



DEQING HUAYING ELECTRONICS CO.,LTD.

APPROVAL SHEET

SAW BANDPASS FILTER PART NO.: NDFH009-2590SA

| | | | |
|----------------------------|--|---------------------------|--|
| Product Type: | | Customer: | |
| SAW Filter | | | |
| Part NO.: | | Customer Part NO.: | |
| NDFH009-2590SA | | | |
| Ver. Ctrl.: | | Issued Date: | |
| SFH009-2590SA -170711-v1.0 | | | |

| PREPARED BY | CHECKED BY | APPROVED BY |
|-------------|------------|-------------|
| | | |

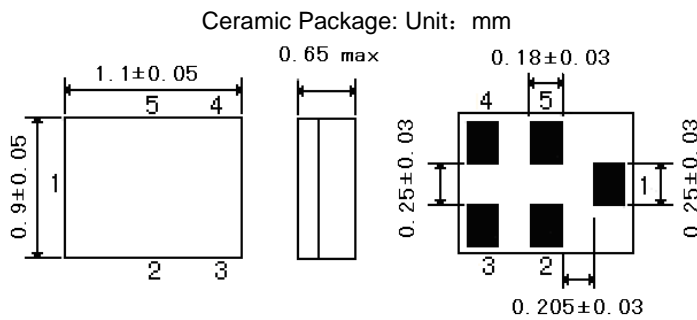
| | | |
|----------|---|----------------------------|
| Part No. | : | NDFH009-2590SA |
| Pages | : | 8 |
| Data | : | 2017-07-11 |
| Revision | : | SFH009-2590SA -170711-v1.0 |

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Website : <http://www.dghuaying.com>

Features

- 1 TD-LTE band 41(2535-2655MHz)Post PA Tx filter.
- 2 Low – loss RF filter for mobile telephone.
- 3 Narrow Band 41systems.
- 4 Usable pass band 120MHz(110MHz included).
- 5 50Ω /50Ω unbalanced to unbalanced operation for all filters.
- 6 Low insertion attenuation.
- 7 Package size 1.1mm*0.9mm
- 8 RoHS compatible.

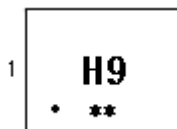
Package Dimensions



Pin Configuration

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

Marking



Top View, Laser Marking

"H9" 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

| | | | | | | | | | | | |
|-------------|------|------|------|------|------|------|------|------|------|------|------|
| 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 |

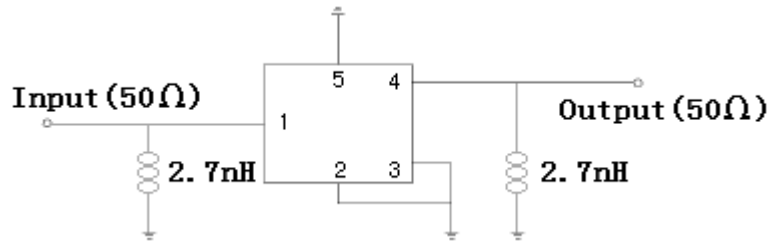
Maximum Ratings

| Rating | | Value | Unit |
|--|-----------|--------------------|------|
| DC Voltage (between any Terminals) | V_{DC} | 5 | V |
| Input power at 2545-2655MHz | P | 29dBm/5000hrs/55°C | |
| Input power for other frequency ranges | P | 10dBm/5000hrs/55°C | |
| Operating Temperature Range | T_A | -40 ~ +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:

