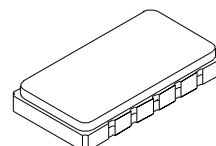


- Low Insertion Loss
- Hermetic 13.3 x 6.5 mm Surface-mount Case
- Complies with Directive 2002/95/EC (RoHS)
- AEC-Q200 Qualified

RoHS  
Compliant

**SF2069A-2**

**96.0 MHz  
SAW Filter**



**SMP53-S**

#### 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    |
| Operating Temperature Range             | -40 to +85     | °C    |
| Max. Soldering Profile                  | 265°C for 10 s |       |

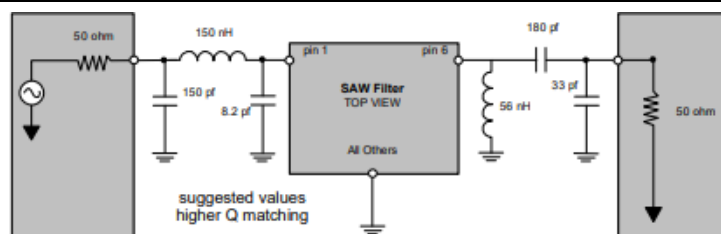
#### Electrical Characteristics

| Characteristic                                | Sym   | Notes | Min  | Typ  | Max  | Units    |
|-----------------------------------------------|-------|-------|------|------|------|----------|
| Center Frequency ( @ 25°C )                   | $f_c$ |       | 95.9 | 96.0 | 96.1 | MHz      |
| Minimum Insertion Loss                        |       |       |      | 14   | 15   | dB       |
| 1 dB Bandwidth                                |       |       | 5.00 | 5.60 |      | MHz      |
| 15 dB Bandwidth                               |       |       |      | 7.50 | 8.00 | MHz      |
| Passband Variation (in 1dB Bandwidth)         |       |       |      | 0.5  | 1.0  | dB p-p   |
| Phase Linearity ( $F_c \pm 1.92$ MHz)         |       |       |      | 5.2  | 8    | deg p-p  |
| Group Delay Variation (in 1 dB Bandwidth)     |       |       |      | 50   | 80   | ns p-p   |
| Absolute Delay                                |       |       |      | 1.4  | 3    | us       |
| Change in Absolute Delay (from unit to unit)  |       |       | -10  | 0    | 10   | ns       |
| Absolute Delay Variation (from -40°C to 55°C) |       |       |      | 8    | 15   | ns       |
| Rejection (40 to 87 MHz)                      |       |       | 43   | 48   |      | dB       |
| Rejection (111 to 150 MHz)                    |       |       | 43   | 48   |      | dB       |
| Source and Load Impedance                     |       |       |      | 50   |      | $\Omega$ |
| Temperature Coefficient                       |       |       |      | -20  |      | ppm/°C   |
| Ambient Temperature                           |       |       |      | 25   |      | °C       |

|                                                     |                                          |
|-----------------------------------------------------|------------------------------------------|
| Case Style                                          | SMP-53-S 13.3 x 6.5 mm Nominal Footprint |
| Lid Symbolization (YY = year, WW = week, S = shift) | RFM ,SF2069A-2,YYWWS                     |

#### Electrical Connections

| Connection    | Terminals               |
|---------------|-------------------------|
| Port 1 Input  | 1                       |
| Port 2 Output | 6                       |
| Case Ground   | 2, 3, 4, 5, 7, 8, 9, 10 |



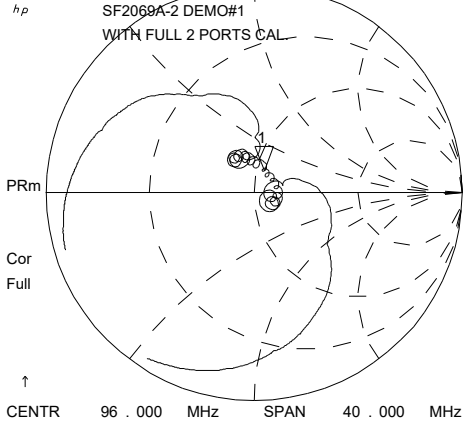
**CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.**

