



DEQING HUAYING ELECTRONICS CO.,LTD.

# APPROVAL SHEET

## SAW BANDPASS FILTER PART NO.: NDFH010-2140SA

<b>Product Type:</b>		<b>Customer:</b>	
SAW Filter			
<b>Part NO.:</b>		<b>Customer Part NO.:</b>	
NDFH010-2140SA			
<b>Ver. Ctrl.:</b>		<b>Issued Date:</b>	
SFH010-2140SA -161222-v1.0			

PREPARED BY	CHECKED BY	APPROVED BY

Part No.	:	NDFH010-2140SA
Pages	:	8
Data	:	2016-12-22
Revision	:	SFH010-2140SA -161222-v1.0

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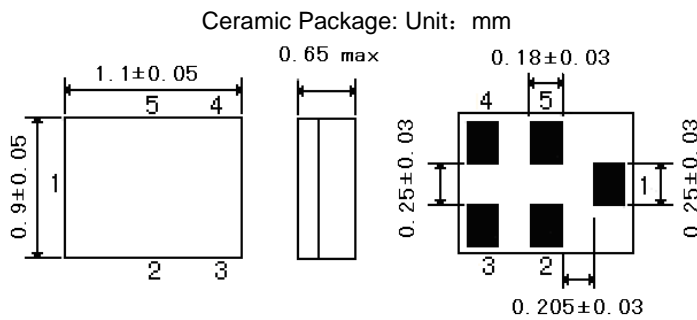
Revision	Date	Description	Remark
SFH010-2140SA -161222-v1.0	2016-12-22	First draft	

**Features**

SAW filter for LTE BAND1/4/10 Rx.

- 1 High stability and reliability with good performance and no adjustment.
- 2 Single ended to Single ended.
- 3 Narrow and sharp pass band characteristics. RoHS compatible.
- 4 Low insertion loss and deep stop band attenuation for interference.
- 5 Useable Passband 60MHz.
- 6 Package size 1.1mm\*0.9mm

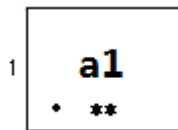
**Package Dimensions**



**Pin Configuration**

1	Unbalance port
4	Unbalance port
2,3,5	Ground

**Marking**



Top View, Laser Marking

"a1" 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>	1s	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	
code	A	B	C	D	E	F	G	H	J	K	
<b>data</b>	11th	12th	13th	14th	15th	16th	17th	18th	19th	20th	
code	L	M	N	P	Q	R	S	T	U	V	
<b>data</b>	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**

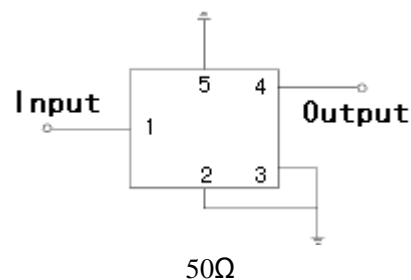
Rating		Value	Unit
DC Voltage (between any Terminals)	$V_{bc}$	10	V
RF Power (in BW)	$P$	15 dBm /2000hr@55°C	
Operating Temperature Range	$T_A$	-30 ~ +85	°C
Storage Temperature Range	$T_{stg}$	-40 ~ +85	°C
ESD Voltage (HB)	$V_{ESD}$	>150	V
Moisture Sensitivity Levels	$MSL$	2A	

**Electrical Characteristics:**

Item		Minimum	Typical	Maximum	Unit	
Insertion Loss	$IL$					
		2110 ...2170 MHz		1.6	2.2	dB
Passband Ripple	$Pr$					
		2110 ...2170 MHz		0.6	1.0	dB
VSWR	$V_{swr}$					
		2110 ...2170 MHz		1.8	2.1	
Absolute Attenuation	$\alpha$					
		10 .... 1710 MHz	35	38		dB
		1710 .... 1755 MHz	46	51		dB
		1755 .... 1920 MHz	45	50		dB
		1920 .... 1980 MHz	46	49		dB
		2015.... 2075 MHz	11	25		dB
		2255 .... 2400 MHz	27	30		dB
		2400 .... 2500 MHz	34	40		dB
		2500 .... 4240 MHz	30	35		dB
		4240 .... 4340 MHz	29	34		dB
4340 ....6000 MHz	25	30		dB		
Input / Output Impedance (Nominal)		50			$\Omega$	

