



DEQING HUAYING ELECTRONICS CO.,LTD.

APPROVAL SHEET

SAW BANDPASS FILTER
PART NO.: NDFH059-1176SA

Product Type:		Customer:	
SAW Filter			
Part NO.:		Customer Part NO.:	
NDFH059-1176SA			
Ver. Ctrl.:		Issued Date:	
SFH059-1176SA -190418-v1.0			

PREPARED BY	CHECKED BY	APPROVED BY

Part No.	:	NDFH059-1176SA
Pages	:	8
Data	:	2019-04-18
Revision	:	SFH059-1176SA -190418-v1.0

Add (Deqing): 188 Zhiyuan North Rd.Wukang Town Deqing County Zhejiang Province 313200,P.R.China
Phone : +86-572-8281127
Fax : +86-572-8281298
E-mail : sales@dghuaying.com
Website : <http://www.dghuaying.com>

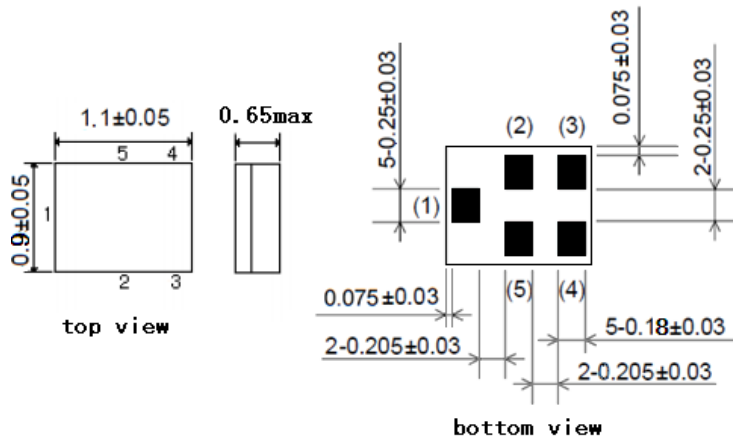
Features

SAW filter for GPS L5

- 1 High stability and reliability with good performance and no adjustment.
- 2 Narrow and sharp pass band characteristics. RoHS compatible.
- 3 Low insertion loss and deep stop band attenuation for interference.
- 4 Low – loss SAW filter for GPS.
- 5 Package size 1.1mm*0.9mm

Package Dimensions

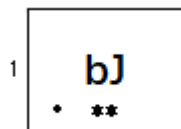
Ceramic Package: Unit: mm



Pin Configuration

1	Input
4	Output
2,3,5	Ground

Marking



Top View, Laser Marking

"H3": Part number

“.” Dot marking, indicates input 1

" 1": Terminal1

The first " * ": Month Code (The code shown below varies in a 4-year cycle)

Code	1	2	3	4	5	6	7	8	9	10	11	12
2016/2020	n	p	q	r	s	t	u	v	w	x	y	z
2017/2021	A	B	C	D	E	F	G	H	J	K	L	M
2018/2022	N	P	Q	R	S	T	U	V	W	X	Y	Z
2019/2023	a	b	c	d	e	f	g	h	i	j	k	m

The second " * ": Date Code

data	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	
code	A	B	C	D	E	F	G	H	J	K	
data	11th	12th	13th	14th	15th	16th	17th	18th	19th	20th	
code	L	M	N	P	Q	R	S	T	U	V	
data	21st	22nd	23rd	24th	25th	26th	27th	28th	29th	30th	31st
code	W	X	Y	Z	a	b	d	e	f	g	h

Maximum Ratings

Rating		Value	Unit
DC Voltage (between any Terminals)	V_{DC}	10	V
RF Power (in BW)	P	13	dBm
Operating Temperature Range	T_A	-30 ~ +85	°C
Storage Temperature Range	T_{stg}	-40 ~ +85	°C

Electrical Characteristics:

