



DEQING HUAYING ELECTRONICS CO.,LTD.

APPROVAL SHEET

SAW BANDPASS FILTER PART NO.: NDFH060-2593SA

Product Type:		Customer:	
SAW Filter			
Part NO.:		Customer Part NO.:	
NDFH060-2593SA			
Ver. Ctrl.:		Issued Date:	
SFH060-2593SA -190420-v1.0			

PREPARED BY	CHECKED BY	APPROVED BY

Part No.	:	NDFH060-2593SA
Pages	:	9
Data	:	2019-04-20
Revision	:	SFH060-2593SA -190420-v1.0

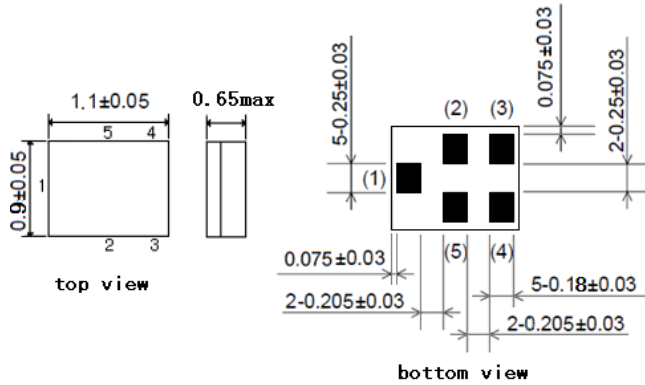
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Features

- 1 Full Band 41 systems.
- 2 Low – loss RF filter for mobile telephone.
- 3 50 Ω /50 Ω unbalanced to unbalanced operation for all filters.
- 4 Package size 1.1mm*0.9mm
- 5 RoHS compatible.

Package Dimensions

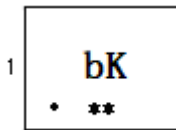
Ceramic Package: Unit: mm



Pin Configuration

1	Input
4	Output
2,3,5	Ground

Marking



Top View, Laser Marking

"bK" Part number
 " 1" Terminal1

"." Dot marking, indicates input 1

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

data	1st	2nd	3rd	4th	5th	6th	7th	8th	th	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 (25+/-2 deg.C)	V_{DC}	3	V
Input power	P	10dBm/8000hrs	
Operating Temperature Range	T_A	-20 ~ +85	°C
Storage Temperature Range	T_{stg}	-40 ~ +85	°C
ESD voltage(Machine Model)	V_{ESD}	50	V
ESD voltage(Human Body Model)	V_{ESD}	125	V
ESD voltage(Changed Device Model)	V_{ESD}	600	V

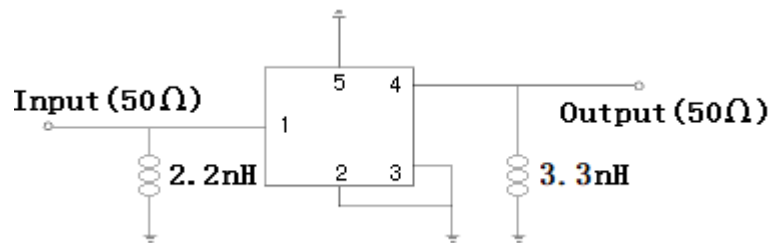
Electrical Characteristics:

Item		Minimum	Typical	Maximum	Unit
Center Frequency	F_o		2593		MHz
Insertion Loss	IL				
	2496 ... 2690 MHz		2.3	3.2	dB
Passband Ripple	Pr				
	2496 ... 2690 MHz		0.6	1.0	dB
VSWR	V_{swr}				
	2496 ... 2690 MHz		1.8	2.3	
Absolute Attenuation	α				
	703 ... 915 MHz	35	61		dB
	1248 ... 1345 MHz	35	44		dB
	1710 ... 1915 MHz	30	35		dB
	1920 ... 1980 MHz	25	34		dB
	2403 ... 2461 MHz	20	38		dB
	2448 ... 2466 MHz	14	30		dB
	2453 ... 2471 MHz	8	21		dB
	2750 ... 2775 MHz	5	35		dB
	4900 ... 5950 MHz	23	38		dB
	4992 ... 5380 MHz	15	40		dB
	7488 ... 8070 MHz	15	30		dB

