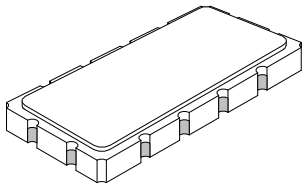
SF1086A

125 MHz SAW Filter

- ***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)***



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	Insertion Loss at fc	IL			6	8.0	dB
	1 dB Passband	BW_1	1, 2	±150	±205		
	Amplitude Ripple over fc±150 kHz					1.25	kHz
	Group Delay Variation over fc ±150 kHz	GDV			<100	150	ns_{P-P}
	Absolute Group Delay	GD		0.7	1.2	1.7	µs
Rejection	fc-0.6 to fc-0.4 and fc+0.4 to fc+0.6 MHz		1, 2, 3	2			dB
	fc-1.2 to fc-0.6 and fc+0.6 to fc+1.2 MHz			8			
	fc-1.8 to fc-1.2 and fc+1.2 to fc+1.8 MHz			20	23		
	fc-3.4 to fc-1.8 and fc+1.8 to fc+3.4 MHz			25	37		
	fc-9.5 to fc-3.4 and fc+3.4 to fc+9.5 MHz			30	47		
	fc-13 to fc-9.5 and fc+9.5 to fc+13 MHz			43	65		
	DC to fc-13 and fc+13 to 450 MHz			55	>60		
	Except Spurious Rejection near 1.6, 1.8, and 2.0 x fc			50			
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 W and measured with 50 Ω network analyzer.
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. 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

RF Monolithics, Inc. Phone: (972) 233-2903 Fax: (972) 387-9148 E-mail: info@rfm.com
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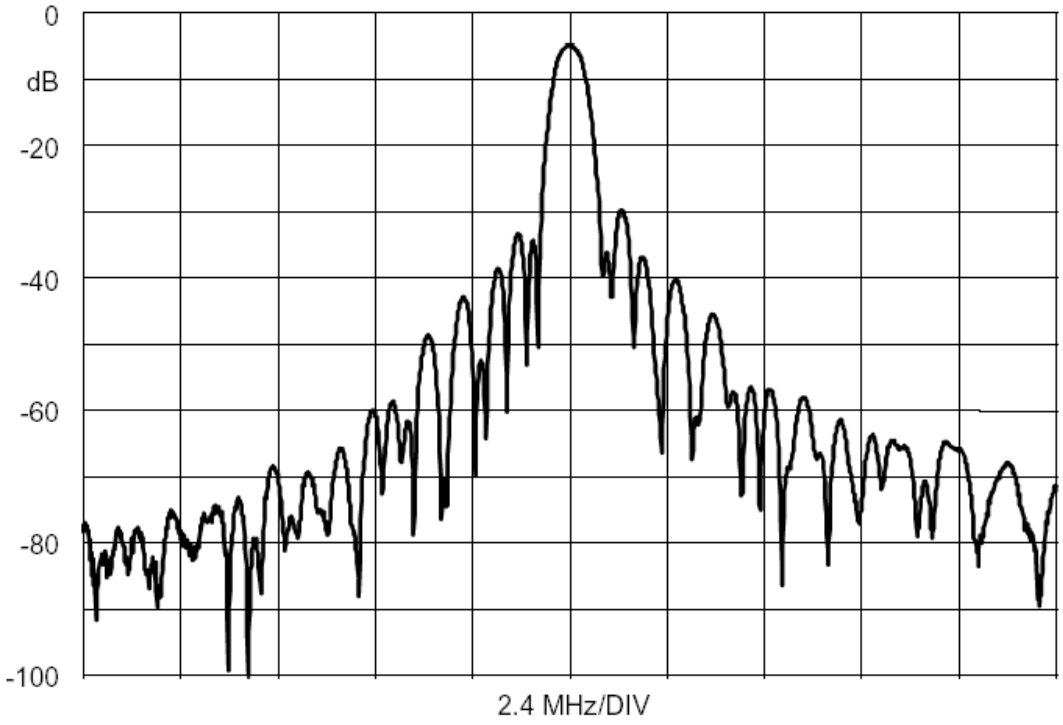

