

# FB2012 Series

## Multilayer Chip Band Pass Filter + Balun

### Features

- ❖ Monolithic SMD with small, low-profile and light-weight type.

### Applications

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



### Specifications

Part Number	Freq. Range (MHz)	Unbalanced Impedance (ohm)	Balanced Impedance (ohm)	Insertion Loss @ BW (dB)	VSWR @ BW	Phase Diff. (degree)	Amp. Diff. (dB)	Attenuation (dB)
<b>FB2012-10E5R5E</b>	4900 ~ 5875	50	100	2.0 max.	2.0 max.	180±15	2.0 max.	30 min. @ 3500MHz

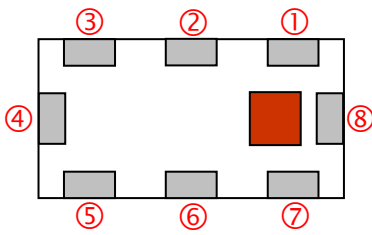
Q'ty/Reel (pcs) : 4,000  
 Operating Temperature Range : -40 ~ +85 °C  
 Storage Temperature Range : -40 ~ +85 °C  
 Storage Period : 12 months max.  
 Power Capacity : 2W max.

### Part Number

**FB**   **2012** -   **10**   **E**   **5R5**   **E**   **□**   **□**  
 ①   ②   ③   ④   ⑤   ⑥   ⑦   ⑧

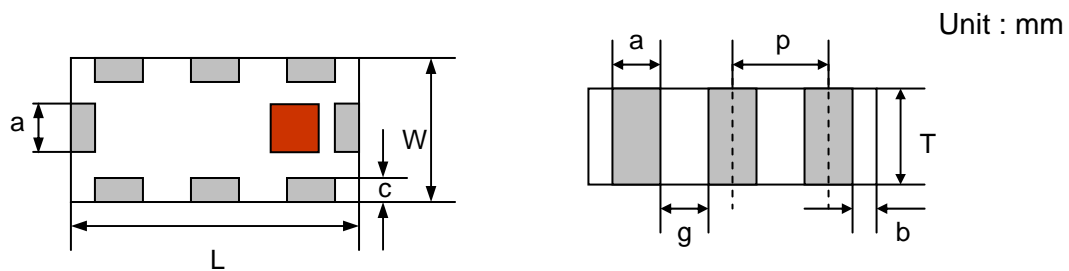
① Type	FB : Band Pass Filter + Balun	② Dimensions ( L x W )	2.0 x 1.2 mm
③ Balanced Impedance	10 : 100 ohm	④ Material Code	E
⑤ Central Frequency	5R5 : 5500MHz	⑥ Specification Code	E
⑦ Packaging	T: Tape & Reel B: Bulk	⑧ Soldering	=lead-containing /LF=lead-free

## Terminal Configuration

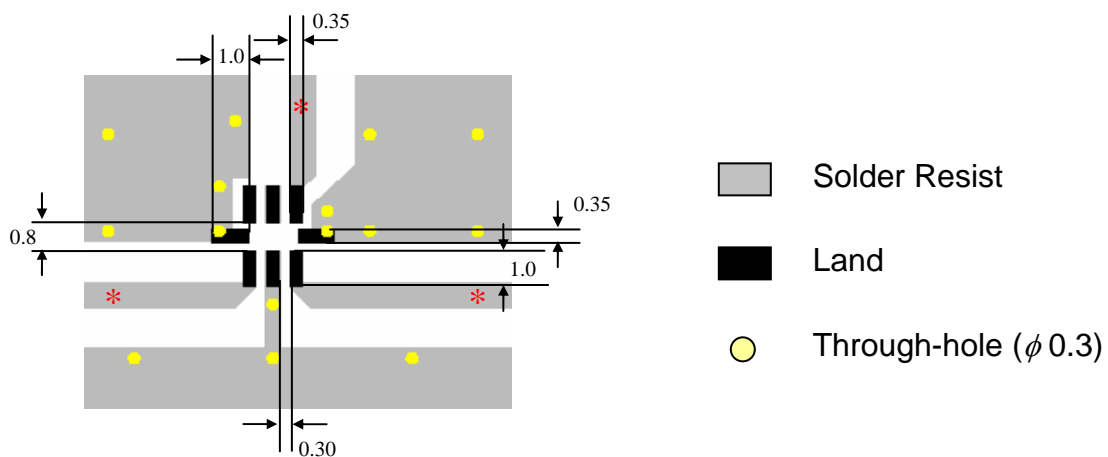


No.	Terminal Name	No.	Terminal Name
①	Unbalanced Port	⑤	Balanced Port
②	NC or DC Feed	⑥	GND
③	NC	⑦	Balanced Port
④	GND	⑧	GND

