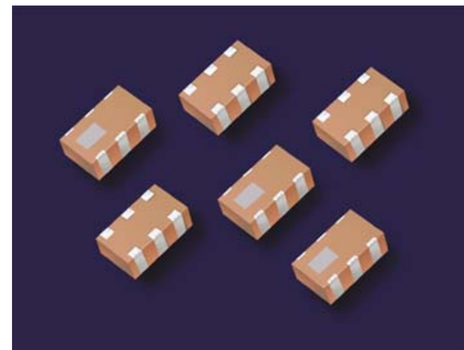
ACX
Advanced Ceramic X

FB2012 Series

Multilayer Chip Band Pass Filter + Balun



Features

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

Applications

❖ 868-915MHz ISM and SRD low power wireless system.

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)
FB2012-T9LR92J_	868~ 915	50	Conjugate match to TI chip	1.6 max. @ 25℃ 1.8 max. @ -40 ~+105℃	2.0 max.	180±8 typ. / 180±15 Max.	1.0 typ./ 2.0 max.	23 min.@ 1736MHz 30 min.@ 1830MHz 55 min.@ 2604~2745MHz 45 min.@ 3472~3660MHz 30 min @ 4340~4575MHz 20 min.@ 5208~5490MHz

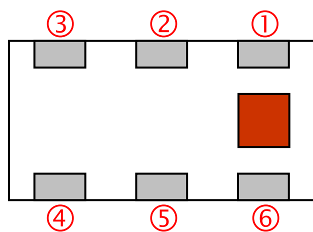
Q'ty/Reel (pcs) : 4,000
Operating Temperature Range : -40 ~ +105 °C
Storage Temperature Range : -40 ~ +105 °C
Storage Period : 12 months max.*
*12 months in vacuum sealed bag and 1 week after opened. Please keep unused parts in vacuum sealed bags.
Solder Paste : SAC 305 type is recommended.
Power Capacity : 1W max.

Part Number

FB ① 2012 - ② T9 ③ L ④ R92 ⑤ J ⑥ □ ⑦ /LF ⑧

① Type	FB : Band Pass Filter + Balun	② Dimensions (L x W)	2.0 x 1.2 mm
③ Balanced Impedance	T9 : Conjugate match to TI chipset	④ Material Code	L
⑤ Central Frequency	R92 :920MHz	⑥ Specification Code	J
⑦ Packaging	T: Tape & Reel B: Bulk	⑧ Soldering	/LF=lead-free

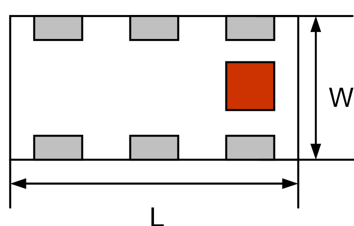
Terminal Configuration



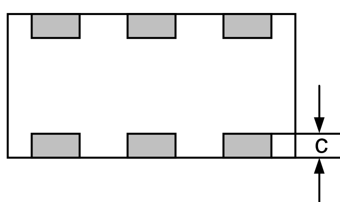
No.	Terminal Name	No.	Terminal Name
①	GND	④	Balanced Port
②	DC feed	⑤	GND
③	Balanced Port	⑥	Unbalanced Port