#### NOTES:

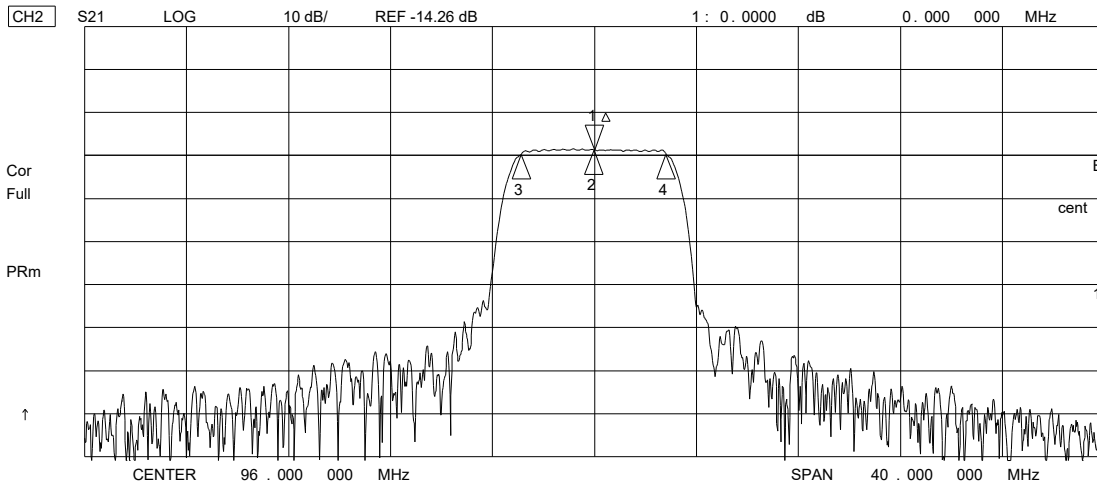
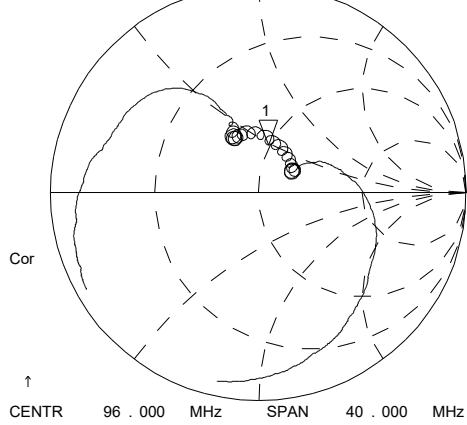
1. The design, manufacturing process, and specifications of this device are subject to change.
2. US or International patents may apply.
3. RoHS compliant from the first date of manufacture.

