

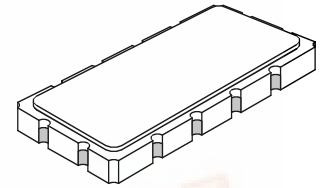


**SF2045A**

- **Designed for IF Applications**
- **Excellent Size-to-Performance Ratio**
- **Hermetic 13.3 x 6.5 mm Surface-mount Case**
- **Complies with Directive 2002/95/EC (RoHS)**



**140 MHz  
SAW Filter**



**SM13365-12**

**Absolute Maximum Ratings**


| Rating  | Value          | Units |
|---|----------------|-------|
| Maximum Incident Power in Passband                        | +10            | dBm   |
| Max. DC voltage between any 2 terminals                   | 30             | VDC   |
| Storage Temperature Range                                 | -40 to +85     | °C    |
| Suitable for lead-free soldering - Max. Soldering Profile | 260°C for 30 s |       |

**Electrical Characteristics**

| Characteristic   | Sym    | Notes   | Min    | Typ     | Max    | Units             |
|--|--------|---------|--------|---------|--------|-------------------|
| Center Frequency (3dB points) at 25°C  | $f_C$  | 1       | 139.60 | 140.000 | 140.40 | MHz               |
| Passband<br>Insertion Loss at $f_C$<br>1 dB Passband<br>3 dB Passband<br>Amplitude Ripple over 1 dB BW<br>Phase Linearity over 1 dB BW<br>Group Delay Variation over 1 dB BW | IL     | 1, 2    |        | 7.7     | 11     | dB                |
|  | $BW_1$ |         | 8      | 9.8     |        | MHz               |
|  | $BW_3$ |         | 10     | 10.8    |        |                   |
|  |        |         |        | 0.4     | 0.8    | dB <sub>p-p</sub> |
|  |        |         |        |         | 2.7    | 8                 |
|  | GDV    |         |        | 50      | 100    | ns <sub>p-p</sub> |
| Absolute Group Delay   |        |         |        | 1.057   |        | µsec              |
| Rejection<br>35 dB BW<br>10 - 120 MHz<br>120 - 130 MHz<br>150 - 1000 MHz   |        | 1, 2, 3 |        | 13.9    | 15     | MHz               |
|  |        |         | 40     | 52      |        | dB                |
|  |        |         | 40     | 47      |        |                   |
|  |        |         | 40     | 45      |        |                   |
| Operating Temperature Range  | $T_A$  | 1       | -40    | 25      | 85     | °C                |
| Frequency Temperature Coefficient  | FTC    |         |        | -94     |        | ppm/°C            |

|  |  |
|--|--|
| Impedance Matching to 50Ω Unbalanced     | External L-C                               |
| Case Style                               | SM13365-12 13.3 x 6.5 mm Nominal Footprint |
| Lid Symbolization (YY = year, WW = week) | RFM SF2045A YYWW                           |

