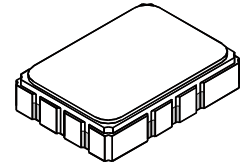


- **Designed for SDARS IF Receiver**
- **Low Insertion Loss**
- **5.0 X 7.0 mm Surface-Mount Case**
- **Differential Input and Output**
- **Complies with Directive 2002/95/EC (RoHS)**
- **Moisture Sensitivity Level: 1**
- **AEC-Q200 Qualified**

**SF1142B**

**315.00 MHz**  
**SAW Filter**



**SMP-03**

**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    |
| Max Soldering Profile                   | 265°C for 10 s |       |

**Electrical Characteristics**

| Characteristic  | Sym  | Notes  | Min       | Typ        | Max  | Units             |
|---|--|--------|-----------|------------|------|-------------------|
| Nominal Center Frequency  | $f_C$  |        | 315.000   |            |      | MHz               |
| Passband  | Insertion Loss at $f_C$                                | IL     |           | 13.0       | 14.0 | dB                |
|   | 1dB Passband   | $BW_1$ | $\pm 2.1$ | $\pm 2.25$ |      | MHz               |
|   | Fast Amplitude Ripple over $f_C \pm 2.1$ MHz           |        |           |            | 1.0  | dB <sub>P-P</sub> |
|   | Group Delay Variation over $f_C \pm 2.1$ MHz           | GDV    |           | 75         | 200  | ns <sub>P-P</sub> |
| Rejection   | 100 to $f_C - 4.6$ and $f_C + 4.85$ to $f_C + 100$ MHz |        | 40        | 47         |      | dB                |
| Operating Temperature Range                                       | $T_A$  |        | -40       |            | +85  | °C                |
| Differential Input and Output Impedance                           | 250 ohms   |        |           |            |      |                   |
| Case Style  | SMP-03 7 x 5 mm Nominal Footprint                      |        |           |            |      |                   |
| Lid Symbolization (YY=year, WW=week, S=shift, ## = Sequence Code) | RFM, SF1142B, <u>YYWWS##</u>                           |        |           |            |      |                   |

**Electrical Connections**

| Connection           | Terminals  |
|----------------------|------------|
| Port 1 Hot           | 10         |
| Port 1 Ground Return | 1          |
| Port 2 Hot           | 5          |
| Port 2 Ground Return | 6          |
| Case Ground          | All Others |



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

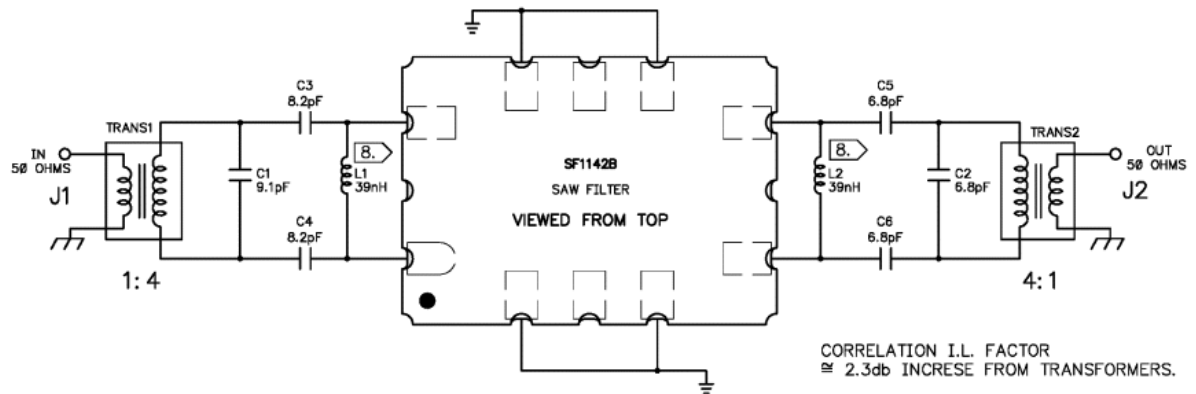
**NOTES:**

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.