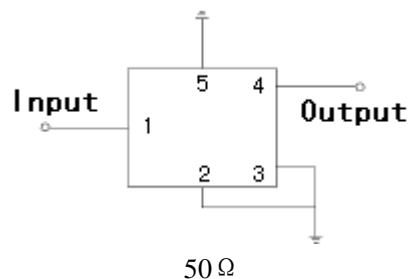
Item		Minimum	Typical	Maximum	Unit
Center Frequency	F_o		1176.45		
Insertion Loss	IL				
	1166.22 1186.68 MHz		1.0	1.6	dB
	1166.22 1186.68 MHz		1.0	1.4*)	dB
VSWR Input	V_{swr}				
	1166.22 1186.68 MHz		1.5	2.0	
VSWR Output	V_{swr}				
	1166.22 1186.68 MHz		1.6	2.0	
Absolute Attenuation	α				
	699 960 MHz	40	45		dB
	1427 1850 MHz	32	40		dB
	1850 2200 MHz	38	46		dB
	2300 2483 MHz	37	46		dB
	2500 2690 MHz	33	40		dB
	3400 3800 MHz	22	30		dB
	5150 5925 MHz	20	26		dB
Input / Output Impedance (Nominal)			50		Ω

 RoHS Compliant

 Electrostatic Sensitive Device

