

SK3700S_H

MSL 3 Device

WI-FI, RF-Rx SAW Filter Revision
0 : April 2020



- Description
- Key Applications
- Features
- Package & Dimensions:
- Matching Circuit
- Absolute Maximum Ratings
- Electrical Specifications
- Transmission coefficient
- Reflection coefficients
- Packing material
- Recommended Soldering Profile
- Important Notice

1 Description

SK3700S_H is a high-performance Surface Acoustic Wave (SAW) Bandpass filter optimized for co-existence between cellular 4G/LTE-TDD Band B40, B41, LTE-FDD Band B7, and Wi-Fi/Bluetooth applications operating in the range of 2.4-2.5 GHz license-free ISM band. It is designed to provide both low insertion loss in the Wi-Fi/BT Band and high rejection in the cellular Bands, in order to enable simultaneous operation of Wi-Fi/BT and 4G/LTE within the same device, such as smartphones.

SK3700S_H uses advanced Chip Scale Package (CSP) technology and is housed in an industry-standard, 5-pin 1.1mmx0.9mm package with a low profile of 0.6mm max.

2 Key Applications

- Smartphones
- Wi-Fi APs, Routers, Home Gateways
- Portable Hotspots
- Smart Meters
- Bluetooth/BLE Devices
- IoT Devices in 2.4-2.5GHz ISM Band

3 Features

- Low Insertion Loss: 1.9dB at Mid-Band
- High Rejection in B40/B41/B7
- Small Footprint: $0.325 \pm 0.03\text{mm} \times 0.25 \pm 0.03\text{mm}$.
- Package size $1.1 \pm 0.05\text{mm} \times 0.9 \pm 0.05\text{mm}$
- Electrostatic Sensitive Device(ESD)
- Package height 0.6mm max.
- Single-Ended Operation
- RoHS Compliant

