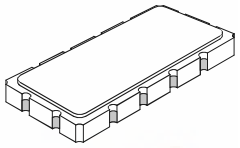
PX1004

82.2 MHz SAW Filter

- ***Designed for TDMA IS-54 / CDPD IF Applications***
- ***Low Insertion Loss***
- ***Excellent Selectivity***
- ***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		82.200		MHz
Passband	Insertion Loss at fc	IL			3	4.0	dB
	3 dB Passband	BW_3	1, 2	±15	±25		kHz
	Amplitude Ripple over fc ±15 kHz					1.0	dB_{P-P}
	Group Delay Variation over fc ±10 kHz	GDV			2.5	6.0	μs_{P-P}
Third-Order Intermod. for -20 dBm tones at fc ±60 & 120 kHz						-95	dBm
Rejection	fc ±60 kHz		1, 2, 3	10	16		dB
	fc -880 kHz to fc -940 kHz			65	68		
	Ultimate				65		
Operating Temperature Range		T_A	1	-20		+70	°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) See note 4	RFM PX1004 YYWW

Electrical Connections

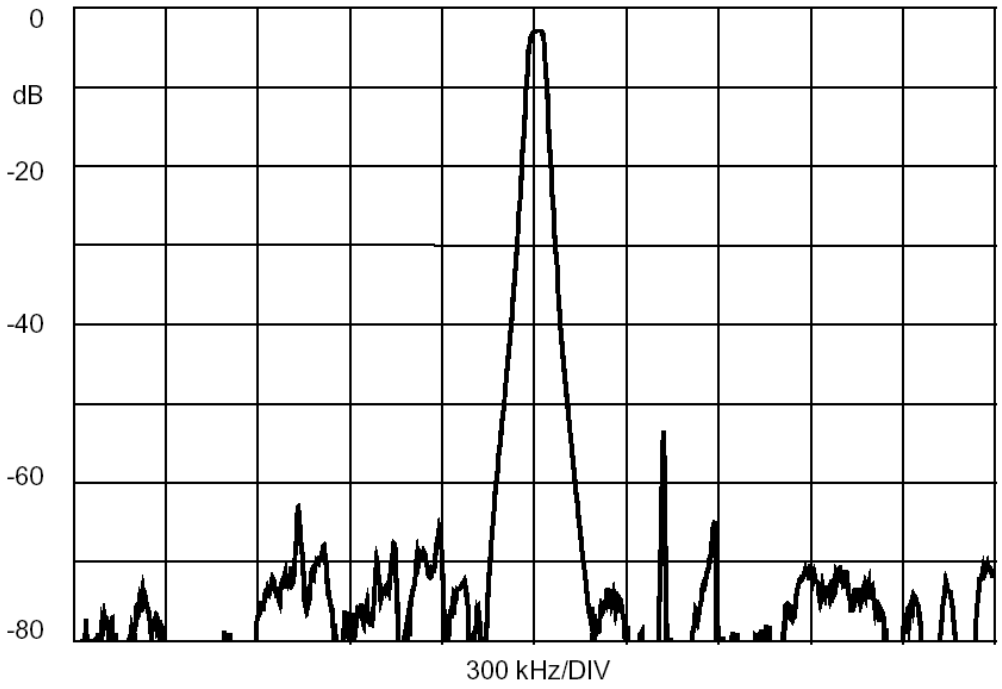
Connection	Terminals
Port 1Hot	2
Port 1 Gnd Return	3
Port 2 Hot	8
Port 2 Gnd Return	9
Case Ground	All Others

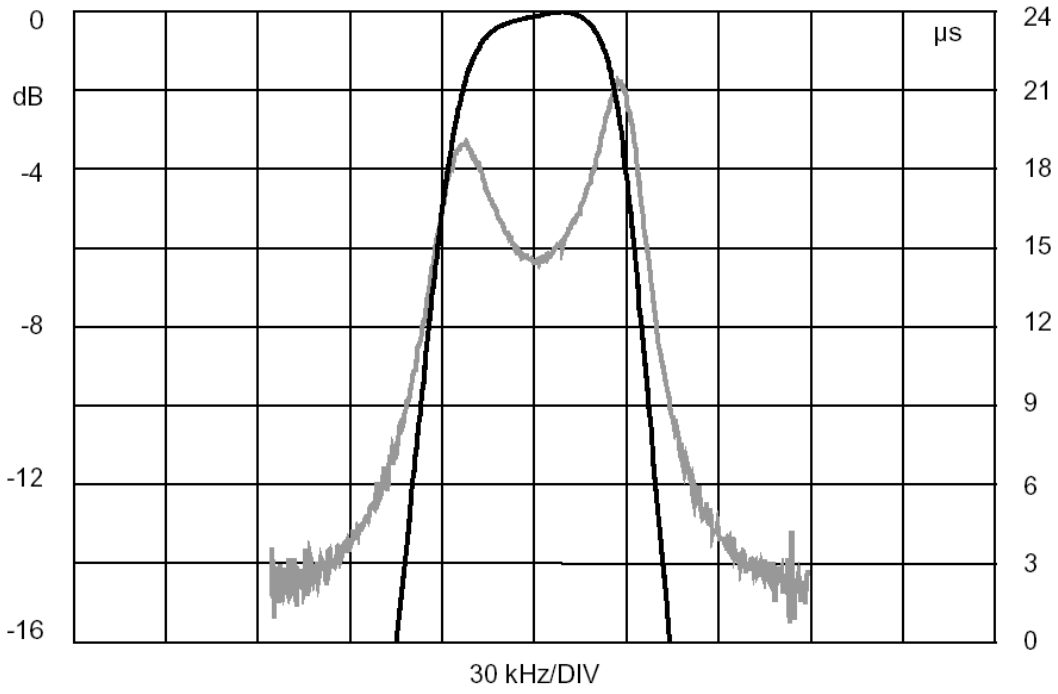
Notes:

