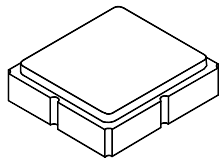
# SF2163E

# 1076.06 MHz SAW Filter

- ***SAW Filter for Digital Television***
- ***Complies with Directive 2002/95/EC (RoHS)***



**SM3030-8**

**Characteristics :**

Balance-to-Balanced Operation

Terminating Source/Load Impedance : $Z_S$ = 150 Ω

**Maximum Rating**

| Rating | Value | Units |
|---|---|---|
| Input Power Level | 0 | dBm |
| DC Voltage on any Non-ground Terminal | 3 | V |
| Operable Temperature Range | -45 to +125 | °C |
| Specification Temperature Range | -40 to +85 | °C |
| Storage Temperature Range in Tape and Reel | -40 to +85 | °C |
| Maximum Soldering Profile, 5 cycles/ 10 seconds maximum | 265 | °C |

**Electrical Characteristics**

| Characteristic | Sym | Notes | Min | Typ | Max | Units |
|---|---|---|---|---|---|---|
| Center Frequency | $f_C$ | | | 1076.06 | | MHz |
| Maximum Insertion Loss, 1056.06 to 1096.06 MHz | $IL_{MAX}$ | | | 3.5 | 5.5 | dB |
| 1.5 dB Bandwidth | | | | 52 | | MHz |
| Amplitude Ripple, 1056.06 to 1096.06 MHz | | | | 1.0 | 2.2 | dB |
| Attenuation, Referenced to $IL_{MAX}$ | | | | | | |
| 50 to 994.04 MHz | | | 45 | 53 | | dB |
| 1158.20 to 3150 MHz | | | 40 | 50 | | |
| 3150 to 6000 MHz | | | 18 | 20 | | |
| Group Delay Ripple, 1056.06 to 1096.06 MHz | | | | 15 | 40 | $ns_{P-P}$ |

| | |
|---|---|
| Case Style | SM3030-8 3.0 x 3.0 mm Nominal Footprint |
| Lid Symbolization (Y=year, WW=week, S=shift) dot=pin 1 indicator | 859, YWWS |
| Standard Reel Quantity Reel Size 7 Inch | 500 Pieces/Reel |
| Reel Size 13 Inch | 3000 Pieces/Reel |

**Electrical Connection**

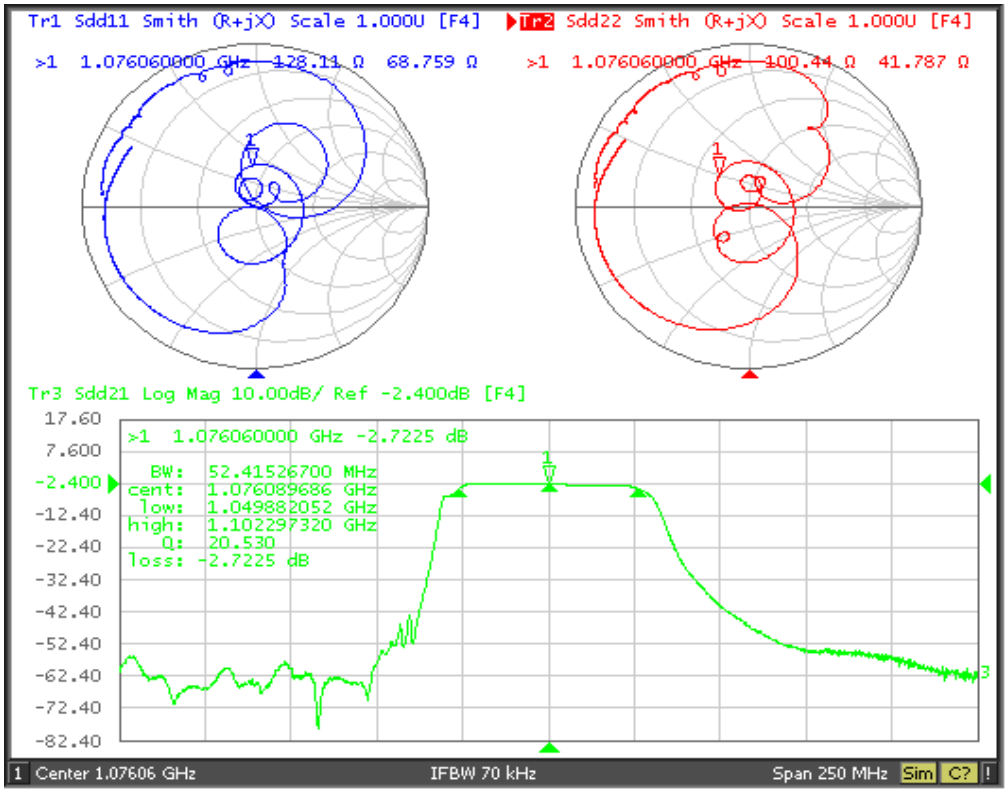
| | Connection | Terminals |
|---|---|---|
| Port 1 | Balanced Input | 1,2 |
| Port 2 | Balanced Output | 5,6 |
| | Ground | All Others |
| Dot Indicates Pin 1 | | |

**CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.**

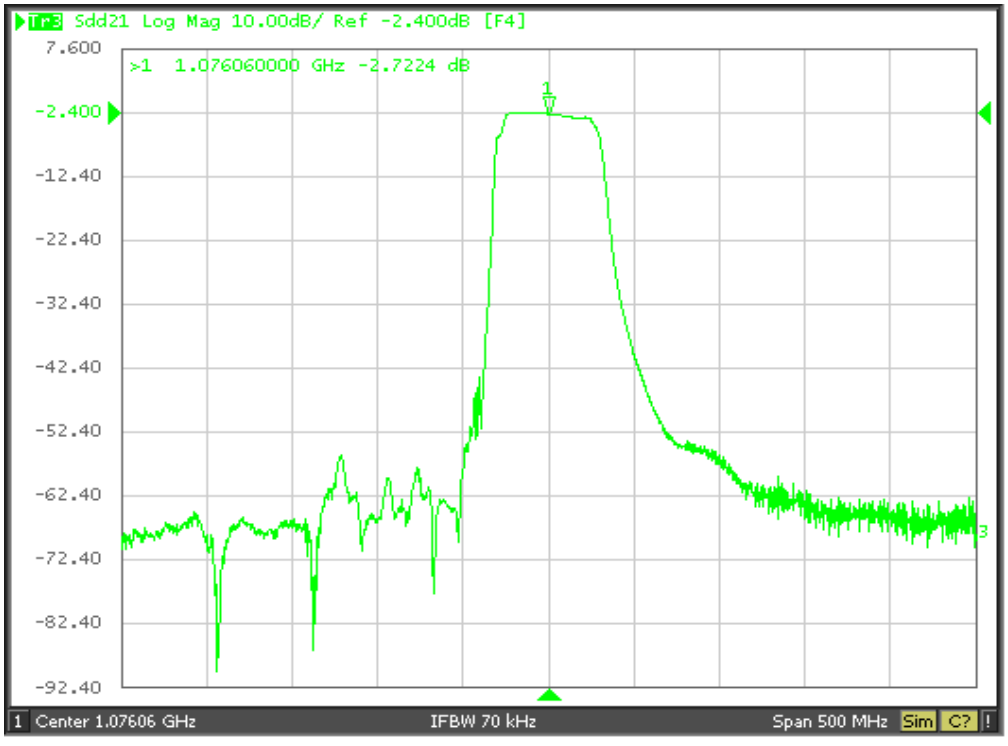
**Notes:**

1. US and international patents may apply.
2. Murata, stylized Murata logo, and Murata N.A., Inc. are registered trademarks of Murata Manufacturing Co., Ltd.

