



*Total Solution Provider in Saw Device*

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# SA16016AD1

160.0 MHz IF SAW Filter  
16.25 MHz Bandwidth  
Revision 0: 07. May. 2009

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- Electrical Characteristics**
  - Package Dimensions**
  - Testing Environment**
  - Frequency Characteristics**
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**SAWNICS Inc.**

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460 Cheonheung-ri, Seonggeo-eup, Cheonan-si, Chungcheongnam-do, 330-836 / Korea.  
Tel: +82 41 550 9372 / Fax: +82 41 550 9399 / [www.sawnics.com](http://www.sawnics.com)

## □ Electrical Characteristics

### Maximum Ratings

| Parameters Description                         | Unit            | Minimum | Typical    | Maximum |
|--|-----------------|---------|------------|---------|
| Operation Temperature Range                    | °C              | -5      | -          | 80      |
| Storage Temperature Range                      | °C              | -40     | -          | 85      |
| Maximum DC Voltage                             | V               | -       | -          | 10      |
| Maximum Input Power                            | dBm             | -       | -          | 10      |
| Source Impedance (single ended) <sup>(1)</sup> | Ω               | -       | 50         | -       |
| Load Impedance (single ended) <sup>(1)</sup>   | Ω               | -       | 50         | -       |
| Package type & size                            | D1              |         |            |         |
| Length x Width                                 | mm <sup>2</sup> | -       | 20.0 x 9.8 | -       |
| Height   | mm              | -       | -          | 1.8     |

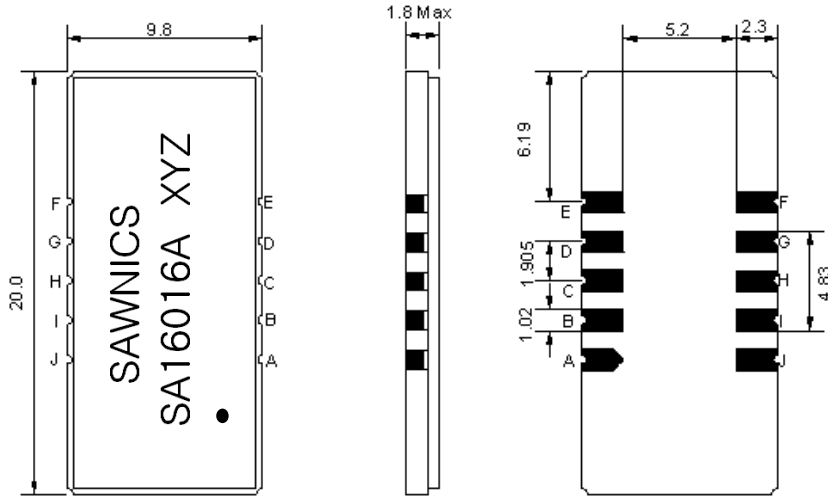
### Electrical Specification

| Parameters Description            | Unit   | Minimum | Typical | Maximum |
|-----------------------------------|--------|---------|---------|---------|
| Center Frequency (Fo)             | MHz    | -       | 160.0   | -       |
| Insertion Loss at Fo              | dB     | -       | 22.70   | 24.50   |
| Group Delay Variation (Fo±7.5MHz) | nsec   | -       | 65      | 100     |
| Absolute Delay                    | usec   | -       | 2.32    | 2.50    |
| Passband Ripple (Fo±7.5MHz)       | dB     | -       | 0.72    | 1.00    |
| Bandwidth at -1dB                 | MHz    | 16.10   | 16.25   | -       |
| Bandwidth at -3dB                 | MHz    | -       | 16.55   | -       |
| Bandwidth at -40dB                | MHz    | -       | 17.84   | 18.00   |
| Bandwidth at -50dB                | MHz    | -       | 17.96   | 18.30   |
| Ultimate Rejection                | dB     | -       | 53      | -       |
| Temperature coefficient           | ppm/°C | -       | -72     | -       |

**Notes :** (1) With Matching Network (Ref. Testing Environment Circuit as shown below).

Those impedances could be modified with different impedance values and/or structures, if necessary.

