



DEQING HUAYING ELECTRONICS CO.,LTD.

# APPROVAL SHEET

## SAW BANDPASS FILTER PART NO.: NDFG010-1580SA

<b>Product Type:</b>		<b>Customer:</b>	
SAW Filter			
<b>Part NO.:</b>		<b>Customer Part NO.:</b>	
NDFG010-1580SA			
<b>Ver. Ctrl.:</b>		<b>Issued Date:</b>	
SFG010-1580SA -160315-v1.0			

PREPARED BY	CHECKED BY	APPROVED BY

Part No.	:	NDFG010-1580SA
Pages	:	10
Data	:	2016-3-15
Revision	:	SFG010-1580SA -160315-v1.0

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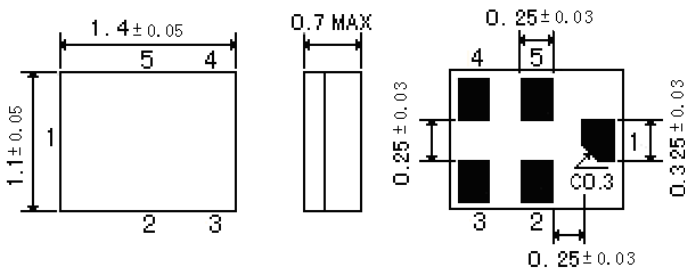
**Features**

SAW filter for Beidou & GPS & GLONASS.

- 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 1.4 mm \*1.1 mm

**Package Dimensions**

Ceramic Package: Unit: mm



**Pin Configuration**

1	Input
4	Output
2,3,5	Ground

**Marking**

Top View, Laser Marking



"10": Part number

"." Dot marking, indicates input 1

"1": Terminal1

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

Month	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

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

## Electrical Characteristics:

Item		Minimum	Typical	Maximum	Unit
Insertion Loss	<i>IL</i>				
1559.09 .... 1563.09 MHz			1.8	2.1	dB
1574.42 .... 1576.42 MHz			1.3	1.6	dB
1597.55 .... 1605.89 MHz			1.8	2.1	dB
Passband Ripple	<i>Pr</i>				
1559.09 .... 1563.09 MHz			0.2	0.5	dB
1574.42 .... 1576.42 MHz			0.2	0.4	dB
1597.55 .... 1605.89 MHz			0.3	0.6	dB
VSWR	<i>V<sub>swr</sub></i>				
1559.09 .... 1563.09 MHz			1.6	1.9	
1574.42 .... 1576.42 MHz			1.2	1.6	
1597.55 .... 1605.89 MHz			1.3	1.8	
Group delay Ripple	<i>Gdr</i>				
1559.09 .... 1563.09 MHz			2	7	ns
1574.42 .... 1576.42 MHz			2	7	ns
1597.55 .... 1605.89 MHz			2	8	ns
Absolute Attenuation	$\alpha$				
DC .... 925.00 MHz		45	50		dB
925.00 .... 960.00 MHz		43	50		dB
1427.00 .... 1453.00 MHz		41	47		dB
1453.00 .... 1470.00 MHz		40	45		dB
1470.00 .... 1530.00 MHz		30	35		dB
1530.00 .... 1541.00MHz		7	13		dB
1626.00 .... 1635.00 MHz		10	17		dB
1635.00 .... 1700.00 MHz		33	37		dB
1710.00 .... 1785.00 MHz		45	50		dB
1850.00 .... 1910.00 MHz		43	48		dB
1920.00 .... 1980.00 MHz		42	48		dB
2110.00 .... 2170.00 MHz		40	45		dB
2300.00 .... 2400.00 MHz		40	44		dB
2400.00 .... 2500.00 MHz		39	43		dB
2500.00 .... 2570.00 MHz		38	42		dB
2570.00 .... 3000.00 MHz		33	39		dB
Input / Output Impedance (Nominal)			50		$\Omega$