Dimensions

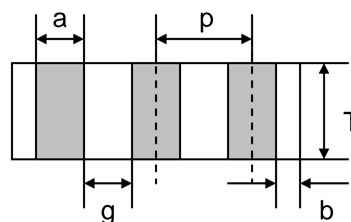
Unit : mm



<Top View>

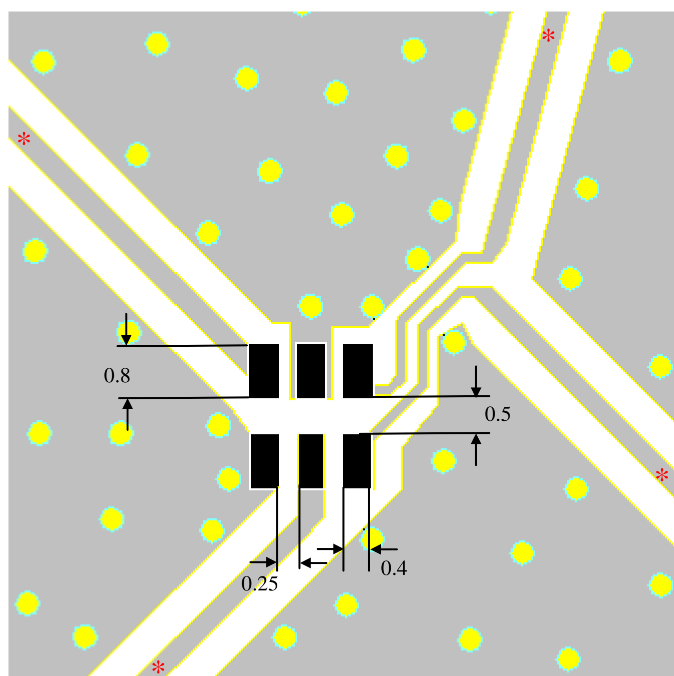


<Bottom View>



<Side View>

Mark	L	W	T	a	b	c	g	p
Dimensions	2.0 ± 0.1	1.25 ± 0.1	0.8 ± 0.1	0.3 ± 0.1	0.2 ± 0.1	0.3+0.1 /-0.2	0.35 ± 0.1	0.65 ± 0.05



Solder Resist

Land

Through-hole (ϕ0.3)

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

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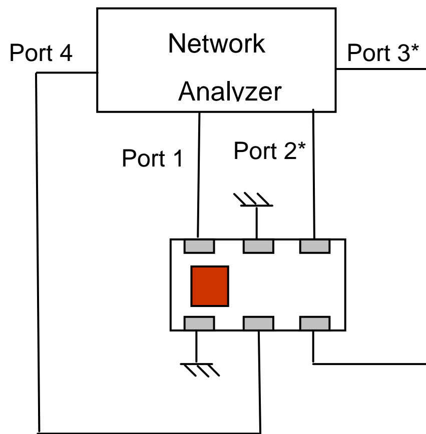
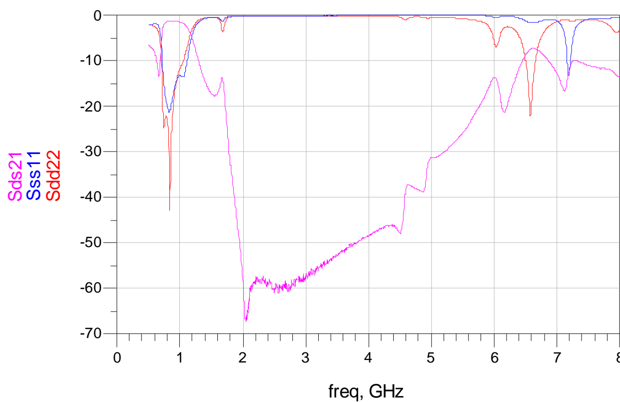
Measuring Diagram

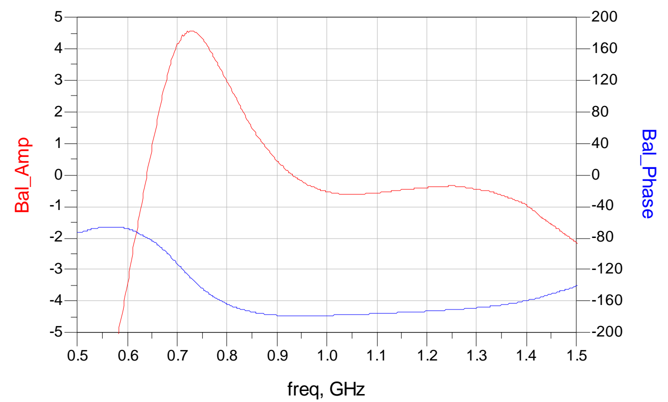


Port 1:Unbalanced Port
Ports 2 and 3: Balanced Port
Port 4 :100pf matching
IL=S_{ds21}
RL=S_{ss11}
Amp_balance = dB(S(2,1)/S(3,1))
Phase_balance = Phase(S(2,1)/S(3,1))

*Impedance for ports 2 and 3
= Conjugate to Balanced Impedance/2

Typical Electrical Characteristics (T=25°C)





