ACX
Advanced Ceramic X

FB1608 Series

Multilayer Chip Band Pass Filter + Balun

Features

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

❖RoHS compliant

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)
FB1608-R8S2R4U_	2400 ~ 2500	50	Conjugate match to Realtek RF chipset	1.2 max.	2.0 max.	180±10	2.0 max.	30 min.@4800~5000MHz

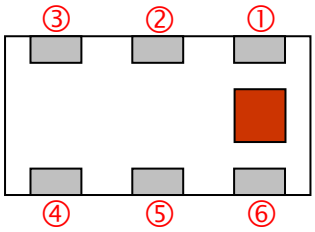
Q'ty/Reel (pcs) : 4000
Operating Temperature Range : -40 ~ +85 °C
Storage Temperature Range : -40 ~ +85 °C
Storage Period : 12 months max.
Power Capacity : 2W max.

Part Number

FB	1608 -	R8S	2R4	U	□	/LF
①	②	③	④	⑤	⑥	⑦

① Type	FB : Band Pass Filter + Balun	② Dimensions (L × W)	1.6 × 0.8 mm
③ Balanced Impedance	R8S : Conjugate match to Realtek RF chipset	④ Central Frequency	2R4 : 2450MHz
⑤ Specification Code	U	⑥ Packaging	T: Tape & Reel B: Bulk
⑦ Soldering	/LF=lead-free		

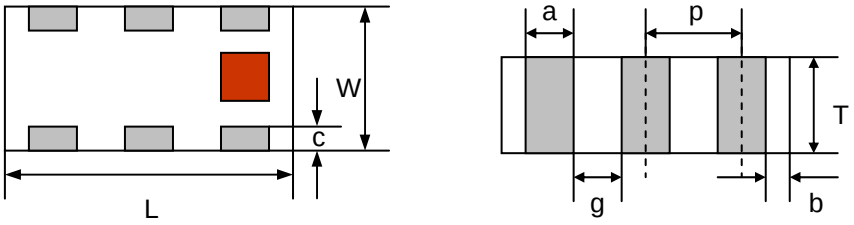
Terminal Configuration



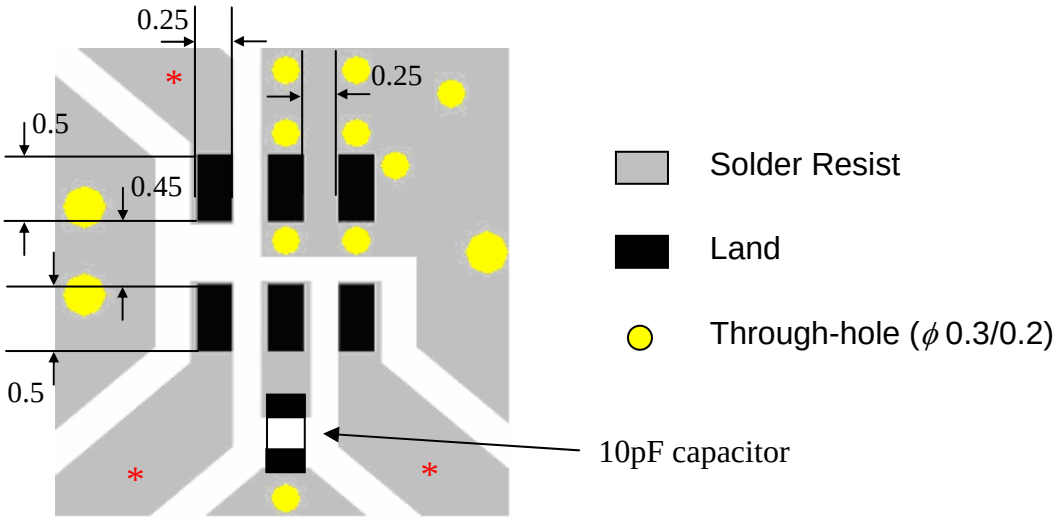
No.	Terminal Name	No.	Terminal Name
①	GND	④	Balanced Port (OUT2)
②	GND	⑤	DC feed + RF GND
③	Balanced Port (OUT1)	⑥	Unbalanced Port (IN)