 RoHS Compliant

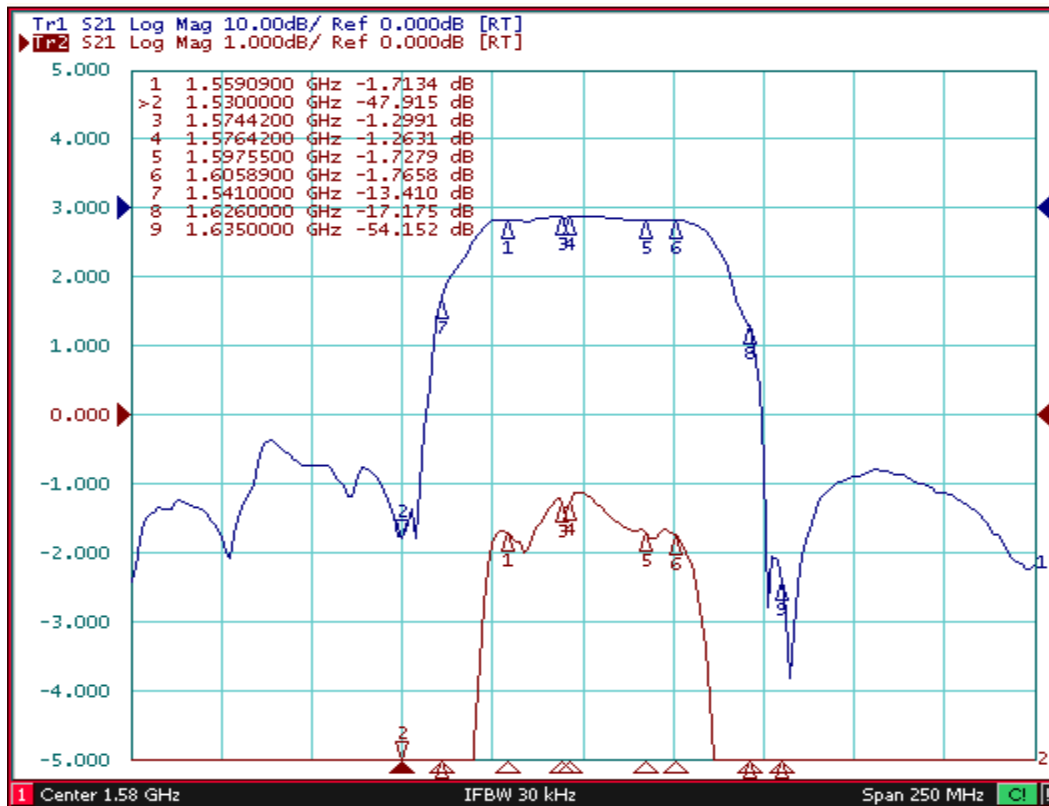
 Electrostatic Sensitive Device

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
ESD Voltage (HB)	$V_{ESD}$	>150	V
Moisture Sensitivity Levels	$MSL$	2A	