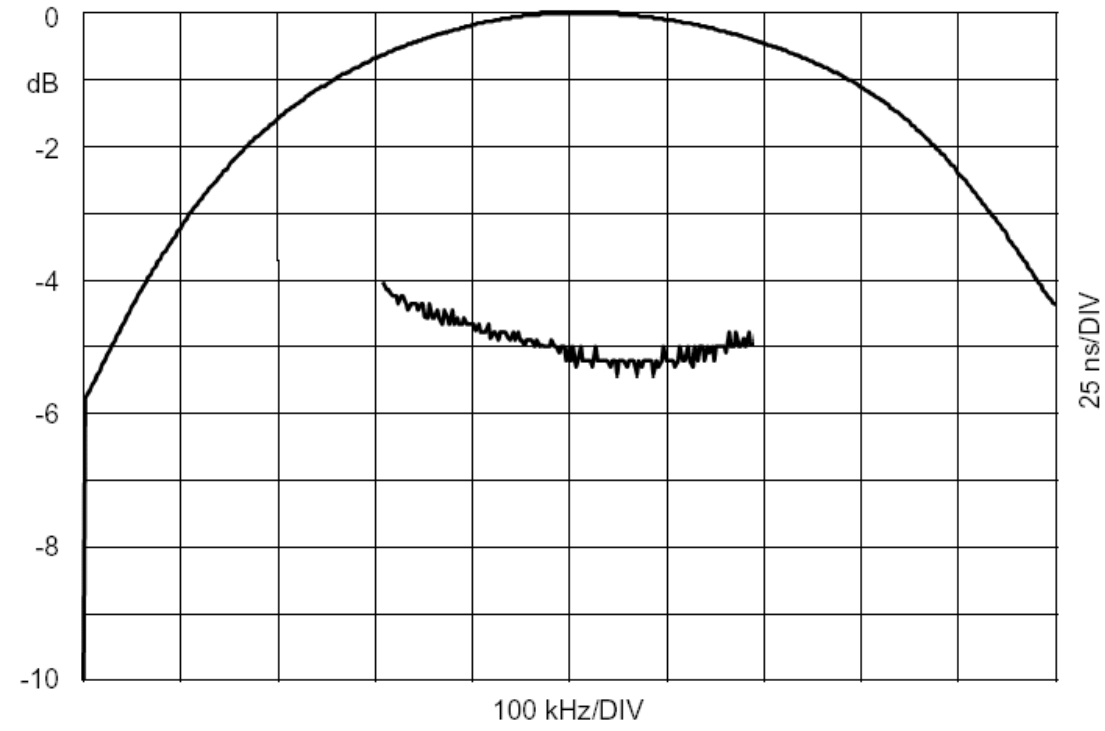

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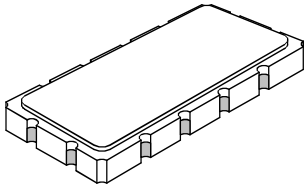
SM13365-12 Case

