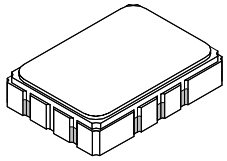
SF1143B 315 MHz SAW Filter

- *Designed for SDARS IF Receiver*
- *Low Insertion Loss*
- *5.0 x 7.0 mm Surface-Mount Case*
- *Differential Input and Output*



See Associated Plots

Characteristic	Sym	Min	Typ	Max	Units	Notes
Nominal Center Frequency	fc		315.000		MHz	1
Passband Insertion Loss at fc	IL		15.1	17.0	dB	
1 dB Passband	BW_1	±6.35	±7.05		MHz	1, 2
Amplitude Ripple over fc ±6.35 MHz				1.0	dB_{P-P}	
Group Delay Variation over fc ±6.35 MHz	GDV		23	200	ns_{P-P}	
Rejection 100 MHz to fc-10.3 and fc+10.3 to fc+100 MHz		40	TBD		dB	1, 2, 3
Operating Temperature Range	T_A	-40		+85	°C	1

Differential Input and Output Impedance	250 ohms
Case Style	SMP-03 7 x 5 mm Nominal Footprint
Lid Symbolization (YY = year, WW = week)	RFM SF1143B YYWW

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 Connections

Connection	Terminals
Port 1 Hot	10
Port 1 Gnd Return	1
Port 2 Hot	5
Port 2 Gnd Return	6
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. Matching components maximum 2 inductors (Q=30), 2 capacitors and one resistor or transformer at each input and output.
2. Unless noted otherwise, all frequency specifications are referenced to the nominal center frequency, fc.
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.
10. Electrostatic Sensitive Device. Observe precautions for handling.

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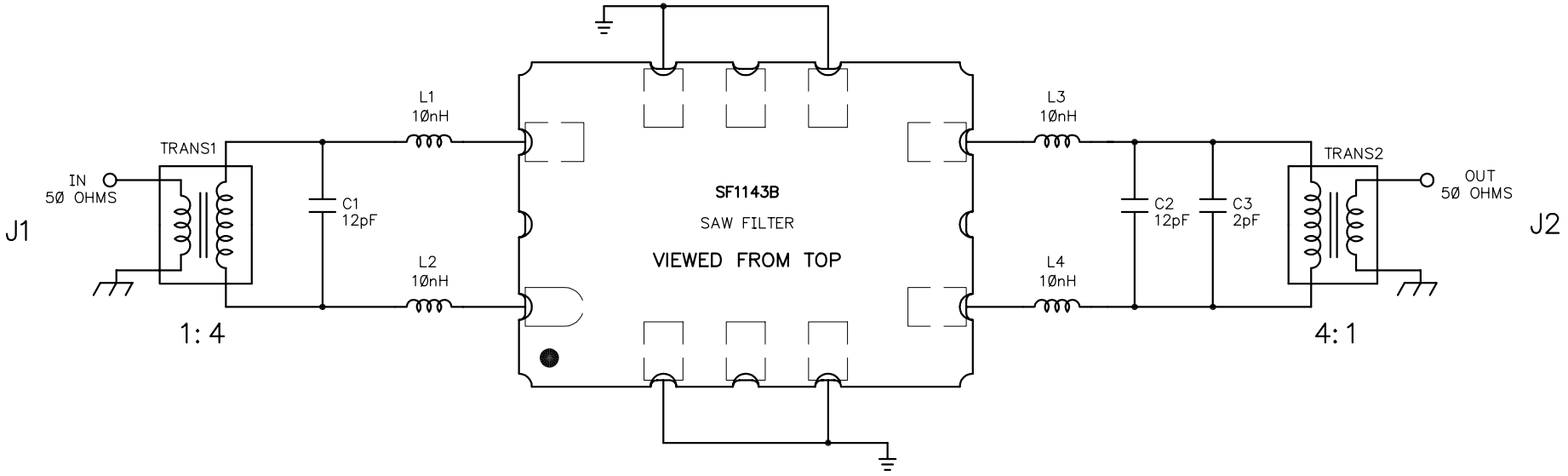
European Sales Office

NOTES:

1. SOLDER "TAPE" 2 PLACES ONTO COMPONENT SIDE OF PCB AS SHOWN.
2. USE A WRIST STRAP WHEN SOLDERING TRANS 1, AND TRANS 2 TO PCB. (CUT LEADS .Ø7 IN.)
3. MOUNT AND SOLDER ALL COMPONENTS ON PCB.
4. CUT CENTER CONDUCTORS FROM J1 AND J2 TO .1Ø 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. CUT ETCH UNDER COMPONENT
9. CUT SHIELD IN TWO PIECES..."SHIELD A" AND "SHIELD B". SOLDER TO PCB AS SHOWN.