Typical Frequency Response

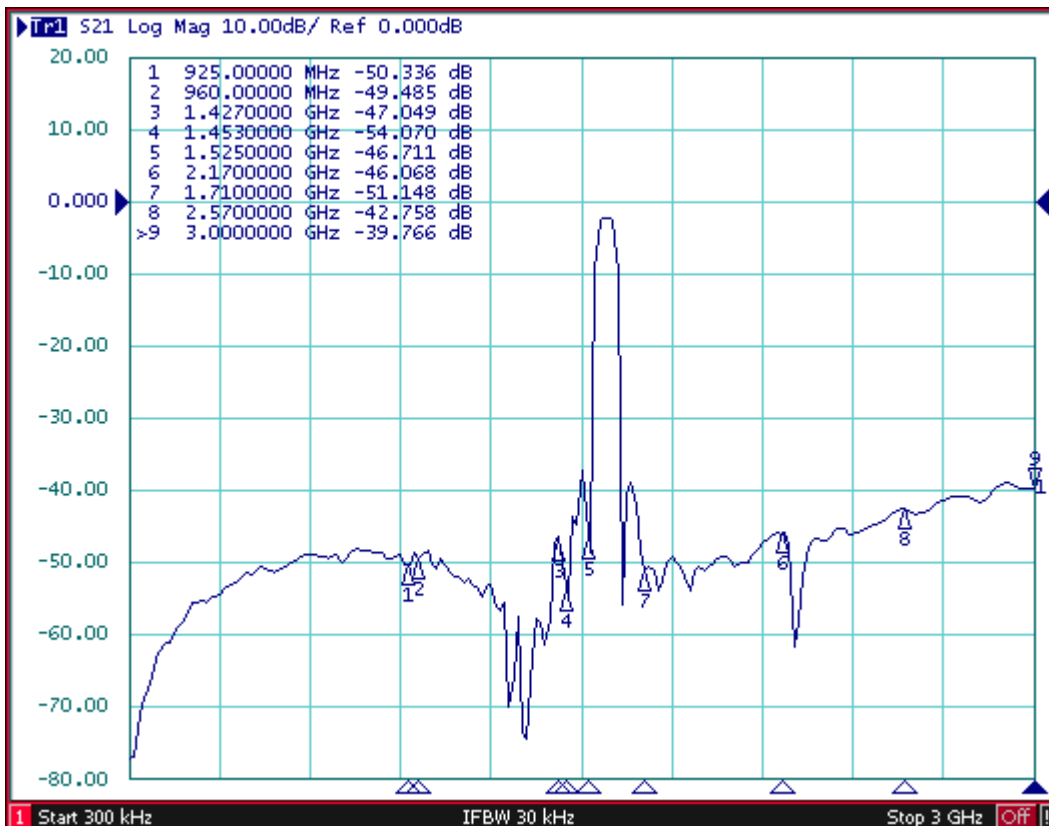
S21



S11 Group Delay



Far side



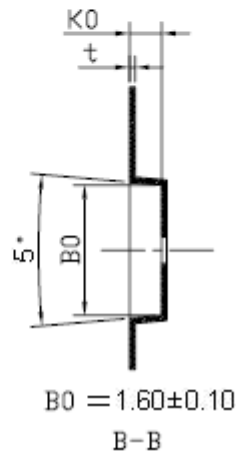
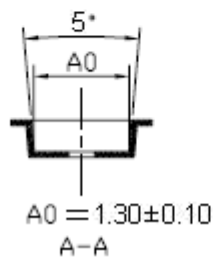
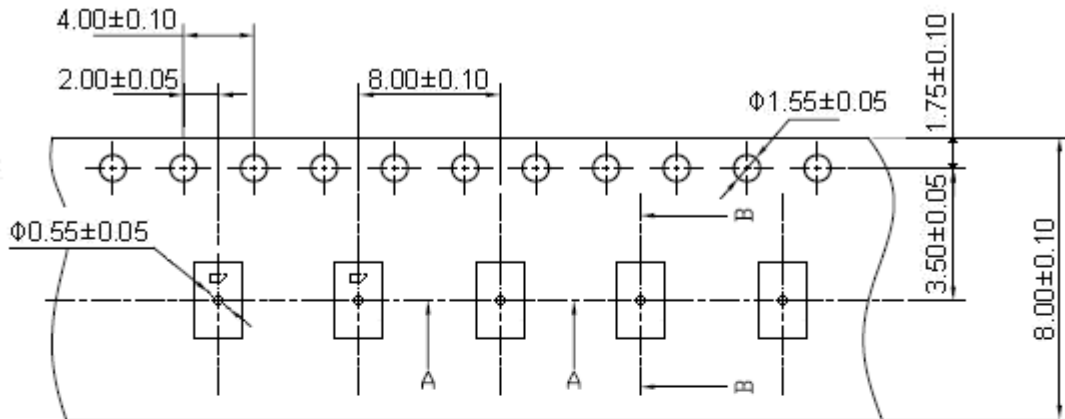
## Stability Characteristics