Dimensions

Unit : mm

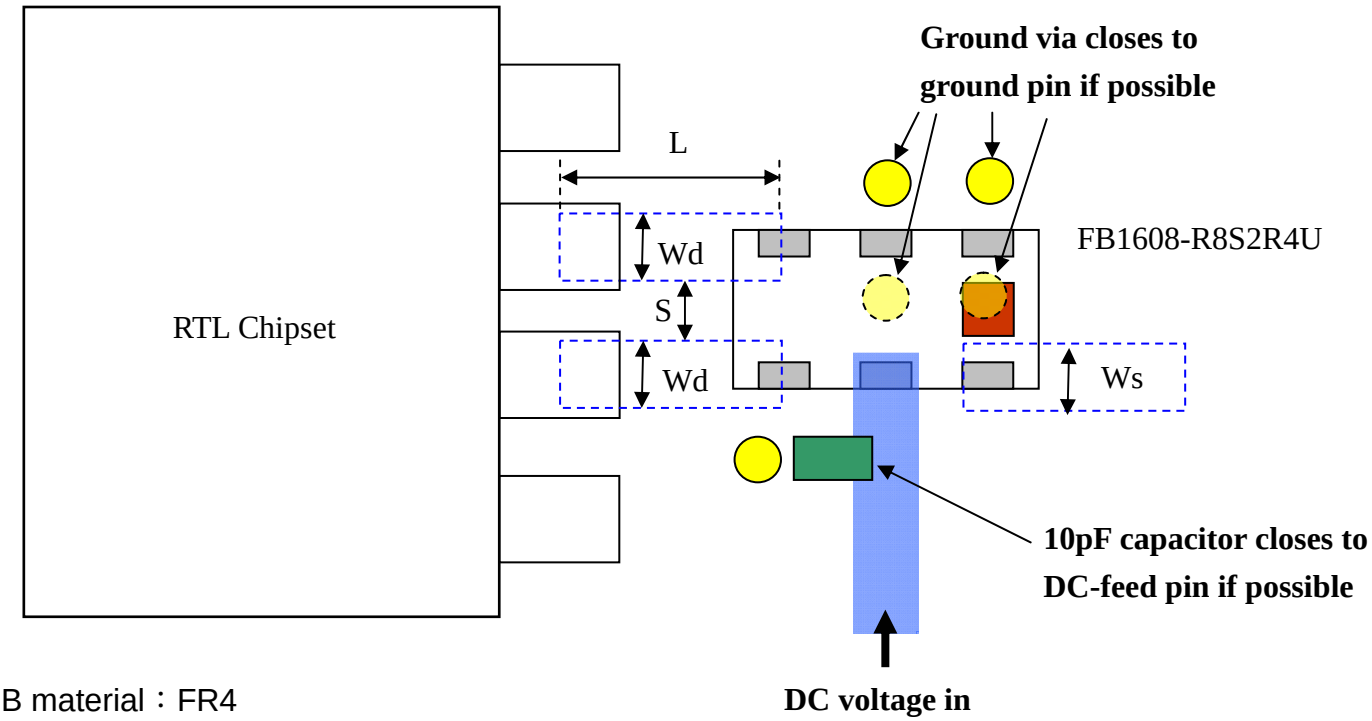


Mark	L	W	T	a	b	c	g	p
Dimensions	1.6 ± 0.1	0.8 ± 0.1	0.6 ± 0.1	0.2 ± 0.1	0.2+0.1 /-0.15	0.15 ± 0.1	0.30 ± 0.1	0.50 ± 0.05



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

Recommended PCB Layout



PCB material：FR4

Distance from the top layer to GND layer is ~ 6mil

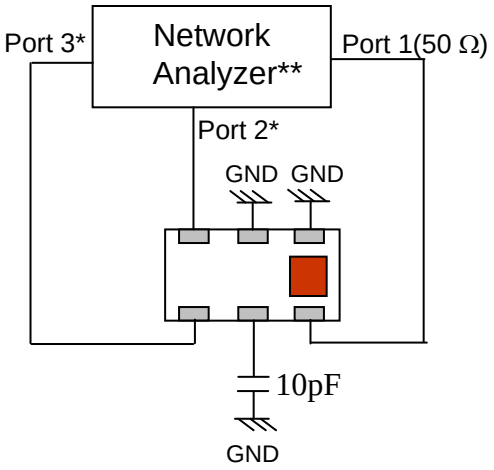
L = 40mil (pad center to pad center)

S = 8mil (edge to edge)

Wd is recommended as 7mil.