REV	ECN	DESCRIPTION	DATE
A	9194	INITIAL RELEASE	22novØØ



MATERIAL/FINISH:

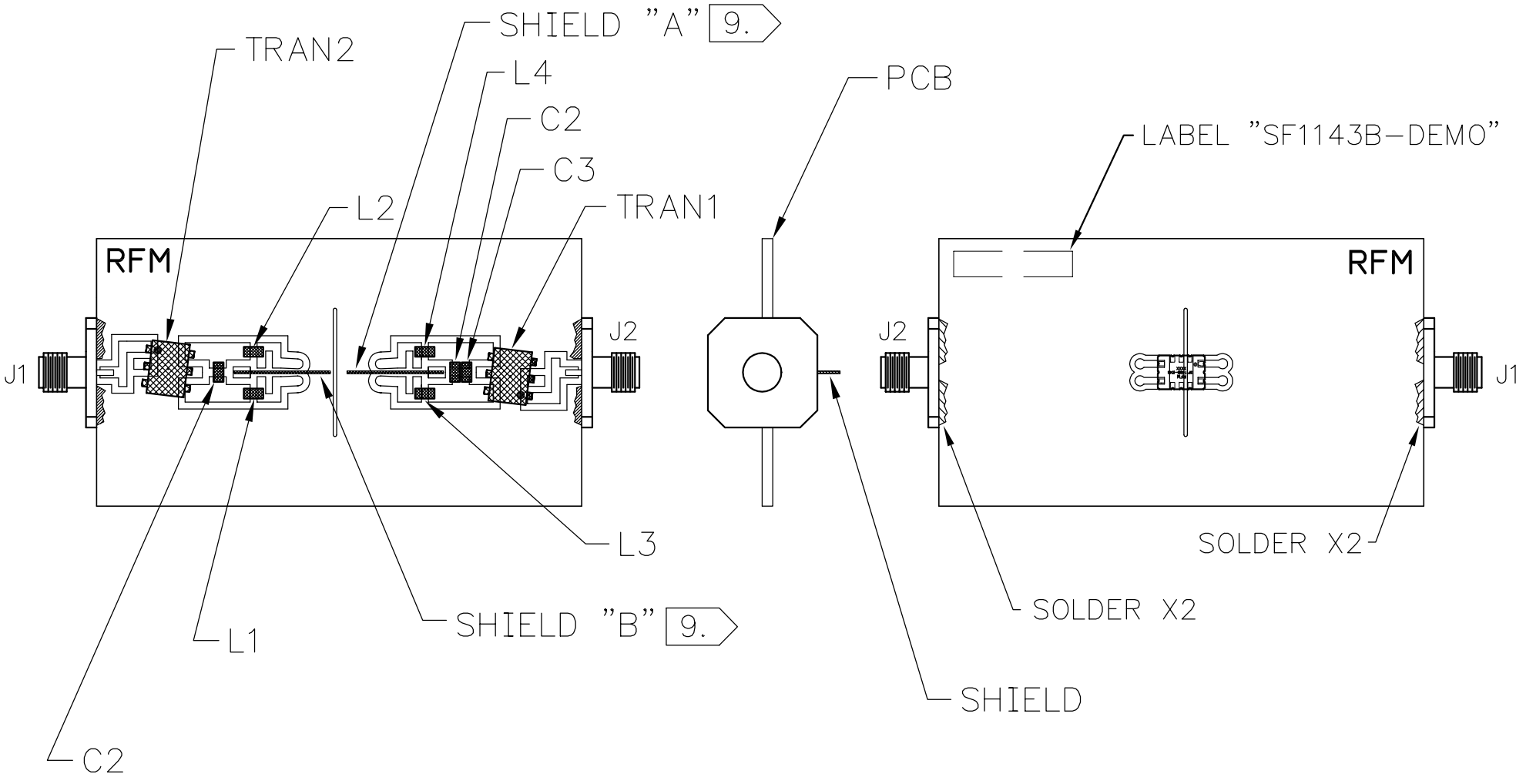
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES(mm)
DIMENSIONING AND TOLERANCING PER ANSI Y14.5-1982
DRAWING PREPARED IN ACCORDANCE WITH MIL-STD-1ØØ
LINEAR GENERAL TOLERANCING AS FOLLOWS:
.XX = ±.Ø1 .XXX = ±.ØØ5 .XXXX = ±.ØØ1Ø
ANGULAR = ±Ø°3Ø'
GENERAL MACHINED SURFACE FINISH 63