12 Oct 2006 09:54:49

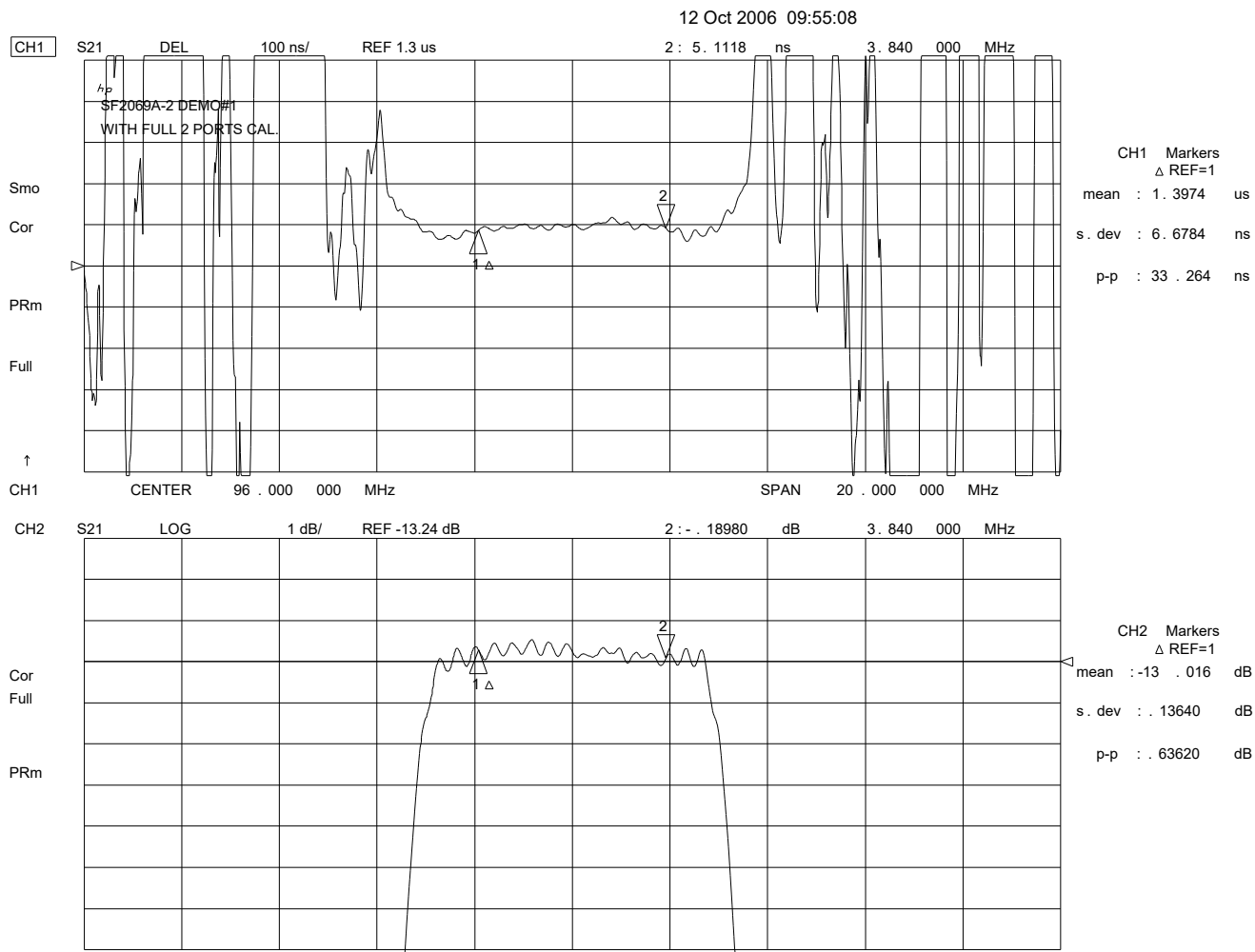
CH1 S11 1 UFS  
1: 53.875 0 11.512 0 19.085 nH  
96.000 000 MHz

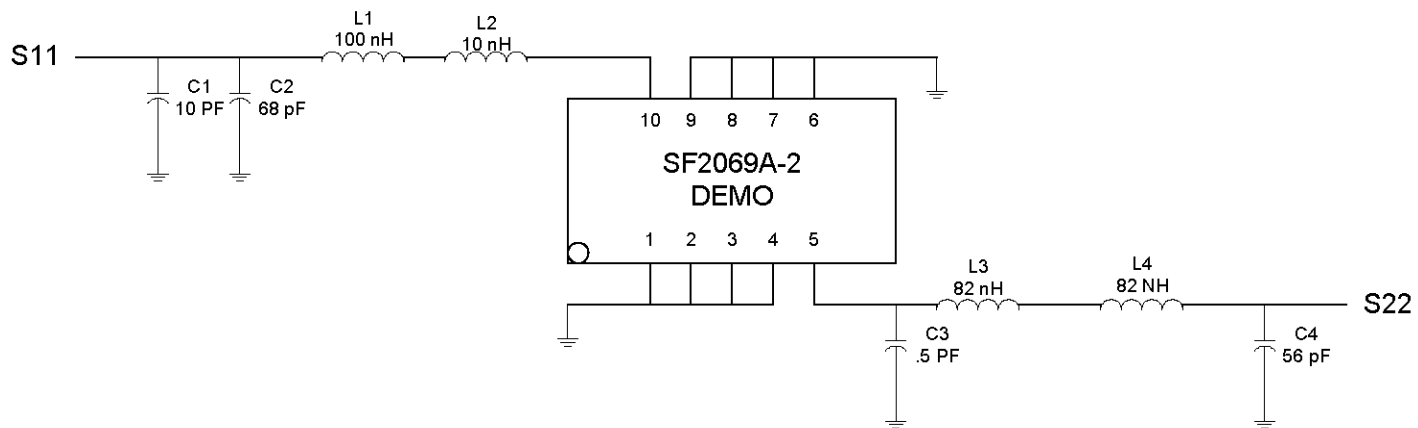


CH3 S22 1 UFS  
1: 49.262 0 24.018 0 39.818 nH  
96.000 000 MHz



CH2 Markers  
△ REF=1  
BW: 5.688346 MHz  
cent : 95.971530 MHz  
Q: 16.872  
1\_loss : -12.997 dB