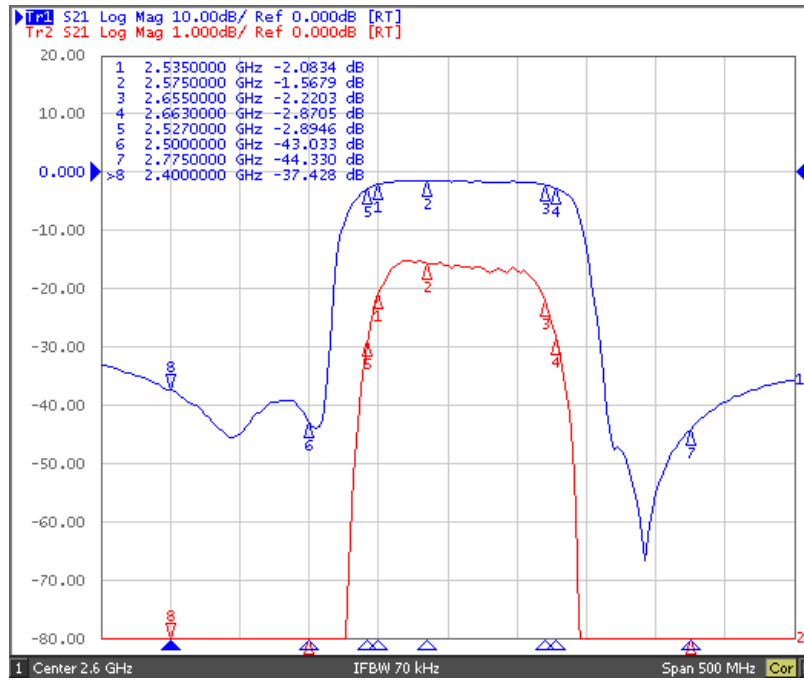
| Item | | Minimum | Typical | Maximum | Unit |
|----------------------|-----------|---------|---------|---------|------|
| Center Frequency | F_o | | 2590 | | MHz |
| Insertion Loss | IL | | | | |
| 2535 ... 2545 MHz | | | 2.1 | 3.3 | dB |
| 2545 ... 2575 MHz | | | 1.4 | 2.2 | dB |
| 2555 ... 2655 MHz | | | 2.1 | 2.7 | dB |
| 2575 ... 2635 MHz | | | 1.4 | 2.2 | dB |
| 2635 ... 2655 MHz | | | 2.1 | 3.3 | dB |
| Passband Ripple | Pr | | | | |
| 2535 ... 2655 MHz | | | 1.2 | 2.4 | dB |
| VSWR | V_{swr} | | | | |
| 2535 ... 2655 MHz | | | 1.4 | 2.0 | |
| Absolute Attenuation | α | | | | |
| 50 699 MHz | | 45 | 50 | | dB |
| 699 916 MHz | | 38 | 42 | | dB |
| 916 925 MHz | | 38 | 42 | | dB |
| 925 960 MHz | | 37 | 41 | | dB |
| 960 1440 MHz | | 28 | 32 | | dB |
| 1440 1565MHz | | 28 | 31 | | dB |
| 1565 1615 MHz | | 28 | 31 | | dB |
| 1615 1805 MHz | | 28 | 31 | | dB |
| 1805 1830 MHz | | 28 | 31 | | dB |
| 1830 2120 MHz | | 28 | 31 | | dB |
| 2120 2400 MHz | | 30 | 34 | | dB |
| 2400 2500 MHz | | 35 | 38 | | dB |
| 2775 4990 MHz | | 27 | 33 | | dB |
| 49905900 MHz | | 25 | 30 | | dB |
| 6000 6900 MHz | | 23 | 29 | | dB |
| 70007990 MHz | | 15 | 25 | | dB |

