



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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# APPROVAL SHEET

**RFBPF Series – 2520(1008) - RoHS Compliance**

**MULTILAYER CERAMIC BAND PASS FILTER**

**Halogens Free Product**

**2.4 GHz ISM Band Working Frequency**

**P/N: RFBPF2520070AMT**

\*Contents in this sheet are subject to change without prior notice.

**Approval sheet**

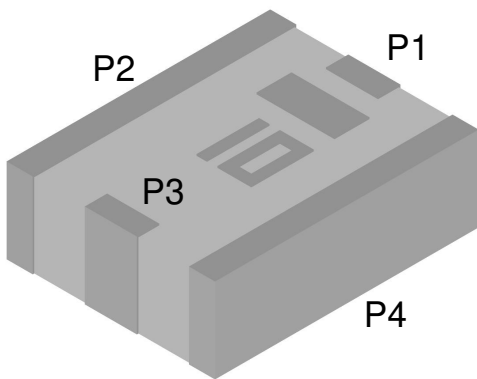
**FEATURES**

1. Multilayer LTCC ( Low Temperature Cofired Ceramics ) Technology
2. Reflow solderable
3. Miniatured Size 2.5 x 2.0 x 0.7 mm<sup>3</sup>
4. Low Insertion Loss
5. High attenuation on 2<sup>nd</sup> and 3<sup>rd</sup> harmonic suppressed
6. Suitable for 2.45 GHz Working Frequency Operation