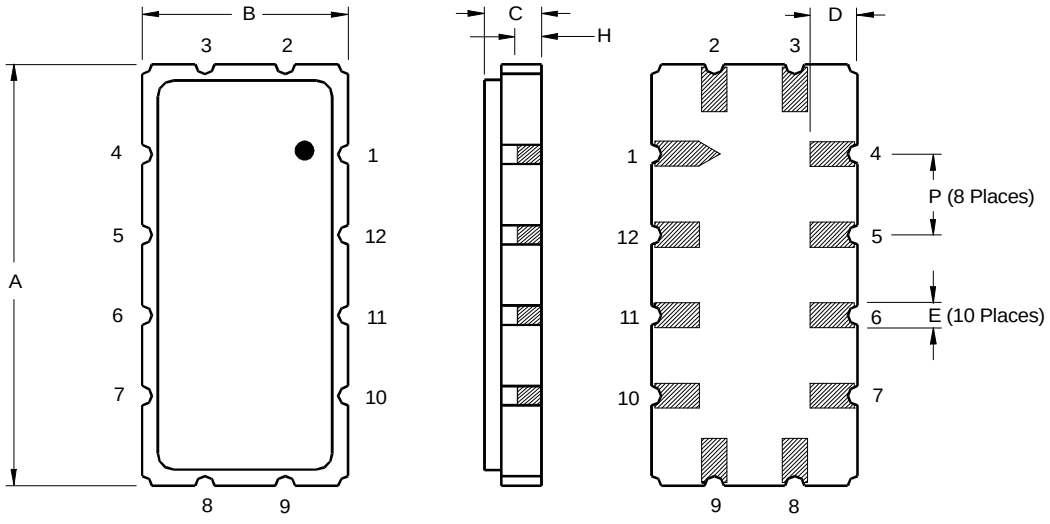
12-Terminal Ceramic Surface-Mount Case
13.3 x 6.5 mm Nominal Footprint



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 µinches (76.2-152 µm) over 80-200 µinches (203-508 µm) Ni.
Lid	Fe-Ni-Co Alloy Electroless Nickel Plate (8-11% Phosphorus) 100-200 µinches Thick
Body	Al_2O_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**



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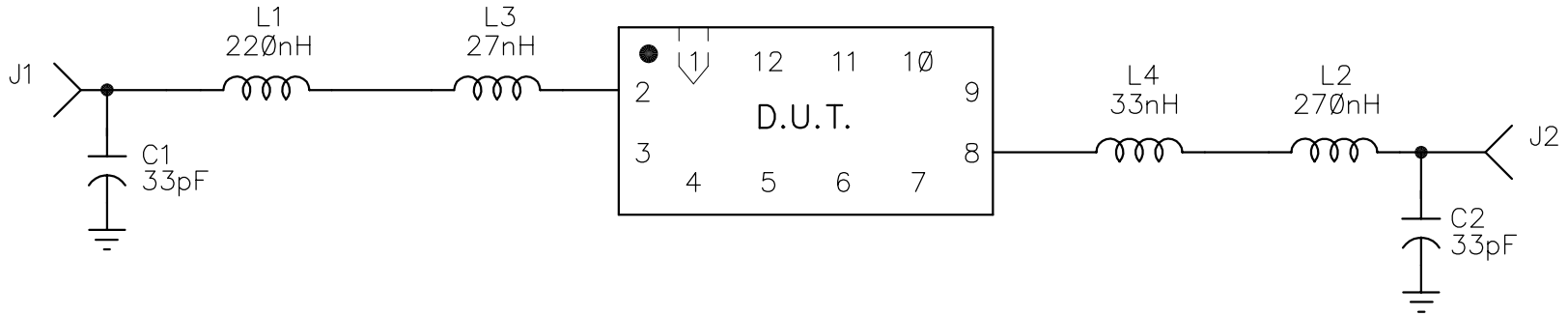
NOTES:

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.