Test Circuit

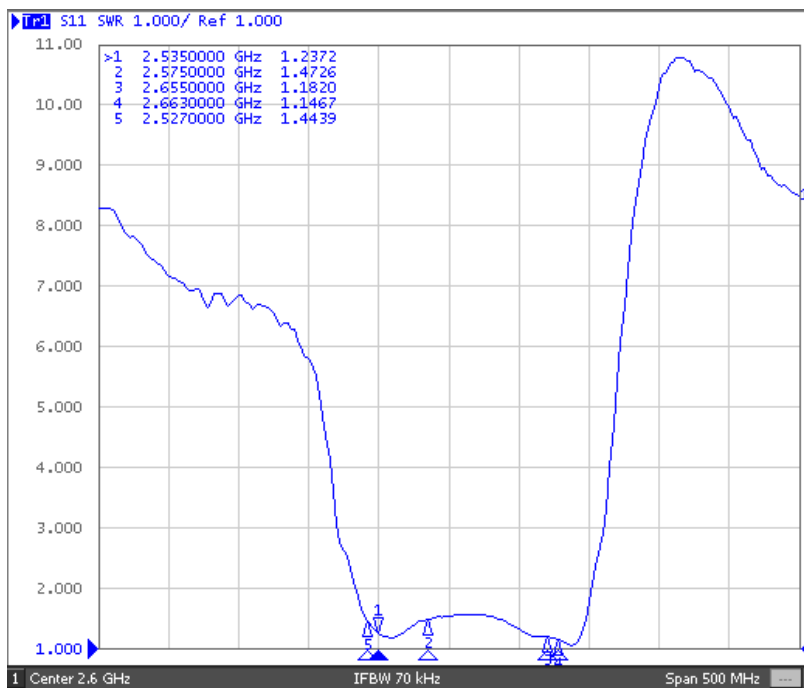


Typical Frequency Response

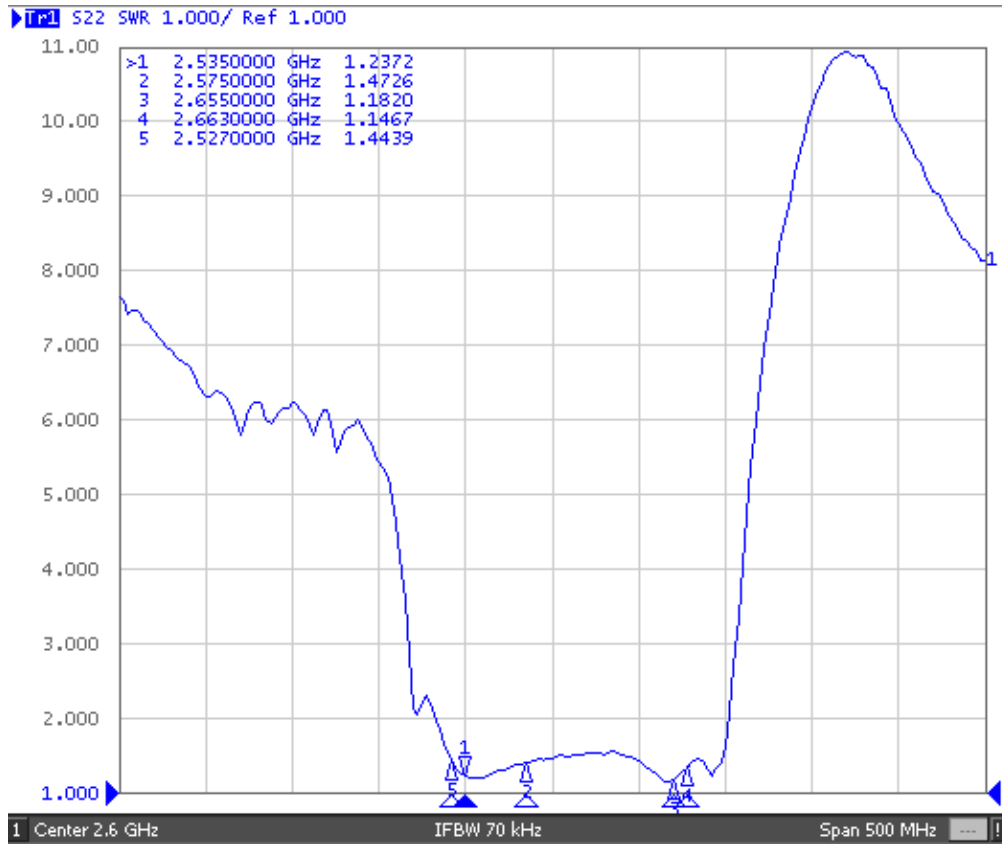
S21



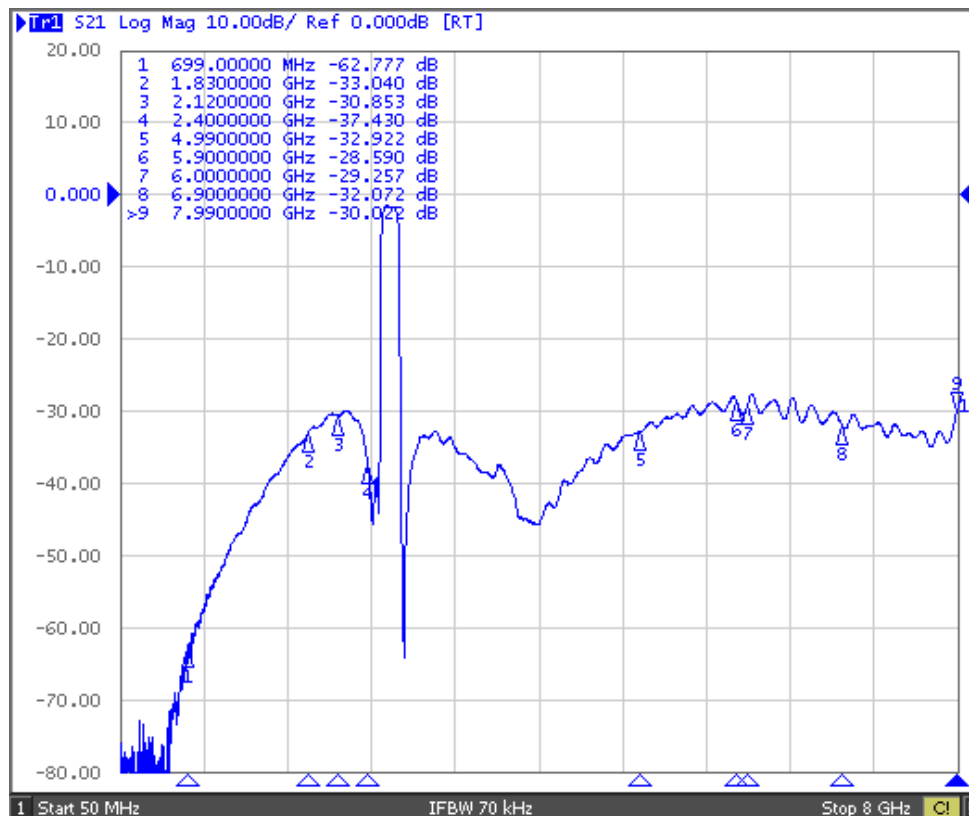
S11



S22



Far side



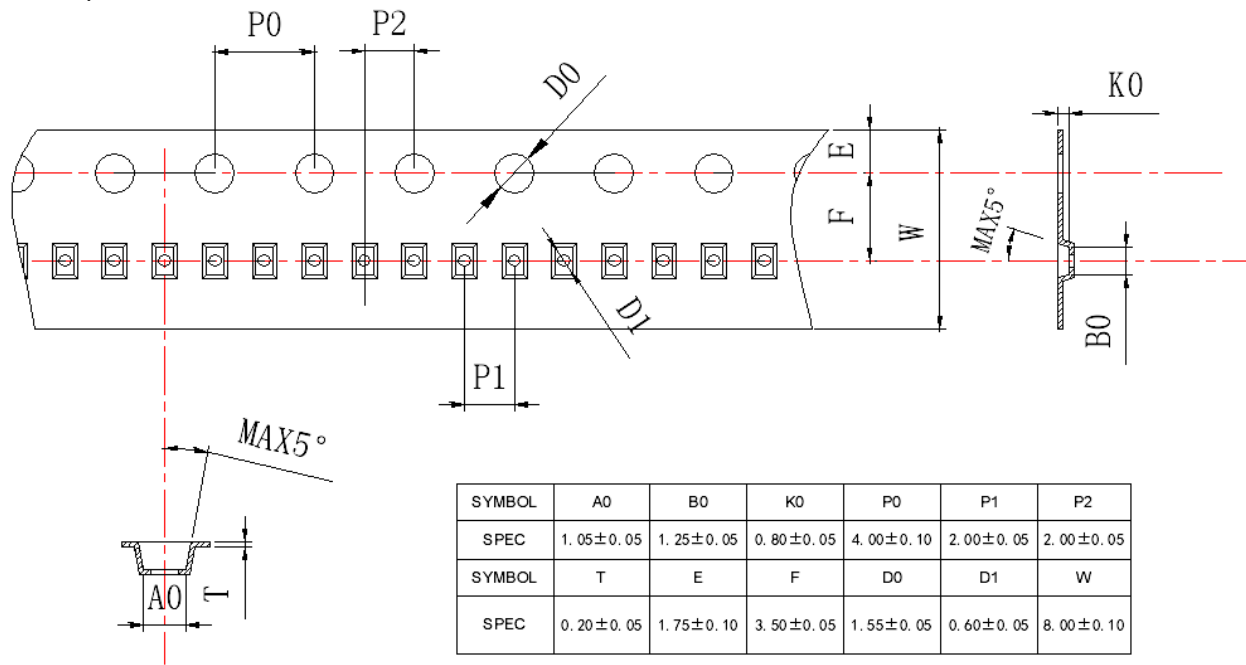
Stability Characteristics