**APPLICATIONS**

1. 2.4GHz ISM Band RF Application
2. Bluetooth, Wireless LAN, HomeRF

**CONSTRUCTION**



PIN	Definition
P1	Input
P2	Ground
P3	Output
P4	Ground

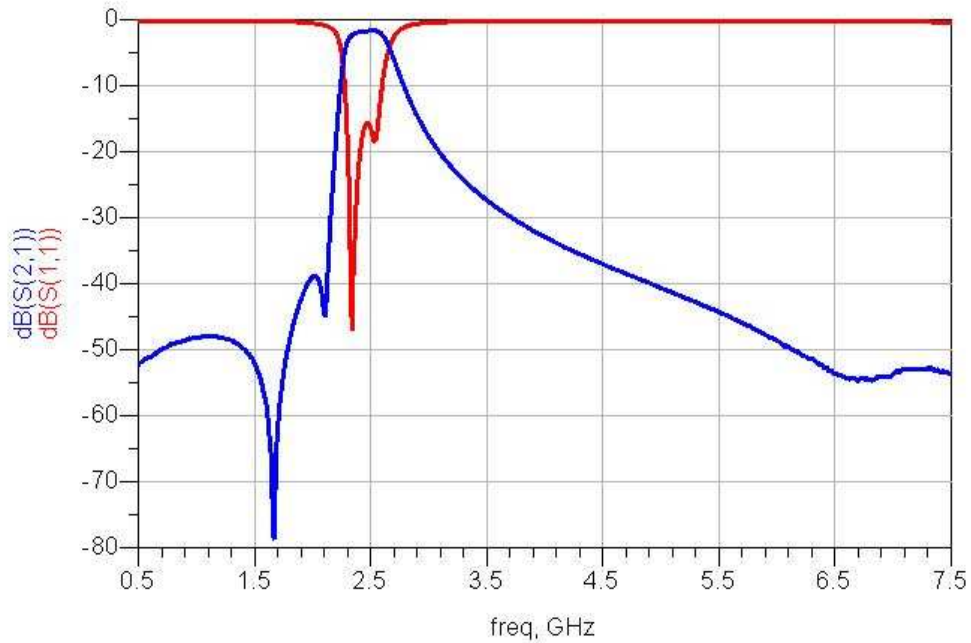
**DIMENSIONS**

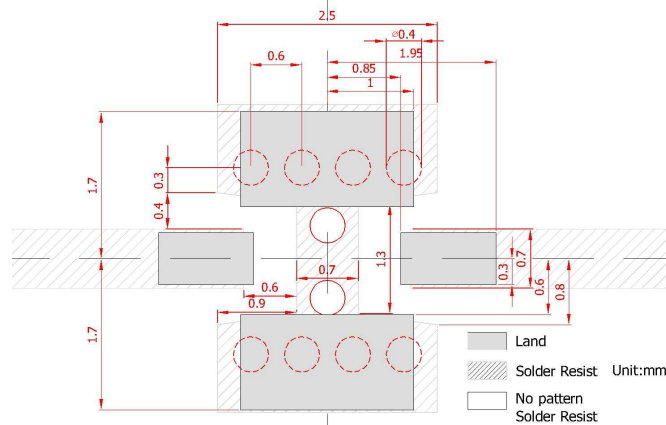
Figure	Symbol	Dimension (mm)
<p>The figure shows a top view, a side view, and a cross-section of the component. The top view shows dimensions L (length), W (width), and D (pin spacing). The side view shows dimensions T (thickness), A, B, and C (layer thicknesses). The cross-section shows dimensions D and E (layer thicknesses).</p>	L	2.50± 0.2
	W	2.00± 0.2
	T	0.70± 0.1
	A	0.20± 0.2
	B	0.55± 0.2
	C	0.50± 0.2
	D	0.25± 0.2
	E	0.20± 0.2

**ELECTRICAL CHARACTERISTICS**

RFBPF2520070AMT	Specification
Frequency range	2450± 50 MHz
Insertion Loss	2.0 dB at 25°C 2.2dB at -40 ~ +85°C
VSWR	2.0 max
Impedance	50 Ω
Attenuation (min.)	45dB @ 824 ~ 849MHz 45dB @ 869 ~ 880MHz 45dB @ 925 ~ 960MHz 45dB @ 1570 ~ 1580MHz 45dB @ 1710 ~ 1785MHz 40dB @ 1805 ~ 1850MHz 35dB @ 1850 ~ 1910MHz 35dB @ 1920 ~ 1990MHz 25dB @ 2110 ~ 2170MHz 5 dB @ 2750 ~ 3000MHz 15 dB @ 3000 ~ 4800 MHz 30 dB @ 4800 ~ 5000 MHz 30 dB @ 5150 ~ 5850MHz 20 dB @7200 ~ 7500 MHz
Operation Temperature Range	-40°C ~ +85°C

Typical Electrical Chart



**SOLDER LAND PATTERN****Figure**

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

**RELIABILITY TEST**

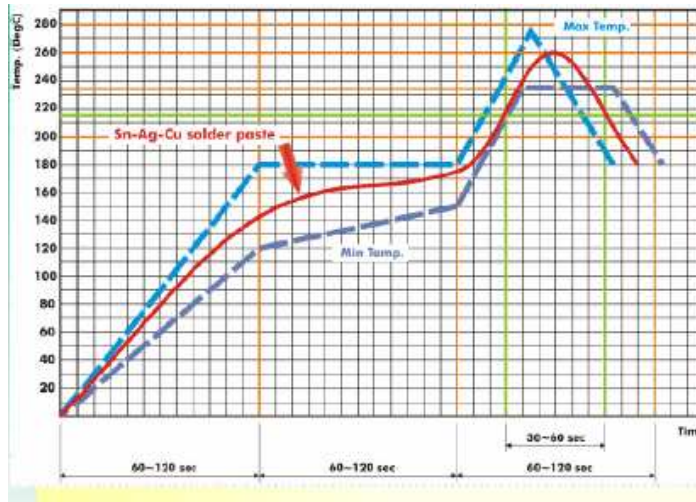
Test item	Test condition / Test method	Specification
Solderability JIS C 0050-4.6 JESD22-B102D	*Solder bath temperature : 235 $\pm$ 5 $^{\circ}$ C *Immersion time : 2 $\pm$ 0.5 sec *Solder : Sn3Ag0.5Cu for lead-free	At least 95% of a surface of each terminal electrode must be covered by fresh solder.
Leaching (Resistance to dissolution of metallization) IEC 60068-2-58	*Solder bath temperature : 260 $\pm$ 5 $^{\circ}$ C *Leaching immersion time : 30 $\pm$ 0.5 sec *Solder : SN63A	Loss of metallization on the edges of each electrode shall not exceed 25%.
Resistance to soldering heat JIS C 0050-5.4	*Preheating temperature : 120~150 $^{\circ}$ C , 1 minute. *Solder temperature : 270 $\pm$ 5 $^{\circ}$ C *Immersion time : 10 $\pm$ 1 sec *Solder : Sn3Ag0.5Cu for lead-free Measurement to be made after keeping at room temperature for 24 $\pm$ 2 hrs	No mechanical damage. Samples shall satisfy electrical specification after test. Loss of metallization on the edges of each electrode shall not exceed 25%.
Drop Test JIS C 0044	*Height : 75 cm *Test Surface : Rigid surface of concrete or steel. *Times : 6 surfaces for each units ; 2 times for each side.	No mechanical damage. Samples shall satisfy electrical specification after test.
Adhesive Strength of Termination JIS C 0051- 7.4.3	*Pressurizing force : 5N( $\leq$ 0603) ; 10N(>0603) *Test time : 10 $\pm$ 1 sec	No remarkable damage or removal of the termination.