Ws should be designed as the width of 50Ohm transmission line, depending on PCB material and thickness.

Measuring Diagram



Port 1: Unbalanced Port

Ports 2 and 3: Balanced Port

IL=S_{ds21}

RL=S_{ss11} and S_{dd22}

Amp_balance = dB(S(2,1)/S(3,1))

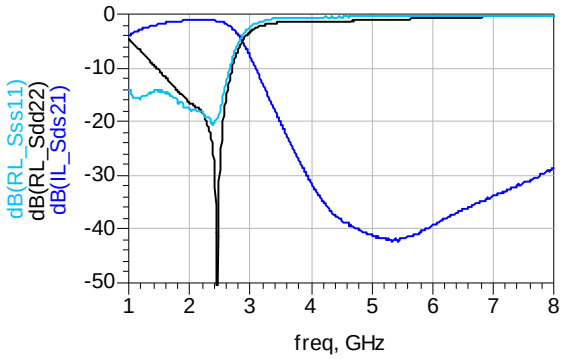
Phase_balance = Phase(S(2,1)/S(3,1))

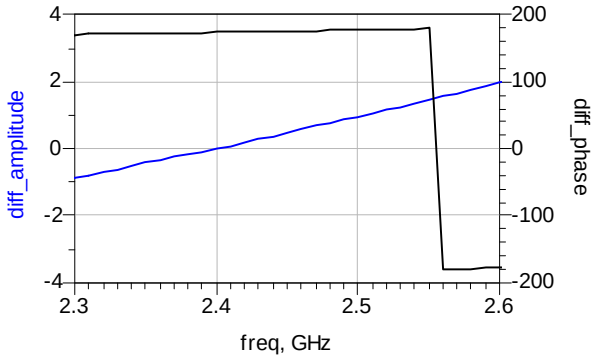
*Impedance for ports 2 and 3

= Conjugate to Balanced Impedance/2

**E5071B from Agilent

Typical Electrical Characteristics (T=25°C)





Notes

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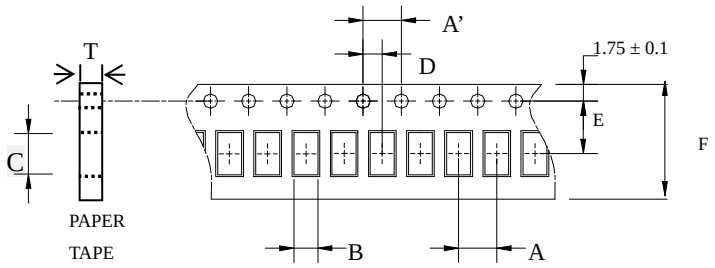
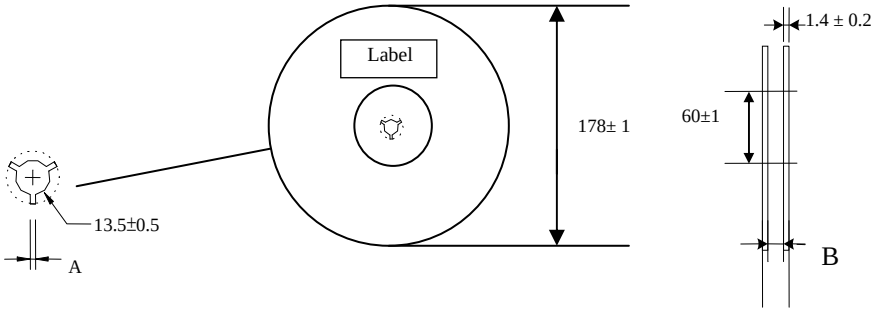
Taping Specifications

