



**Data Sheet**  
**159.5MHz SAW 5050**  
**SPT159M5050A**

V1.0

**Description:**

The Spectron SPT159M5050A is a SAW filter that work frequency ranges from 156.5MHz to 162.5MHz. It is designed for applications in wireless module and Information & Communications field.

The SPT159M5050A provides +20 dBm power handling, low insertion loss and high out of band rejection.

The design and manufacturing of the SPT159M5050A exploit Spectron's exclusive TSAW technology to deliver competitive performance against state of the art at a low cost.

The SPT159M5050A is compatible with high volume, lead-free SMT soldering processes.

**Features:**

- Single-Ended Input and Output
- Terminating Impedance: 50  $\Omega$
- RoHS Compliant
- Package size 5.00x5.00x1.50mm<sup>3</sup>

**Specifications:**

- Operation Temperature: -40°C to +85°C
- Low-loss SAW component
- Low amplitude ripple
- Sharp rejections at both out-bands
- Usable passband 6 MHz

**Applications:**

- Information & Communications Devices
- Wireless module

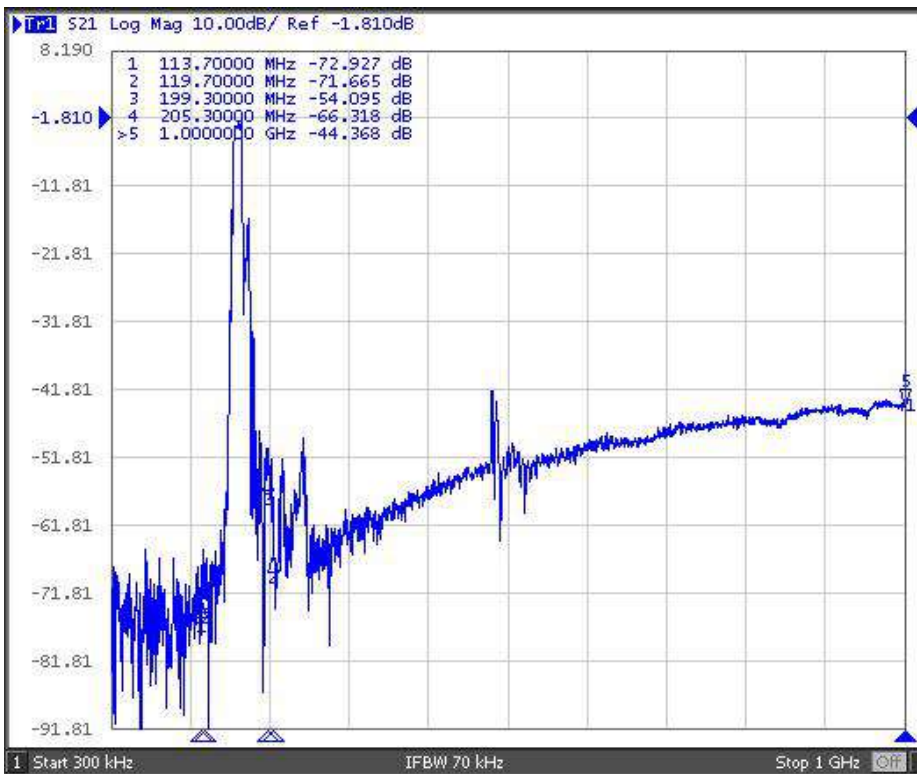
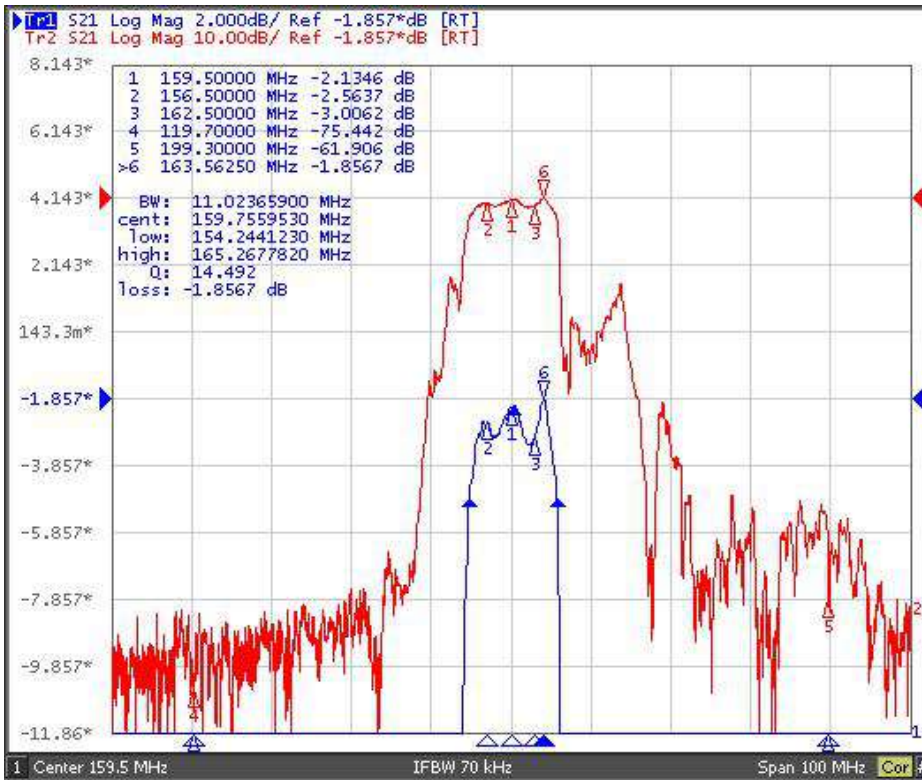
## Electrical Specifications

