



# **RFBPF Series – 1608(0603)- RoHS Compliance**

# MULTILAYER CERAMIC BAND PASS FILTER

# **Halogens Free Product**

# 5GHz ISM Working Frequency

# P/N: RFBPF1608060K88Q1C

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

## **Approval sheet**



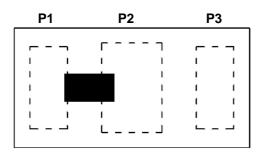
- 1. Miniature footprint: 1.6 X 0.8X 0.6 mm<sup>3</sup>.
- 2. Low Insertion loss
- 3. High attenuation on harmonic suppressed
- 4. LTCC process

### APPLICATIONS

1. 5150 - 5950 MHz band RF applications.

### CONSTRUCTION

Top view



PIN	Connection			
1	Input port			
2	GND			
3	Output port			

#### DIMENSIONS

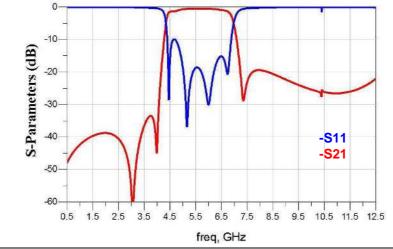
	Figure	Symbol	Dimension (mm)
		L	1.60 ± 0.10
	L L	W	0.80 ± 0.10
Top view W Side view Bottom view B A	Т	0.60 max.	
	w	A	0.55 ± 0.10
		В	0.60 ± 0.10
	G G G	С	0.25 ± 0.10
		D	0.23 ± 0.10
		E	0.40 ± 0.10
		F	0.12 ± 0.10
		G	0.125 ± 0.10



### **ELECTRICAL CHARACTERISTICS**

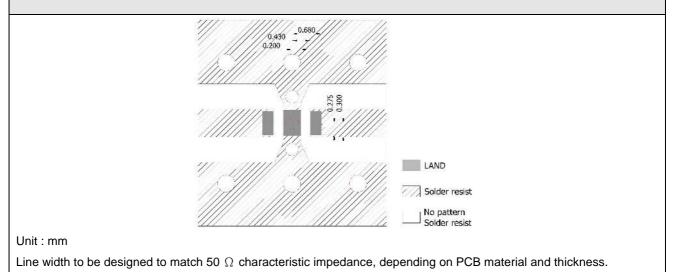
RFBPF1608060K88Q1C	Specification	
Frequency Range	5150 - 5950 MHz	
Insertion Loss	0.8 dB max. (0.6 dB Typ.)	
	35.0 dB min. @ 30 - 2700 MHz	
Attenuation	30.0 dB min. @ 3400 - 3800 MHz	
Attenuation	12.0 dB min. @ 7250 - 7800 MHz	
	20.0 dB min. @ 10300 - 11700 MHz	
VSWR	2.0 max.	
Impedance	50 Ω	
Operating Temperature Range	-40 - +85℃	
Power capacity	500mW	
Moisture sensitivity levels	MSL is LEVEL 1 (Refer to : IPC/JEDEC J-STD-020)	

# Typical Electrical Chart



## SOLDER LAND PATTERN

### SOLDER LAND PATTERN





## Approval sheet

## **RELIABILITY TEST**

Test item	Test condition / Test method	Specification
Solderability	*Solder bath temperature : $235 \pm 5^{\circ}C$	At least 95% of a surface of each terminal
JIS C 0050-4.6	*Immersion time $: 2 \pm 0.5$ sec	electrode must be covered by fresh solder.
JESD22-B102D	Solder:Sn3Ag0.5Cu for lead-free	
Leaching	*Solder bath temperature : $260 \pm 5^{\circ}$ C	Loss of metallization on the edges of each
(Resistance to	*Leaching immersion time $\div$ 30 $\pm$ 0.5 sec	electrode shall not exceed 25%.
dissolution of	Solder : SN63A	
metallization)		
IEC 60068-2-58		
Resistance to soldering heat	*Preheating temperature : 120~150°C,	No mechanical damage.
JIS C 0050-5.4	1 minute.	Electrical specification shall satisfy the
	*Solder temperature : 270±5°C	descriptions in electrical characteristics under
	*Immersion time : 10±1 sec	the operational temperature range within -40
	Solder : Sn3Ag0.5Cu for lead-free	~ 85°C.
	Measurement to be made after keeping at	Loss of metallization on the edges of each
		electrode shall not exceed 25%.
	room temperature for 24±2 hrs	
Drop Test	*Height:75 cm	No mechanical damage.
JIS C 0044	*Test Surface : Rigid surface of concrete or	Electrical specification shall satisfy the
Customer's specification.	steel.	descriptions in electrical characteristics under
	*Times : 6 surfaces for each units ; 2 times	the operational temperature range within -40
	for each side.	~ 85℃.
Vibration	*Frequency : 10Hz~55Hz~10Hz(1min)	No mechanical damage.
JIS C 0040	*Total amplitude : 1.5mm	Electrical specification shall satisfy the
	*Test times : 6hrs.(Two hrs each in three	descriptions in electrical characteristics under
	mutually perpendicular directions)	the operational temperature range within -40
		~ 85℃.
Adhesive Strength	*Pressurizing force :	No remarkable damage or removal of the
of Termination	5N(≦0603) ;10N(>0603)	termination.
JIS C 0051- 7.4.3	*Test time : 10±1 sec	
Bending test	The middle part of substrate shall be	No mechanical damage.
JIS C 0051- 7.4.1	pressurized by means of the pressurizing rod	Electrical specification shall satisfy the
	at a rate of about 1 mm/s per second until the	descriptions in electrical characteristics under
	deflection becomes 1mm/s and then pressure	the operational temperature range within -40
	shall be maintained for 5±1 sec.	~ 85℃.
	Measurement to be made after keeping at	
	room temperature for 24±2 hours	