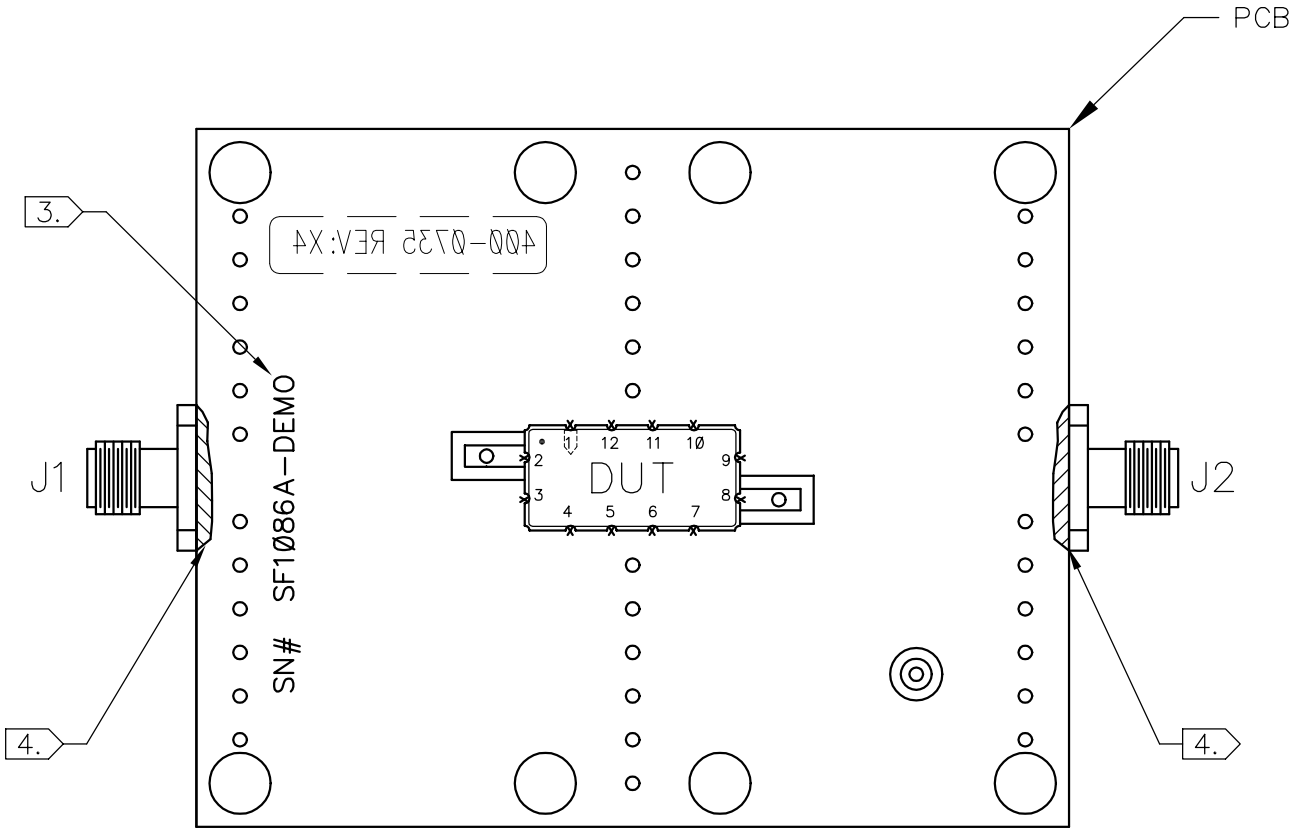
REV	ECN NO.	DESCRIPTION	DATE
A	6713	INITIAL RELEASE	18may98
B	10225	REVISED PIN NUMBERING	04oct01



DRAWN BY/DATE: J.J. LAYTON 05/18/98		TITLE: DEMO PCB, SF1086A					
RF Monolithics, Inc. DALLAS, TEXAS 75244	CHECKED/APPROVED	SIZE **A**	CODE IDENT **2U874**	DWG. NO. SF1086A-000	REV B	SHEET 1/5	

