



SF1062A

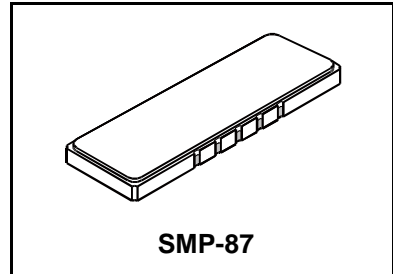
**211.0 MHz
SAW Filter**

- **Designed for GSM PCS Receiver IF Applications**
- **Simple External Impedance Matching**
- **Hermetic SMP-87 Surface-Mount Case**
- **Unbalanced Input and Output**
- **Complies with Directive 2002/95/EC (RoHS)**



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 |
|---|---|-----------------|------------|-----------|---------|-------------------|
| Nominal Center Frequency | f_c | 1 | 211.000 | | | MHz |
| Passband | Insertion Loss at f_c | IL | | 6 | 9.0 | dB |
| | | 1.5 dB Passband | $BW_{1.5}$ | ± 50 | | |
| | 2 dB Passband | BW_2 | ± 80 | | | |
| | 3 dB Passband | BW_3 | ± 100 | ± 135 | | |
| | Amplitude Ripple over $f_c \pm 50$ kHz | | 1, 2 | | 1.5 | dB _{p-p} |
| | Group Delay Variation over $f_c \pm 50$ kHz | GDV | | | 200 | ns _{p-p} |
| Absolute Group Delay | GD | | | 2.6 | μ s | |
| Rejection | fc-400 to fc-200 and fc+200 to fc+400 MHz | 1, 2, 3 | 5 | | | dB |
| | | | 25 | | | |
| | | | 30 | 35 | | |
| | | | 35 | 45 | | |
| 191 MHz to fc-800 kHz and fc+800 kHz to 231 MHz | | | | | | |
| Operating Temperature Range | T_A | 1 | -40 | | +85 | °C |