 RoHS Compliant

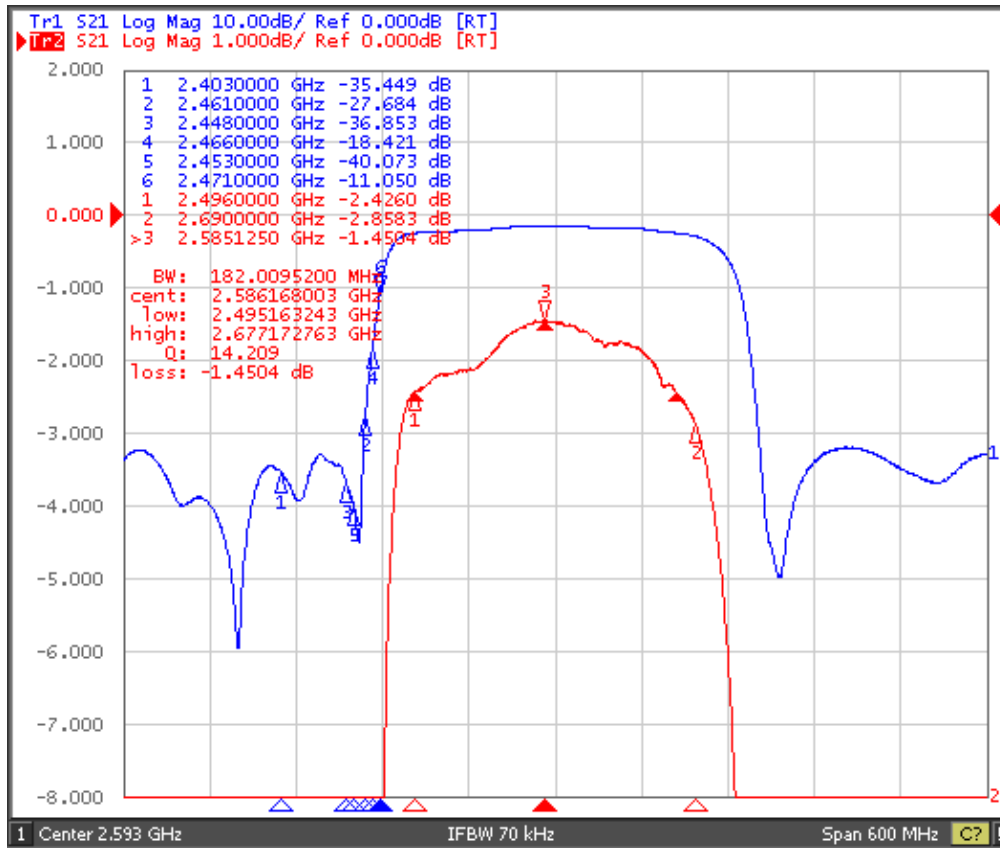
 Electrostatic Sensitive Device

Test Circuit

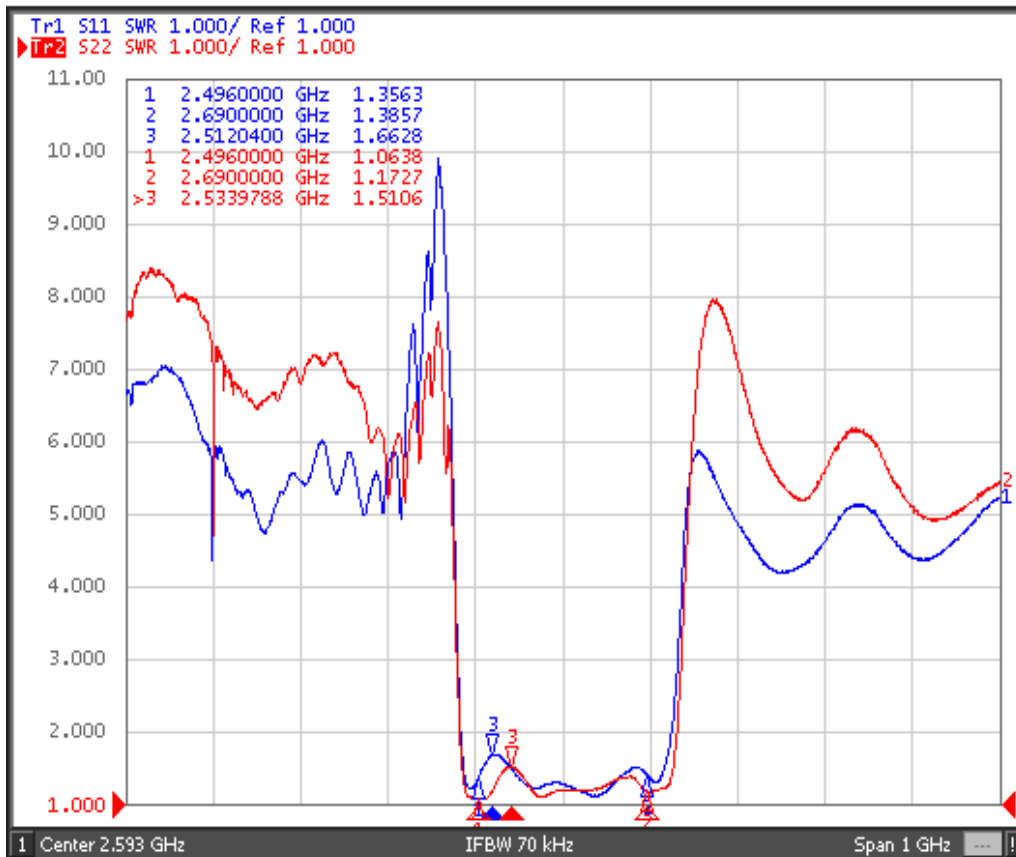