Notes

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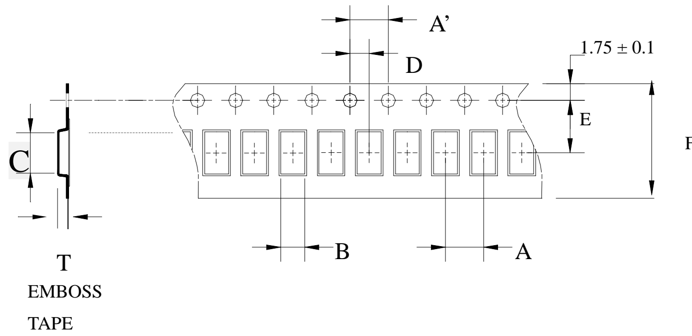
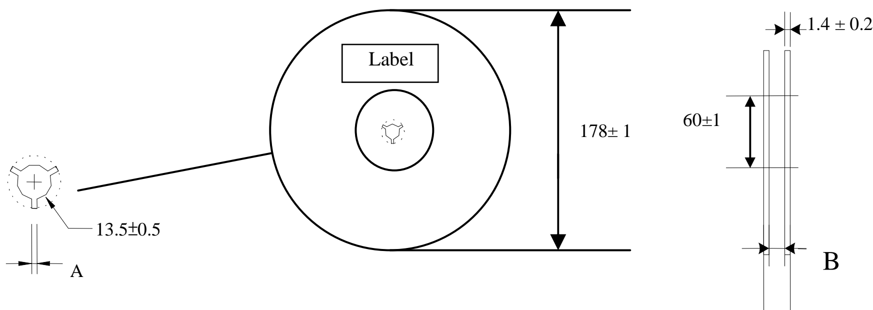
Taping Specifications

❖Tape Dimensions (Unit: mm) & Quantity



Type	A	A’	B	C	D	E	F	T	Quantity/reel	Tape material
2012	4.0± 0.1	4.0± 0.1	1.35± 0.05	2.15± 0.05	2.0± 0.05	3.5± 0.1	8.0± 0.1	1.00± 0.05	4,000pcs	Plastic (Embossed)

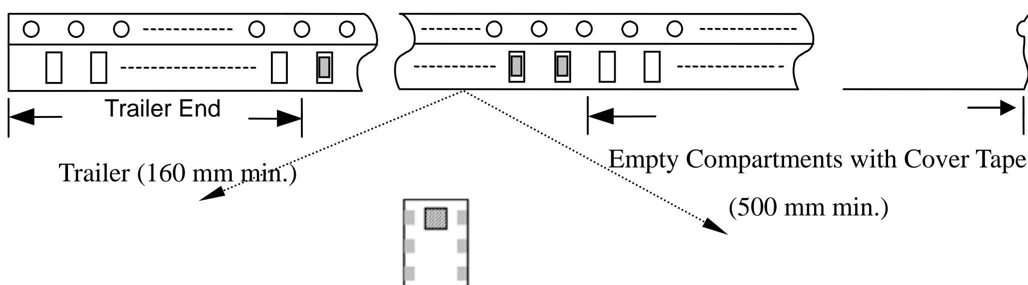
❖Reel Dimensions (Unit: mm)



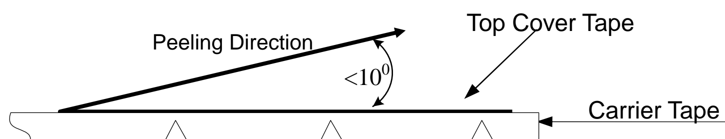
Label: Customer’s Name,
ACX P/N, Q’ty, Date,
ACX Corp.

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±10 mm/min .