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 @125±5°C; 3) Reflow, 3 reflow cycles using profiles per IPC/JEDEC J-STD-020, SnPb or Pb-free profile based on device end use process 4) Drying, Room ambient temperature	211
1	Temperature Cycling	JESD22-A104	-40°C / +85°C, 40min dwell, <1 min transfer time, 500cycles	23
2	High Temperature Storage	JESD22-A103	85°C, 240hr	23
3	Low Temperature Storage	JESD22-A119	-40°C, 240hr	23
4	High Temp. High Humidity Storage	JESD22-A106B	85°C, 85%RH, 240hr	23
5	High Temperature Operating	JESD22-A102C	+121°C 100%RH 96hr	23
6	Human Body Mode ESD	JESD22-A114	Measure to get the ESD limits level or margin beyond specification	5
7	Drop Test	IEC 68-2-32	100 cm 3times Steel floor JIG(110g~150g)	6
8	Solder ability	JESD22-B102	Characterization per JESD22-B102	5
9	Vibration, Variable Frequency	JESD22-B103	20 Hz to 2 kHz (log variation) in > 4 minutes, 4X in each orientation, 50g peak acceleration	23
10	Mechanical Shock	JESD22-B104	Y1 plane only, 5 pulses, 0.5 ms duration, 1500 g peak acceleration	23
11	Solder Heat Resistance	IEC 68-2-21 Ue3	±250V, C=100pF, R=1.5kΩ, 1times	11
12	Static marginal test	JESD22-A114F	C=100pF, R=1.5kΩ, 1times ( demand of customer )	11
13	Power capacity Margin Limits	/	Power margin tests beyond input power specification: CW signal, 85°C, highest in-band frequency, 2 hours dwell time for each step, repeat the tests until DUT abnormal	12

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

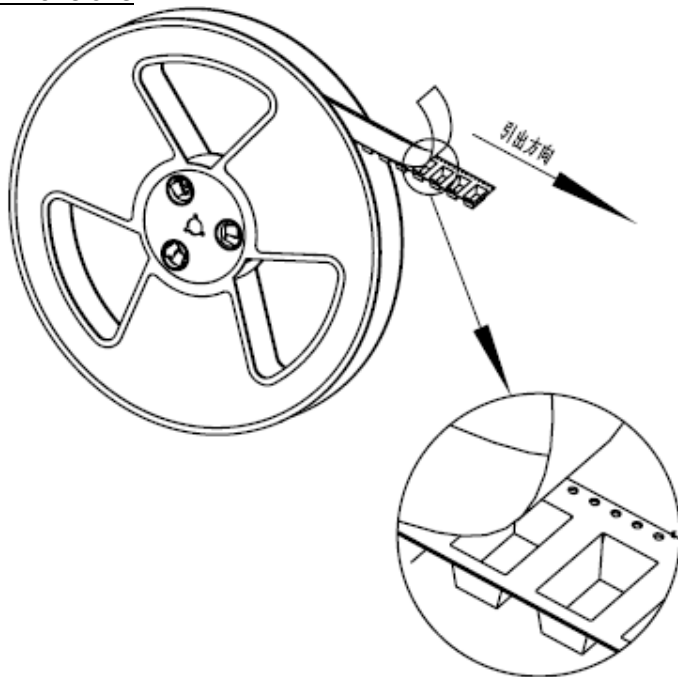
**Packing Information**

Carrier Tape



K0 = 0.90±0.10  
t = 0.20±0.05

Reel Dimensions



Material	PS
Unit	mm
Tolerance	±0.20 mm
Quantity	4000/reel



Outer Packing

Type	Quantity	Dimension	Description	Weight
Carton Box I	10000	200x200x100	anti-static plastic bag & carton box 1 reel / bag	0.85
Carton Box II	20000	200x200x200	5 bags / box (20000 pcs) 10 bags / box (40000 pcs)	1.80