|              |                                         |       |        |
|--------------|-----------------------------------------|-------|--------|
| SF2069A-2    | Filter 96 MHz                           | 1.000 | Filter |
| 400-1467-001 | PCB, Demo Board, 19mm, MK3              | 1.000 | PCB    |
| 500-0248-001 | Conn, Coax, Flange Mount, Jack, 4 Holes | 2.000 | CONN   |
| 501-0919-101 | IND, 1008CS 100 NH 5%                   | 1.000 | L1     |
| 501-0919-101 | IND, 1008CS 10 NH 5%                    | 1.000 | L2     |
| 501-0919-820 | IND, 1008CS 82 NH 5%                    | 2.000 | L3, L4 |
| 501-0782-100 | CAP, 0805CS 10 PF 5%                    | 1.000 | C1     |
| 501-0782-680 | CAP, 0805CS 68 PF 5%                    | 1.000 | C2     |
| 501-0782-050 | CAP, 0805CS .5 PF 5%                    | 1.000 | C3     |
| 501-0782-560 | CAP, 0805CS 56 PF 5%                    | 1.000 | C4     |

SMP-53-S Case

10-Terminal Ceramic Surface-Mount Case

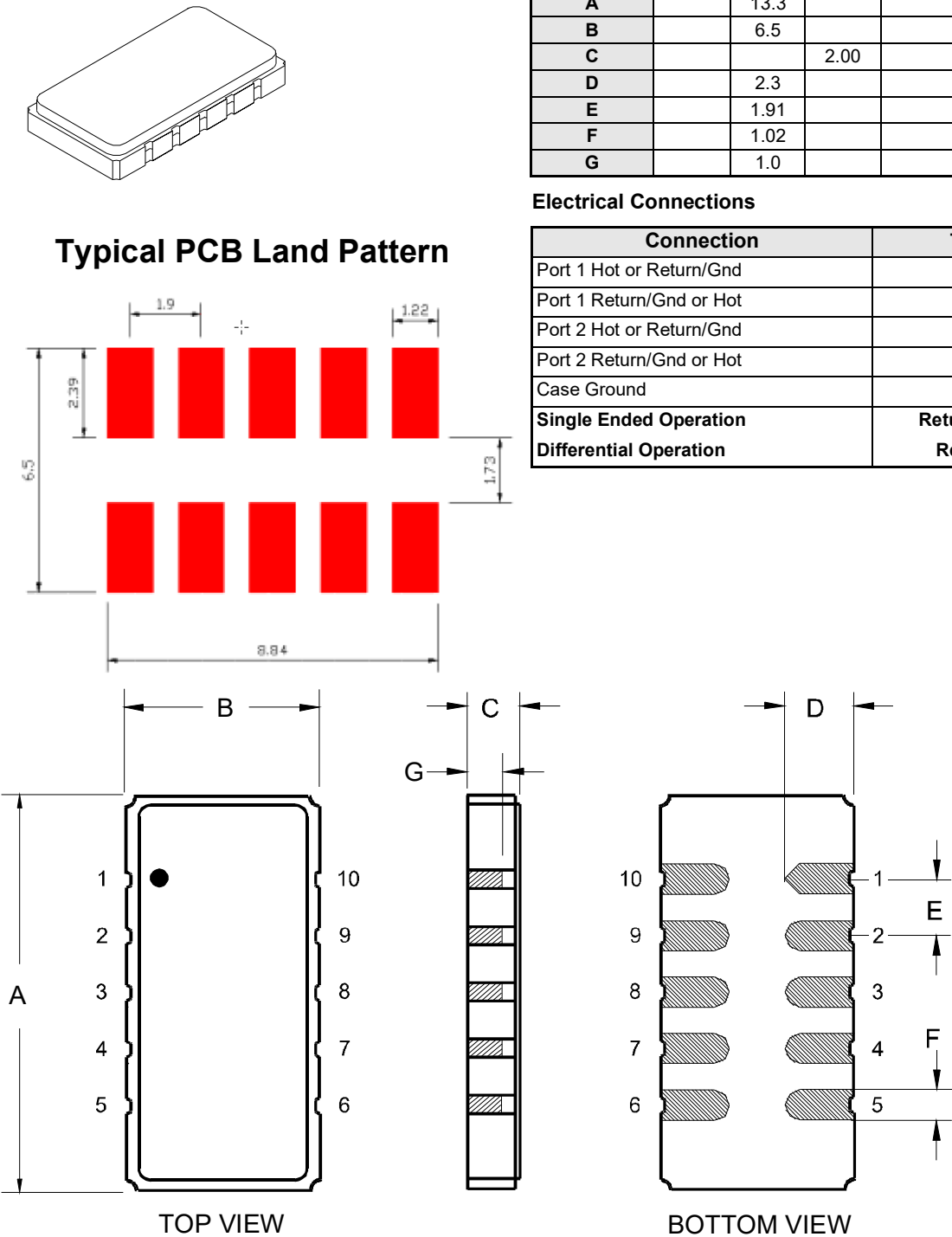
13.3 x 6.5 mm Nominal Footprint

Case Dimensions

| Dimension | mm  |      |      | Inches |       |      |
|-----------|-----|------|------|--------|-------|------|
|           | Min | Nom  | Max  | Min    | Nom   | Max  |