4 Package & Dimensions:

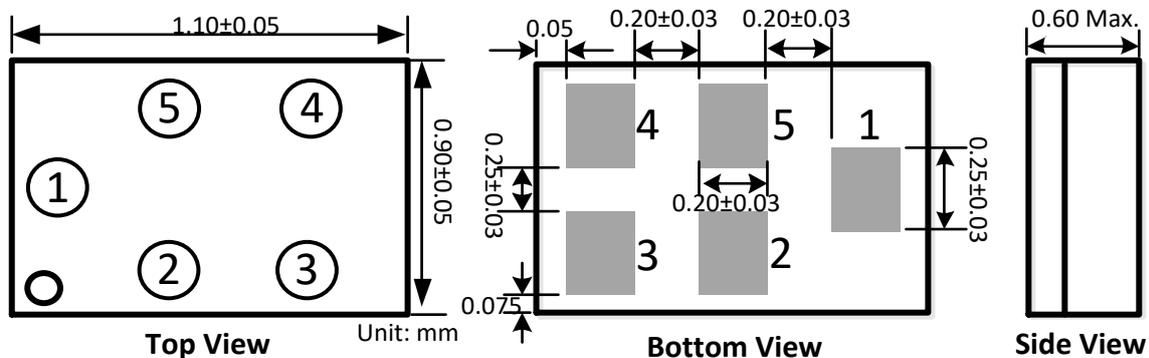


Figure 1: Drawing of Package with each tolerance range

5 Pin configuration

- 1 Input (recommended)
- 4 Output (recommended)
- 2,3,5 To be grounded

6 Matching Circuit

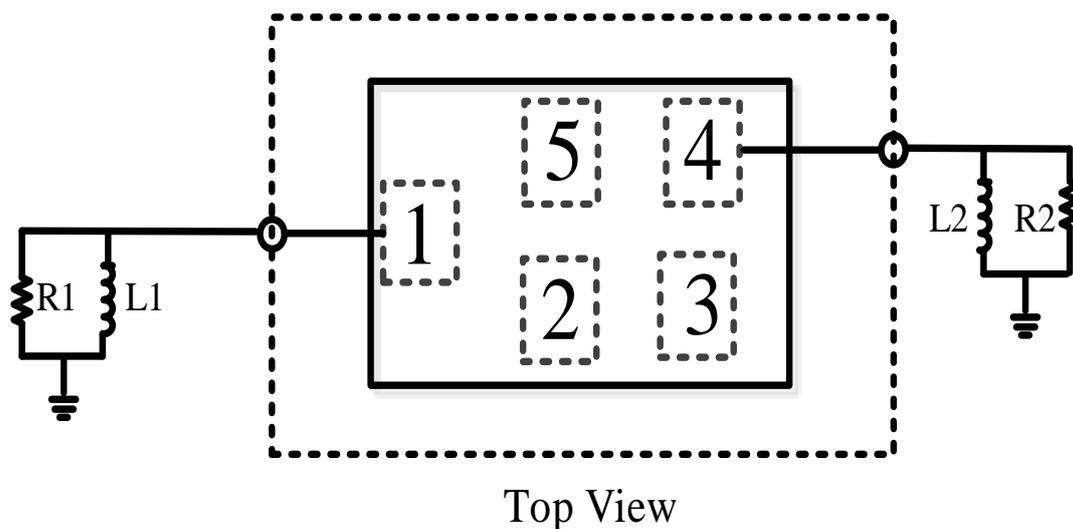


Figure 2: Schematic of matching circuit. No external matching components required.

R1: 50 Ohm	L1: NC
R2: 50 Ohm	L2: NC

7 Absolute Maximum Ratings

Parameter	Rating	Unit
Operating Temperature	-35 to +85	°C
Storage Temperature	-40 to +85	°C
Maximum Input Power	+28	dBm
Maximum DC Voltage	5	V
Input terminating impedance	50	Ω
Output terminating impedance	50	Ω
Input Power@input port	P _{in} =20dBm Continuous wave for 2000h@55° C	

1) Not valid for packaging material. Storage temperature for packaging material is -25° C to +40° C.

2) In case of applied DC voltage blocking capacitors are mandatory

8 Electrical Specifications

(At $T_a=25^{\circ}\text{C}$, unless otherwise specified, as measured on the evaluation board of SK3700S_H with feed line loss de-embedded.)

Parameter	Conditions	Min	Typ.	Max	Unit
Insertion Loss	2403 - 2471 MHz	-	1.9	2.5	dB
	2458 - 2476 MHz	-	1.8	2.4	dB
	2463 - 2481 MHz	-	2.2	2.8	dB
Passband Ripple	2403 - 2481 MHz	-	1.2	1.6	dB
Attenuation	800 - 2300 MHz	25	29	-	dB
	2300 - 2370 MHz	29	35	-	dB
	2370 - 2380 MHz	10	15	-	dB
	2510 - 2570 MHz	36	41	-	dB
	2570 - 2620 MHz	30	33	-	dB
	2620 - 2690 MHz	30	32	-	dB
VSWR Input	2403 - 2481 MHz	-	1.7	2.0	-
VSWR Output	2403 - 2481 MHz	-	1.7	2.0	-

9 Transmission coefficient



Figure 3: |S21|

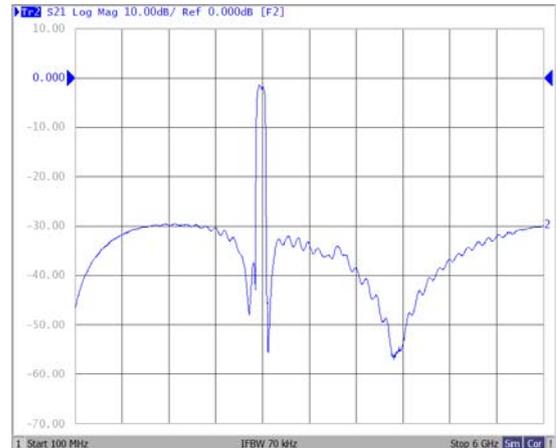


Figure 4: Wide Band |S21|

10 Reflection coefficients

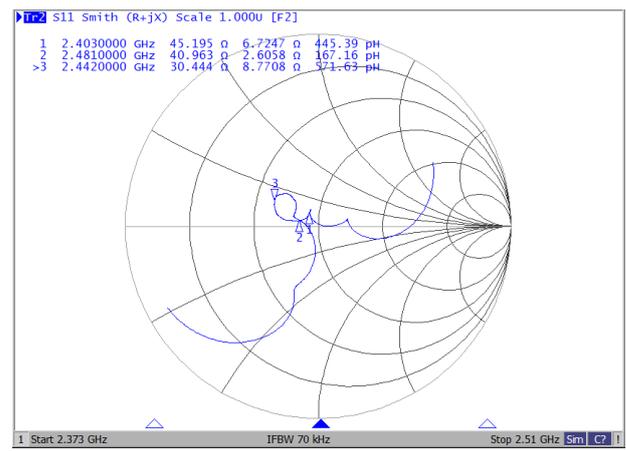
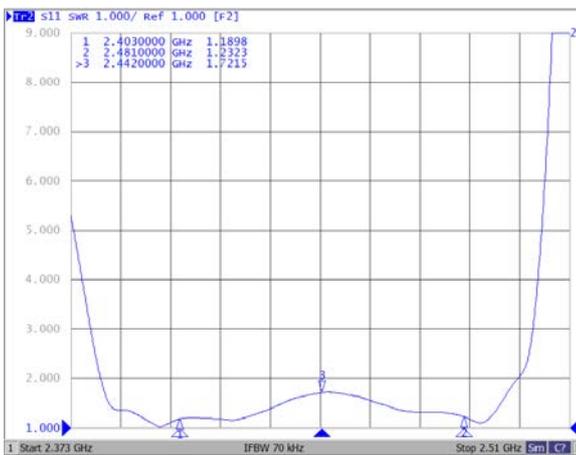