## Dimensions

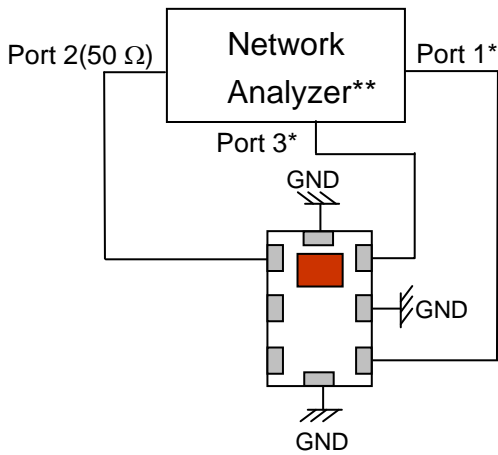


Mark	L	W	T	a	b	c	g	p
Dimensions	2.0 ± 0.2	1.25 ± 0.2	0.95 ± 0.1	0.3 ± 0.1	0.2 ± 0.1	0.3+0.1 /-0.2	0.35 ± 0.1	0.65 ± 0.05



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

## Measuring Diagram



Port 2: Unbalanced Port

Ports 1 and 3: Balanced Port

$$IL = S_{ds21}$$

$$RL = S_{ss11}$$

$$\text{Amp\_balance} = \text{dB}(S(1,2)/S(3,2))$$

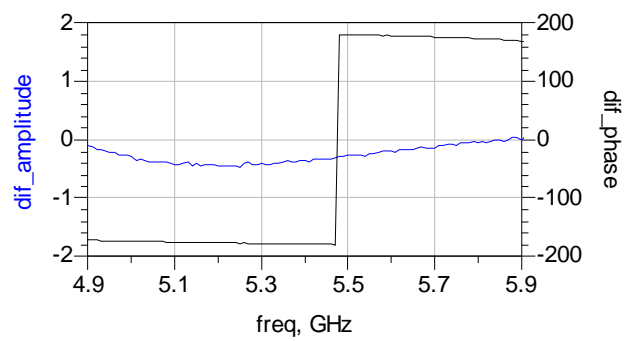
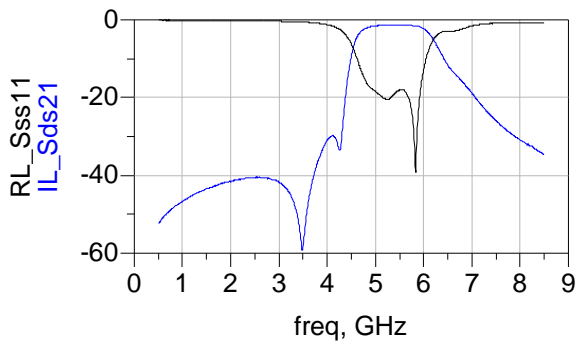
$$\text{Phase\_balance} = \text{Phase}(S(1,2)/S(3,2))$$

\*Impedance for ports 1 and 3

= Conjugate to Balanced Impedance/2

\*\*E5071B from Agilent

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

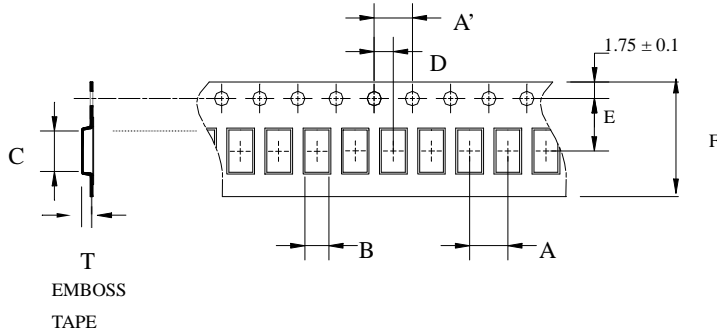


## Notes

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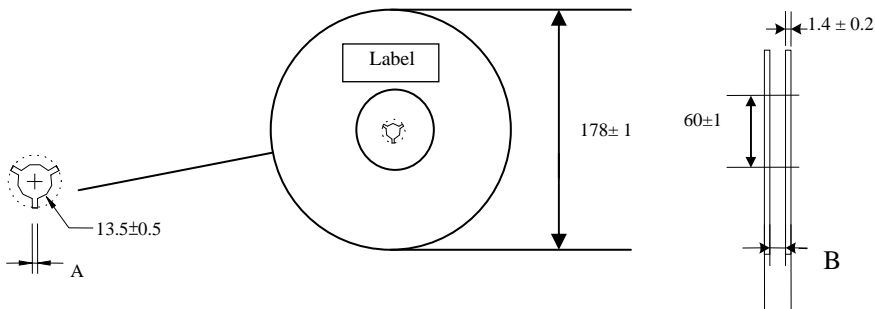
## Taping Specifications