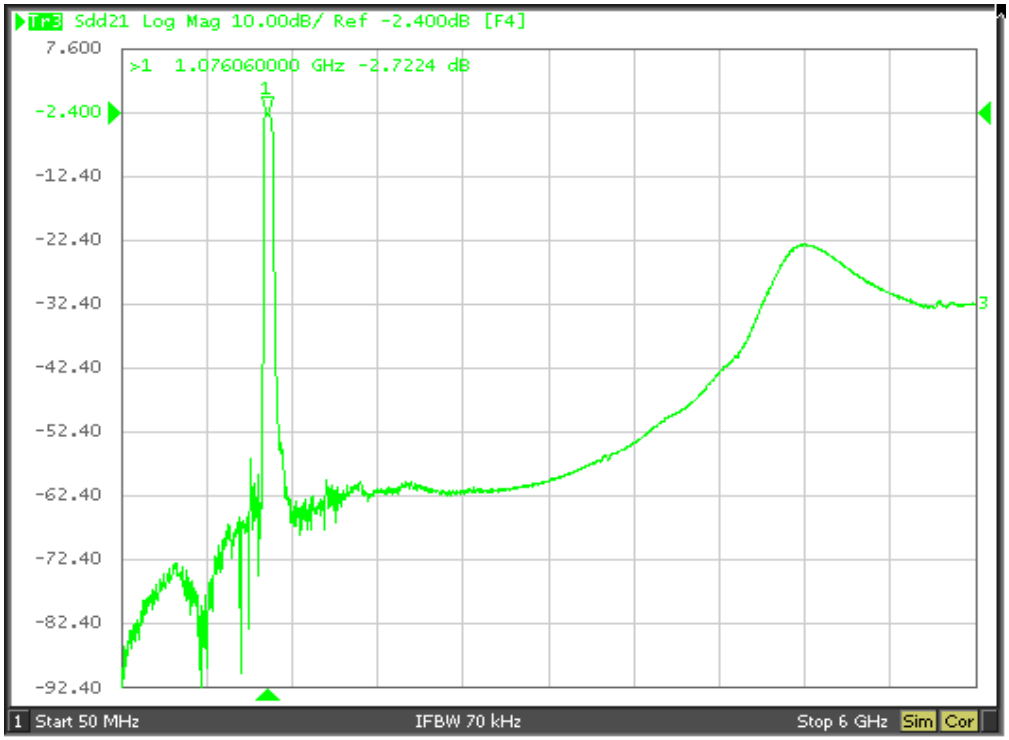
## Filter $S_{11}$, $S_{22}$ and $S_{21}$ Plots