| A         |     | 13.3 |      |        | .524  |      |
| B         |     | 6.5  |      |        | .256  |      |
| C         |     |      | 2.00 |        |       | .078 |
| D         |     | 2.3  |      |        | .091  |      |
| E         |     | 1.91 |      |        | .075  |      |
| F         |     | 1.02 |      |        | .040  |      |
| G         |     | 1.0  |      |        | 0.039 |      |

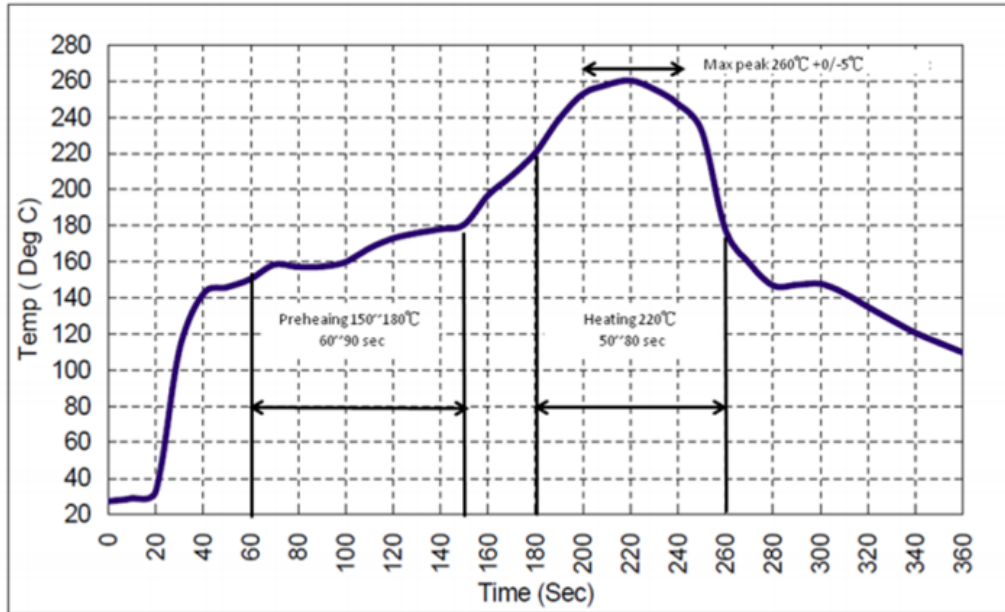
Electrical Connections

| Connection               | Terminals        |
|--------------------------|------------------|
| Port 1 Hot or Return/Gnd | 1                |
| Port 1 Return/Gnd or Hot | 10               |
| Port 2 Hot or Return/Gnd | 6                |
| Port 2 Return/Gnd or Hot | 5                |
| Case Ground              | All others       |
| Single Ended Operation   | Return is ground |
| Differential Operation   | Return is hot    |



## Recommended Reflow Profile

1. Preheating shall be fixed at 150~180°C for 60~90 seconds.
2. Ascending time to preheating temperature 150°C shall be 30 seconds min.
3. Heating shall be fixed at 220°C for 50~80 seconds and at 260°C+0/-5°C peak (10 seconds).
4. Time: 5 times maximum.



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