❖Storage Conditions

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

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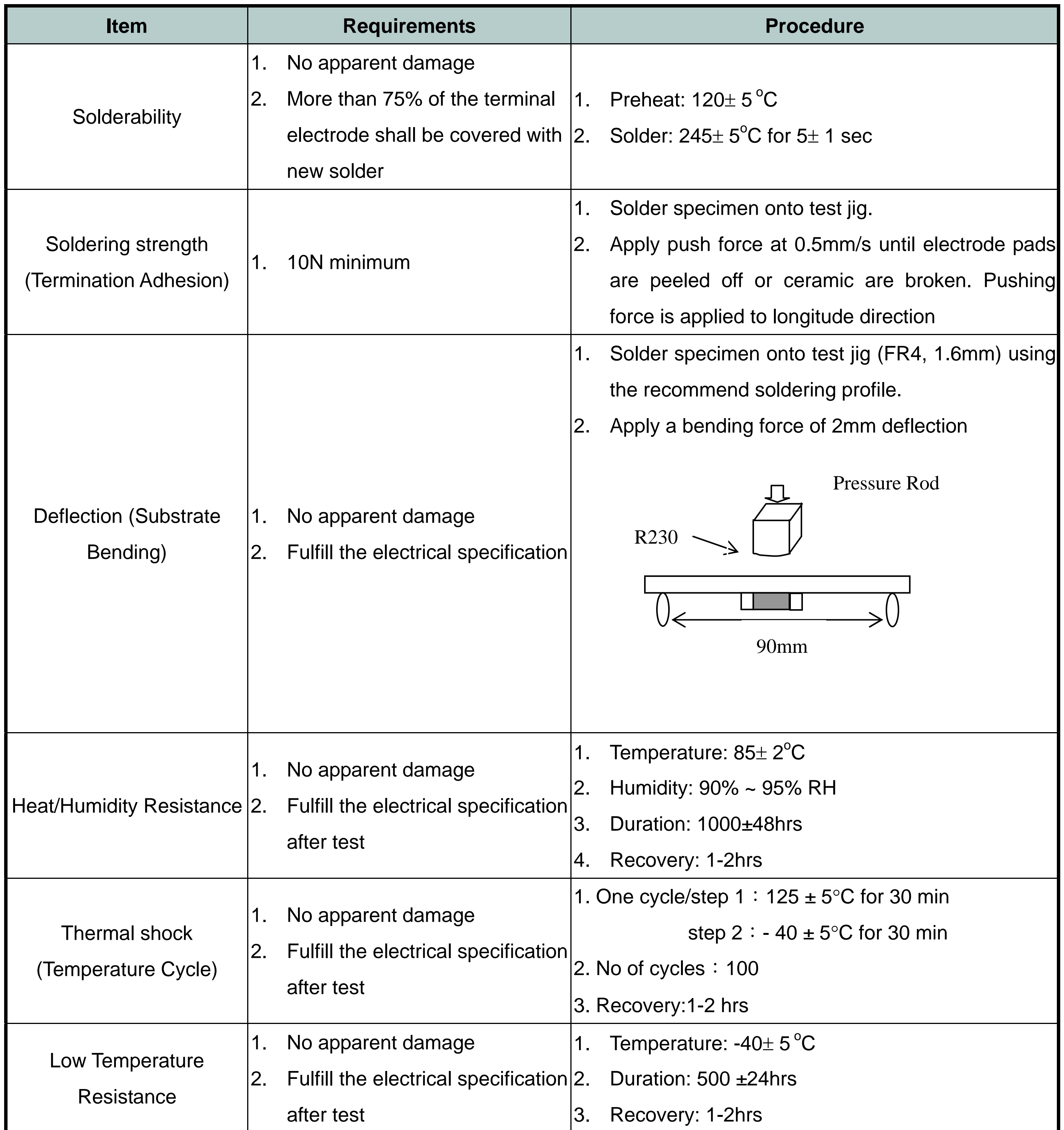
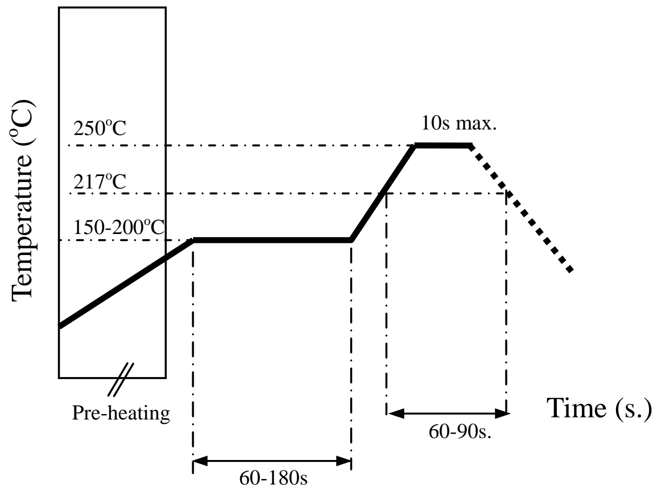
Mechanical & Environmental Characteristics

Item	Requirements	Procedure
Solderability	1. No apparent damage 2. More than 75% 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. 10N 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 2. Fulfill the electrical specification	1. Solder specimen onto test jig (FR4, 1.6mm) 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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Advanced Ceramic X Corp.
16 Tzu Chiang Road, Hsinchu Industrial District Hsinchu Hsien 303, Taiwan
TEL:886-3-5987008 FAX:886-3-5987001
E-mail: acx@acxc.com.tw http://www.acxc.com.tw