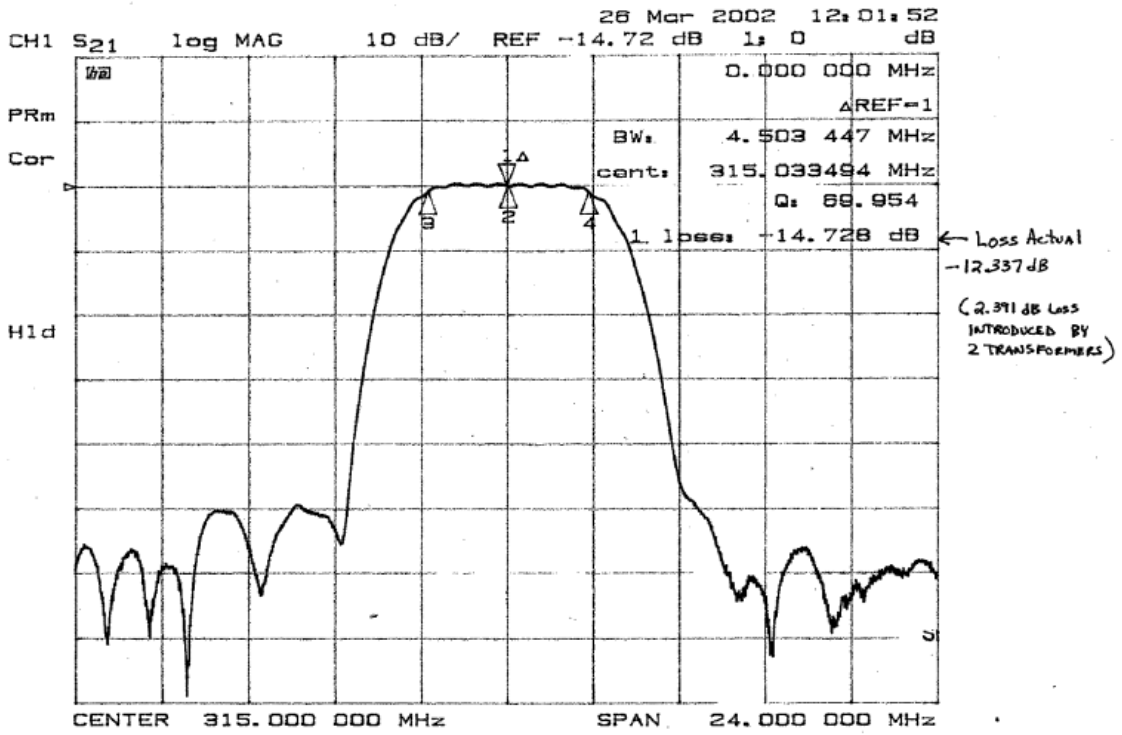