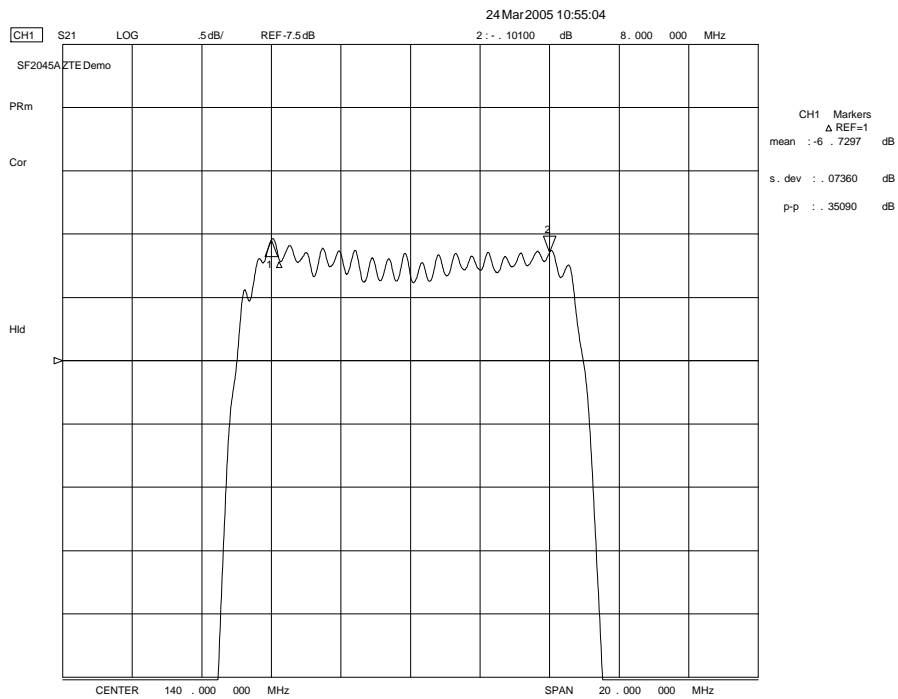
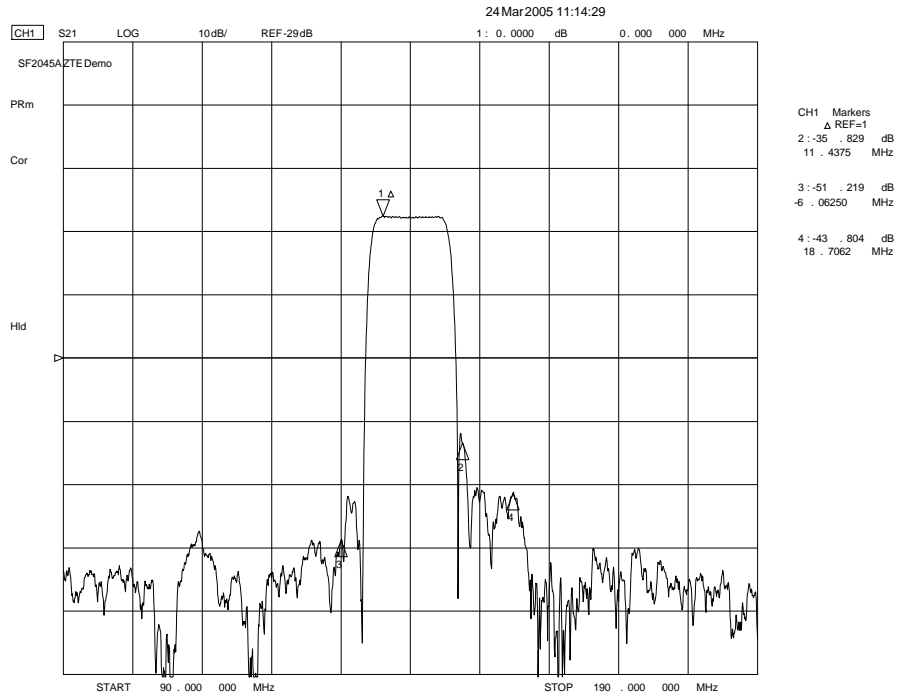
**Notes:**

1. Unless noted otherwise, all specifications apply over the operating temperature range with filter soldered to the specified demonstration board with impedance matching to 50 Ω and measured with 50 Ω network analyzer.
2. The design, manufacturing process, and specifications of this filter are subject to change.
3. Either Port 1 or Port 2 may be used for either input or output in the design. However, impedances and impedance matching may vary between Port 1 and Port 2, so that the filter must always be installed in one direction per the circuit design.
4. US and international patents may apply.
5. Electrostatic Sensitive Device. Observe precautions for handling. 