**Table 1** Electrical Specifications.

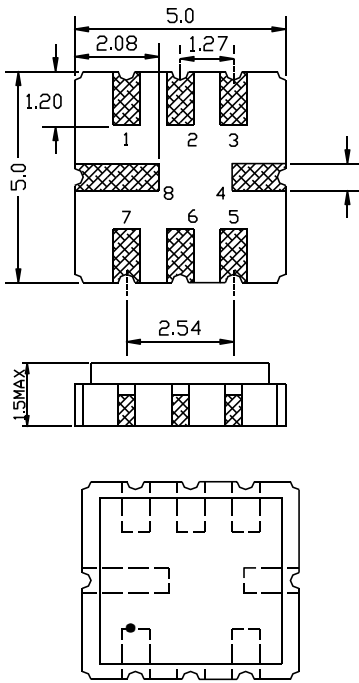
| Item                   |                      | Minimum | Typical | Maximum | Unit |
|------------------------|----------------------|---------|---------|---------|------|
| Center Frequency       | fc                   |         | 159.5   |         | MHz  |
| Insertion Loss         | @159.50 MHz          |         | 2.2     | 3.5     | dB   |
| Insertion Loss         | 156.50 – 162.50 MHz  |         | 3.1     | 4.5     | dB   |
| Amplitude Ripple (p-p) | 156.50 – 162.50 MHz  |         | 1.4     | 2.0     | dB   |
| -3dB Bandwidth         | BW <sub>3dB</sub>    | 8.0     | 11.0    |         | MHz  |
| Absolute Attenuation   | α                    |         |         |         |      |
|                        | DC - 113.70 MHz      | 50.0    | 55.0    |         | dB   |
|                        | 113.70 - 119.70 MHz  | 50.0    | 55.0    |         | dB   |
|                        | 199.30 - 205.30 MHz  | 40.0    | 45.0    |         | dB   |
|                        | 205.30 - 1000.00 MHz | 35.0    | 40.0    |         | dB   |

1. Min/Max specifications are guaranteed at the indicated temperature (unless otherwise noted).
2. Typical data is the average value (arithmetic mean) of the parameter over the indicated band at +25°C

Figure 1 Electrical Characteristics: Frequency response.