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



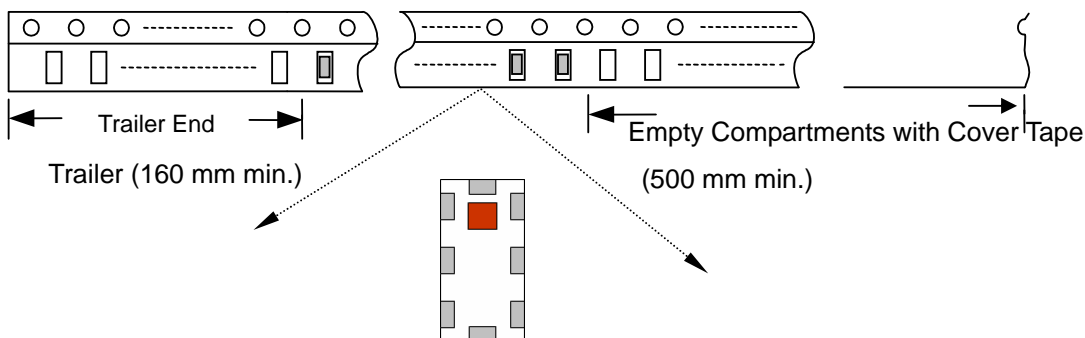
Type	A	A'	B	C	D	E	F	T	Quantity/reel	Tape material
2012	4.0±	4.0±	1.35±	2.15±	2.0±	3.5±	8.0±	1.08±	4,000pcs	Plastic (Embossed)
	0.1	0.1	0.05	0.05	0.05	0.1	0.1	0.05		

### ❖Reel Dimensions (Unit: mm)

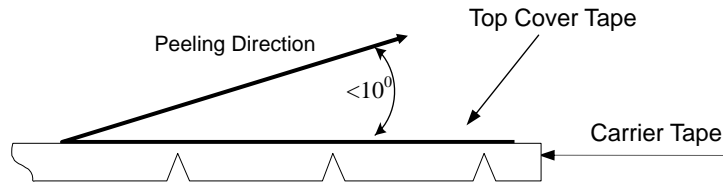


Type	A	B
2012	2.3±0.5	9.0±0.3

### ❖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 .

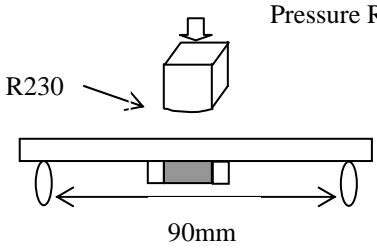
❖ **Storage Conditions**

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

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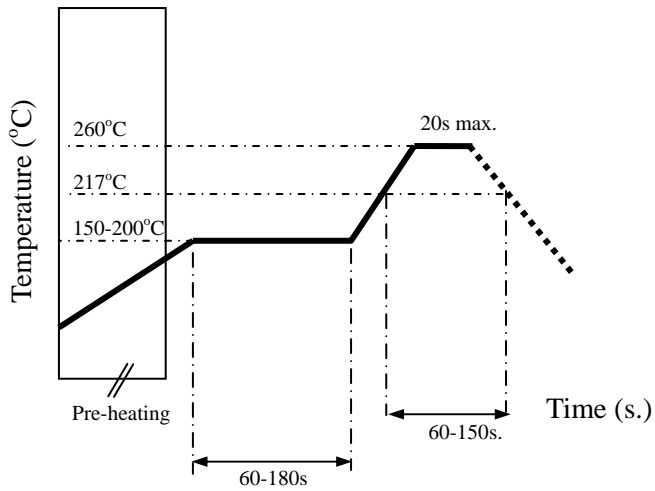
## Mechanical & Environmental Characteristics

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 (Termination Adhesion)	<ol style="list-style-type: none"> <li>1kg 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> </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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