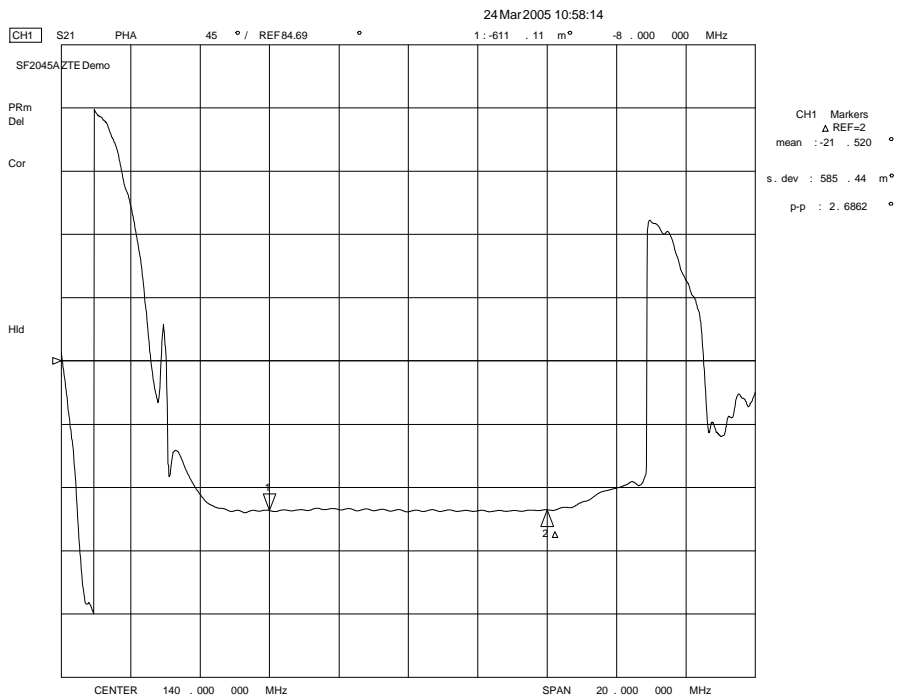
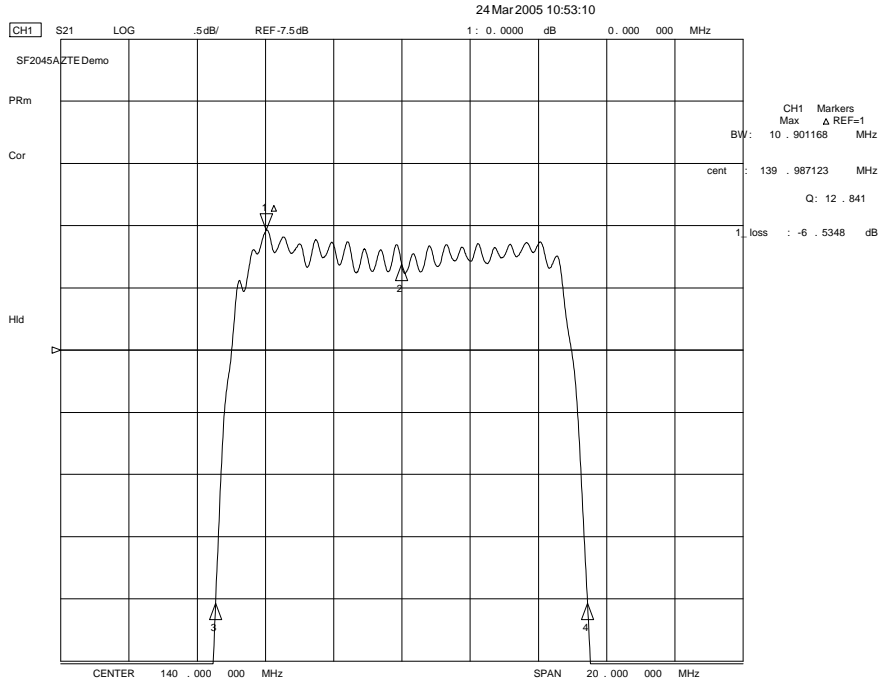
# 140.0 MHz

