

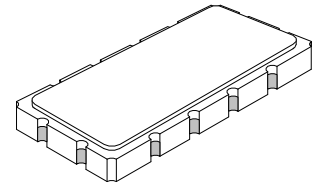


- **Designed for GSM BTS Transmitter IF Applications**
- **Low Insertion Loss**
- **Excellent Size-to-Performance Ratio**
- **Hermetic 13.3 x 6.5 mm Surface-Mount Case**
- **Unbalanced Input and Output**
- **Complies with Directive 2002/95/EC (RoHS)**



SF1086A

125 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
Nominal Center Frequency	f_C	1	125.000			MHz
Passband	IL	1, 2		6	8.0	dB
Insertion Loss at f_C	BW ₁		±150	±205		
1 dB Passband						
Amplitude Ripple over $f_C \pm 150$ kHz	GDV			<100	150	nSp-p
Group Delay Variation over $f_C \pm 150$ kHz	GD		0.7	1.2	1.7	µs
Rejection		1, 2, 3	2			dB
$f_C - 0.6$ to $f_C - 0.4$ and $f_C + 0.4$ to $f_C + 0.6$ MHz			8			
$f_C - 1.2$ to $f_C - 0.6$ and $f_C + 0.6$ to $f_C + 1.2$ MHz			20	23		
$f_C - 1.8$ to $f_C - 1.2$ and $f_C + 1.2$ to $f_C + 1.8$ MHz			25	37		
$f_C - 3.4$ to $f_C - 1.8$ and $f_C + 1.8$ to $f_C + 3.4$ MHz			30	47		
$f_C - 9.5$ to $f_C - 3.4$ and $f_C + 3.4$ to $f_C + 9.5$ MHz			43	65		
$f_C - 13$ to $f_C - 9.5$ and $f_C + 9.5$ to $f_C + 13$ MHz			55	>60		
DC to $f_C - 13$ and $f_C + 13$ to 450 MHz			50			
Except Spurious Rejection near 1.6, 1.8, and 2.0 x f_C						
Operating Temperature Range	T _A	1	-10		+85	°C

Impedance Matching to 50 Ω unbalanced	External L-C
Case Style	SM13365-12 13.3 x 6.5 mm Nominal Footprint
Lid Symbolization (YY = year, WW = week)	RFM SF1086A YYWW