❖Tape Dimensions (Unit: mm) & Quantity



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

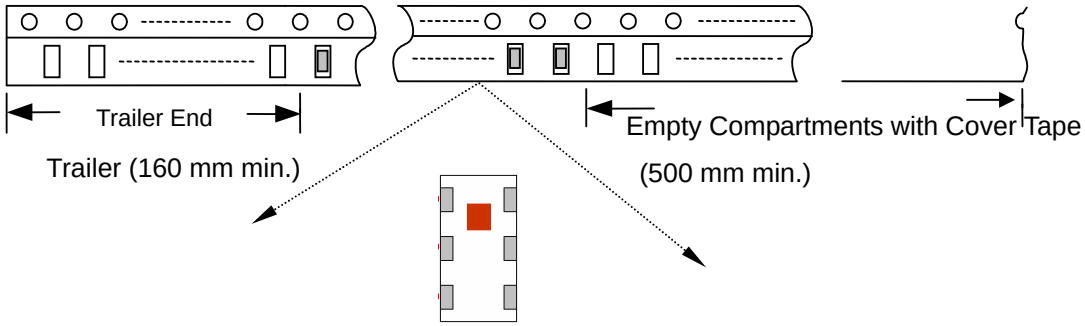
❖Reel Dimensions (Unit: mm)



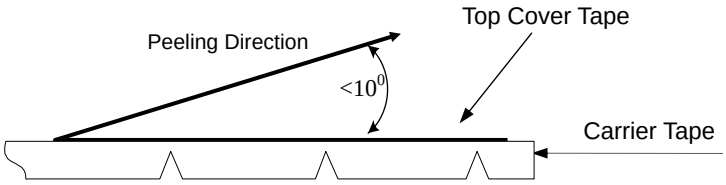
Label: Customer's Name,
ACX P/N, Q'ty, Date,
ACX Corp.

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±10 mm/min .

❖**Storage Conditions**

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

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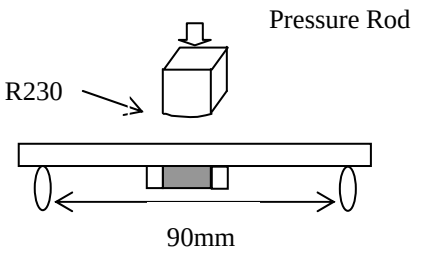
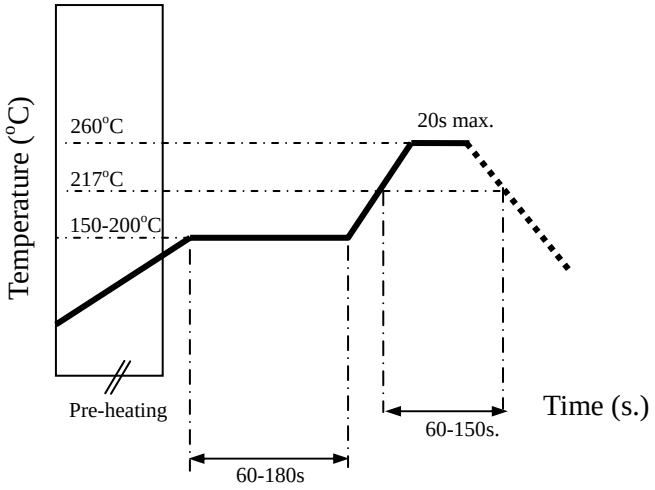
Mechanical & Environmental Characteristics

Item	Requirements	Procedure
Solderability	1. No apparent damage 2. More than 95% of the terminal electrode shall be covered with new solder	1. Preheat: 120± 5 °C 2. Solder: 245± 5°C for 5± 1 sec
Soldering strength (Termination Adhesion)	1. 1kg minimum	1. Solder specimen onto test jig. 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
Deflection (Substrate Bending)	1. No apparent damage	1. Solder specimen onto test jig (FR4, 0.8mm) using the recommend soldering profile. 2. Apply a bending force of 2mm deflection 
Heat/Humidity Resistance	1. No apparent damage 2. Fulfill the electrical specification after test	1. Temperature: 85± 2°C 2. Humidity: 90% ~ 95% RH 3. Duration: 1000±48hrs 4. Recovery: 1-2hrs
Thermal shock (Temperature Cycle)	1. No apparent damage 2. Fulfill the electrical specification after test	1. One cycle/step 1：125 ± 5°C for 30 min step 2：- 40 ± 5°C for 30 min 2. No of cycles：100 3. Recovery:1-2 hrs
Low Temperature Resistance	1. No apparent damage 2. Fulfill the electrical specification after test	1. Temperature: -40°± 5 °C 2. Duration: 500 ±24hrs 3. Recovery: 1-2hrs

Soldering Conditions

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

Reflow Soldering :



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