# SAW Filter



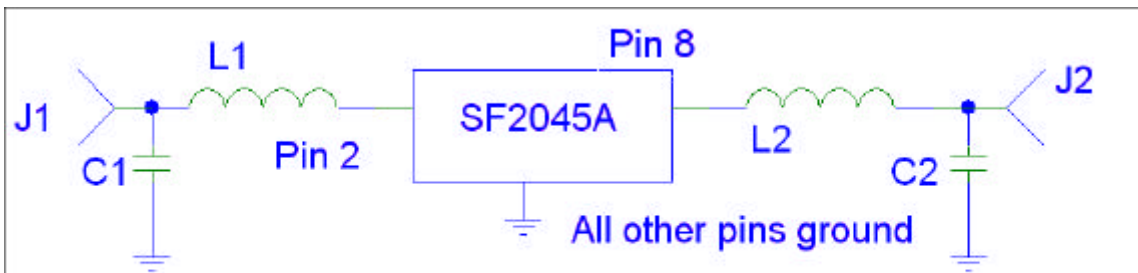
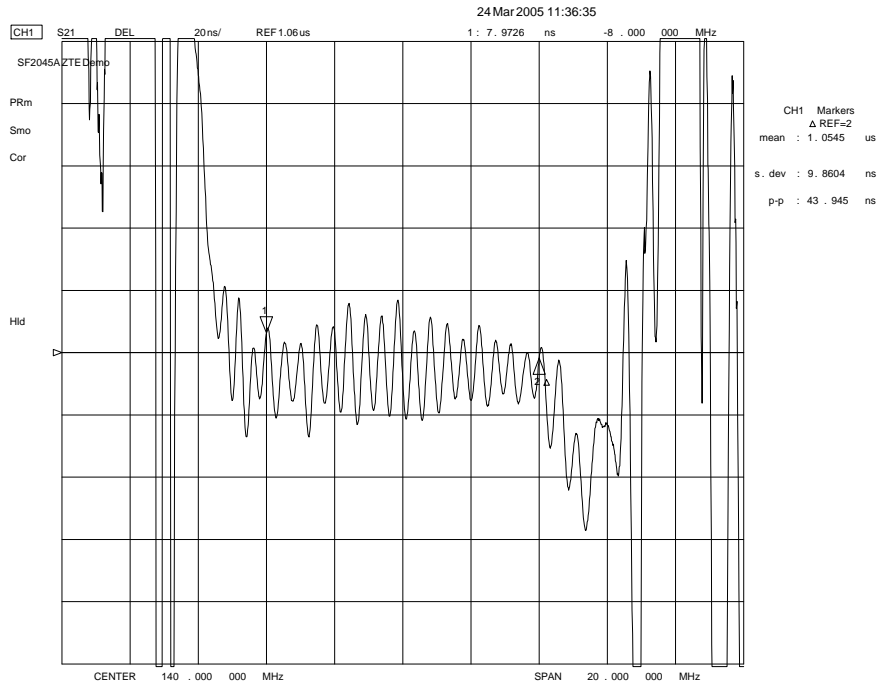
# 140.0 MHz

# SAW Filter



# 140.0 MHz

# SAW Filter



## SF2045A Demo Board Schematic

C1=5.6 pF AVX 08055A5R6CAT2A (500-0003-056)

C2=15 pF AVX 08055A150JAT2A (500-0003-150)

L1=82 nH Coilcraft 0805CS-820XJB (500-0782-820)

L2=100 nH Coilcraft 0805CS-101XJB (500-0782-101)

PCB=RFM 500-0735-001 13.3 x 6.5 mm

J1, J2 Connectors=OSM 2052-0000-00 Model 215 4 Hole

Flange SMA Connectors (500-0248-001)

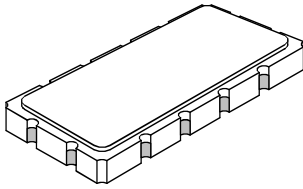
Equivalent components may be used

# 140.0 MHz

# SAW Filter

## SM13365-12 Case

12-Terminal Ceramic Surface-Mount Case  
13.3 x 6.5 mm Nominal Footprint



| Case Dimensions |       |       |       |        |       |       |
|-----------------|-------|-------|-------|--------|-------|-------|
| Dimension       | mm    |       |       | Inches |       |       |
|                 | Min   | Nom   | Max   | Min    | Nom   | Max   |
| A               | 13.08 | 13.31 | 13.60 | 0.515  | 0.524 | 0.535 |
| B               | 6.27  | 6.50  | 6.80  | 0.247  | 0.256 | 0.268 |
| C               |       | 1.91  | 2.00  |        | 0.075 | 0.079 |
| D               |       | 1.50  |       |        | 0.059 |       |
| E               |       | 0.79  |       |        | 0.031 |       |
| H               |       | 1.0   |       |        | 0.039 |       |
| P               |       | 2.54  |       |        | 0.100 |       |

| Materials              |  |
|------------------------|--|
| Solder Pad Termination | Au plating 30 - 60 ulnches (76.2-152 uM) over 80-200 ulnches (203-508 uM) Ni.    |
| Lid                    | Fe-Ni-Co Alloy Electroless Nickel Plate (8-11% Phosphorus) 100-200 ulnches Thick |
| Body                   | Al <sub>2</sub> O <sub>3</sub> Ceramic   |
| Pb Free                |  |

| Electrical Connections |        |            |
|------------------------|--------|------------|
| Connection             |        | Terminals  |
| Port 1                 | Input  | 2          |
|                        | Ground | 3          |
| Port 2                 | Output | 8          |
|                        | Ground | 9          |
| Ground                 |        | All others |

**See Note 3 on Data Sheet**

- pin 1 indicator
- ⋯ mark for pin 1 on underside of package
- YY year code
- WW week code
- #### lot code