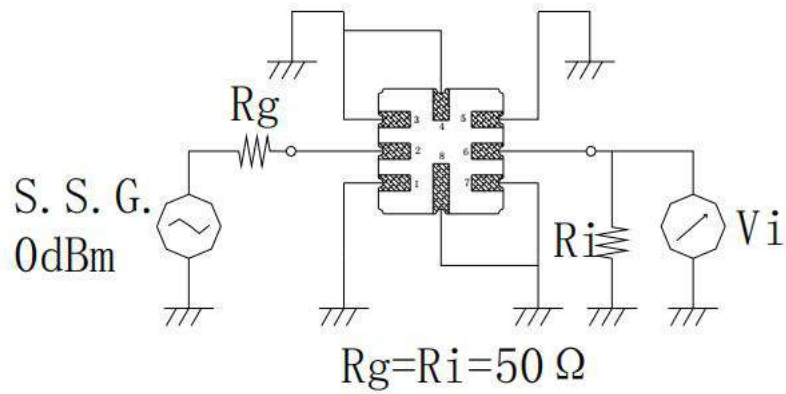


**Package & Dimensions**



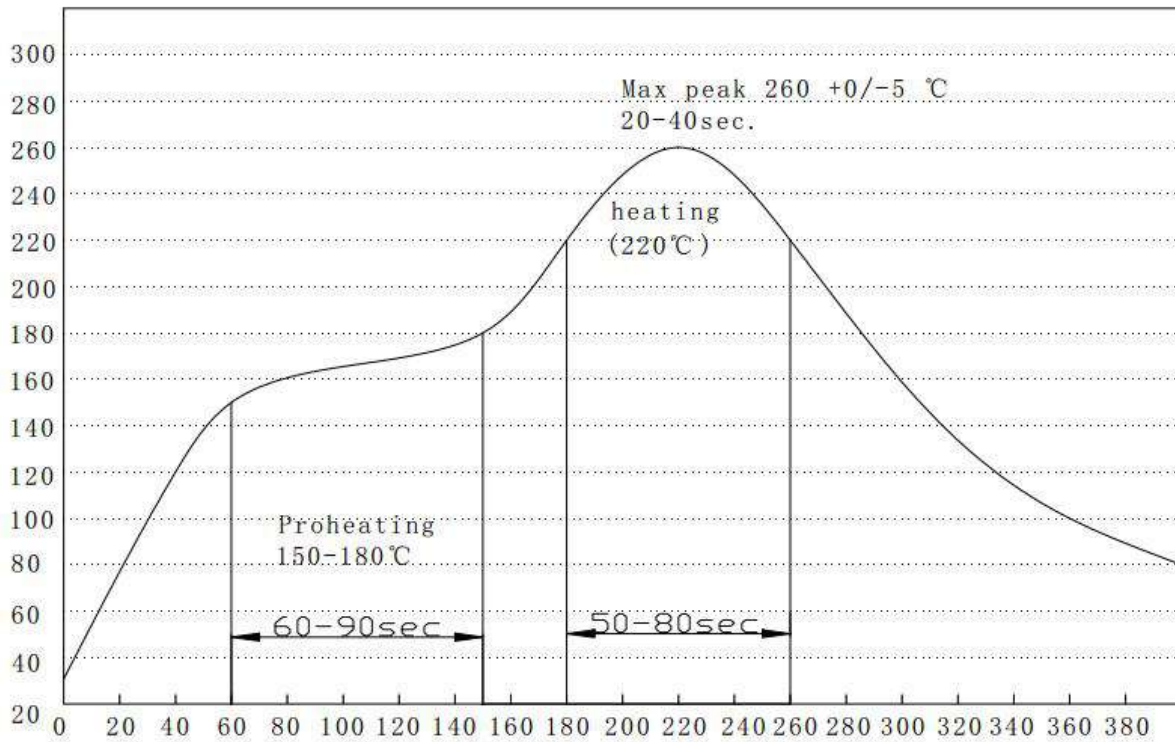
| Pin No.     | Description |
|-------------|-------------|
| 2           | Input       |
| 6           | Output      |
| 1,3,4,5,7,8 | Ground      |

**Test circuit**



**Maximum Ratings**

| Item                  |                  | Value      | Unit |
|-----------------------|------------------|------------|------|
| Operation Temperature | T                | -40 ~ +85  | °C   |
| Storage Temperature   | T <sub>stg</sub> | -40 ~ +125 | °C   |
| RF Power Dissipation  | P                | 20         | dBm  |

**Recommended SMT Solder Profile****Ordering Information**

| Part Number  | Number of Devices | Container     |
|--------------|-------------------|---------------|
| SPT159M5050A | 1000pcs           | Tape and Reel |

## Reliability

| No. | Test item                    | Test condition   |
|-----|------------------------------|--|
| 1   | Temperature Storage          | Temperature: 85°C±2°C , Duration: 250h , Recovery time: 2h±0.5h<br>(2) Temperature: -55°C±3°C , Duration: 250h ,Recovery time: 2h±0.5h                                 |
| 2   | Humidity Test                | Conditions: 60°C±2°C ,90~95% RH<br>Duration: 250h  |
| 3   | Thermal Shock                | Heat cycle conditions: TA=-55°C±3°C, TB=85°C±2°C, t1=t2=30min, Switch time: ≤3min, Cycle time: 100 times, Recovery time: 2h±0.5h.                                      |
| 4   | Vibration Fatigue            | Frequency of vibration: 10~55Hz<br>Amplitude:1.5mm<br>Directions: X,Y and Z<br>Duration: 2h  |
| 5   | Drop Test                    | Cycle time: 10 times<br>Height: 1.0m   |
| 6   | Solder Ability Test          | Temperature: 245°C±5°C<br>Duration: 3.0s--5.0s<br>Depth: DIP--2/3 , SMD--1/5   |
| 7   | Resistance to Soldering Heat | (1) Thickness of PCB:1mm , Solder condition: 260°C±5°C , Duration: 10±1s<br>(2) Temperature of Soldering Iron: 350°C±10°C, Duration: 3~4s,<br>Recovery time : 2 ± 0.5h |

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