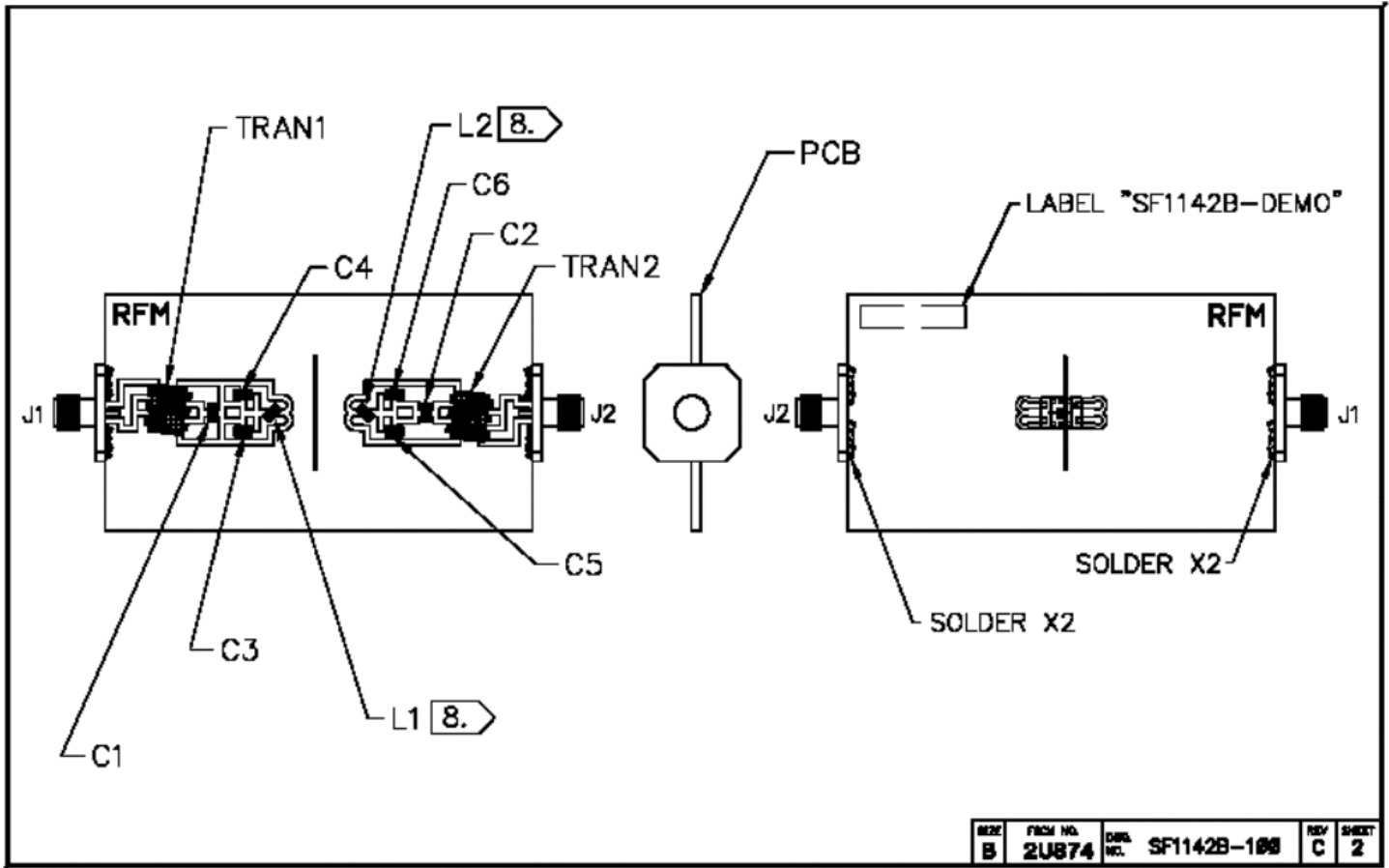
NOTES:

- 1 ~~SOLDER "TAPE" 4 PLACES ON TO COMPONENT SIDE OF PCB AS SHOWN.~~
- 2 USE A WRIST STRAP WHEN SOLDERING TRANS 1, AND TRANS 2 TO PCB.  
(CUT LEADS .07 IN.)
- 3 MOUNT AND SOLDER ALL COMPONENTS ON PCB.
- 4 CUT CENTER CONDUCTORS FROM J1 AND J2 TO .10 IN.
- 5 MOUNT J1 AND J2 AS SHOWN (SOLDER BACKSIDE ALSO).
- 6 LABEL DEMO BOARD ACCORDINGLY.
- 7 MOUNT "FILTER" ON TOPSIDE OF PCB AS SHOWN.
8. MOUNT L1 AND L2 90° TO EACH OTHER.
9. ~~CUT SHIELD IN TWO PIECES... "SHIELD A" AND "SHIELD B" -  
SOLDER TO PCB AS SHOWN.~~

| REV | ECN   | DESCRIPTION     | DATE    |
|-----|-------|-----------------|---------|
| A   | 9121  | INITIAL RELEASE | 26oct00 |
| B   | 10655 | REVISED         | 30apr02 |
| C   | 11077 | REVISED         | 20nov02 |

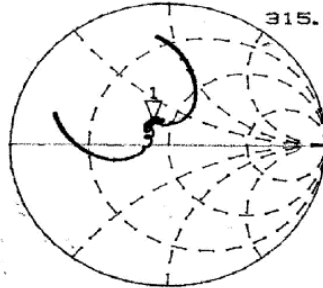


| TITLE                             |          |             |     |       |
|-----------------------------------|----------|-------------|-----|-------|
| ASSY DIAGRAM, SF1142B-DEMO, S, TD |          |             |     |       |
| SIZE                              | FSCM NO. | DWG. NO.    | REV | SHEET |
| B                                 | 2U874    | SF1142B-100 | C   | 1/2   |



26 Mar 2002 12:06:01  
 CH1 S11 1 U FS 1: 39.736  $\Omega$  13.131  $\Omega$  6.6344 nH  
 315.000 000 MHz

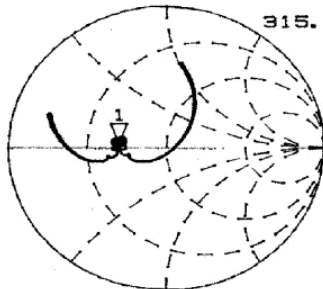
PRm  
 Cor



H1d

CH2 S22 1 U FS 1: 26.956  $\Omega$  1.5781  $\Omega$  797.35 pF  
 315.000 000 MHz