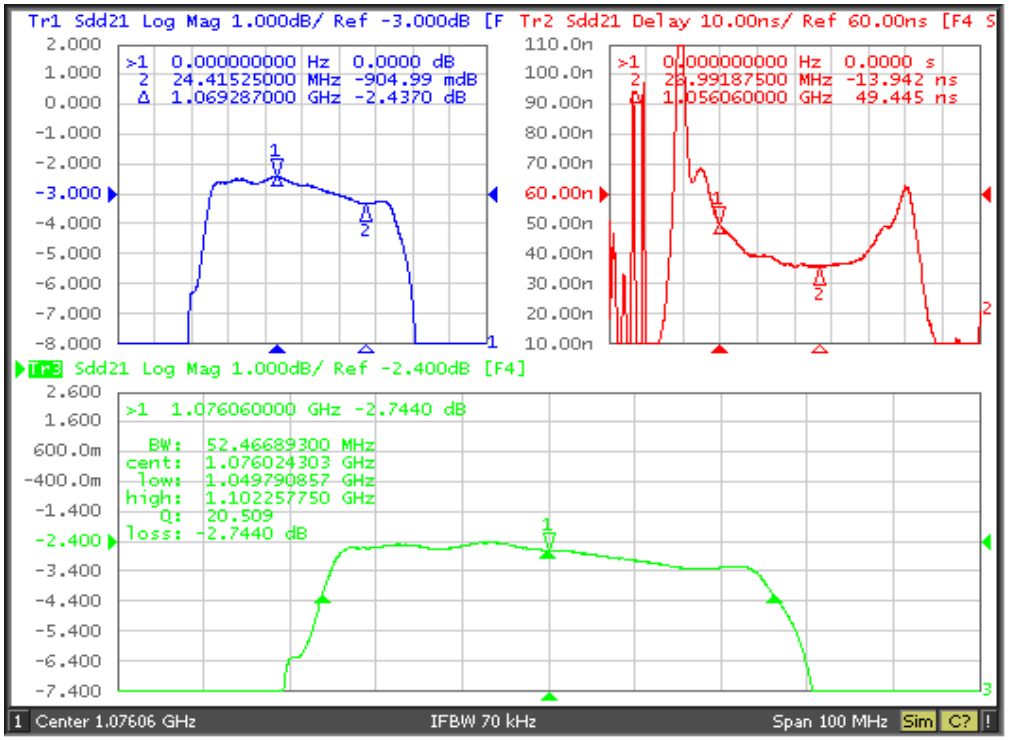

## Filter Near-in Rejection



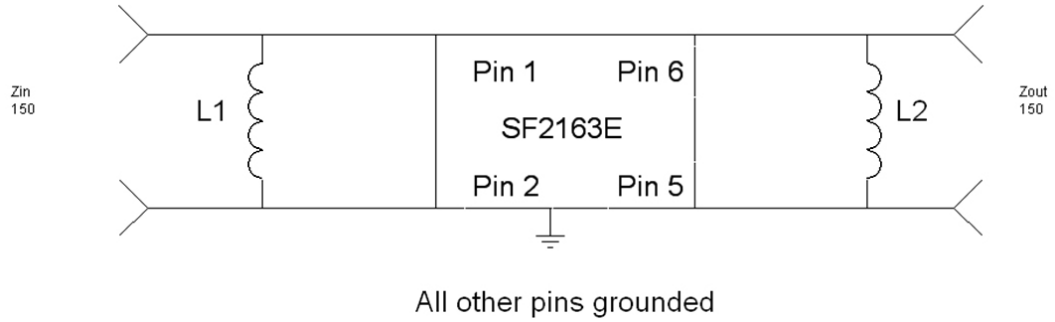
## Filter Broadband Rejection




## Filter Passband Amplitude and Group Delay Detail

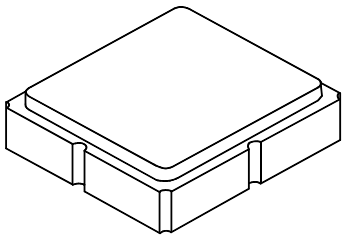


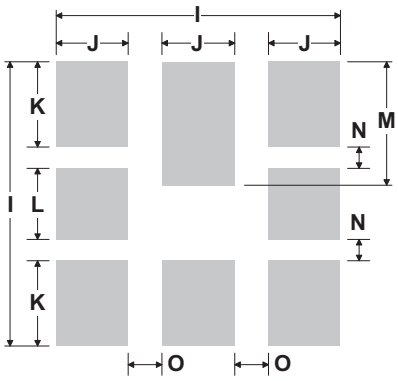
## Tuning Network, 150 ohm Balanced Source/Load




**L1 22 nH**
**L2 24 nH**

# 8-Terminal Ceramic Surface-Mount Case
# 3.0 X 3.0 mm Nominal Footprint






**PCB Footprint Top View**

### Case and PCB Footprint Dimensions

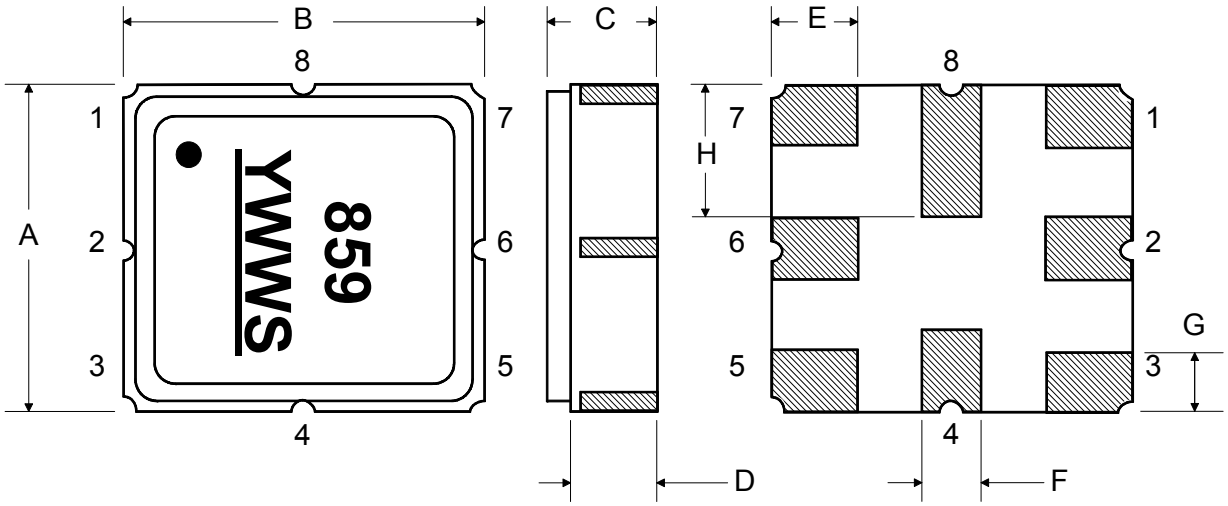
| Dimension | mm | | | Inches | | |
|---|---|---|---|---|---|---|
| | Min | Nom | Max | Min | Nom | Max |
| A | 2.87 | 3.0 | 3.13 | 0.113 | 0.118 | 0.123 |
| B | 2.87 | 3.0 | 3.13 | 0.113 | 0.118 | 0.123 |
| C | 1.14 | 1.27 | 1.40 | 0.045 | 0.050 | 0.055 |
| D | 0.79 | 0.92 | 1.05 | 0.031 | 0.036 | 0.041 |
| E | 0.62 | 0.75 | 0.88 | 0.024 | 0.029 | 0.034 |
| F | 0.47 | 0.60 | 0.73 | 0.018 | 0.024 | 0.029 |
| G | 0.47 | 0.60 | 0.73 | 0.018 | 0.024 | 0.029 |
| H | 1.07 | 1.20 | 1.33 | 0.042 | 0.047 | 0.052 |
| I | | 3.19 | | | 0.126 | |
| J | | 0.81 | | | 0.032 | |
| K | | 0.96 | | | 0.038 | |
| L | | 0.81 | | | 0.032 | |
| M | | 1.39 | | | 0.055 | |
| N | | 0.23 | | | 0.009 | |
| O | | 0.38 | | | 0.015 | |