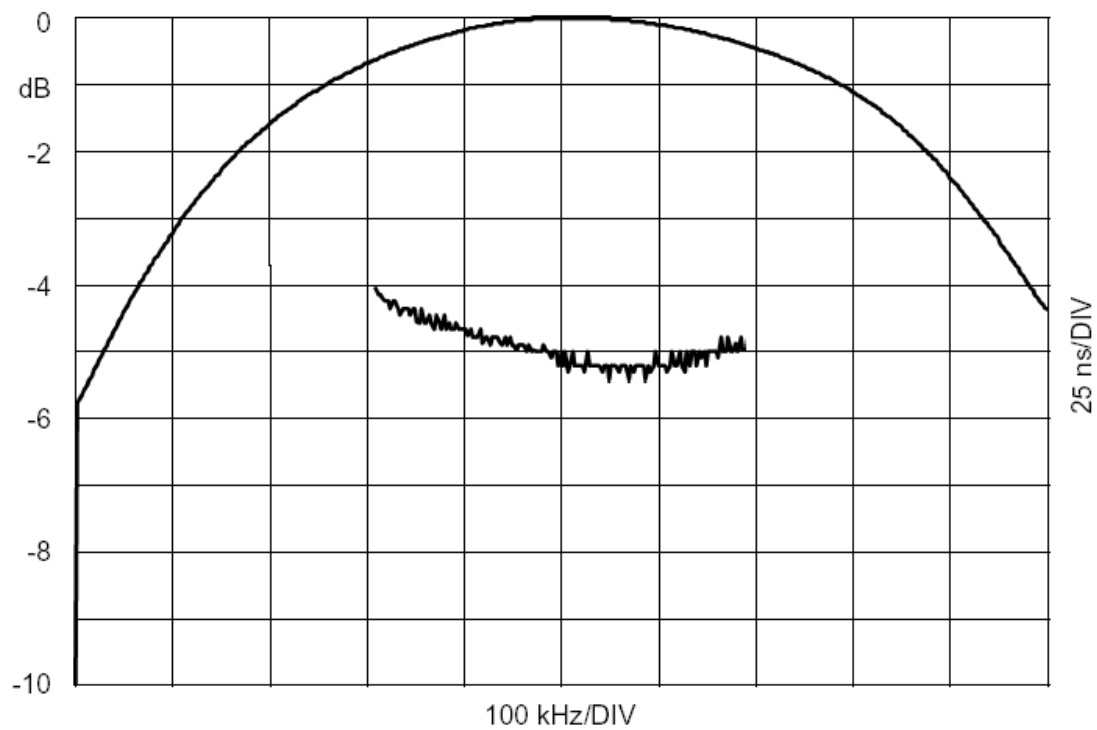
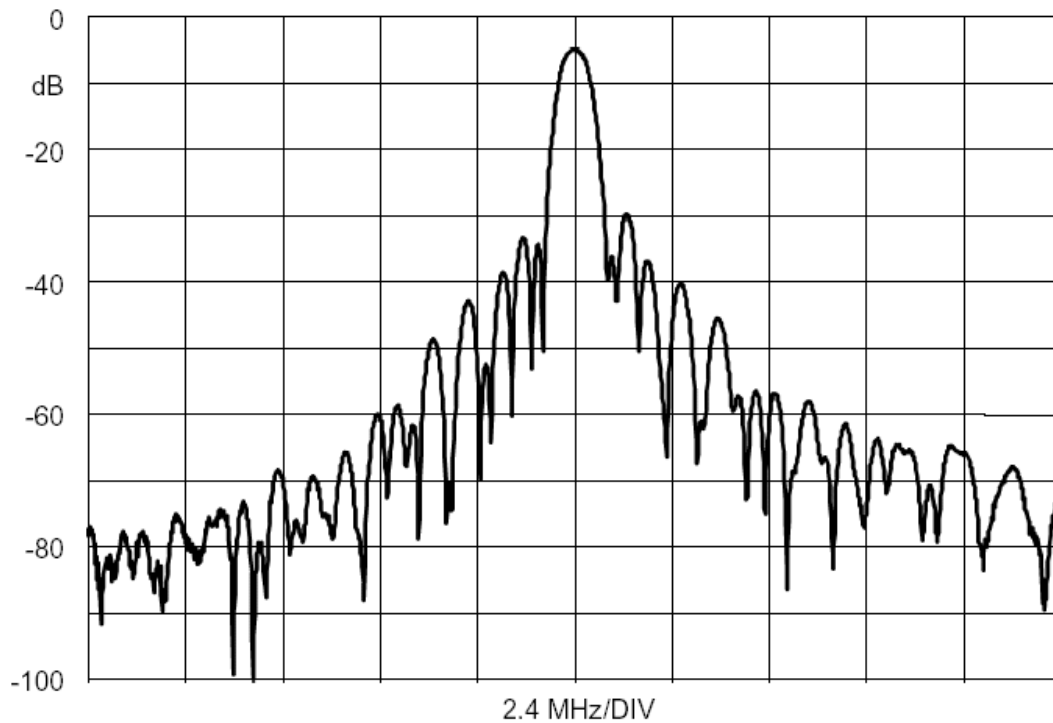
Notes:

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. 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. Electrostatic Sensitive Device. Observe precautions for handling.