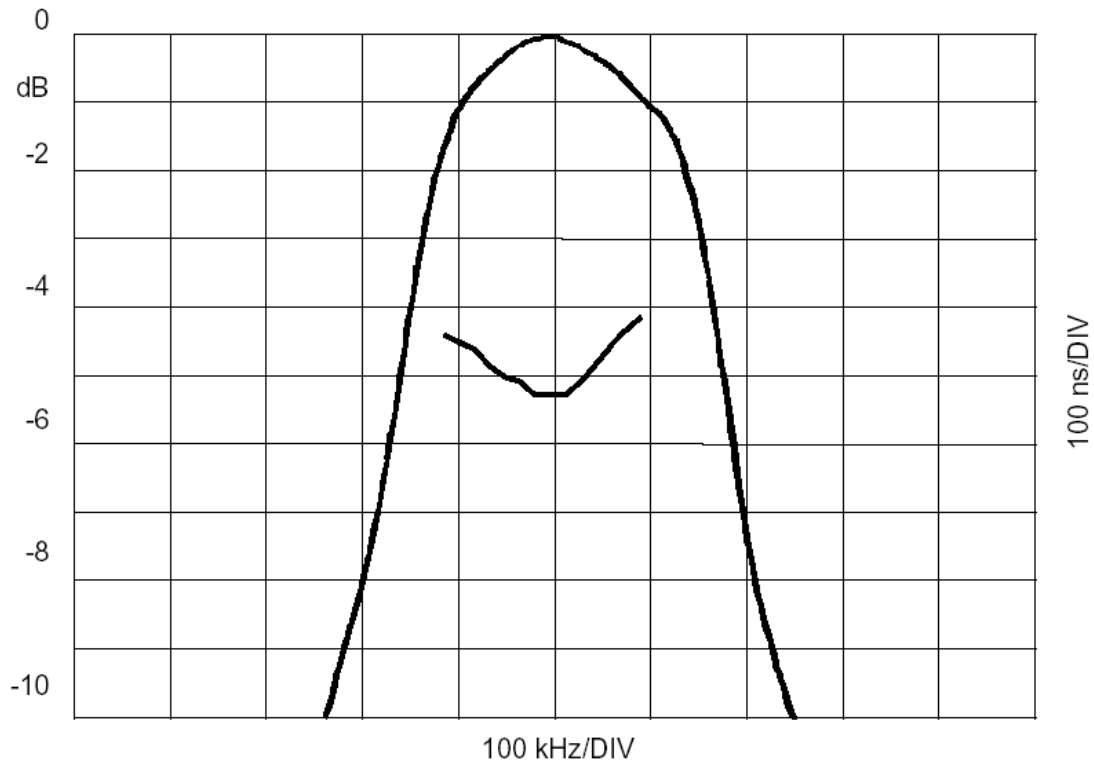
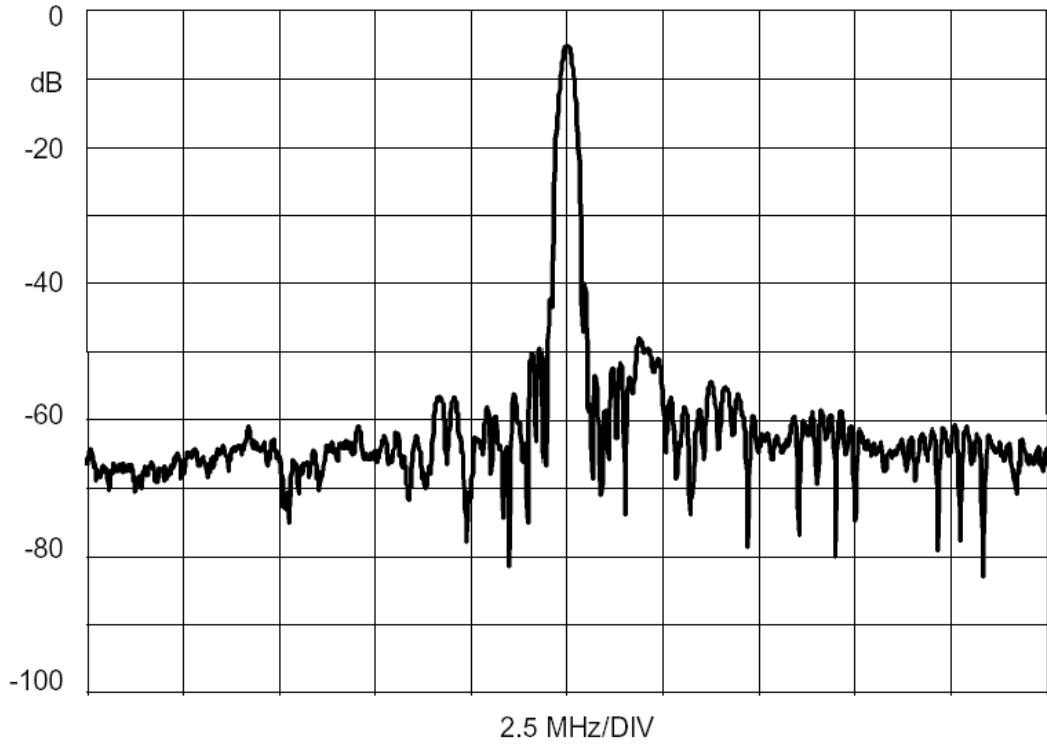
| | |
|--|--------------------------------------|
| Impedance Matching to 50 Ω unbalanced | External L-C |
| Case Style | SMP-87 22.1 X 8 mm Nominal Footprint |
| Lid Symbolization (YY=year, WW=week) | RFM SF1062A YYWW |

Electrical Connections

| Connection | Terminals |
|-------------------|------------|
| Port 1 Hot | 2 |
| Port 1 Gnd Return | 3 |
| Port 2 Hot | 8 |
| Port 2 Gnd Return | 9 |
| Case Ground | All Others |

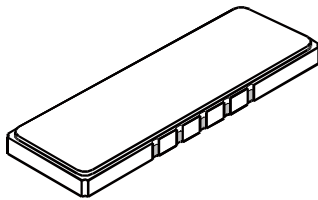
Notes:

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. Unless noted otherwise, all frequency specifications are referenced to the nominal center frequency, f_c .
3. Rejection is measured as attenuation below the minimum IL point in the passband. Rejection in final user application is dependent on PCB layout and external impedance matching design. See Application Note No. 42 for details.
4. "LRIP" or "L" after the part number indicates "low rate initial production" and "ENG" or "E" indicates "engineering prototypes."
5. The design, manufacturing process, and specifications of this filter are subject to change.
6. 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.
7. US and international patents may apply.
8. RFM, stylized RFM logo, and RF Monolithics, Inc. are registered trademarks of RF Monolithics, Inc.
9. ©Copyright 1999, RF Monolithics Inc.
10. Electrostatic Sensitive Device. Observe precautions for handling



SMP-87 Case

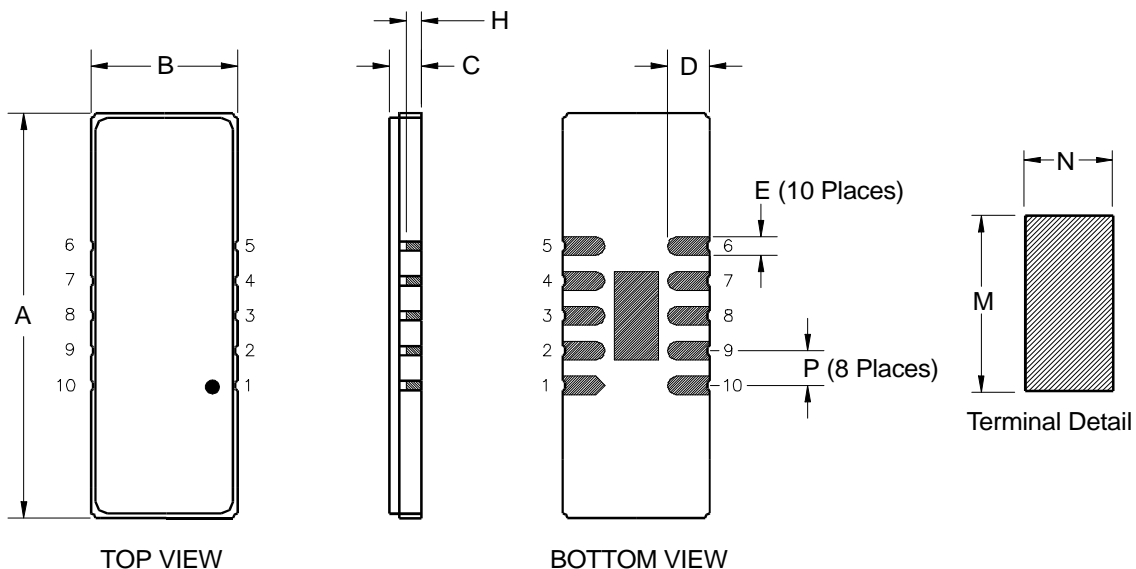
10-Terminal Ceramic Surface-Mount Case
22.1 x 8 mm Nominal Footprint



| Case Dimensions | | | | | | |
|-----------------|-------|-------|-------|--------|-------|-------|
| Dimension | mm | | | Inches | | |
| | Min | Nom | Max | Min | Nom | Max |
| A | 21.90 | 22.10 | 22.40 | 0.862 | 0.870 | 0.882 |
| B | 7.80 | 8.00 | 8.30 | 0.307 | 0.315 | 0.327 |
| C | | 1.78 | 2.00 | | 0.070 | 0.079 |
| D | | 2.29 | | | 0.090 | |
| E | | 1.02 | | | 0.040 | |
| H | | 1.0 | | | 0.039 | |
| M | | 4.83 | | | 0.190 | |
| N | | 2.41 | | | 0.095 | |
| P | | 1.905 | | | 0.075 | |