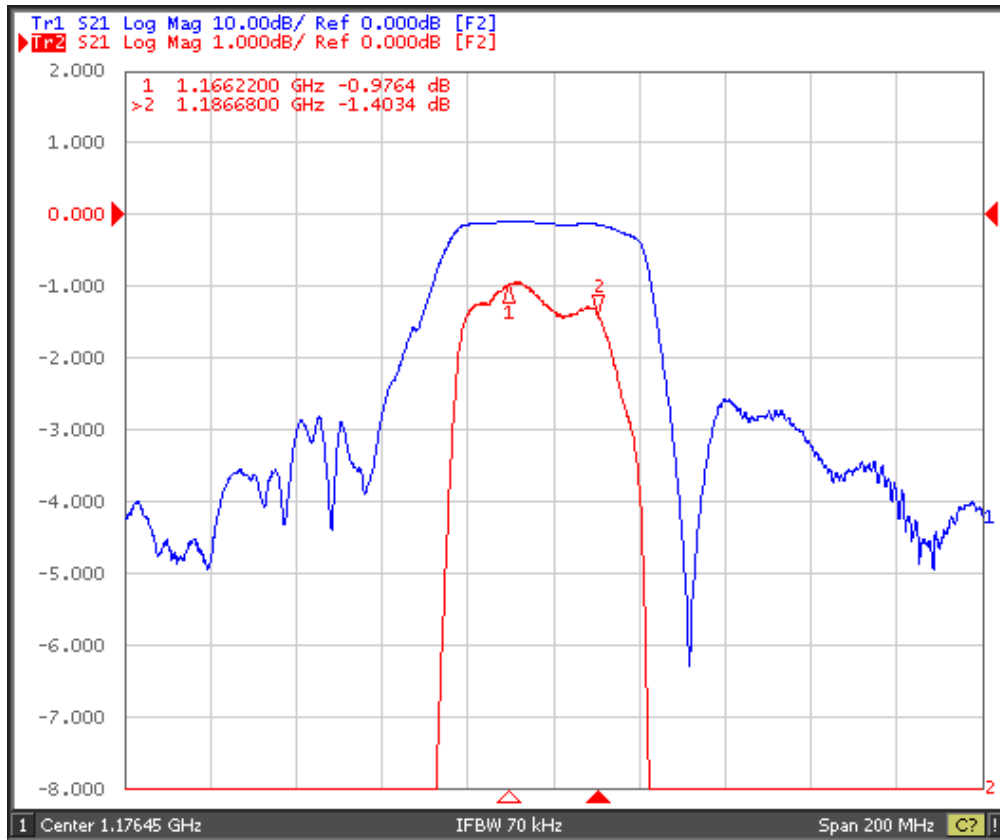
*) : +25°C

Test Circuit

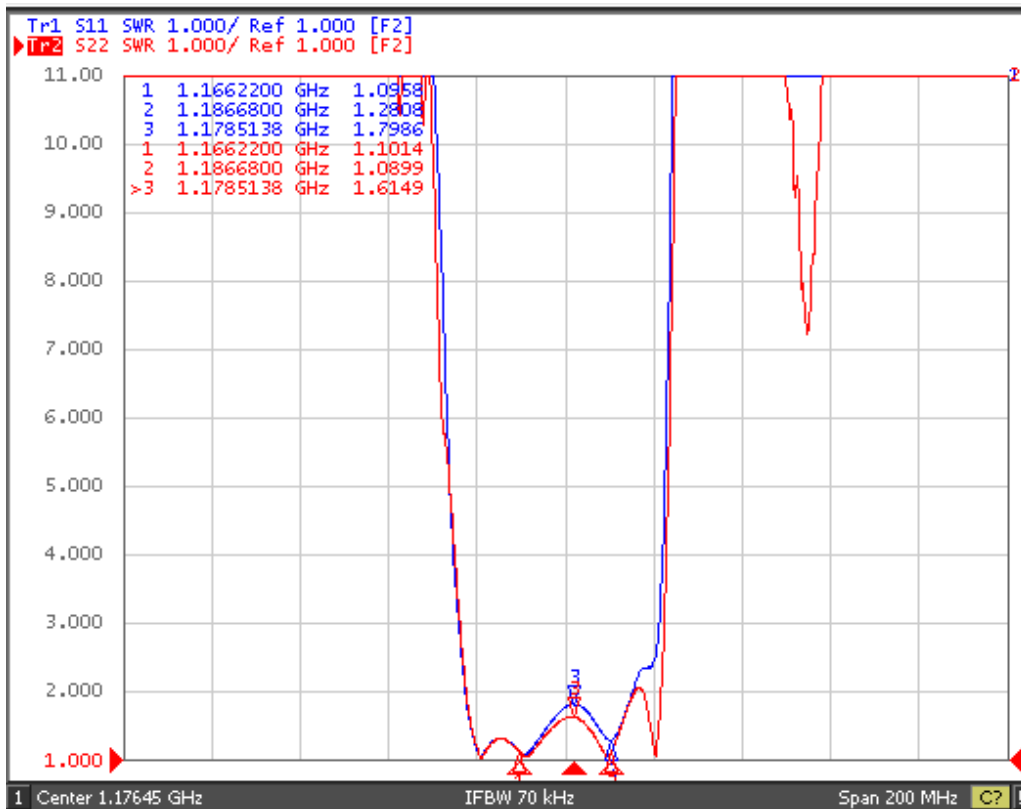


Typical Frequency Response

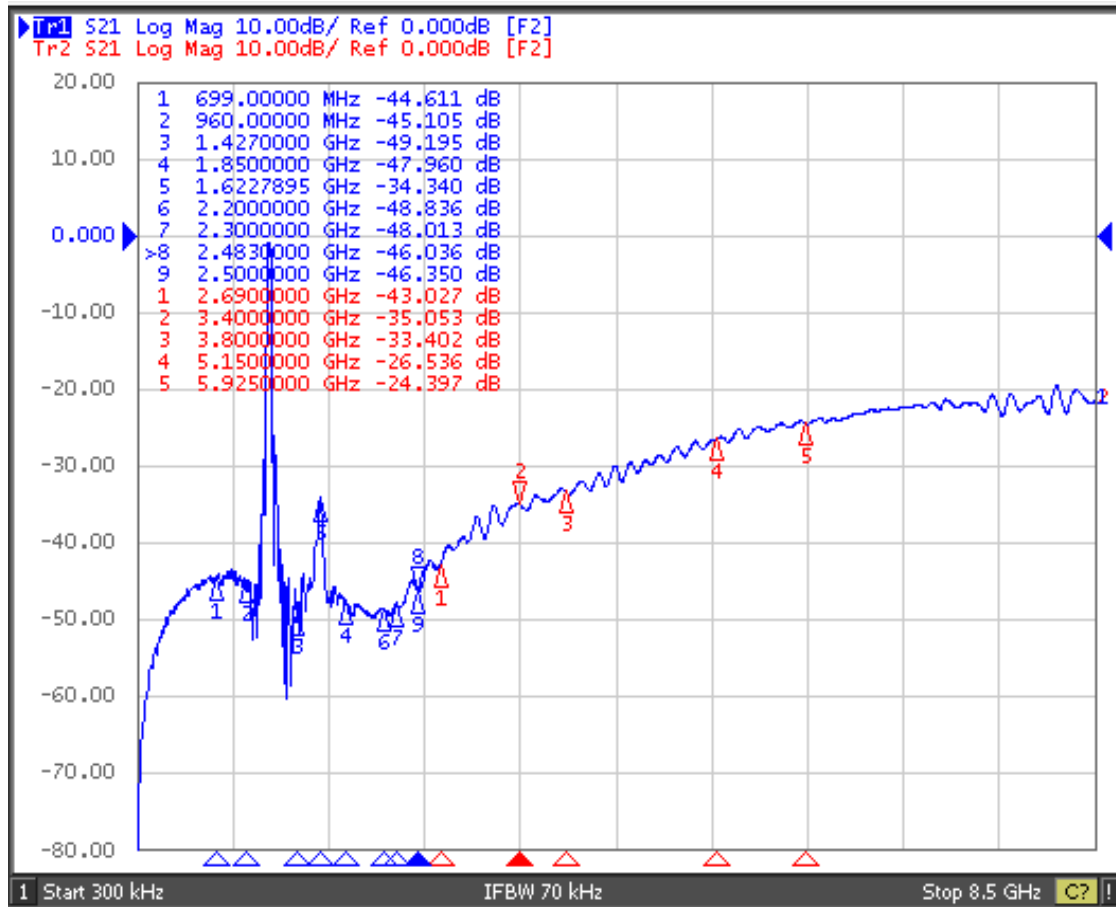
S21



S11, S22



Far side



Stability Characteristic

Item No.	Test Item	STD Reference	Test Conditions	per lot
	Preconditioning	JESD22-A113	1) Temperature Cycling, 5 cycles -40°C to 85°C; 2) Bake, 24 hrs @85±5°C; 3)Moisture Soak, Soak time and conditions per IPC/JEDEC J-STD-020 based on device MSL level; 4) Reflow, 3 reflow cycles; 5) Drying, Room ambient temperature.	All behind
1	Temperature Cycling	JESD22-A104	-40°C / +85°C,5°C/min,15min dwell,<1 min transfer time,500cycles	3*25 pcs
2	High Temperature Storage	JESD22-A103	Temperature=85°C, 1000 hours.	3*25 pcs
3	Temperature Humidity no bias	JEDEC Std A101-B	85°C 85%RH 240 hours	3*25 pcs
4	Human Body Mode ESD	JESD22-A114	Ta=25°C, ≥100V	3 pcs
5	Charge Device Mode ESD	JESD22-C101	Ta=25°C, ≥100V	3 pcs
6	Solderability	JESD22-B102	Wetting: 245°C, 5s.	22 pcs
7	Drop Test	JESD22-B111	1500 Gs, 0.5 millisecond duration, half-sine pulse.	20 pcs
8	Mechanical Shock	JESD-47	Shock pulse of 1500g with pulse duration of 0.5+/-0.1msec (X ,Y & Z); 5 shocks per axis.	3*25 pcs