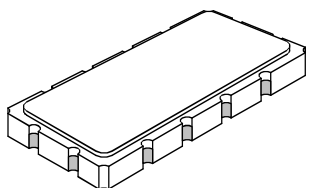
Electrical Connections

Connection	Terminals
Port 1 Hot	11
Port 1 Gnd Return	12
Port 2 Hot	5
Port 2 Gnd Return	6
Case Ground	All others



SM13365-12 Case

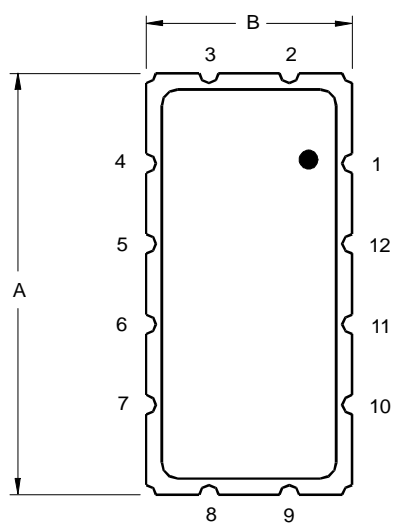
12-Terminal Ceramic Surface-Mount Case
13.3 x 6.5 mm Nominal Footprint



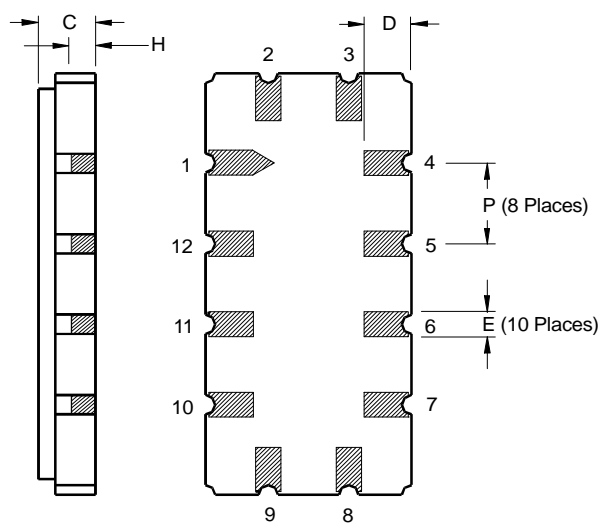
Case Dimensions						
Dimension	mm			Inches		
	Min	Nom	Max	Min	Nom	Max
A	13.08	13.31	13.60	0.515	0.524	0.535
B	6.27	6.50	6.80	0.247	0.256	0.268
C		1.91	2.00		0.075	0.079
D		1.50			0.059	
E		0.79			0.031	
H		1.0			0.039	
P		2.54			0.100	

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

Electrical Connections		
Connection		Terminals
Port 1	Input or Return	2
	Return or Input	3
Port 2	Output or Return	8
	Return or Output	9
Ground		All others
Single Ended Operation		Return is ground
Differential Operation		Return is hot



TOP VIEW

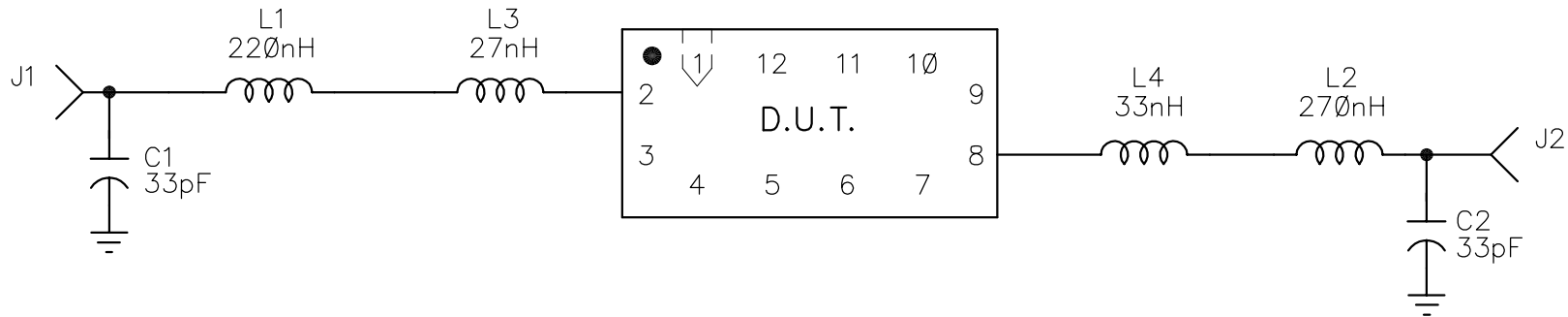


BOTTOM VIEW

NOTES:

1. L3 & L4 MAY BE INTERCHANGED DEPENDING ON TUNED RESPONSE.
2. ORIENTATION OF COMPONENTS MAY VARY FROM ASSEMBLY DIAGRAM IN ORDER TO FINE TUNE DEVICE.