Unit: mm

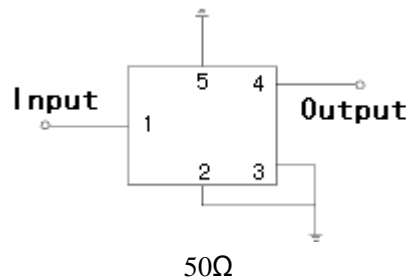
Unit: kg

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

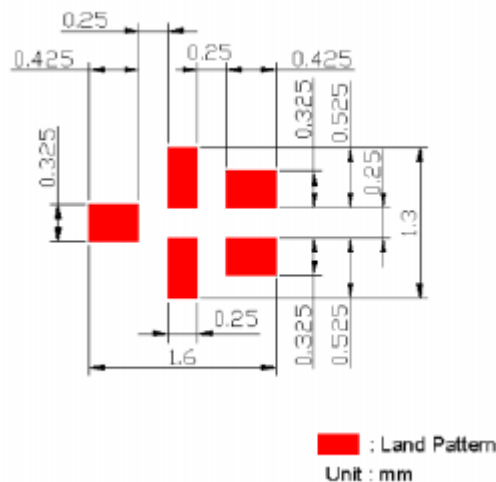
**Remarks**

- 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.

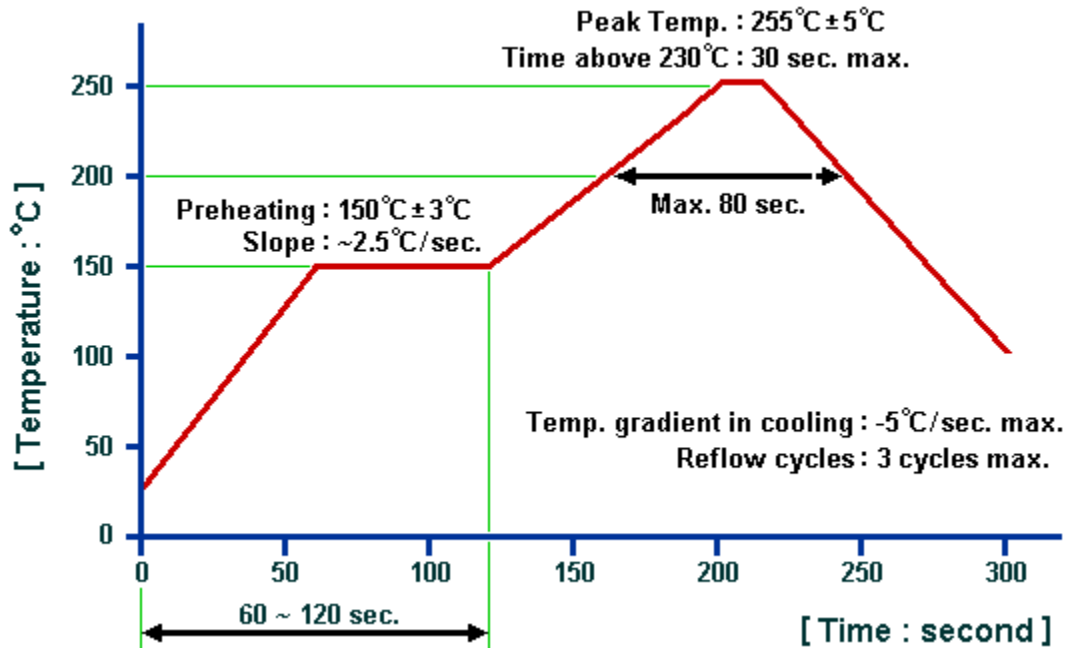
**Test Circuit**



**PCB Footprint**



## 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](mailto:sales@dquaying.com).