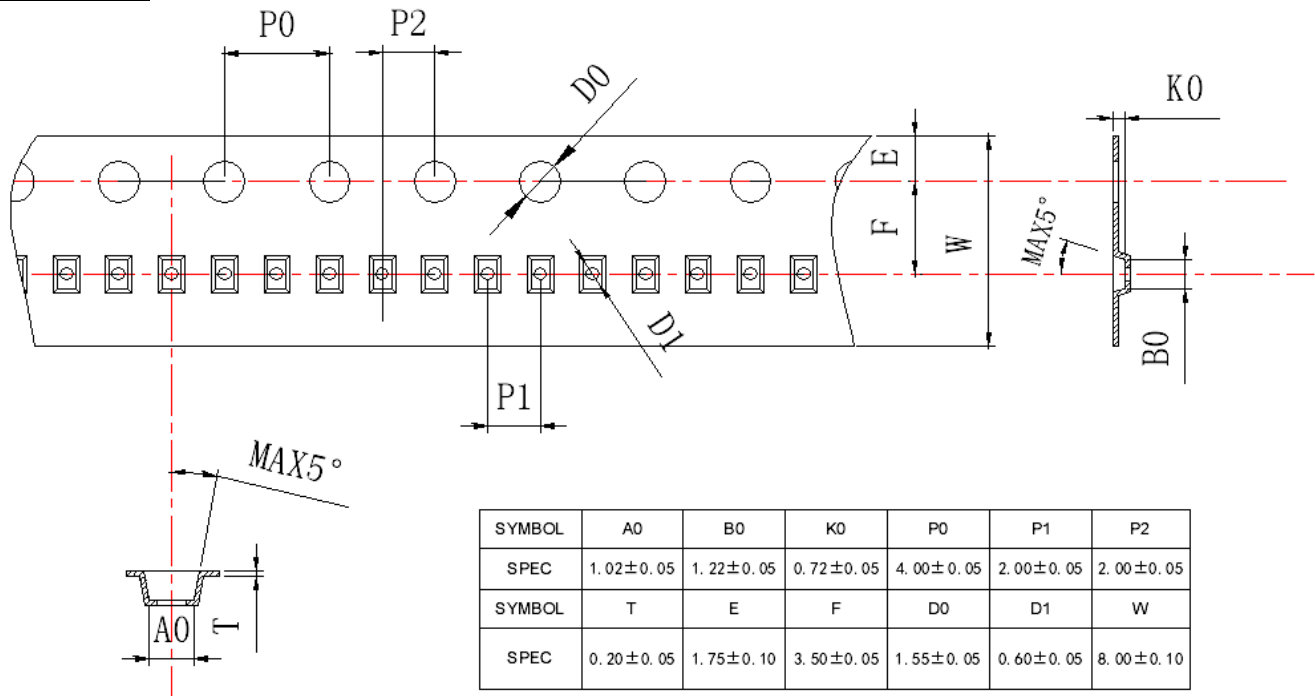
Requirements: The SAW filer shall remain within the electrical specifications after tests.

Remarks

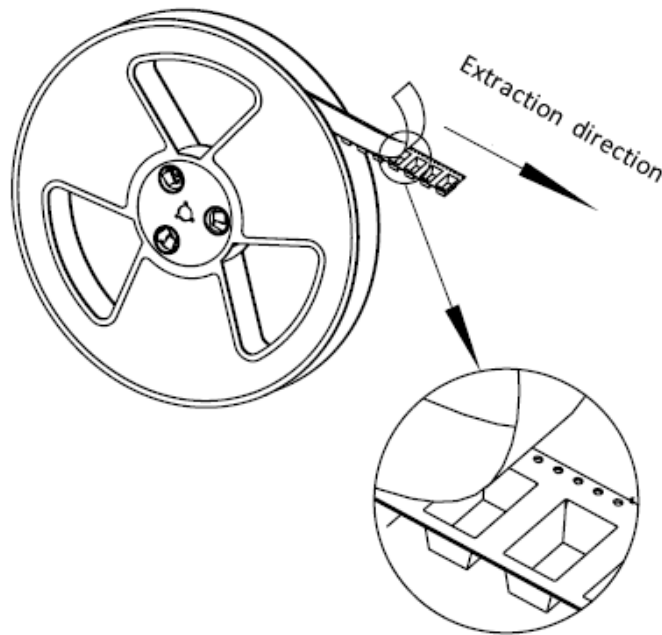
- SAW devices should not be used in any type of fluid such as water, oil, organic solvent, etc.
- Be certain not to apply voltage exceeding the rated voltage of components.
- Do not operate outside the recommended operating temperature range of components.
- Sudden change of temperature shall be avoided, deterioration of the characteristics can occur.
- Be careful of soldering temperature and duration of components when soldering.
- Do not place soldering iron on the body of components.
- Be careful not to subject the terminals or leads of components to excessive force.
- SAW devices are electrostatic sensitive. Please avoid static voltage during operation and storage.
- Ultrasonic cleaning shall be avoided. Ultrasonic vibration may cause destruction of components.

