Embossed) |
|      | 0.1  | 0.1  | 0.05  | 0.05  | 0.05 | 0.1  | 0.1  | 0.05  |               |                       |

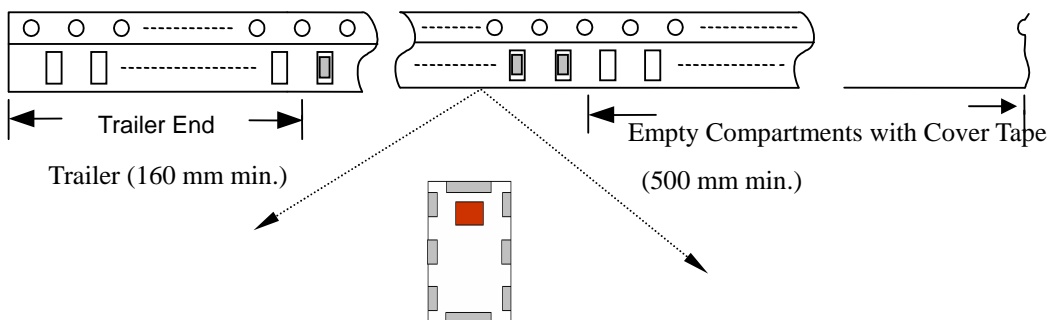
### ❖Reel Dimensions (Unit: mm)



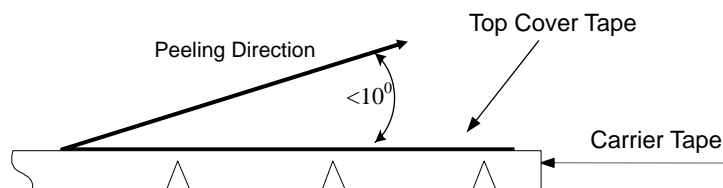
Label: Customer's Name,  
ACX P/N, Q'ty, Date,  
ACX Corp.

| Type | A       | B       |
|------|---------|---------|
| 2012 | 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 .

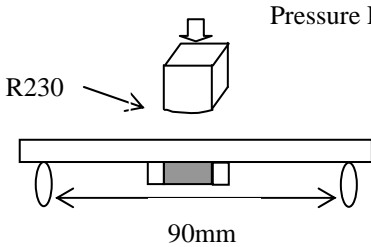
❖ **Storage Conditions**

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

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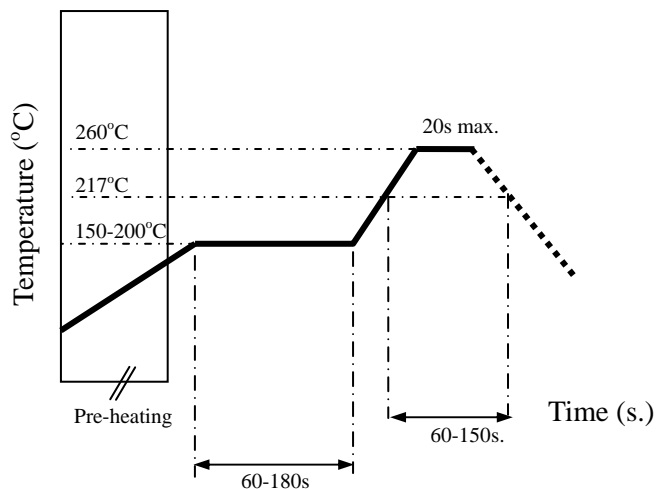
## Mechanical & Environmental Characteristics

| 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<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 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<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 :



## Notes

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