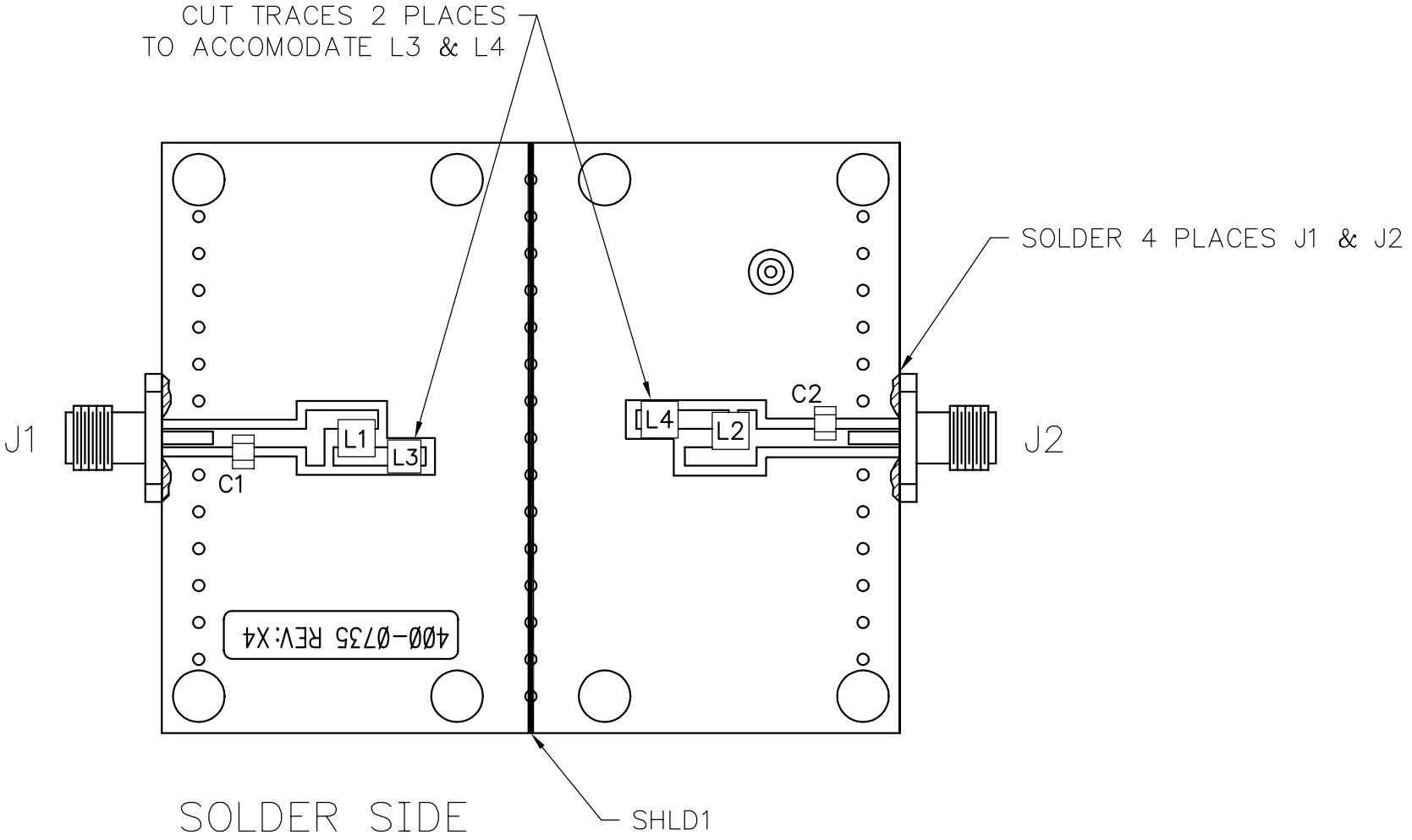
3. LABEL FIXTURE WITH ELECTRONIC METHOD AS SHOWN.

