

# LF 1608 Series

Multilayer Chip Low-Pass Filters

## Features

- ❖ Ultra small SMD type with low loss at pass-band and high attenuation at stop-band.
- ❖ 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)	Insertion Loss Variation (dB) (over any 200MHz range)	Return Loss @BW (dB)	Group Delay Variation (ns) (over any 20MHz range)	Attenuation (dB)
LF1608-E1R7NAA_	673~2690	0.5 max.	±0.1	10 min.	1 max.	35min. @4.95~6GHz
						35min. @6~7.5GHz
						35min. @7.5~8.1GHz
						27min. @8.1~12.5GHz

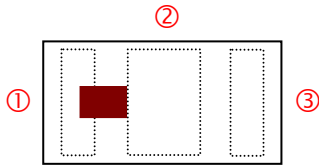
Q'ty/Reel (pcs) : 4,000  
 Operating Temperature Range : -40 ~ +85 °C  
 Storage Temperature Range : -40 ~ +85 °C  
 Storage Period : 12 months max.  
 Power Capacity : 3W max.

## Part Number

LF   1608   -   E   1R7   NAA   □   /LF  
 ①   ②   ③   ④   ⑤   ⑥   ⑦

① Type	LF : Low-Pass Filter	② Dimensions ( L × W )	1.6 × 0.8 mm
③ Material Code	E	④ Frequency Range	1R7=1700MHz
⑤ Specification Code	NAA	⑥ Packaging	T: Tape & Reel B: Bulk
⑦ Soldering	/LF=lead-free		

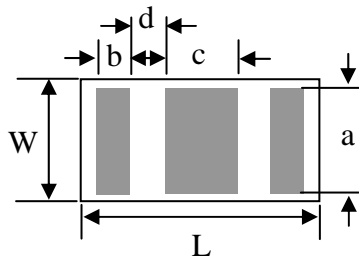
## Terminal Configuration



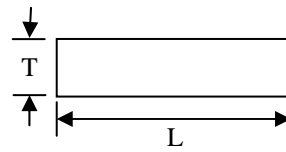
No.	Terminal Name	No.	Terminal Name
①	IN / OUT	③	OUT / IN
②	GND		

## Dimensions and Recommended PC Board Pattern

Unit : mm

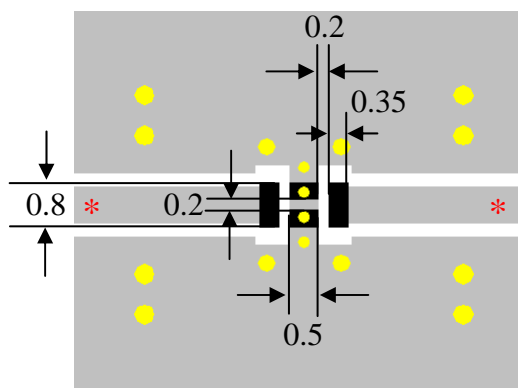





< Bottom View >



< Side View >

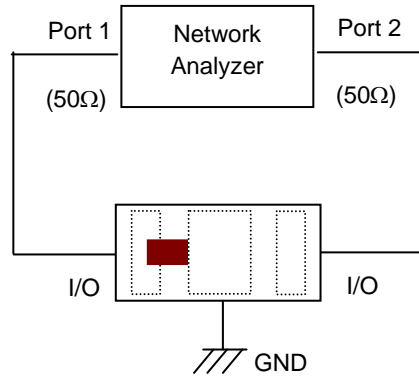
Mark	L	W	T	a	b	c	d
Dimensions	1.6 ± 0.1	0.8 ± 0.10	0.65 max.	0.7 ± 0.1	0.3 ± 0.1	0.4 ± 0.1	0.25 ± 0.05



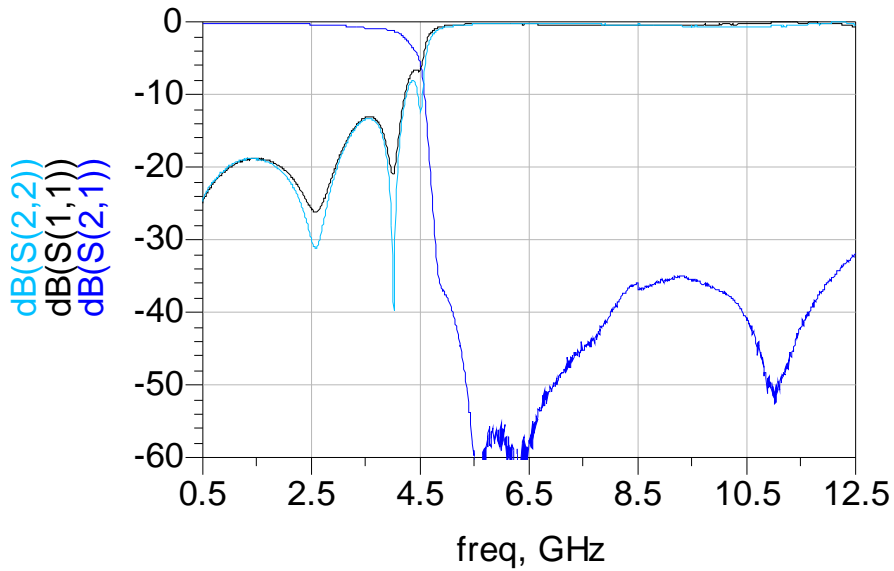
-  Solder Resist
-  Land
-  Through-hole ( $\phi$  0.2 / 0.3)