DRAWN	DATE
J.F.Christopherson	22novØØ
CHECKED/APPROVED	DATE

RFMonolithics, Inc.
DALLAS , TEXAS 75244 USA

TITLE
ASSY DIAGRAM, SF1143B DEMO

SIZE	FSCM NO.	DWG. NO.	REV	SHEET
B	2U874	SF1143B-1ØØ	A	1/6



SIZE	FSCM NO.	DWG. NO.	REV	SHEET
B	2U874	SF1143B-100	A	2

7 Nov 2000 08:04:37

CH2 S_{21} log MAG 10 dB/ REF −14.34 dB 1: 0 dB

SF1143B

0.000 000 MHz

Max ΔREF=1

BW: 14.113 562 MHz

cent: 315.001323 MHz

Q: 22.319

1 loss: −14.339 dB

PASS

PRm

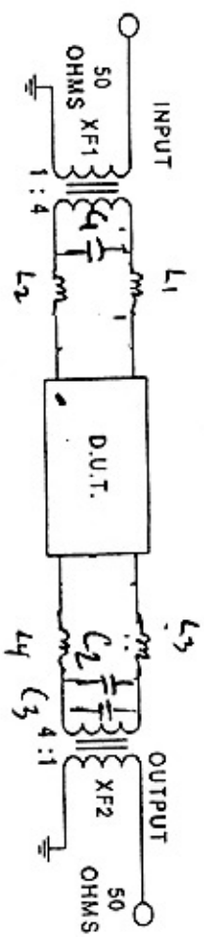
Cor

CH2 CENTER 315.000 000 MHz SPAN 56.000 000 MHz

SF1143B
Demo
11/7/00
LP

C1= 12pf
C2= 12pf
C3= 20pf
C4=

L1= 10nH
L2= 10nH
L3= 10nH
L4= 10nH



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CH1 S_{21} delay 50 ns/ REF 820.3 ns 2: 4.5776 ns