Typical Frequency Response

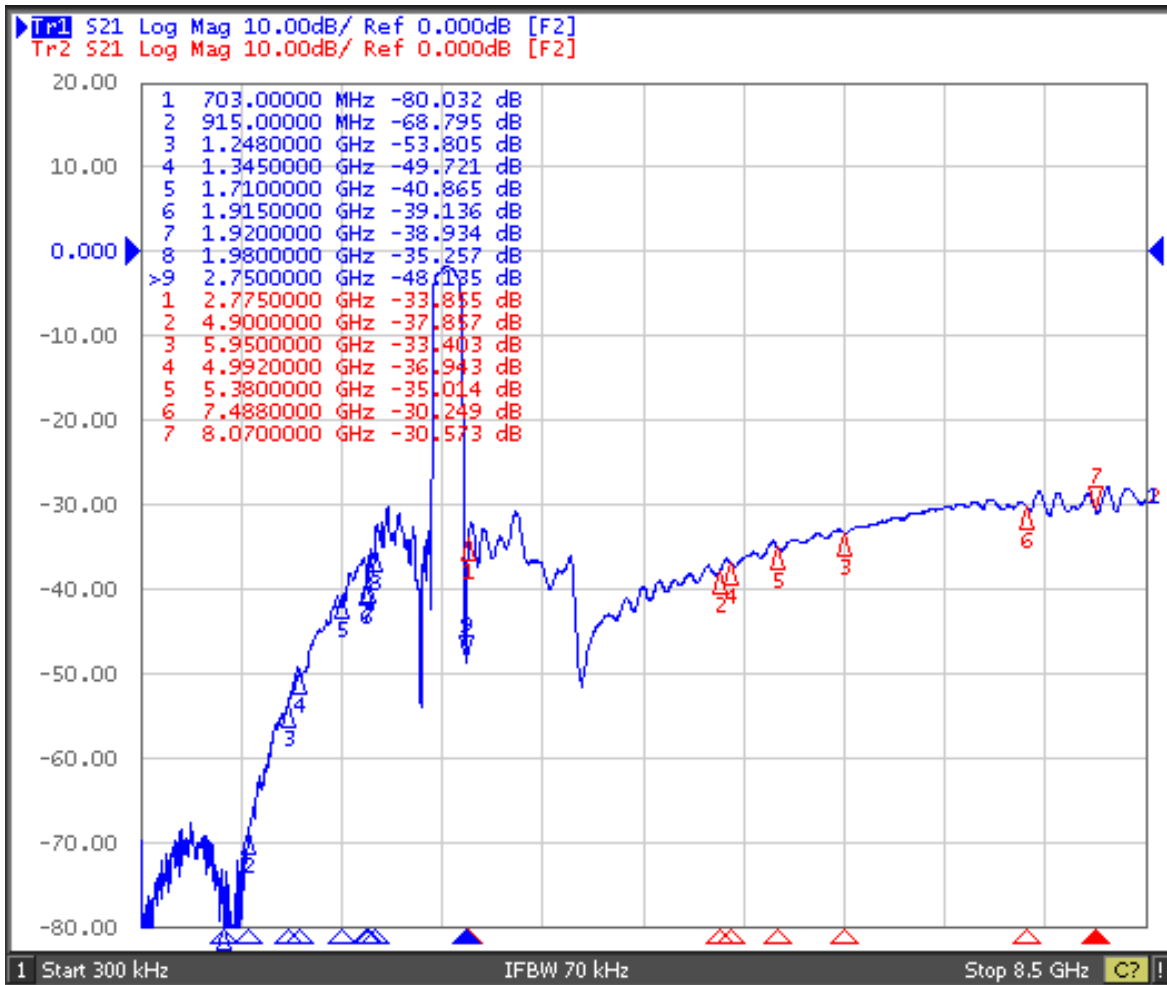
S21



S11 、 S22



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 @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