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<p>Bending test JIS C 0051- 7.4.1</p>	<p>The middle part of substrate shall be pressurized by means of the pressurizing rod at a rate of about 1 mm/s per second until the deflection becomes 1mm/s and then pressure shall be maintained for 5±1 sec. Measurement to be made after keeping at room temperature for 24±2 hours</p>	<p>No mechanical damage. Samples shall satisfy electrical specification after test.</p>
<p>Temperature cycle JIS C 0025</p>	<p>1. 30±3 minutes at -40°C±3°C, 2. 10~15 minutes at room temperature, 3. 30±3 minutes at +85°C±3°C, 4. 10~15 minutes at room temperature, Total 100 continuous cycles Measurement to be made after keeping at room temperature for 24±2 hrs</p>	<p>No mechanical damage. Samples shall satisfy electrical specification after test.</p>
<p>Vibration JIS C 0040</p>	<p>*Frequency : 10Hz~55Hz~10Hz(1min) *Total amplitude : 1.5mm *Test times : 6hrs.(Two hrs each in three mutually perpendicular directions)</p>	<p>No mechanical damage. Samples shall satisfy electrical specification after test.</p>
<p>High temperature JIS C 0021</p>	<p>*Temperature : 85°C±2°C *Test duration : 1000+24/-0 hours Measurement to be made after keeping at room temperature for 24±2 hrs</p>	<p>No mechanical damage. Samples shall satisfy electrical specification after test.</p>
<p>Humidity (steady conditions) JIS C 0022</p>	<p>*Humidity : 90% to 95% R.H. *Temperature : 40±2°C *Time : 1000+24/-0 hrs. Measurement to be made after keeping at room temperature for 24±2 hrs ※ 500hrs measuring the first data then 1000hrs data</p>	<p>No mechanical damage. Samples shall satisfy electrical specification after test.</p>
<p>Low temperature JIS C 0020</p>	<p>*Temperature : -40°C±2°C *Test duration : 1000+24/-0 hours Measurement to be made after keeping at room temperature for 24±2 hrs</p>	<p>No mechanical damage. Samples shall satisfy electrical specification after test.</p>

**SOLDERING CONDITION**

Typical examples of soldering processes that provide reliable joints without any damage are given in Fig 2,