### Case Materials

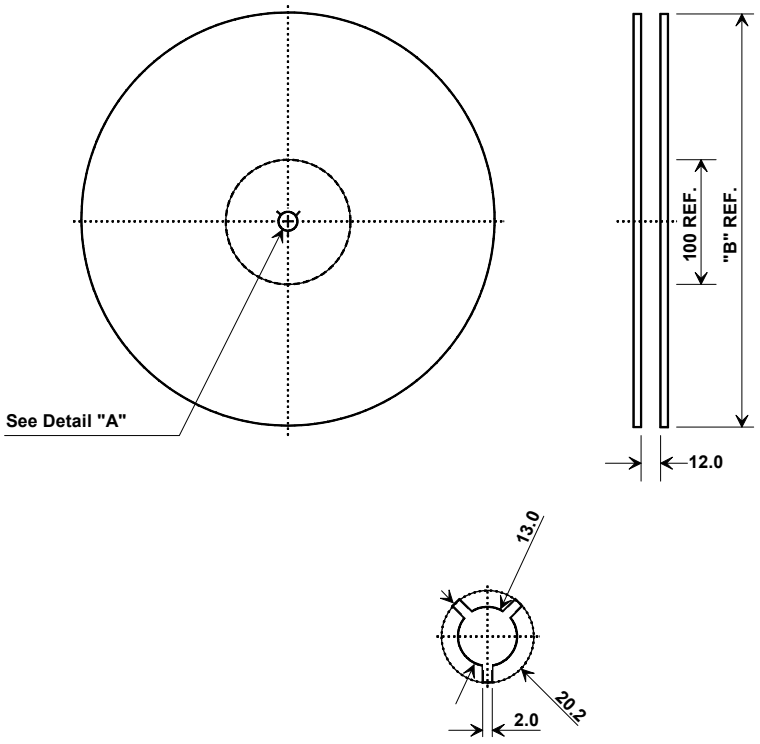
| Materials | |
|---|---|
| Solder Pad Plating | 0.3 to 1.0 µm Gold over 1.27 to 8.89 µm Nickel |
| Lid Plating | 2.0 to 3.0 µm Nickel |
| Body | $Al_2O_3$ Ceramic |
| Pb Free | |

TOP VIEW

BOTTOM VIEW



**Tape and Reel Specifications**




| "B" | | Quantity Per Reel |
|---|---|---|
| Inches | millimeters | |
| 7 | 178 | 500 |
| 13 | 330 | 3000 |

**COMPONENT ORIENTATION and DIMENSIONS**

| Carrier Tape Dimensions | |
|---|---|
| Ao | 3.35 mm |
| Bo | 3.35 mm |
| Ko | 1.40 mm |
| Pitch | 8.0 mm |
| W | 12.0 mm |