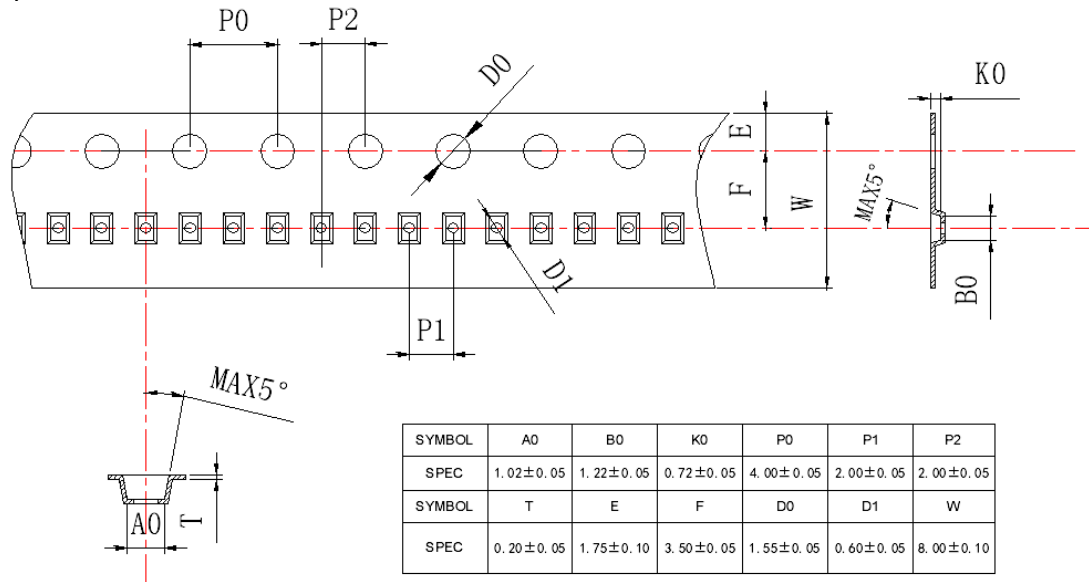
Requirements: The SAW filer shall remain within the electrical specifications after tests.