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

## Measuring Diagram



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

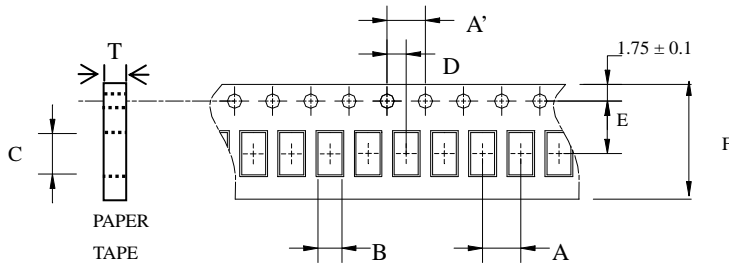


## Notes

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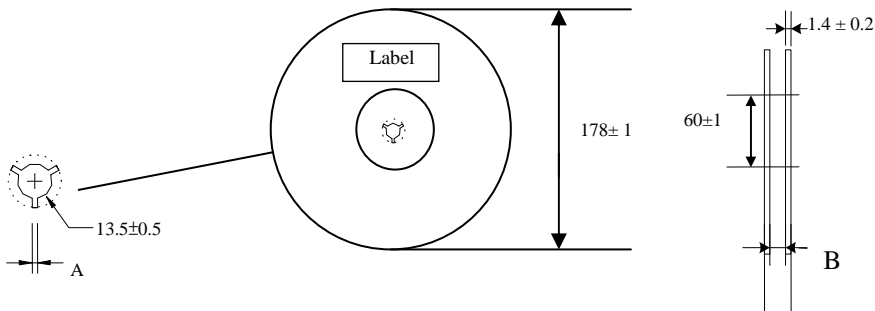
## Taping Specifications

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



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

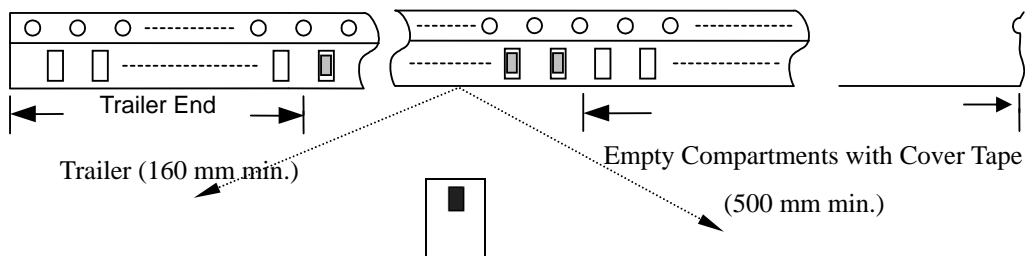
### ❖Reel Dimensions (Unit: mm)



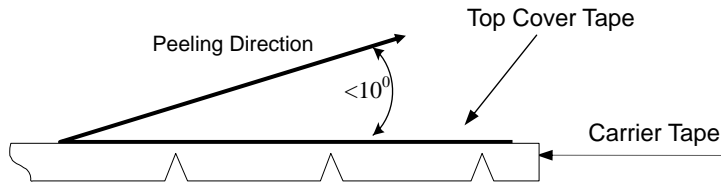
Label: Customer's Name,  
ACX P/N, Q'ty, Date,  
ACX Corp.

Type	A	B
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  $300 \pm 10$  mm/min .

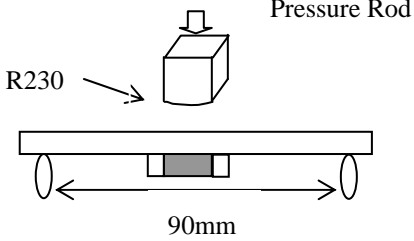
❖ **Storage Conditions**

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

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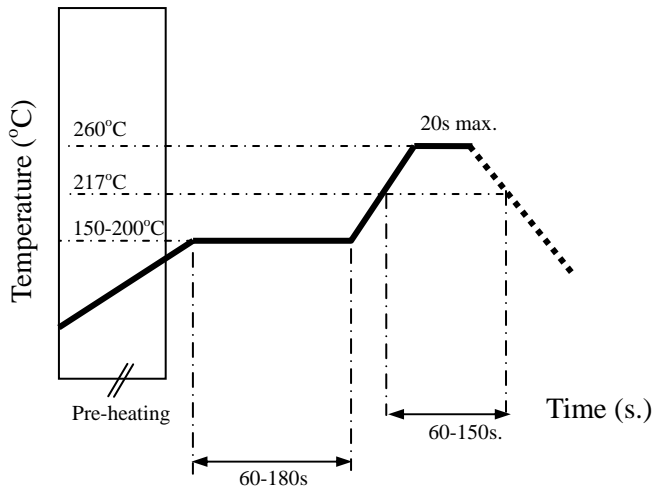
## Mechanical & Environmental Characteristics

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 (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 (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, 1.6 mm) 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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