REV	ECN NO.	DESCRIPTION	DATE
A	6713	INITIAL RELEASE	18may98
B	10225	REVISED PIN NUMBERING	04oct01



DRAWN BY/DATE: J.J. LAYTON 05/18/98

TITLE: DEMO PCB, SF1086A

RF Monolithics, Inc.
DALLAS, TEXAS 75244

CHECKED/APPROVED

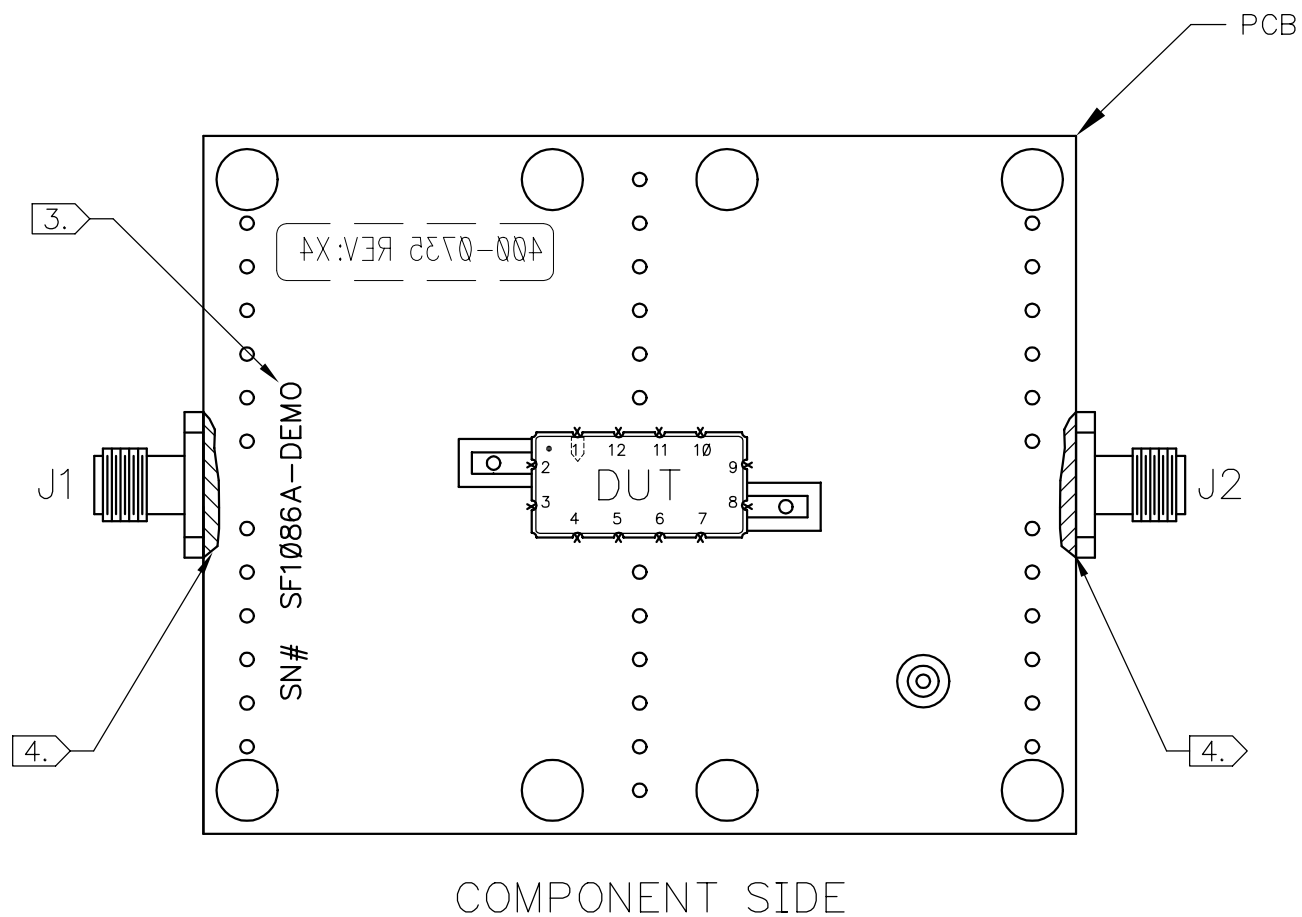
SIZE	CODE IDENT
A	2U874

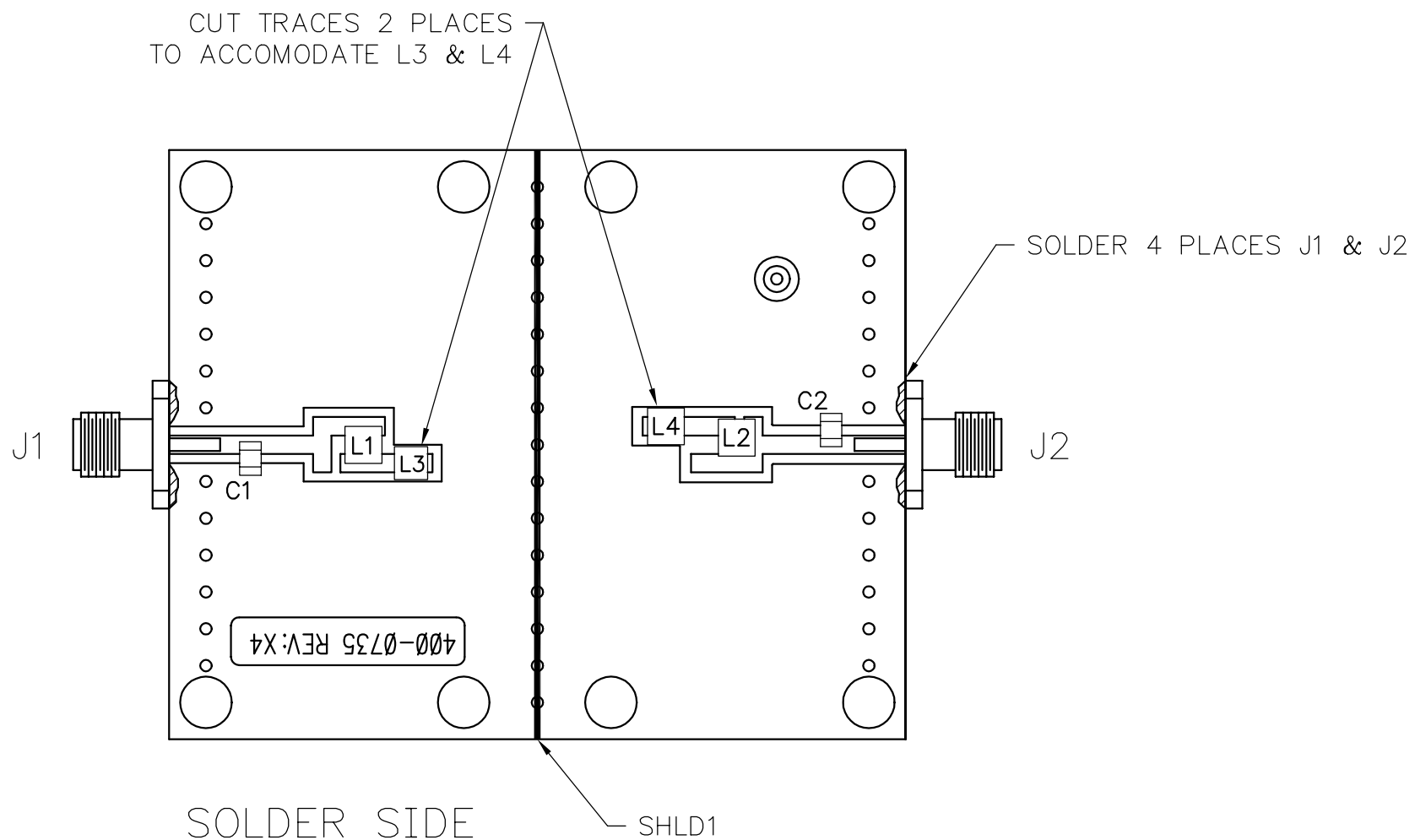
DWG. NO. SF1086A-000

REV B	SHEET 1/5
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3. LABEL FIXTURE WITH ELECTRONIC METHOD AS SHOWN.