SF1143B

12.700 000 MHz

ΔREF=1

PRm

meas: 825.18 ns

Cor

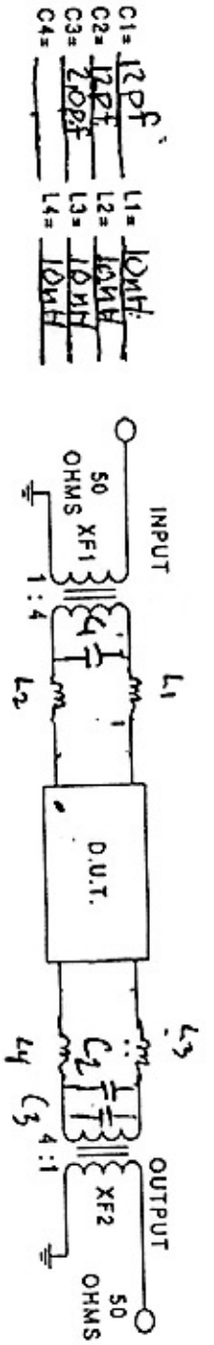
s.dev: 4.5431 ns

p-p: 22.316 ns

Smo

CH1 CENTER 315.000 000 MHz SPAN 16.000 000 MHz

SF1143B
Demo
11/7/00
LP



CH2 S_{11} 1 U FS

SF1143B

1: 47.602 Ω

7 Nov 2000 08:09:41

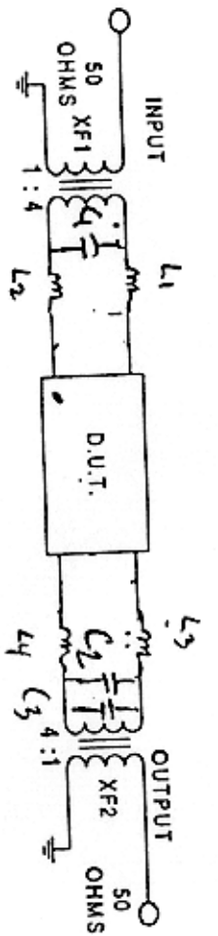
20.877 Ω 10.548 nH

315.000 000 MHz

SF1143B
Demo
11/7/00
LP

C1= 12pf
C2= 12pf
C3= 12pf
C4=

L1= 10nH
L2= 10nH
L3= 10nH
L4= 10nH

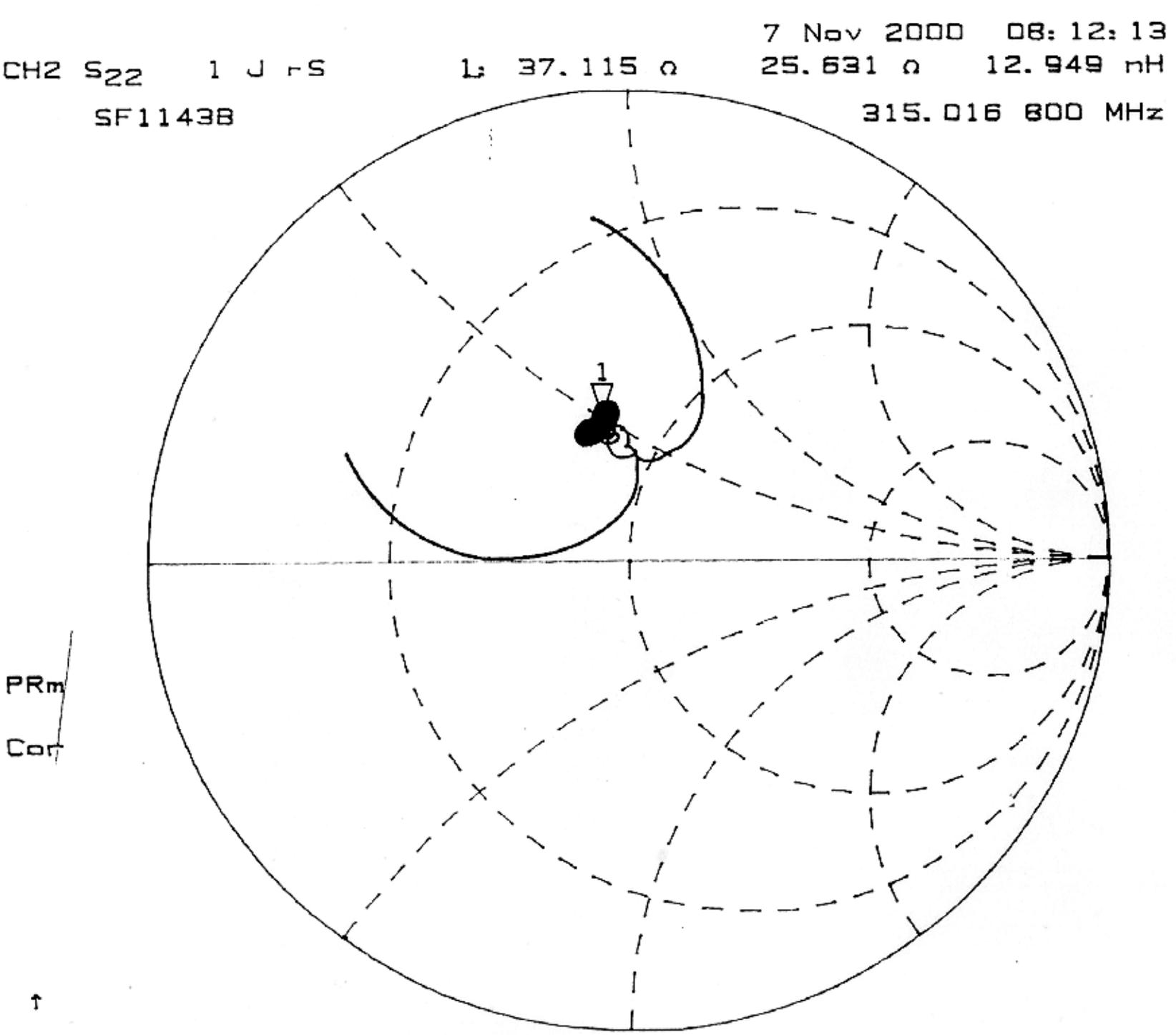


PRm