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

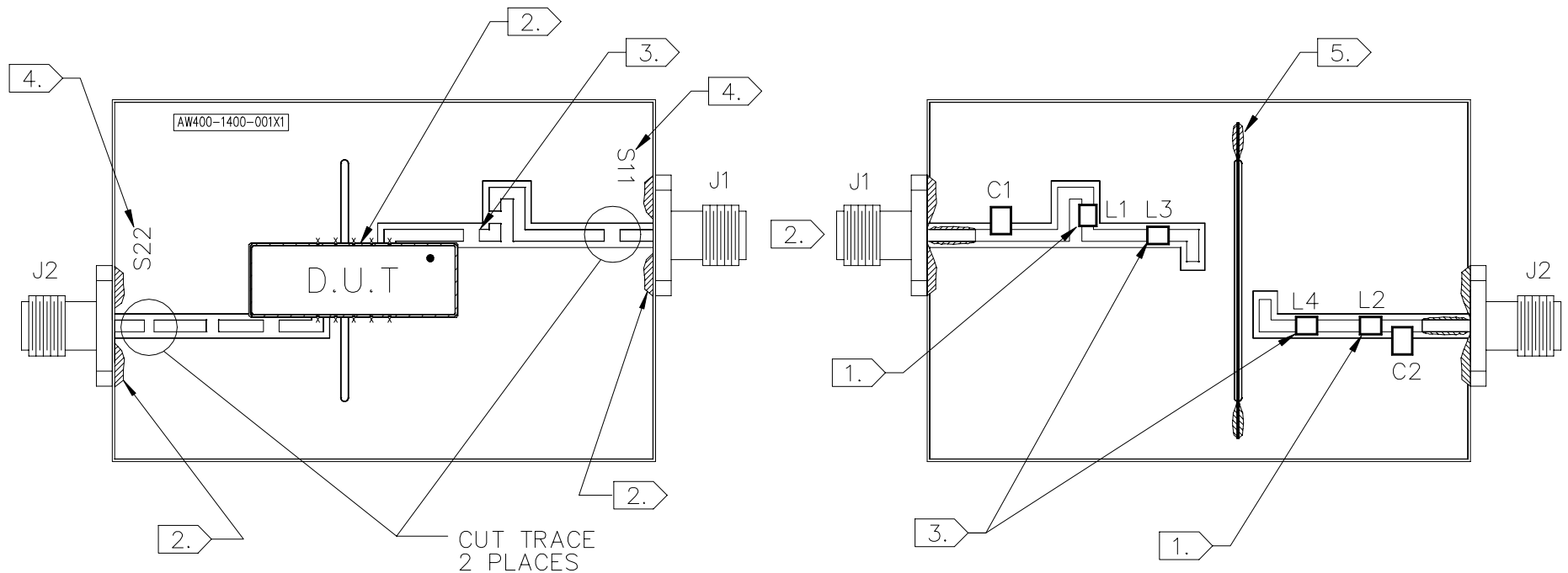
| Electrical Connections | | |
|------------------------|------------------|------------------|
| Connection | | Terminals |
| Port 1 | Input or Return | 10 |
| | Return or Input | 1 |
| Port 2 | Output or Return | 5 |
| | Return or Output | 6 |
| Ground | | All others |
| Single Ended Operation | | Return is ground |
| Differential Operation | | Return is hot |



NOTES:

1. NOTE PROPER ORIENTATION OF INDUCTORS L1 & L4. THEY ARE TO BE POSITIONED 90° TO EACH OTHER.
2. SOLDER SURFACE MOUNT PACKAGE TO TEST SIDE OF PCB. SOLDER 10 PLACES AND CONNECTORS AS SHOWN.
3. CUT TRACES ON BOTH SIDES OF THE PCB BETWEEN THE SAME HOLES TO PROVIDE GAP FOR L3 & L4.
4. LABEL BOARD USING ELECTRONIC METHOD.
5. CUT SHIELD TAB SO THAT IT IS EVEN WITH TEST SIDE. SOLDER AS SHOWN.

| REV | ECN NO. | DESCRIPTION | DATE |
|-----|---------|-----------------|---------|
| A | 7387 | INITIAL RELEASE | 12jan99 |