Figure 5: Reflection coefficient for S11

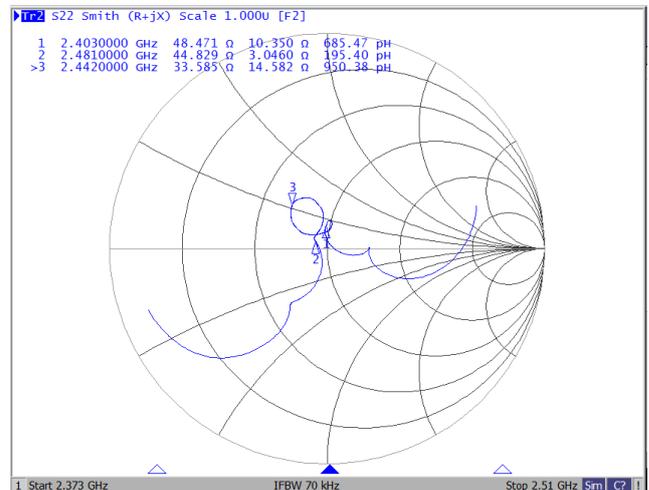
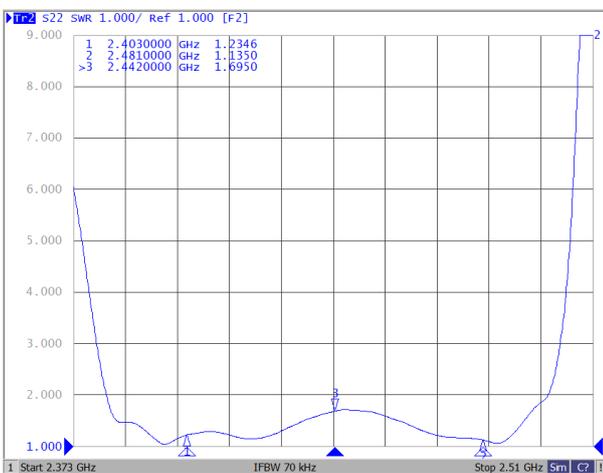


Figure 6: Reflection coefficient for S22

11 Packing material

11.1 Tape

Tensile Strength of Carrier Tape: Carrier tape 10N or more; Cover tape 5N or more. Packaging quantities: 5000 PCS / Reel.

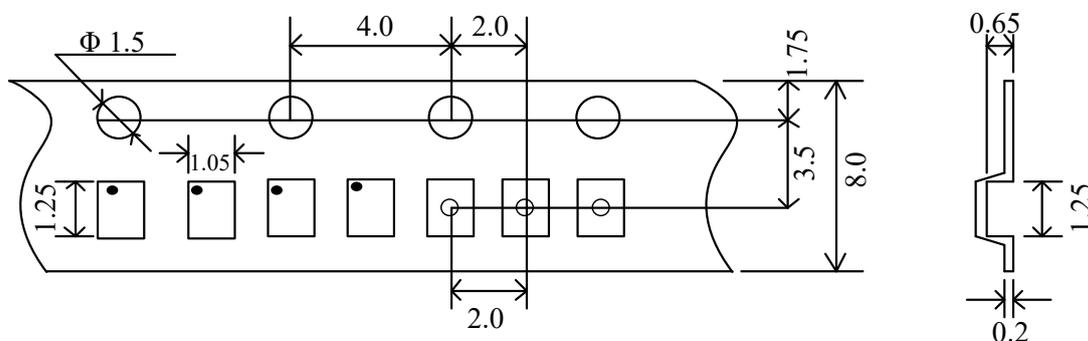


Figure 7: Drawing of tape with tape dimensions according above.