4. SOLDER J1 & J2 TO PCB AS SHOWN.



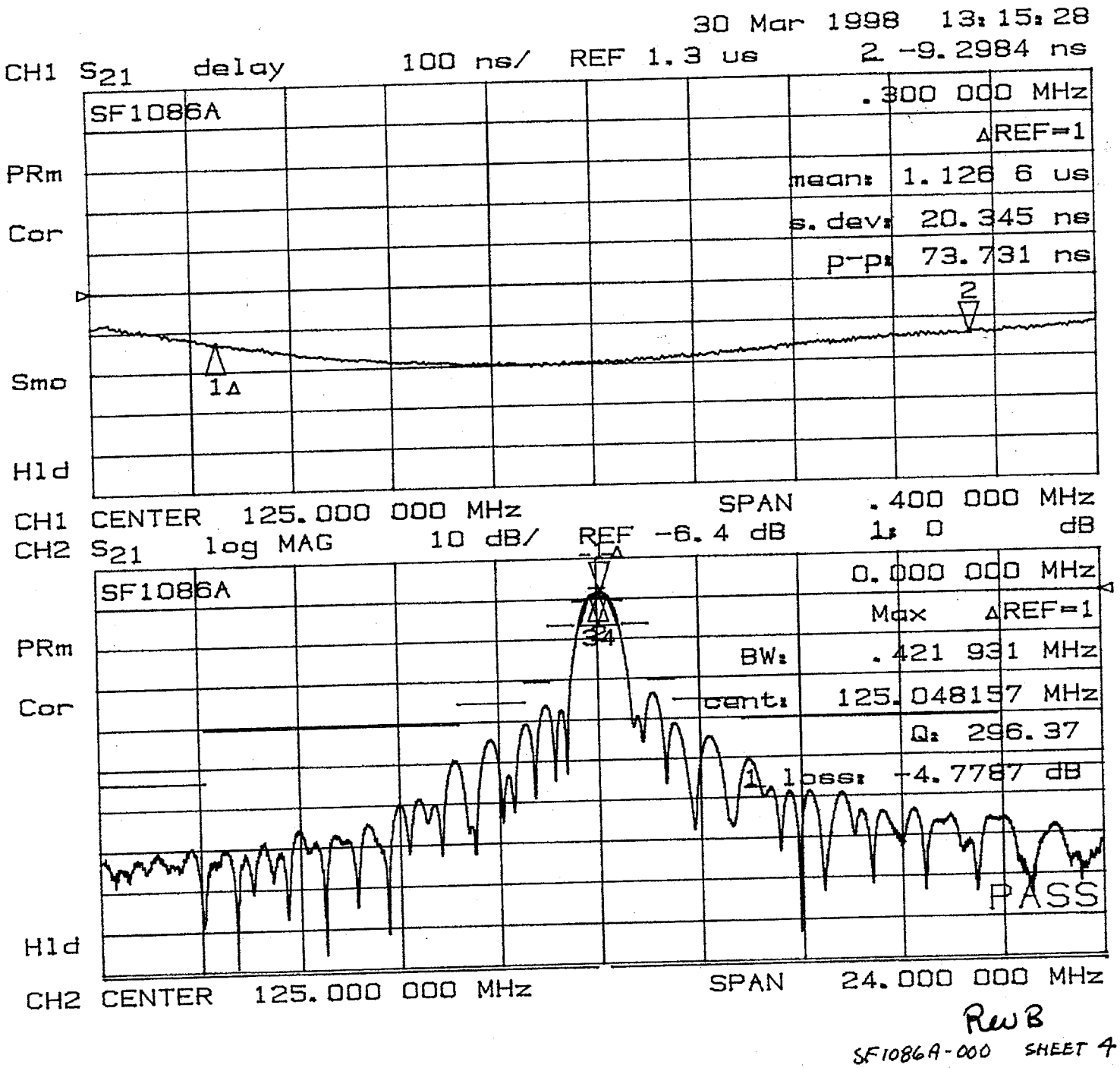
COMPONENT SIDE

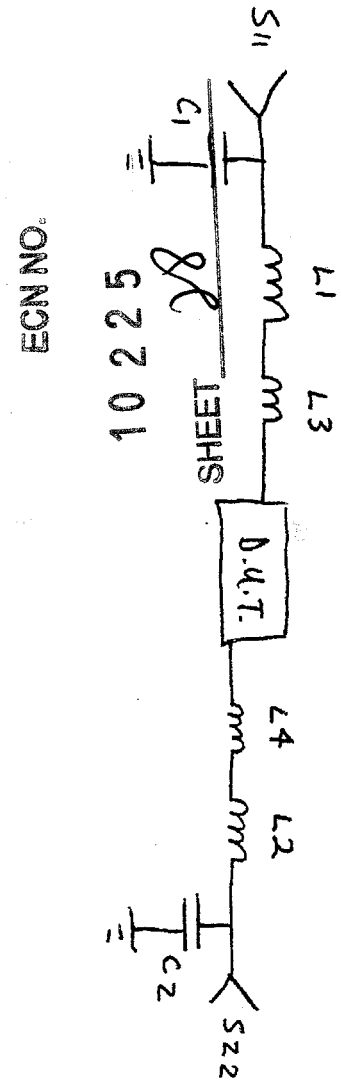
RF Monolithics, Inc. DALLAS, TEXAS 75244		SIZE A	CODE IDENT 2U874	DWG. NO. SF1086A-000	REV B	SHEET 2



RF Monolithics, Inc. DALLAS, TEXAS 75244		SIZE A	CODE IDENT 2U874	DWG. NO. SF1086A-000	REV B	SHEET 3

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





C1, C2 = 33pf
L1 = 220nH
L2 = 270nH
L3 = 27nH
L4 = 33nH

Rev B

SF1086A-000 SHEET 4

30 Mar 1998 13:35:04

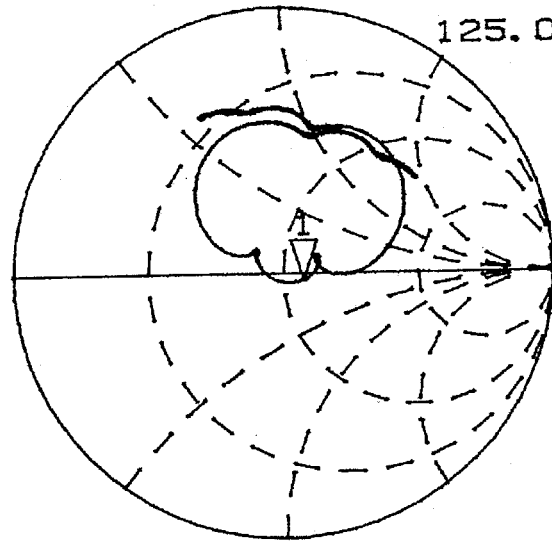