PRm  
 Cor

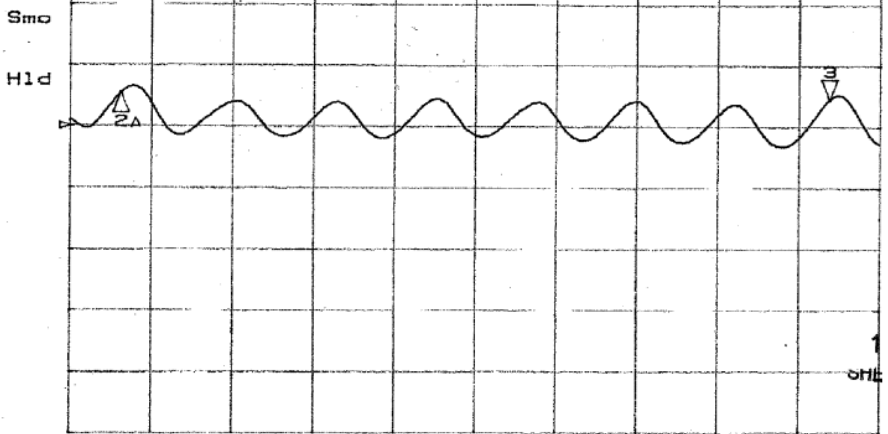


H1d

CENTER 315.000 000 MHz SPAN 24.000 000 MHz

26 Mar 2002 11:56:40  
 CH1 S21 delay 100 ns/ REF 850 ns 3: -10.133 ns

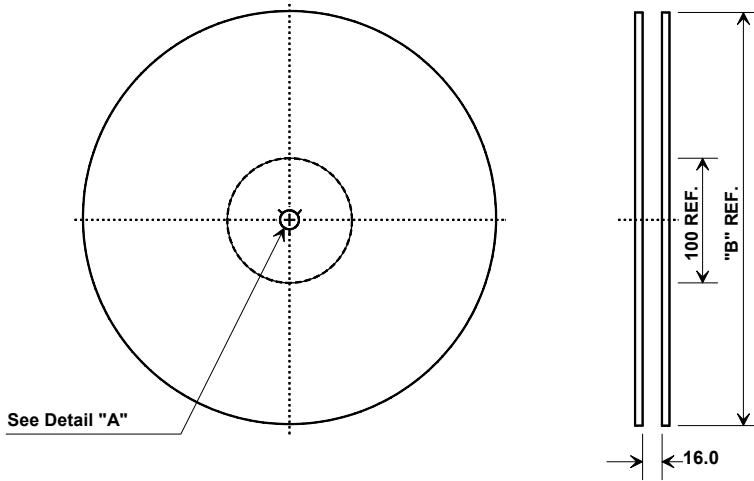
4.200 000 MHz  
 $\Delta$ REF=2  
 mean: 860.42 ns  
 s. dev: 24.064 ns  
 p-p: 98.904 ns



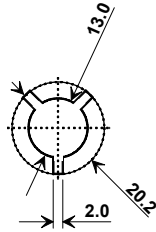
CENTER 315.000 000 MHz SPAN 4.800 000 MHz

## Tape and Reel Specifications

Tape and Reel Standard per ANSI/EIA-481

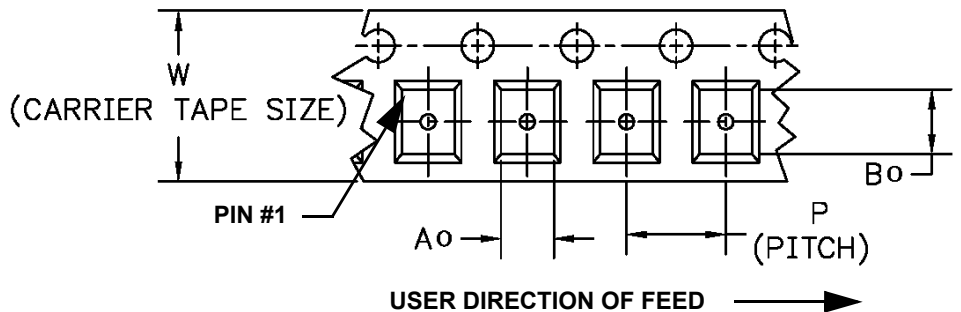
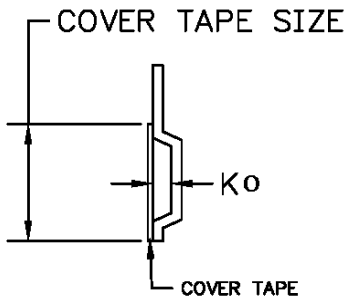


| "B "         |             | Quantity Per Reel |
|--------------|-------------|-------------------|
| Nominal Size |             |                   |
| Inches       | millimeters |                   |
| 7            | 178         | 500               |
| 13           | 330         | 2000              |



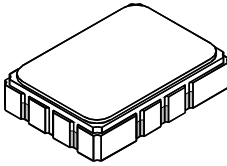
### COMPONENT ORIENTATION and DIMENSIONS

| Carrier Tape Dimensions |         | Tolerance |
|-------------------------|---------|-----------|
| <b>Ao</b>               | 5.5 mm  | ± 0.1mm   |
| <b>Bo</b>               | 7.5 mm  | ± 0.1mm   |
| <b>Ko</b>               | 2.0 mm  | ± 0.1mm   |
| <b>Pitch</b>            | 8.0 mm  | ± 0.1mm   |
| <b>W</b>                | 16.0 mm | ± 0.2mm   |