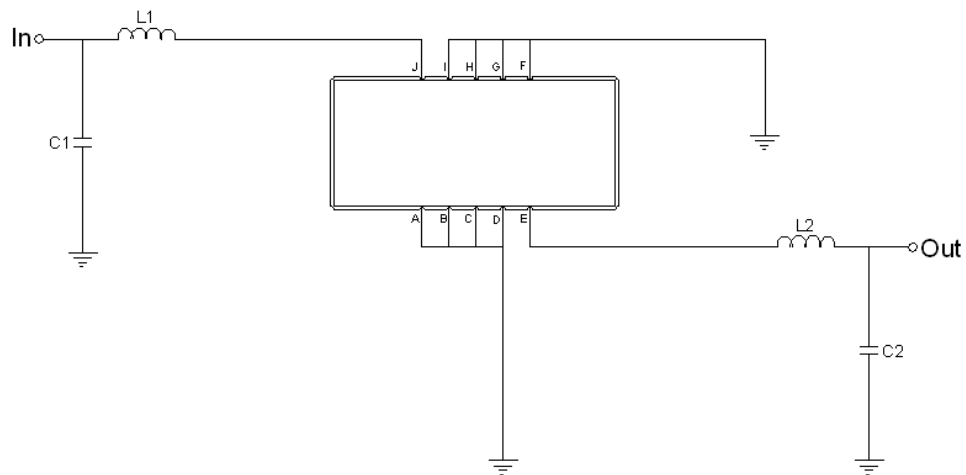
**Package Dimensions**



- ① SAWNICS: Brand
- ② SA16016A: Model Name
- ③ X : Date Code (Year)
- ④ Y : Date Code (Month)
- ⑤ Z : Date Code (Date)
- : Index Dot

| Pin Description        |        |
|------------------------|--------|
| A, B, C, D, F, G, H, I | Ground |
| J                      | Input  |
| E                      | Output |

**Testing Environment**

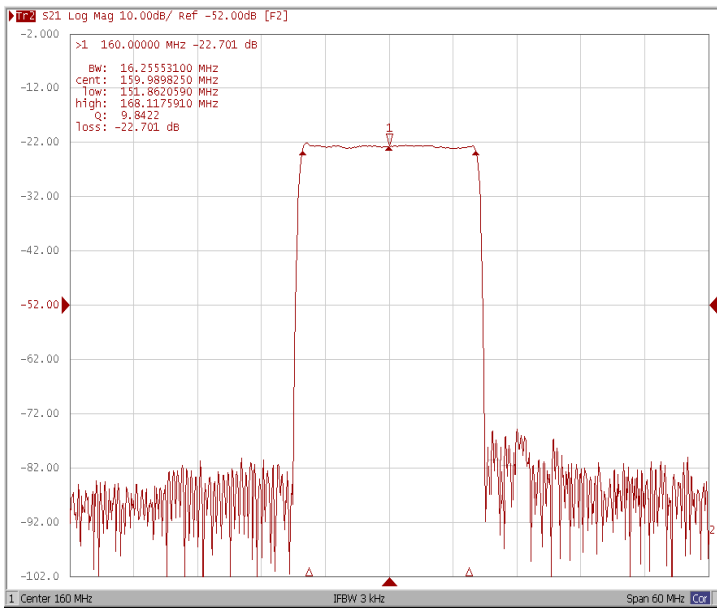


| Test Fixture & Values |                  |
|-----------------------|------------------|
| Input                 | L1=27nH, C1=15pF |
| Output                | L2=27nH, C2=12pF |
| Source/Load Impedance | 50 Ω             |