| 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 |

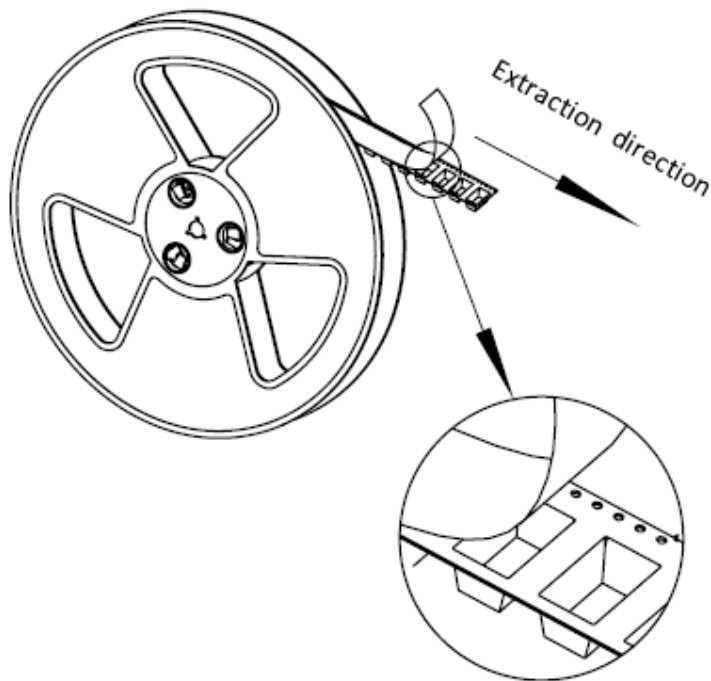
Requirements: The SAW filer shall remain within the electrical specifications after tests.

Packing Information

Carrier Tape