Packing Information

Carrier Tape



Reel Dimensions



Material	PS
Unit	mm
Tolerance	±0.20 mm
Quantity	10000/reel

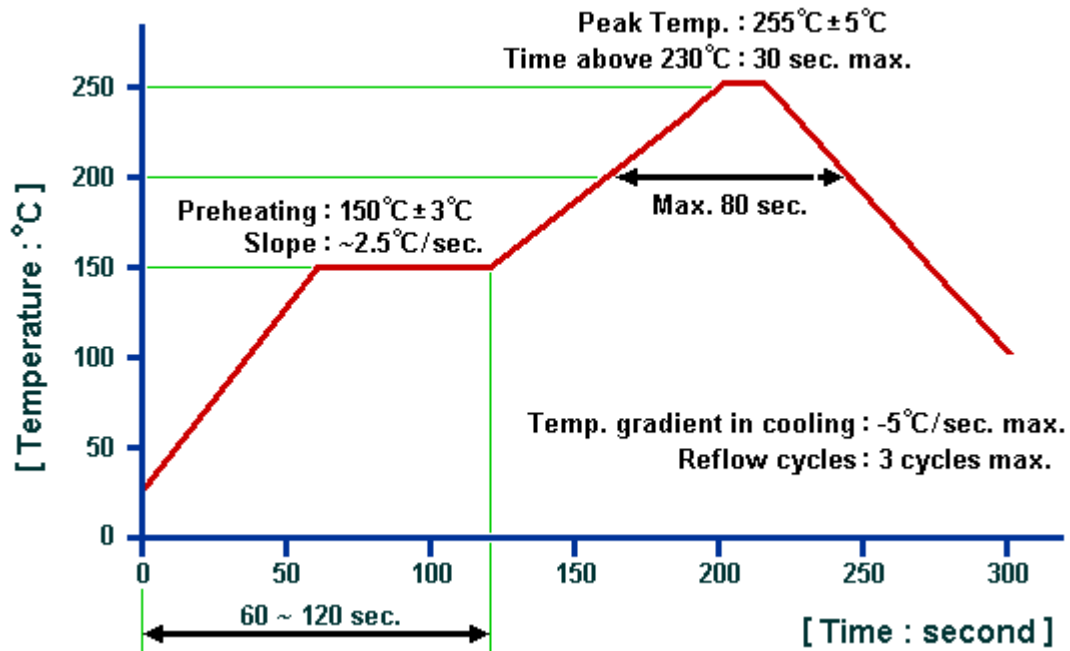
Outer Packing

Type	Quantity	Dimension	Description	Weight
Carton Box I	100000	240x210x285	anti-static plastic bag & carton box 1 reel / bag	2.15
Carton Box II	300000	470x310x285	10bags / box (100000 pcs) 30 bags / box (300000pcs)	6.22

Unit: mm

Unit: kg

Recommended Soldering Profile



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1. The specifications of this device are subject to change or obsolescence without notice.
2. Typically, equipment utilizing this device requires emissions testing and government approval, which is the responsibility of the equipment manufacturer.
3. Our liability is only assumed for the Surface Acoustic Wave (SAW) component(s) per se, not for applications, processes and circuits implemented within components or assemblies.
4. For questions on technology, prices and delivery, please contact our sales offices or e-mail sales@dquaying.com.