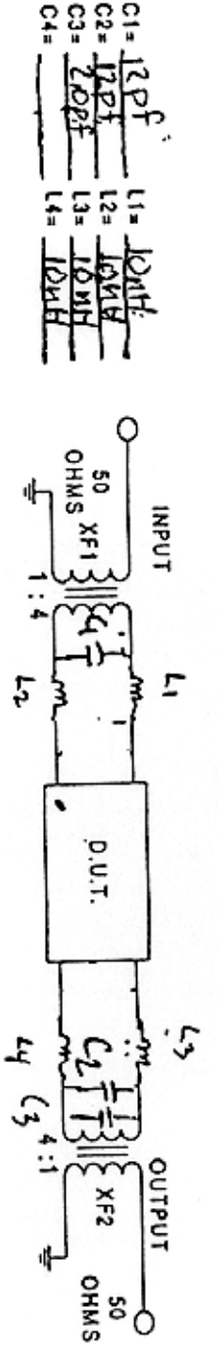
Cor

CH2 CENTER 315.000 000 MHz

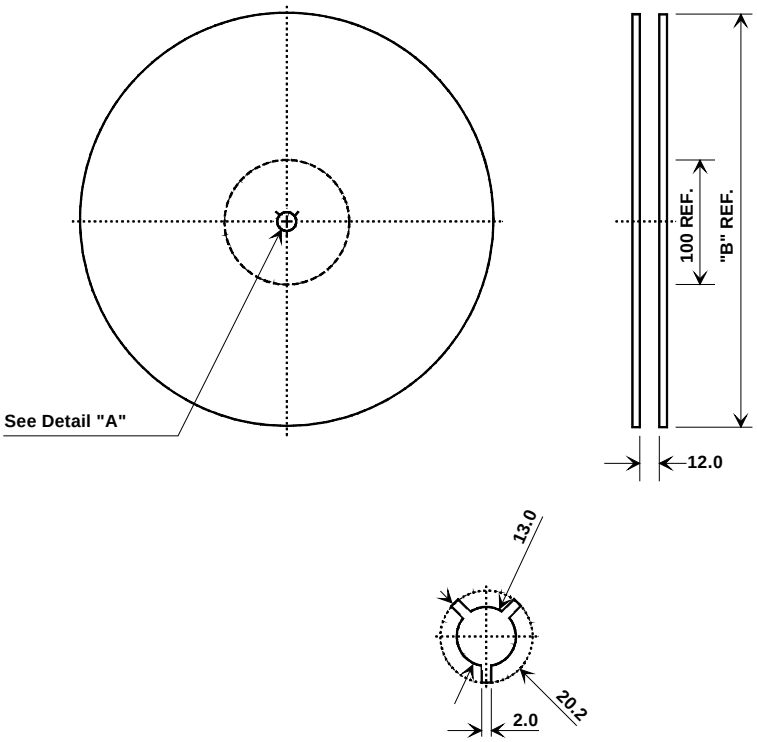
SPAN 56.000 000 MHz



SF1143B
Demo
11/7/00
LP



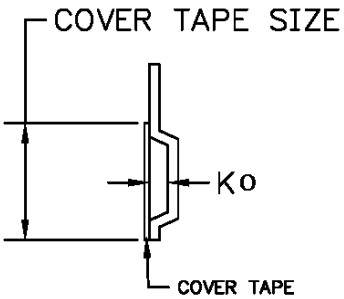
Tape and Reel Specifications

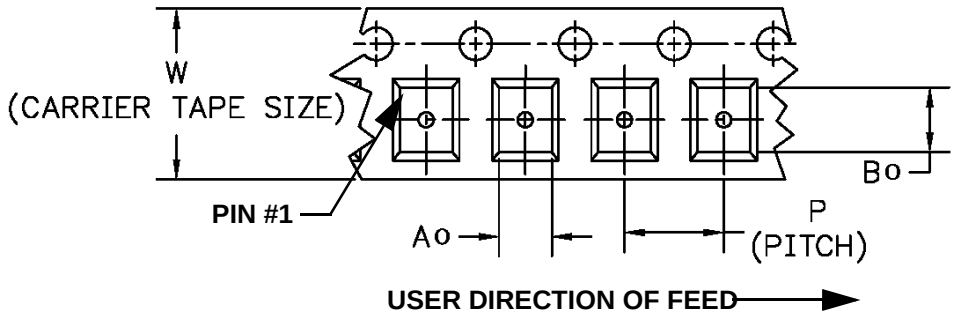


"B " Nominal Size		Quantity Per Reel
Inches	millimeters	
7	178	500
13	330	2000

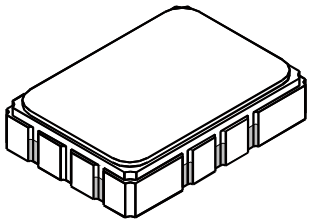
COMPONENT ORIENTATION and DIMENSIONS

Carrier Tape Dimensions	
Ao	9.4 mm
Bo	7.4 mm
Ko	2.0 mm
Pitch	8.0 mm