# **PSA** 華新科技股份有限公司 Walsin Technology Corporation

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Temperature cycle JIS C 0025	<ol> <li>30±3 minutes at -40°C±3°C,</li> <li>10~15 minutes at room temperature,</li> <li>30±3 minutes at +85°C±3°C,</li> <li>10~15 minutes at room temperature,</li> <li>Total 100 continuous cycles</li> <li>Measurement to be made after keeping at room temperature for 24±2 hrs</li> </ol>	No mechanical damage. Electrical specification shall satisfy the descriptions in electrical characteristics under the operational temperature range within -40 ~ 85°C.
High temperature JIS C 0021 Humidity (steady conditions) JIS C 0022	<ul> <li>*Temperature : 85°C±2°C</li> <li>*Test duration : 1000+24/-0 hours</li> <li>Measurement to be made after keeping at room temperature for 24±2 hrs</li> <li>*Humidity : 90% to 95% R.H.</li> <li>*Temperature : 40±2°C</li> <li>*Time : 1000+24/-0 hrs.</li> <li>Measurement to be made after keeping at room temperature for 24±2 hrs</li> <li>% 500hrs measuring the first data then 1000hrs data</li> </ul>	No mechanical damage. Electrical specification shall satisfy the descriptions in electrical characteristics under the operational temperature range within -40 ~ 85°C. No mechanical damage. Electrical specification shall satisfy the descriptions in electrical characteristics under the operational temperature range within -40 ~ 85°C.
Low temperature JIS C 0020	*Temperature : -40°C±2°C *Test duration : 1000+24/-0 hours Measurement to be made after keeping at room temperature for 24±2 hrs	No mechanical damage. Electrical specification shall satisfy the descriptions in electrical characteristics under the operational temperature range within -40 ~ 85℃.

## SOLDERING CONDITION

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

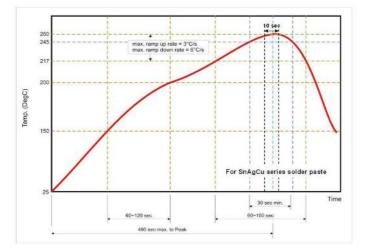


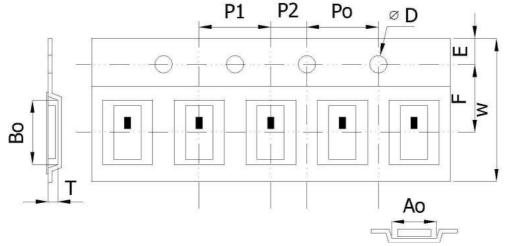
Fig 2. Infrared soldering profile

## **ORDERING CODE**

RF	BPF	160806	0	К	88Q1C
Walsin	Product Code	Dimension code	Unit of	Application	Specification
RF	BPF :	Per 2 digits of Length, Width,	dimension	K : 5GHz ISM	Design code
device	Band Pass Filter	Thickness :	0 : 0.1 mm	Band	
		e.g. :	1 :1.0 mm		
		160806 =			
		Length 16,			
		Width 08,			
		Thickness06			

Minimum Ordering Quantity: 4000 pcs per reel.

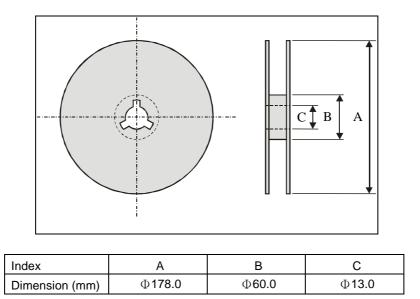
# PACKAGING



### Paper Tape specifications (unit :mm)

Index	Ao	Во	ΦD	Т	W
Dimension (mm)	$0.975 \pm 0.05$	1.76 ±0.05	1.55 + 0.05	0.75± 0.10	$8.0\pm0.10$
Index	E	F	Po	P1	P2
Dimension (mm)	$1.75\pm0.10$	$3.50\pm0.05$	$4.00\pm0.10$	$4.00\pm0.10$	$2.00\pm0.05$

### **Reel dimensions**



Taping Quantity:4000 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°C
  - 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.