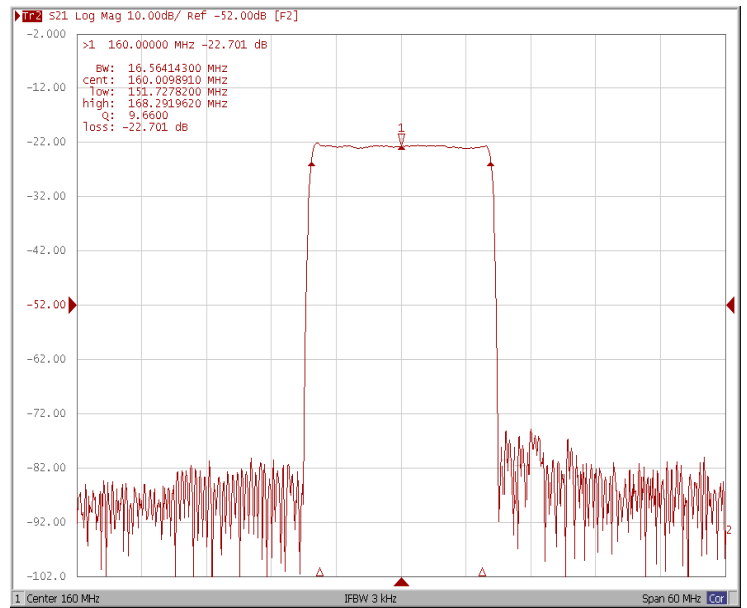
### □ Frequency Characteristics

#### Frequency Response

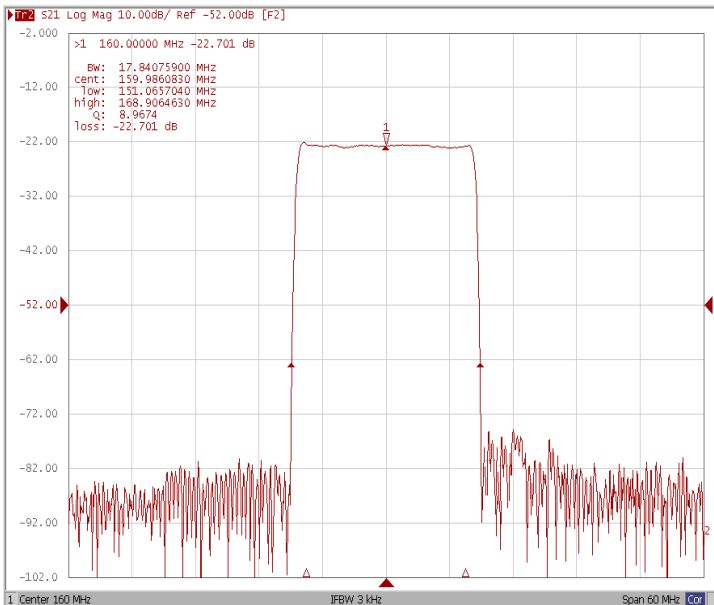
**Bandwidth at -1.0 dB**



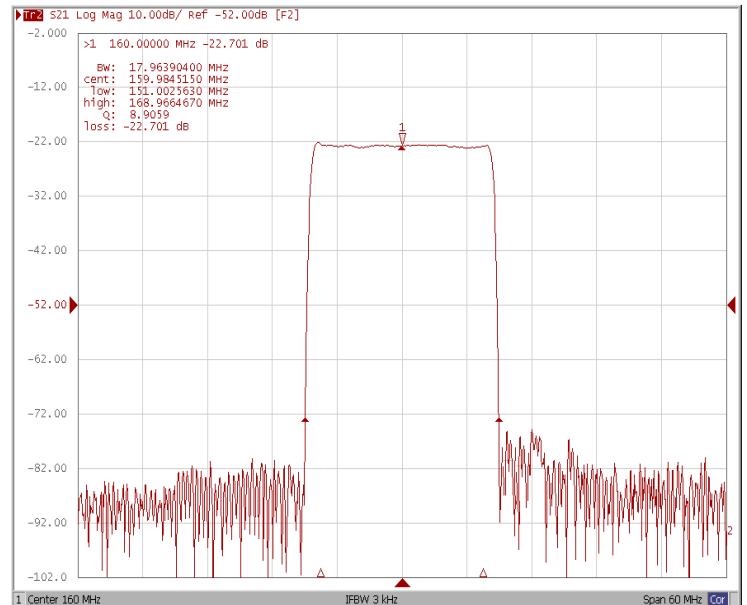
**Bandwidth at -3.0 dB**



**Bandwidth at -40.0 dB**



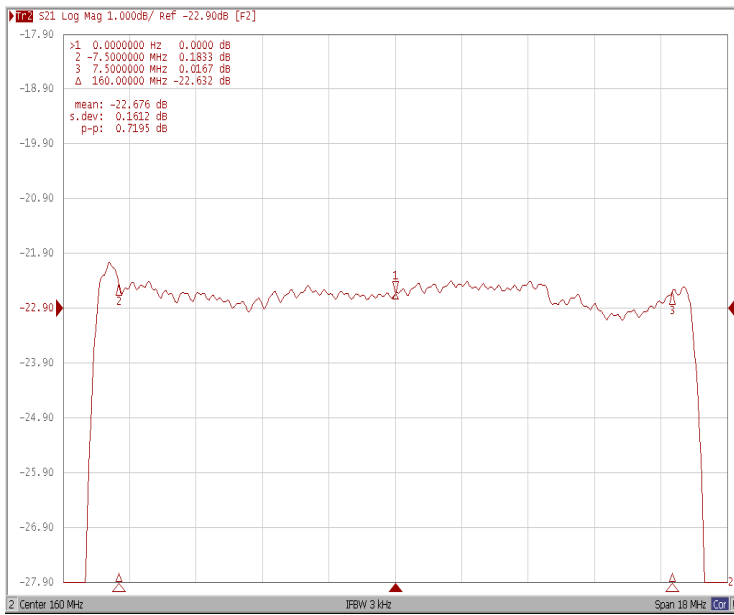