W	16.0 mm





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

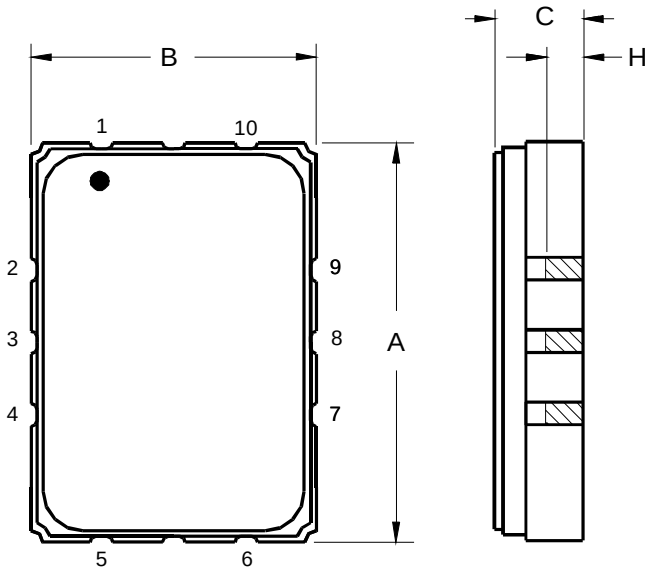


Case Dimensions

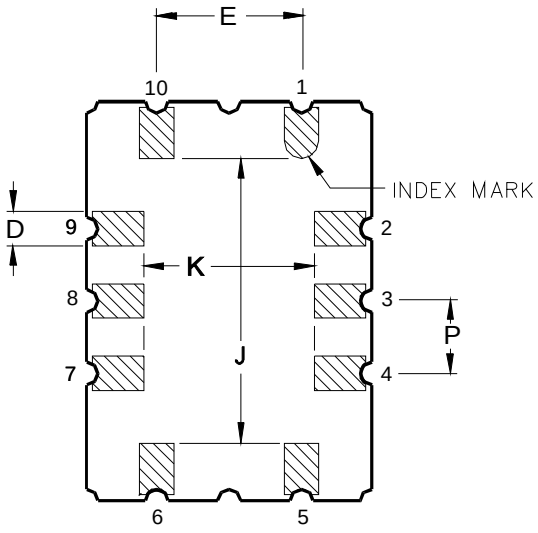
Dimension	mm			Inches		
	Min	Nom	Max	Min	Nom	Max
A	6.80	7.00	7.20	0.268	0.276	0.283
B	4.80	5.00	5.20	0.189	0.197	0.205
C		1.65	2.00		0.065	0.079
D		0.60			0.024	
E		2.54			0.100	
H		1.0			0.039	
J		5.00			0.197	
K		3.00			0.118	
P		1.27			0.050	

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**



TOP VIEW



BOTTOM VIEW