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 | 0.85 |
| Carton Box II | 20000 | 200×200×200 | 5 bags / box (50000 pcs) 10 bags / box (100000 pcs) | 1.80 |

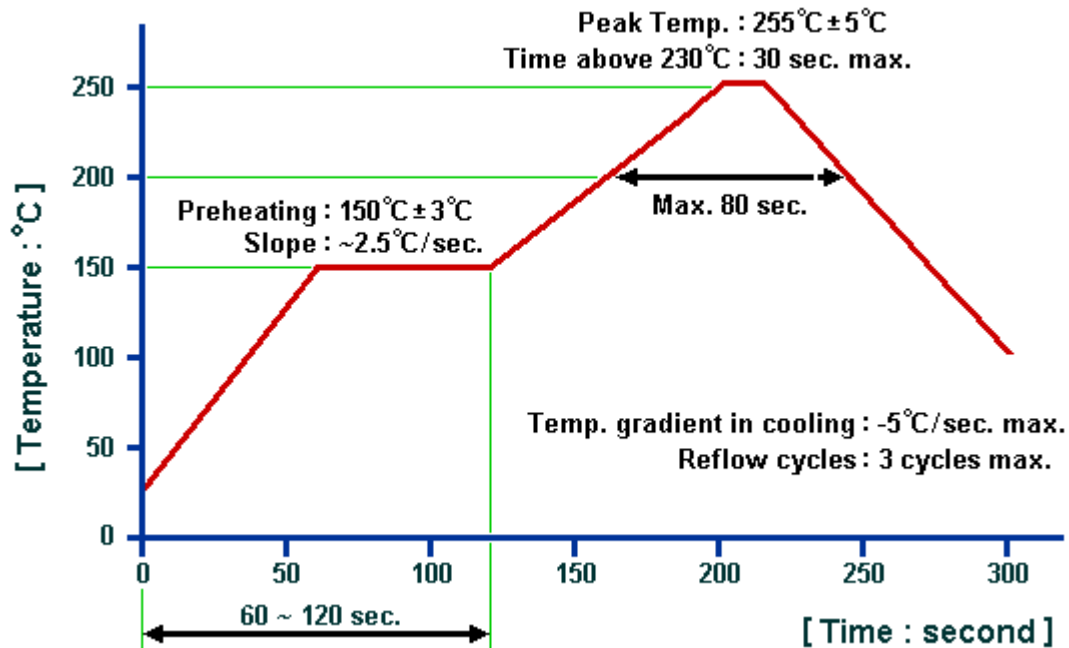
Unit: mm

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.