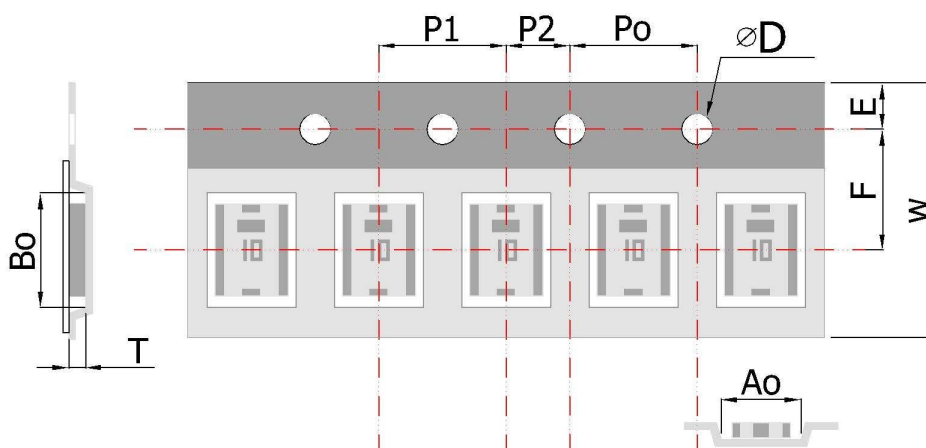
**Fig 2. Infrared soldering profile**

**ORDERING CODE**

RF	BPF	252007	0	A	M	T
<b>Walsin</b> RF device	<b>Product Code</b> BPF : Band Pass Filter	<b>Dimension code</b> Per 2 digits of Length, Width, Thickness : e.g. : 252008 = Length 25, Width 20, Thickness 7	<b>Unit of dimension</b> 0 : 0.1 mm 1 : 1.0 mm	<b>Application</b> A : 2.4GHZ ISM Band	<b>Specification</b> Design code	<b>Packing</b> T : Reeled

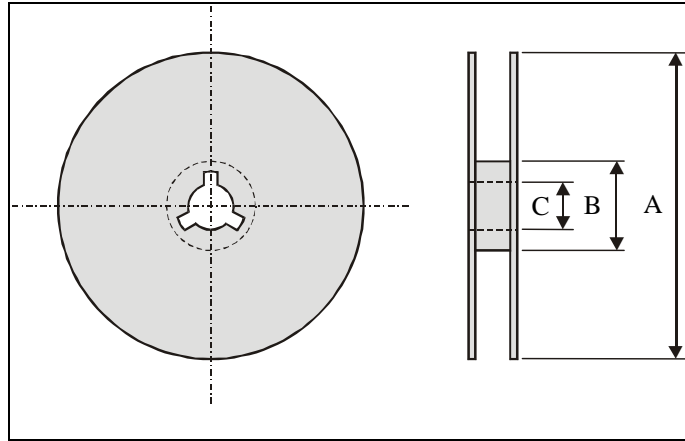
**Minimum Ordering Quantity: 2000 pcs per reel.**

**PACKAGING**



**Plastic Tape specifications (unit :mm)**

Index	Ao	Bo	ΦD	T	W
Dimension (mm)	2.27 ± 0.05	2.74 ± 0.05	1.5 ± 0.1	1.18 ± 0.05	8.00 ± 0.10
Index	E	F	Po	P1	P2
Dimension (mm)	1.75 ± 0.10	3.50 ± 0.05	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05

**Reel dimensions**

Index	A	B	C
Dimension (mm)	Φ178.0	Φ60.0	Φ13.0

Taping Quantity:2000 pieces per 7" reel

**CAUTION OF HANDLING****Limitation of Applications**

Please contact us before using our products for the applications listed below which require especially high reliability for the prevention of defects, which might directly cause damage to the third party's life, body or property.

- (1) Aircraft equipment
- (2) Aerospace equipment
- (3) Undersea equipment
- (4) Medical equipment
- (5) Disaster prevention / crime prevention equipment
- (6) Traffic signal equipment
- (7) Transportation equipment (vehicles, trains, ships, etc.)
- (8) Applications of similar complexity and /or reliability requirements to the applications listed in the above.

**Storage condition**

- (1) Products should be used in 6 months from the day of WALSIN outgoing inspection, which can be confirmed.
- (2) Storage environment condition.
  - Products should be storage in the warehouse on the following conditions.
  - Temperature : -10 to +40℃
  - Humidity : 30 to 70% relative humidity
  - Don't keep products in corrosive gases such as sulfur. Chlorine gas or acid or it may cause oxidization of electrode, resulting in poor solderability.
  - Products should be storage on the palette for the prevention of the influence from humidity, dust and son on.
  - Products should be storage in the warehouse without heat shock, vibration, direct sunlight and so on.
  - Products should be storage under the airtight packaged condition.