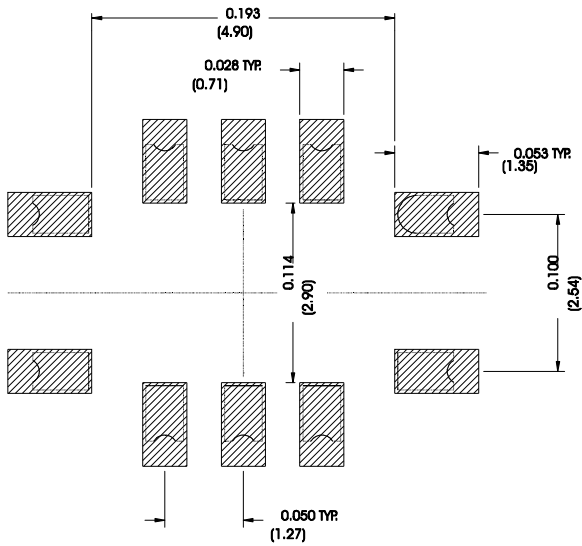


# SMP-03 Case

## 10-Terminal Ceramic Surface-Mount Case 7 x 5 mm Nominal Footprint



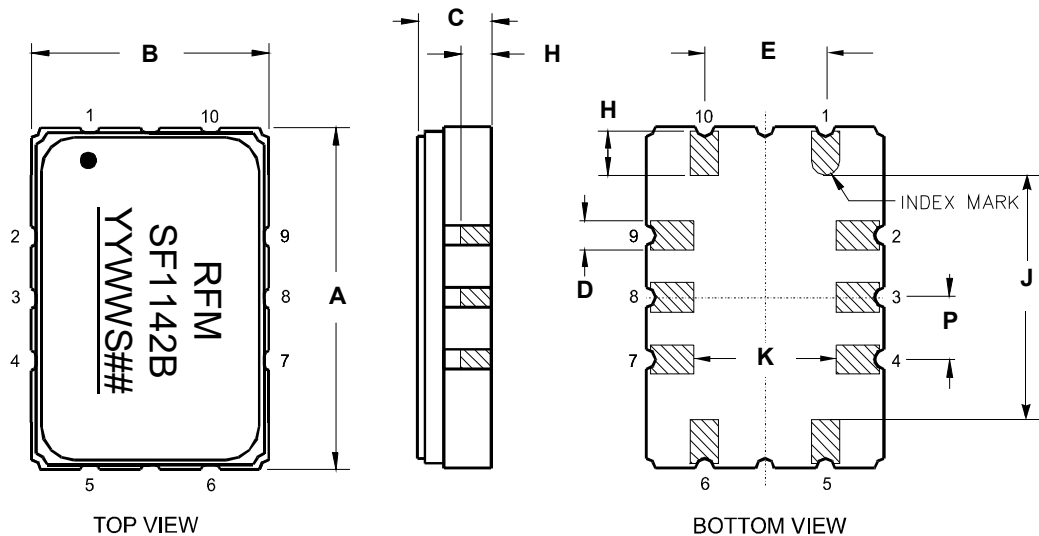
Recommended PCB Footprint



| Case Dimensions |      |      |      |        |       |       |
|-----------------|------|------|------|--------|-------|-------|
| Dimension       | mm   |      |      | Inches |       |       |
|                 | Min  | Nom  | Max  | Min    | Nom   | Max   |
| A               | 6.80 | 7.00 | 7.20 | 0.268  | 0.276 | 0.283 |
| B               | 4.80 | 5.00 | 5.20 | 0.189  | 0.197 | 0.205 |
| C               |      | 1.65 | 2.00 |        | 0.065 | 0.079 |
| D               | .47  | 0.60 | .73  | 0.019  | 0.024 | 0.029 |
| E               | 2.41 | 2.54 | 2.67 | 0.095  | 0.100 | 0.105 |
| H               | 0.87 | 1.0  | 1.13 | 0.034  | 0.039 | 0.044 |
| J               | 4.87 | 5.00 | 5.13 | 0.192  | 0.197 | 0.202 |
| K               | 2.87 | 3.00 | 3.13 | 0.113  | 0.118 | 0.123 |
| P               | 1.14 | 1.27 | 1.40 | 0.045  | 0.050 | 0.055 |

| 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   |

| 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    |



## 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.