Remarks

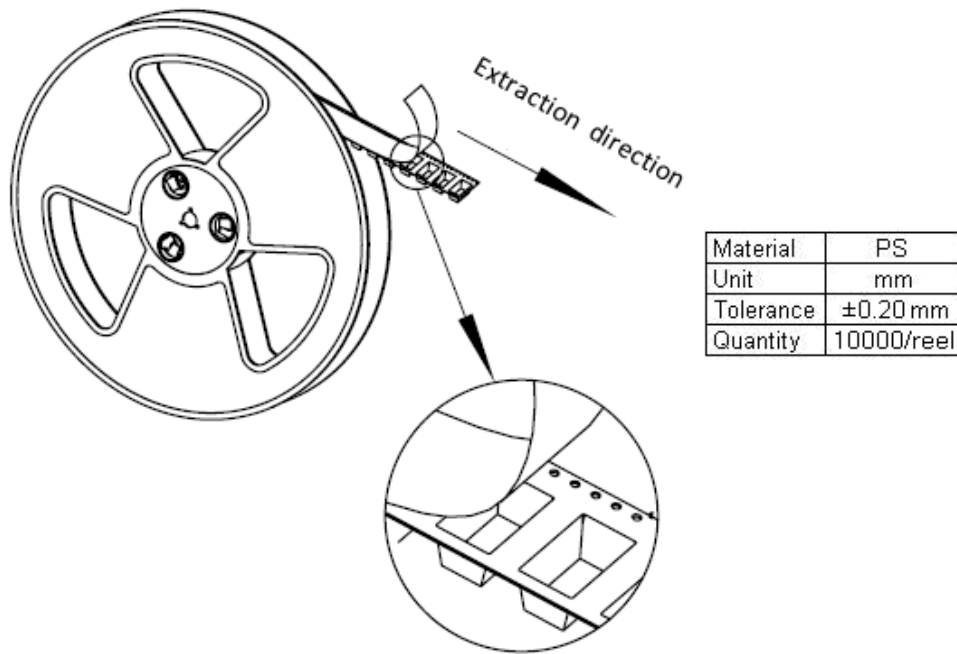
- SAW devices should not be used in any type of fluid such as water, oil, organic solvent, etc.
- Be certain not to apply voltage exceeding the rated voltage of components.
- Do not operate outside the recommended operating temperature range of components.
- Sudden change of temperature shall be avoided, 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



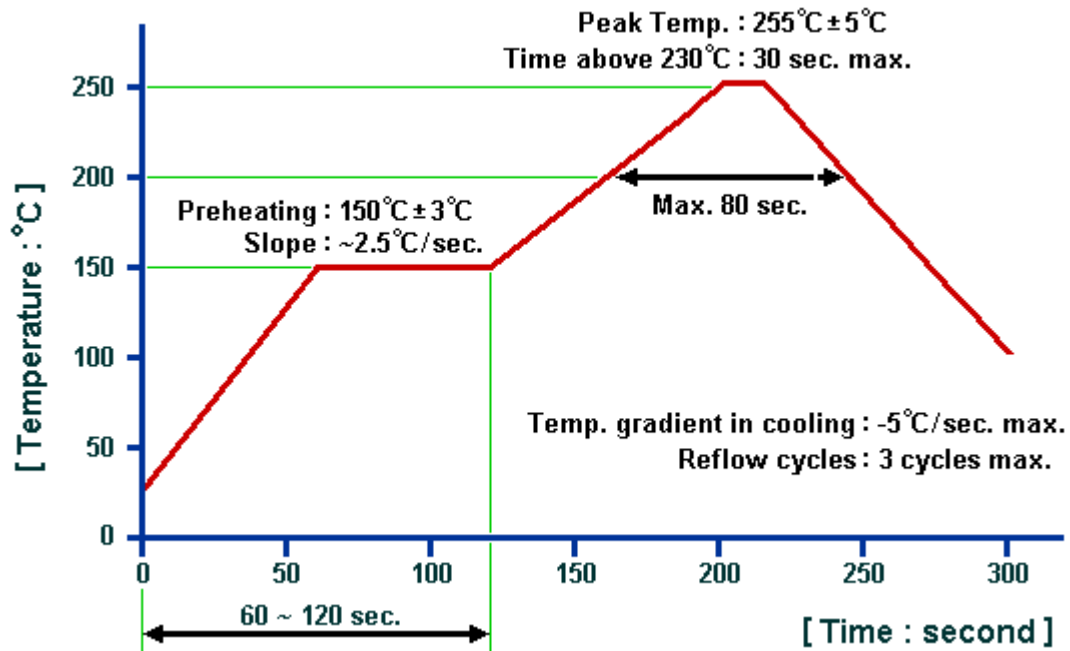
Outer Packing

Type	Quantity	Dimension	Description	Weight
Carton Box I	100000	240×210×285	anti-static plastic bag & carton box 1 reel / bag	2.15
Carton Box II	300000	470×310×285	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.