4. SOLDER J1 & J2 TO PCB AS SHOWN.

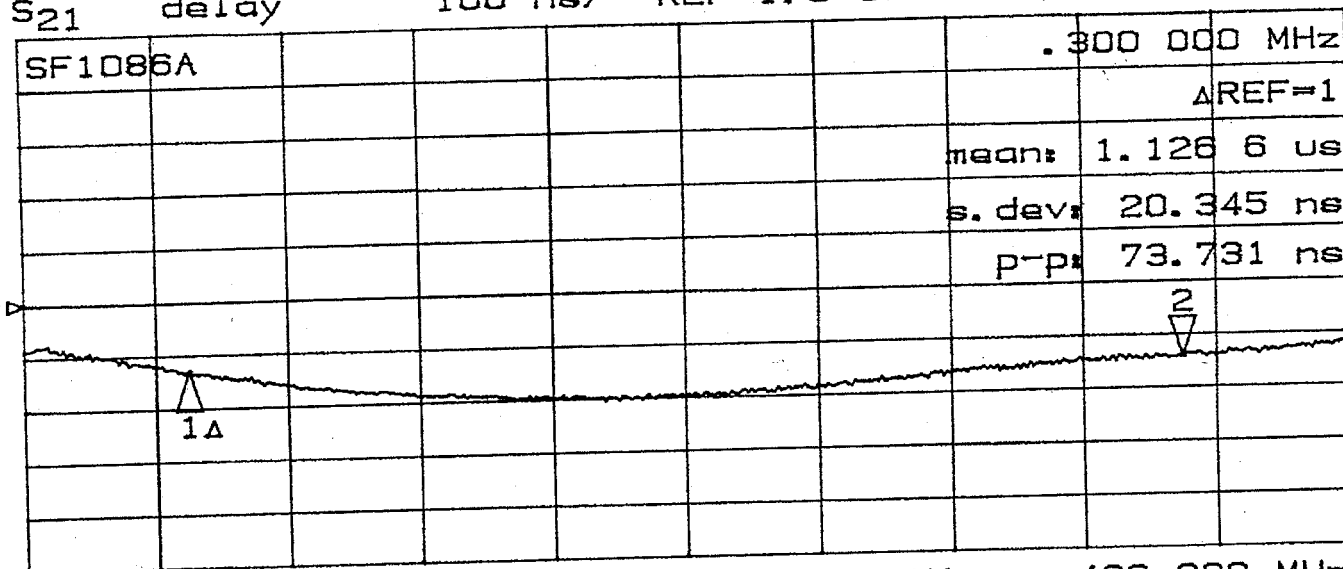




SF1086A (DEMO), M.F., 3-30-98, DC# 9812

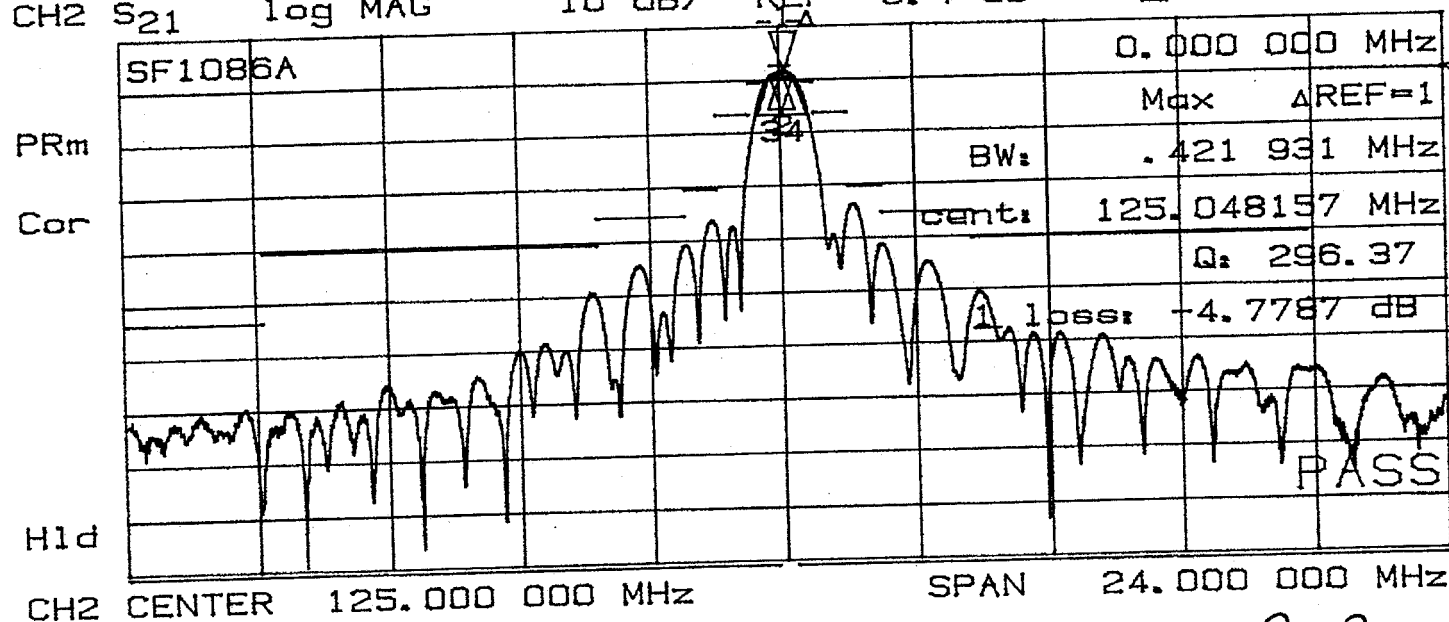
30 Mar 1998 13:15:28

CH1 S21 delay 100 ns/ REF 1.3 us 2 -9.2984 ns



CH1 CENTER 125.000 000 MHz SPAN .400 000 MHz

CH2 S21 log MAG 10 dB/ REF -6.4 dB 1: 0 dB



CH2 CENTER 125.000 000 MHz SPAN 24.000 000 MHz

Rev B

SF1086A-000 SHEET 4

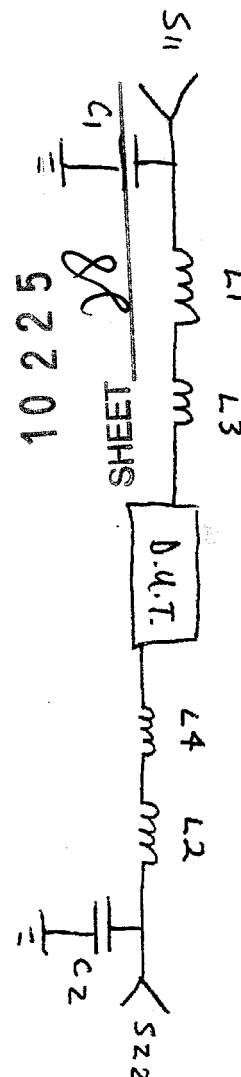
ECN NO.

10 225

28

SHEET

D.U.T.