DRAWN BY/DATE: L. ASHMORE 11 JAN 99

TITLE: ASSEMBLY DIAGRAM, SF1062A-DEMO

RF Monolithics, Inc.
DALLAS, TEXAS 75244

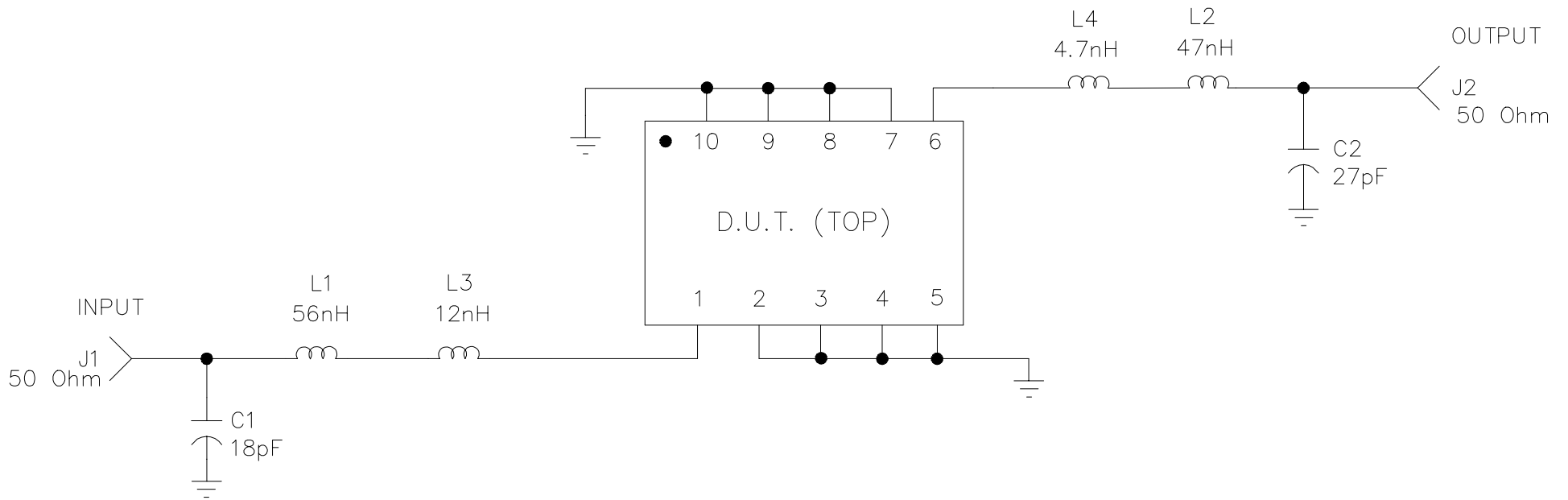
CHECKED/APPROVED

SIZE
A

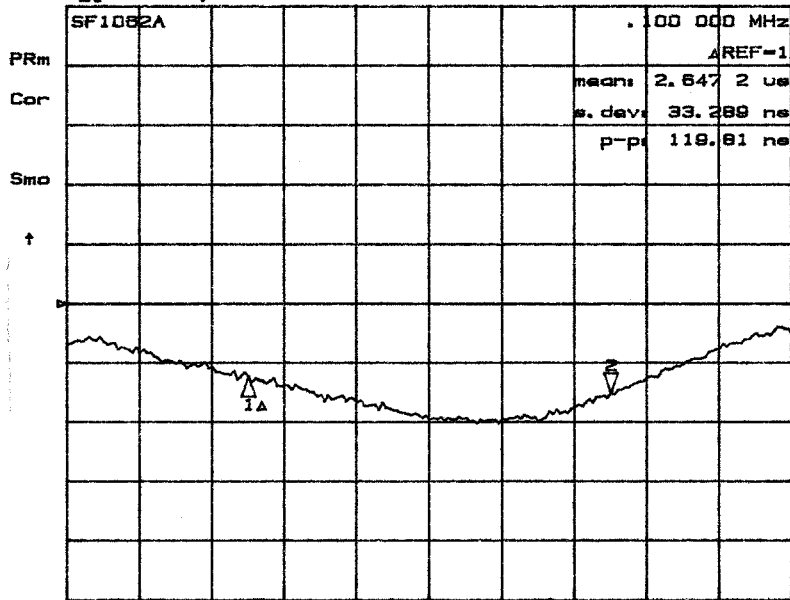
CODE IDENT
2U874

DWG. NO. SF1062A-000

REV A SHEET 1/3

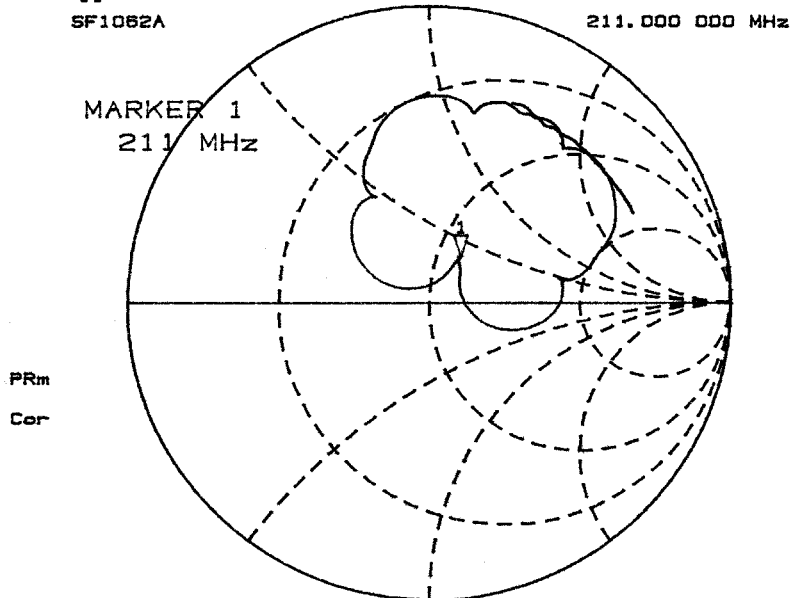