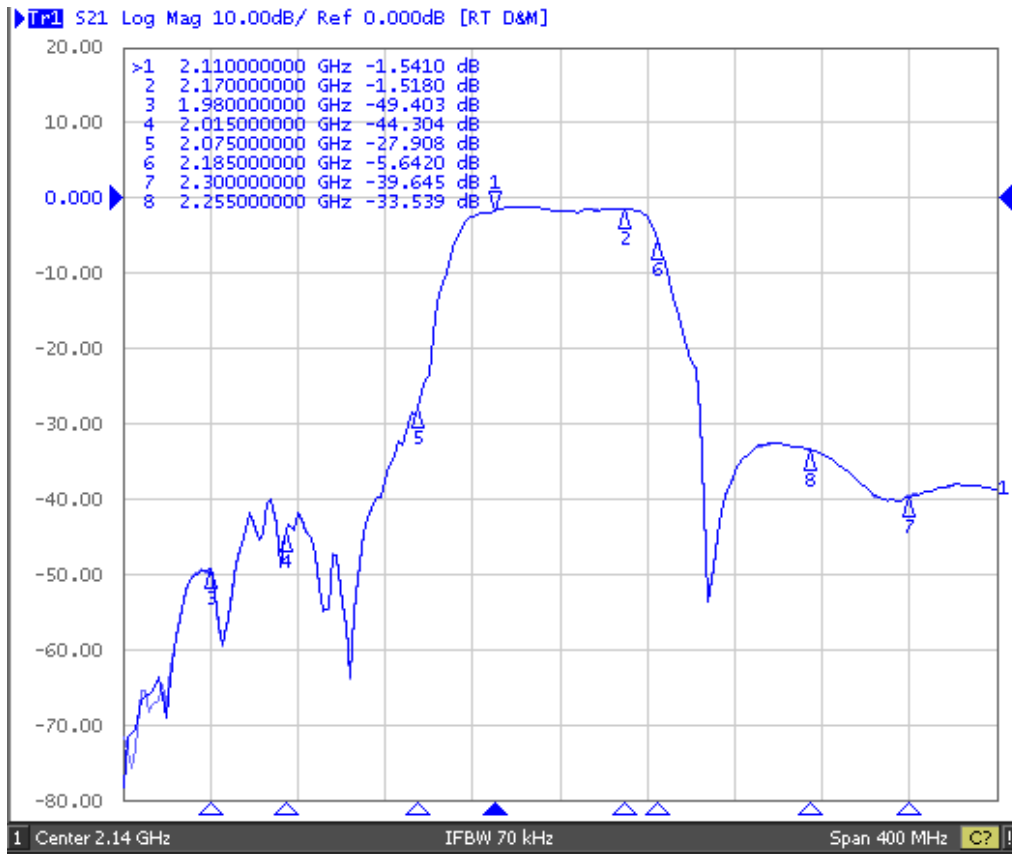
 **RoHS Compliant**

 **Electrostatic Sensitive Device**

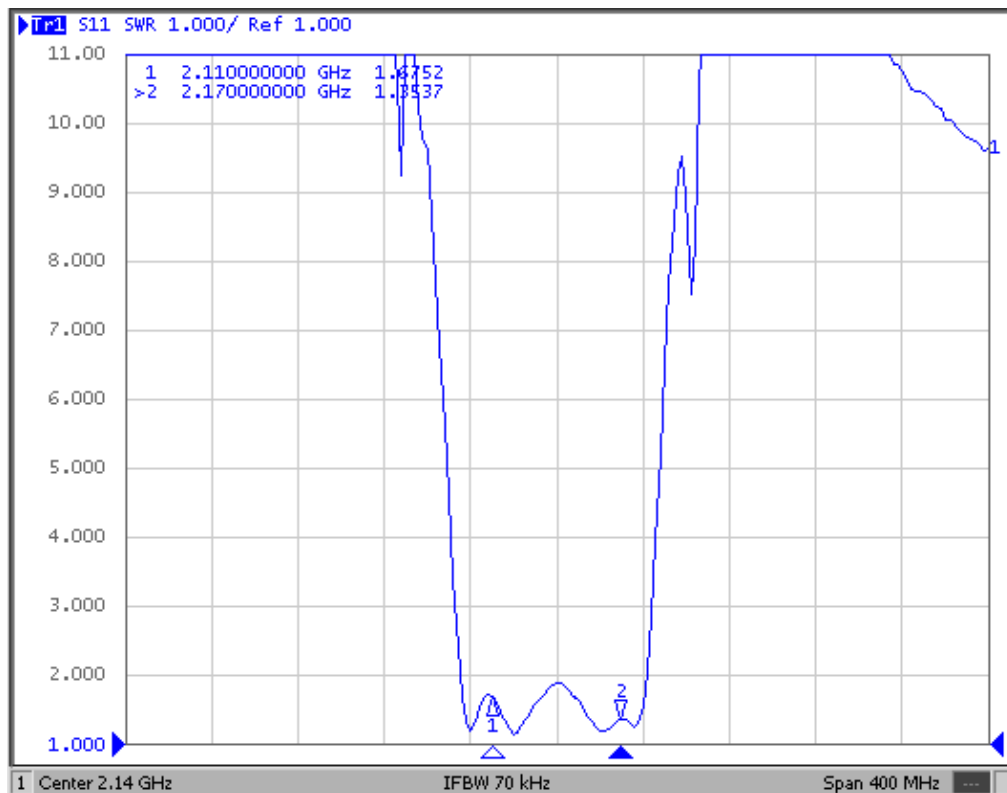
**Test Circuit**

Typical Frequency Response

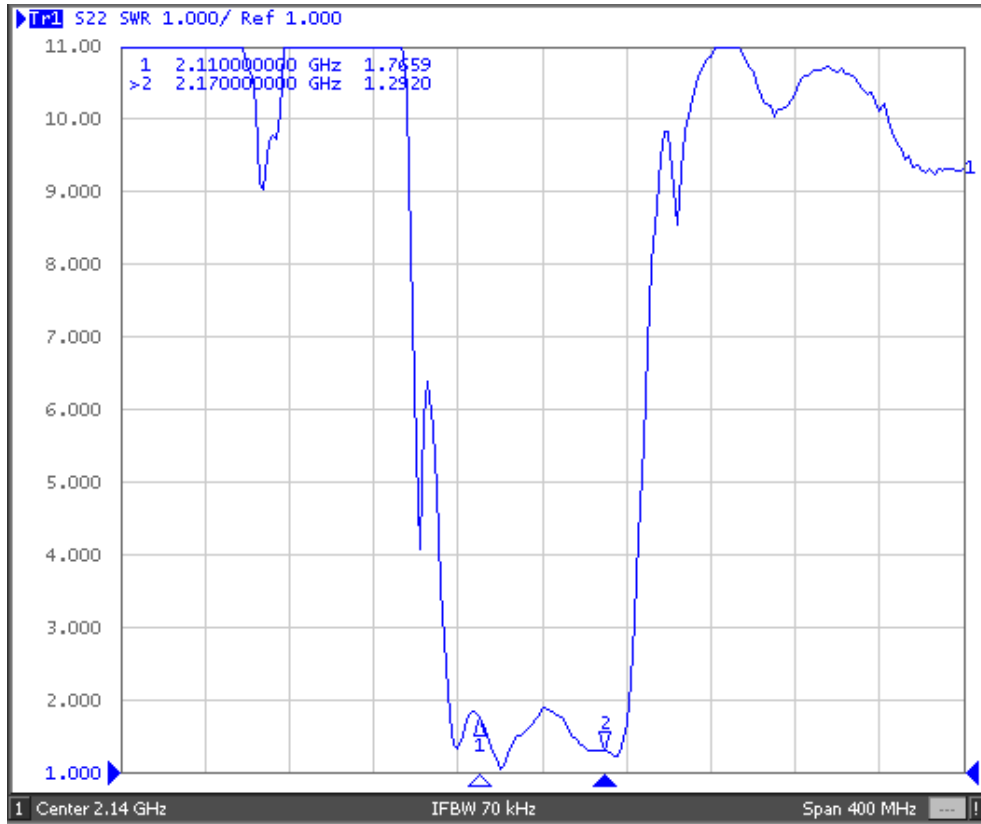
S21



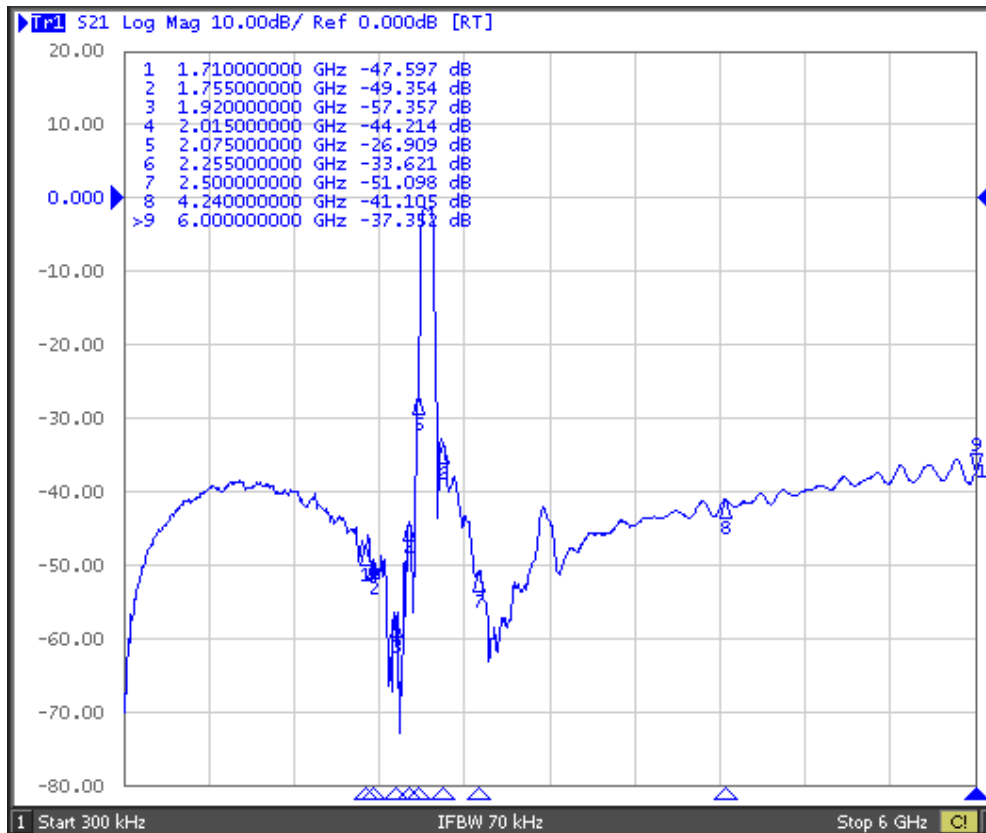