CH1 S_{11} 1 U FS 1: 58.318 Ω −2.918 Ω 436.34 pF

125.000 000 MHz

SF1086A

PRm

Cor



Hld

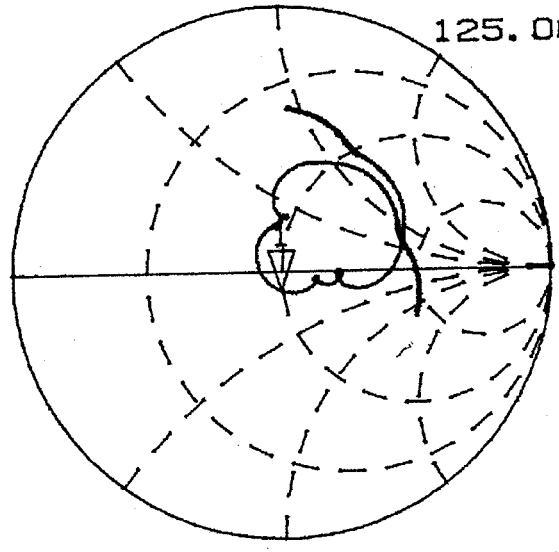
CH2 S_{22} 1 U FS 1 49.691 Ω −7.1426 Ω 178.26 pF

125.000 000 MHz

SF1086A

PRm

Cor



Hld

CENTER 125.000 000 MHz SPAN 5.000 000 MHz

ECN NO.

SF1086A 000 SHEET 5 Rev B

BILL OF MATERIALS

PART IDENTIFIER	DESCRIPTION 1	DESCRIPTION 2	QTY/ASSY	REFERENCE DESCRIPTION
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

REV HISTORY

REV	ECN	DATE	DESCRIPTION
A	6713	05/08/98	INITIAL RELEASE

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