11 Nov 1998 14:33:02
 CH1 S21 delay 150 ns/ REF 2.907 us 2 -41.962 ne



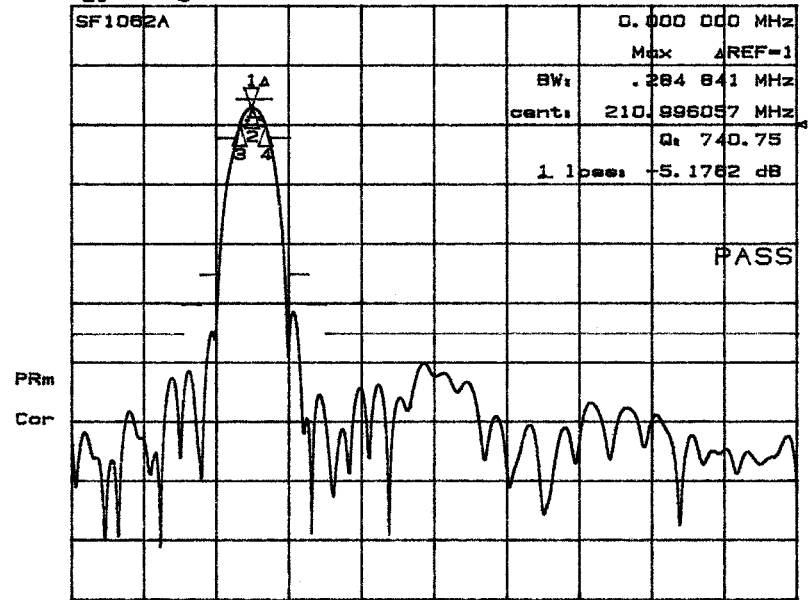
CH1 CENTER 211.000000 MHz SPAN .200000 MHz

11 Nov 1998 14:37:27
 CH2 S11 1 U FS L 58.172 n 19.166 n 14.457 nH
 SF1062A 211.000000 MHz



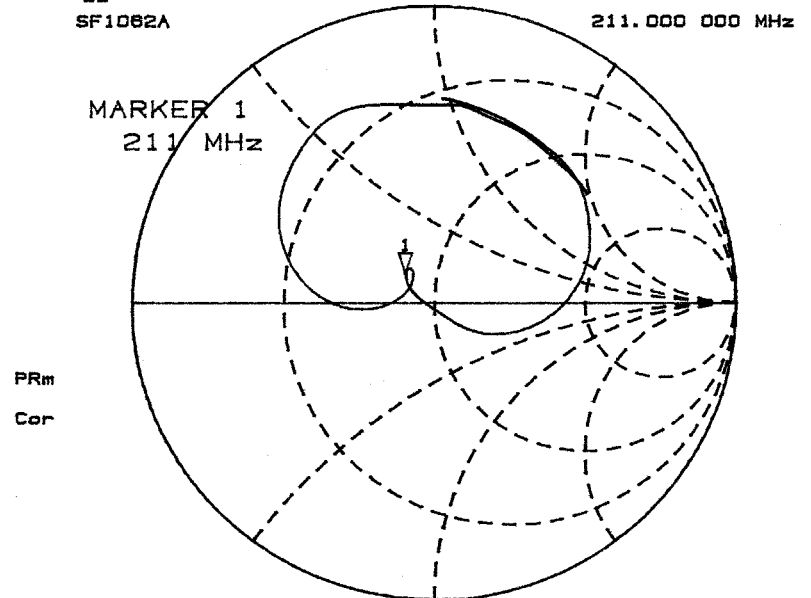
CH2 CENTER 212.999000 MHz SPAN 8.000000 MHz