S11



S22



Far side



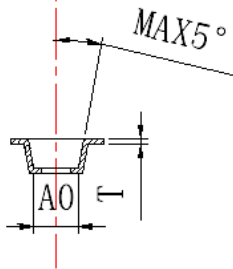
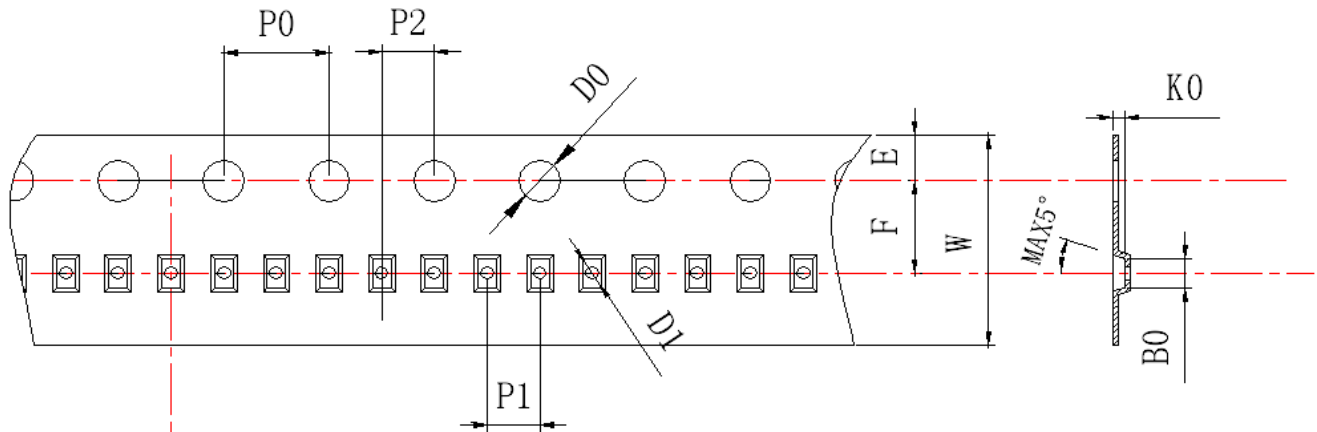
**Stability Characteristics**

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 @125±5°C; 3) Reflow, 3 reflow cycles 4) Drying, Room ambient temperature	177
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	Temperature Humidity bias	JESD22-A106B	85°C 85%RH 240hr	23
5	Unbiased Temperature/Humidity	JESD22-A102C	+121°C 100%RH 96hr	23
6	Human Body Mode ESD	JESD22-A114F	Ta=25°C, ≥150V	5
7	Drop Test	IEC 68-2-32	100cm , 3times Steel floor JIG(110g~150g)	6
8	Solderability	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, 20g peak acceleration	23
10	Mechanical Shock	JESD22-B104	Y1 plane only, 5 pulses, 0.5 ms duration, 1500 g peak acceleration	23