**Bandwidth at -50.0 dB**



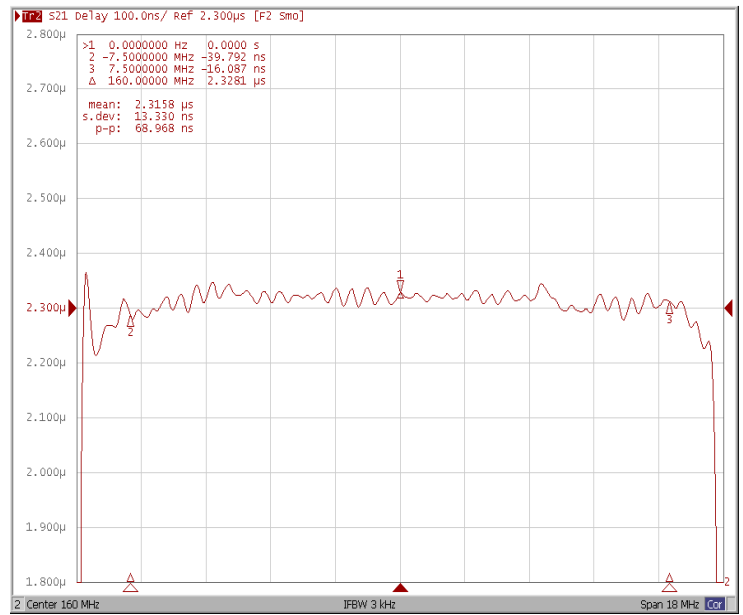
### Frequency Characteristics

#### Frequency Response

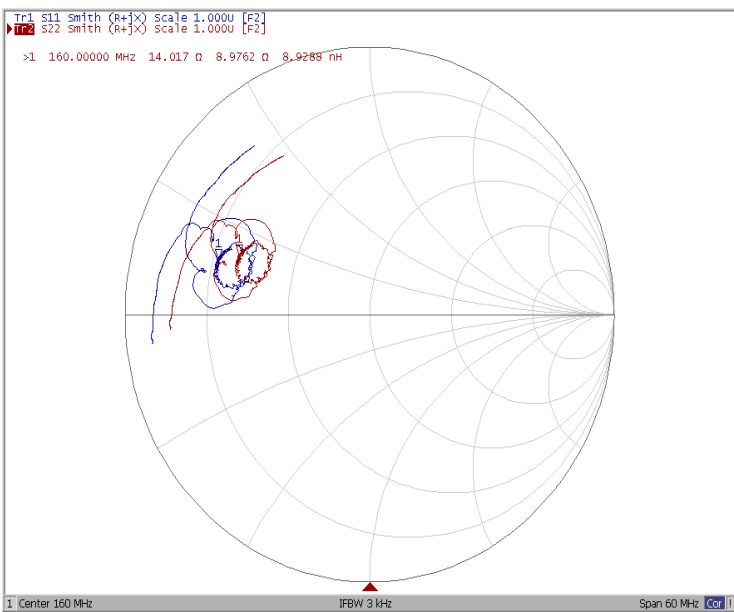
Ripple Variation  $F_o \pm 7.5\text{MHz}$



Group Delay Variation  $F_o \pm 7.5\text{MHz}$



Smith Chart



VSWR