11 Nov 1998 14:35:14
 CH2 S21 log MAG 10 dB/ REF -8 dB L 0 dB



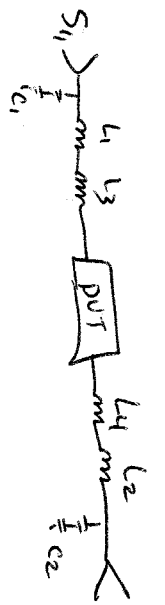
CH2 CENTER 212.999000 MHz SPAN 8.000000 MHz

11 Nov 1998 14:39:41
 CH2 S22 1 U FS L 40.523 n 8.1873 n 6.1831 nH
 SF1062A 211.000000 MHz



CH2 CENTER 212.999000 MHz SPAN 8.000000 MHz

SF1062
 Demo #2
 Epot-338468
 11/11/98
 LP



L1 - 56nH
 L2 - 47nH
 L3 - 12nH
 L4 - 47nH
 C1 - 18pF
 C2 - 27pF

BILL OF MATERIALS

| <u>PART IDENTIFIER</u> | <u>DESCRIPTION 1</u> | <u>DESCRIPTION 2</u> | <u>QTY/ASSY</u> | <u>REFERENCE DESCRIPTION</u> |
|------------------------|-------------------------------|--------------------------|-----------------|------------------------------|
| SF1062A-DEMO | DEMO BOARD, SF1062A, | NORTEL MATRA CELLULAR | | |
| 400-1400-001 | PCB, DEMO BOARD, SF1081A | | 1.0000 | |
| 400-0533-001 | SHIELD, TO-39 TEST FIXTURE | | 1.0000 | |
| 500-0319-001 | TAPE, COPPER FOIL, SCOTCH | TYPE 1181, 44F3260, 1/2" | 0 | |
| SF1062A-LRIP | FILTER, SM, 211.000 MHZ | NORTEL MATRA | 1.0000 | |
| SF1062A-000 | ASSY DIAGRAM, DEMO BOARD, | SF1062A | 0 | |
| 500-0003-180 | CAP, CHIP, NPO, 18(J), STD | | 1.0000 | C 1 |
| 500-0003-270 | CAP, CHIP, NPO, 27(J), STD | | 1.0000 | C 2 |
| 500-0248-001 | CONN, COAX, FLANGE MT. JACK | 4 HOLE | 2.0000 | J 1, 2 |
| 500-0010-560 | IND, CHIP, 1008CS, 56 NH, 10% | COIL CRAFT 1008CS-560 | 1.0000 | L 1 |
| 500-0010-470 | IND, CHIP, 1008CS, 47 NH, 10% | | 1.0000 | L 2 |
| 500-0010-120 | IND, CHIP, 1008CS, 12 NH, 10% | | 1.0000 | L 3 |
| 500-0010-047 | IND, CHIP, 1008CS, 10% | | 1.0000 | L 4 |



SIZE

A

FSCM NO.

2U874

DWG NO.

SF1062A-DEMO

SCALE

NONE

W/O or ECN

7387

REV

A

SHEET

1 OF 2

REV HISTORY

| REV | ECN | DATE | DESCRIPTION |
|-----|------|----------|-----------------|
| A | 7387 | 01/06/99 | INITIAL RELEASE |
| | | | |
| | | | |
| | | | |
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| | | | | |
|--|--|---------------------------|--------------------------|--------------------------------|
| |  | SIZE A | FSCM NO. 2U874 | DWG NO. SF1062A-DEMO |
| | SCALE NONE | W/O or ECN 7387 | REV A | SHEET 2 OF 2 |