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

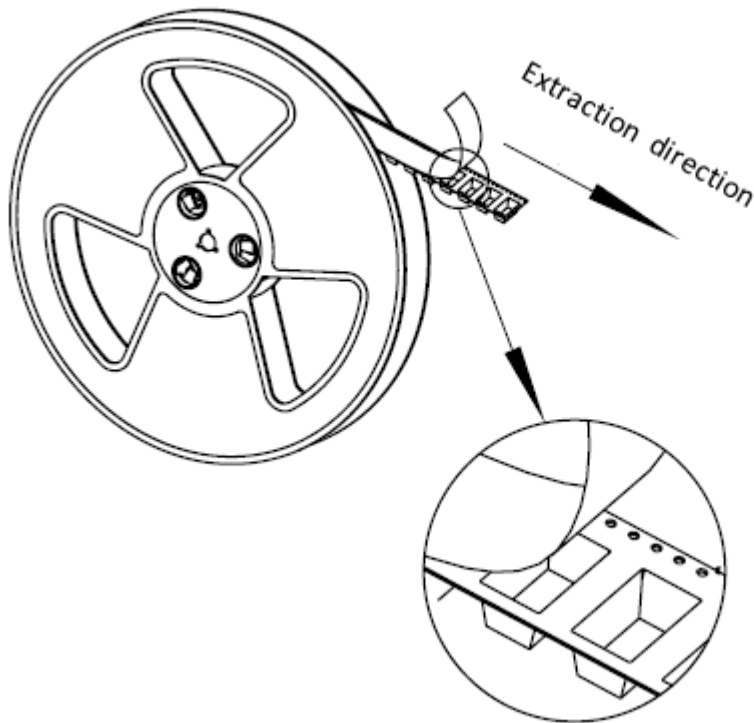
**Packing Information**

Carrier Tape



SYMBOL	A0	B0	K0	P0	P1	P2
SPEC	1.05±0.05	1.25±0.05	0.80±0.05	4.00±0.10	2.00±0.05	2.00±0.05
SYMBOL	T	E	F	D0	D1	W
SPEC	0.20±0.05	1.75±0.10	3.50±0.05	1.55±0.05	0.60±0.05	8.00±0.10

Reel Dimensions



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



**Outer Packing**

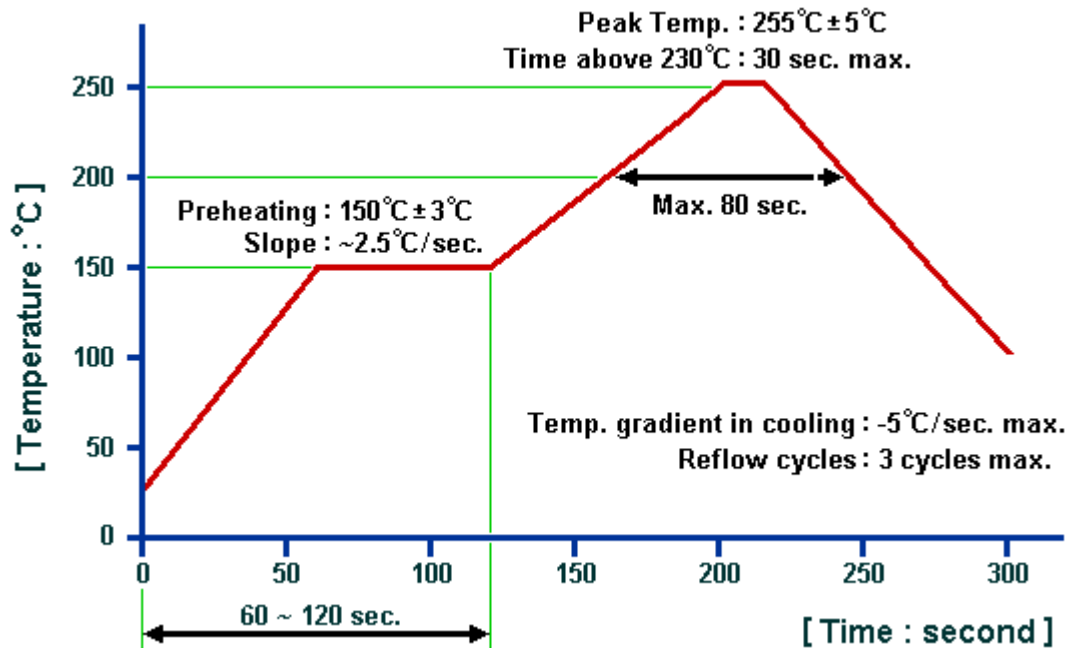
Type	Quantity	Dimension	Description	Weight
Carton Box I	10000	200×200×100	anti-static plastic bag & carton box 1 reel / bag 5 bags / box (50000 pcs) 10 bags / box (100000 pcs)	0.85
Carton Box II	20000	200×200×200		1.80

Unit: mm

Unit: kg

**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.

**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).