11.2 Reel with diameter of 178mm

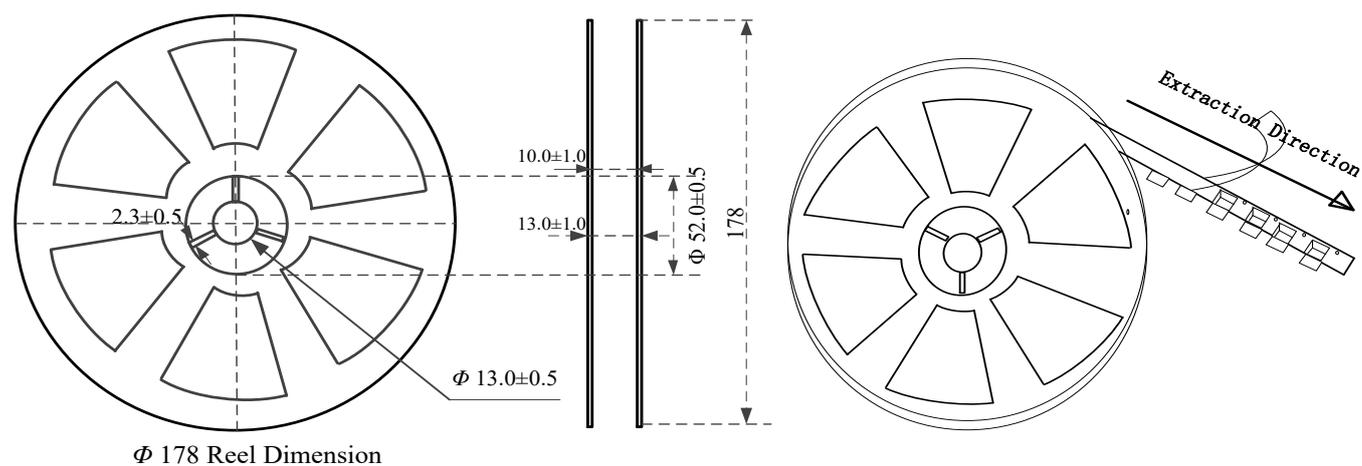


Figure 8: Drawing of reel with diameter of 178mm.

12 Recommended Soldering Profile

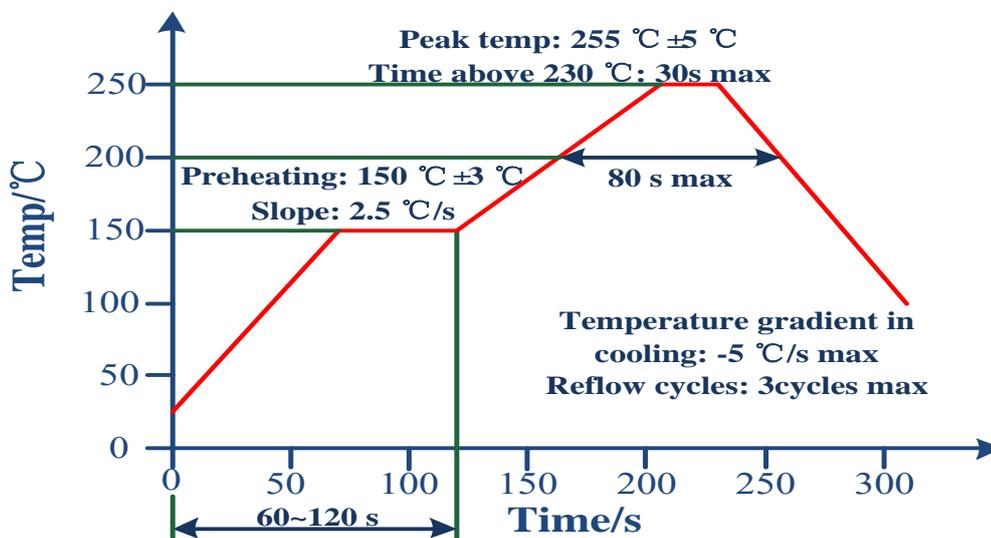


Figure 12: Recommended Reflow profile for convection and infrared soldering-lead-free solder.

13 Important Notice

- SAW devices should not be used in any type of fluid such as water, oil, organic solvent, etc..
- Do not operate outside the recommended operating temperature range.
- Sudden change of temperature shall be avoided, deterioration of the characteristics may occur.
- Be careful of temperature and duration when soldering.
- Do not place soldering iron on the body.
- Be careful not to subject for 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.
- ROHS compliance.
- ESD (Electrostatic Discharge) sensitive device.