C1, C2 = 33 pF

L1 = 220 nH

L2 = 270 nH

L3 = 27 nH

L4 = 33 nH

30 Mar 1998 13:35:04

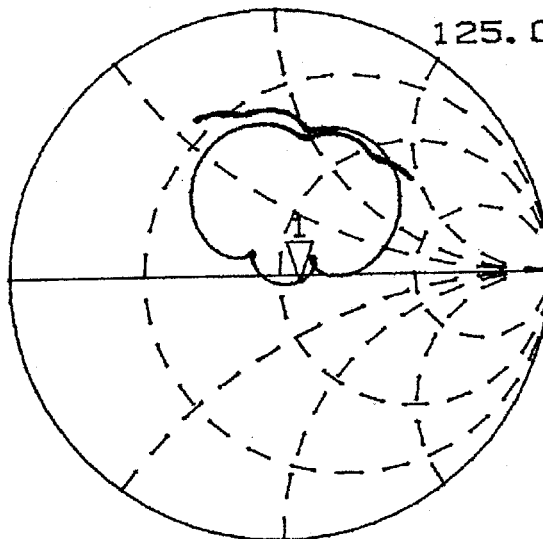
CH1 S₁₁ 1 U FS
SF1086A

1 58.318 Ω -2.918 Ω 436.34 pF

125.000 000 MHz

PRm

Cor



H1d

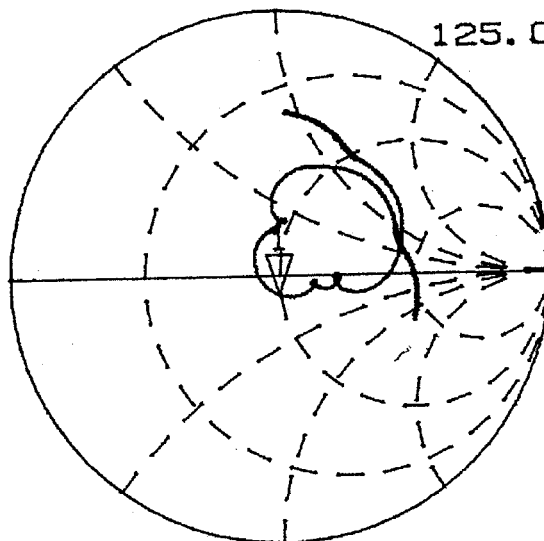
CH2 S₂₂ 1 U FS
SF1086A

1 49.691 Ω -7.1426 Ω 178.26 pF

125.000 000 MHz

PRm

Cor



H1d

CENTER 125.000 000 MHz

SPAN

5.000 000 MHz

SF1086A SHEET 5 Rev B

ECN NO.

BILL OF MATERIALS

<u>PART IDENTIFIER</u>	<u>DESCRIPTION 1</u>	<u>DESCRIPTION 2</u>	<u>QTY/ASSY</u>	<u>REFERENCE DESCRIPTION</u>
SF1086A-DEMO	DEMO BOARD,SF1086A			
SF1086A-000	ASSY DIAGRAM,DEMO BOARD,	SF1086A	0	
400-0735-001	PCB,DEMO BOARD,13.3 X 6.5		1.0000	PCB
400-0533-001	SHIELD,TO-39 TEST FIXTURE		1.0000	SHLD1
500-0003-330	CAP,CHIP,NPO,33(J),STD		2.0000	C 1,2
500-0248-001	CONN,COAX,FLANGE MT.JACK	4 HOLE	2.0000	J 1,2
500-0010-221	IND,CHIP,1008CS,220NH,10%		1.0000	L 1
500-0010-271	IND,CHIP,1008CS,270NH,10%		1.0000	L 2
500-0010-270	IND,CHIP,1008CS,27NH,10%		1.0000	L 3
500-0010-330	IND,CHIP,1008CS,33NH,10%		1.0000	L 4



SIZE

A

FSCM NO.

2U874

DWG NO.

SF1086A-DEMO

SCALE

NONE

W/O or ECN

6713

REV

A

SHEET

1 OF 2

REV HISTORY	
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[illegible]

	FRFM[®]	SIZE A	FSCM NO. 2U874	DWG NO. SF1086A-DEMO	
	SCALE NONE	W/O or ECN 6713		REV A	SHEET 2 OF 2