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, 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

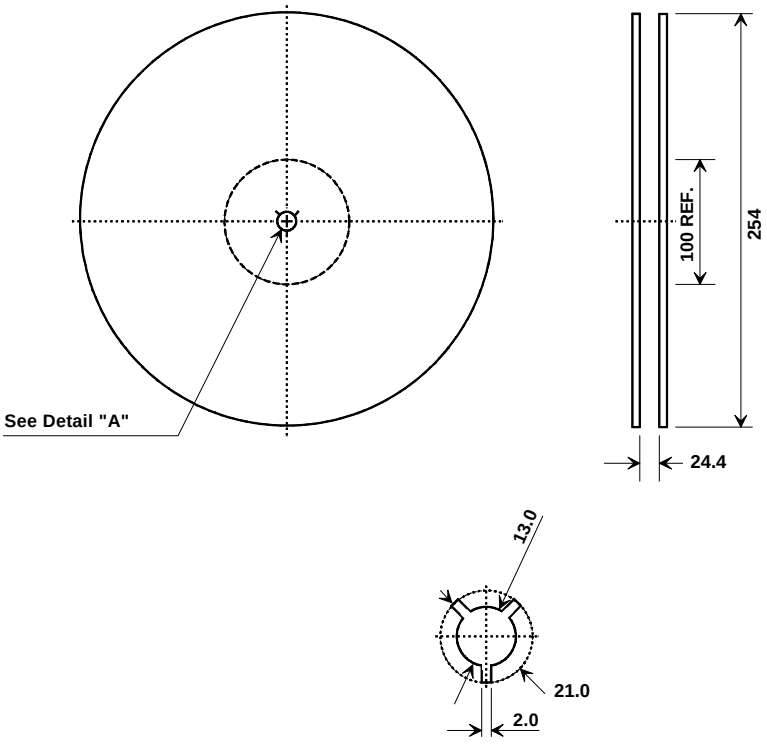
RF Monolithics, Inc. Phone: (972) 233-2903 Fax: (972) 387-8148 E-mail: info@rfm.com

82.2 MHz SAW Filter





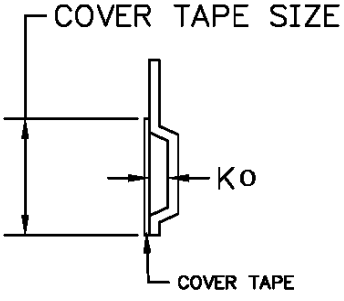
Tape and Reel Specifications

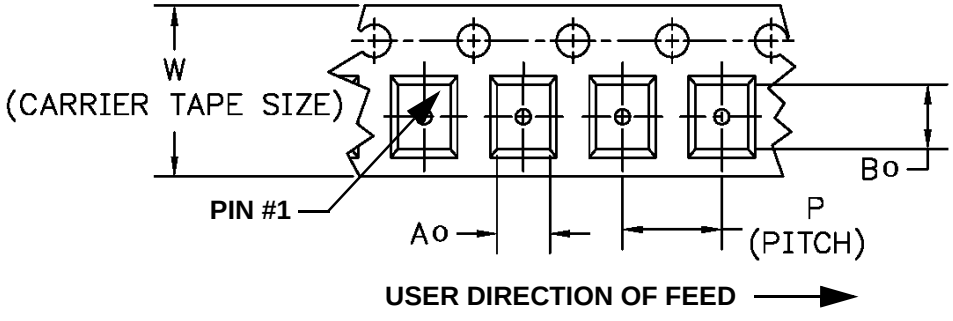


Quantity Per Reel
100 Min
1000 Max

COMPONENT ORIENTATION and DIMENSIONS

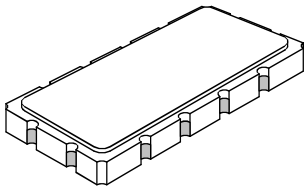
Carrier Tape Dimensions	
Ao	7.0 mm
Bo	13.8 mm
Ko	2.0 mm
Pitch	12.0 mm
W	24.0 mm





SM13365-12 Case

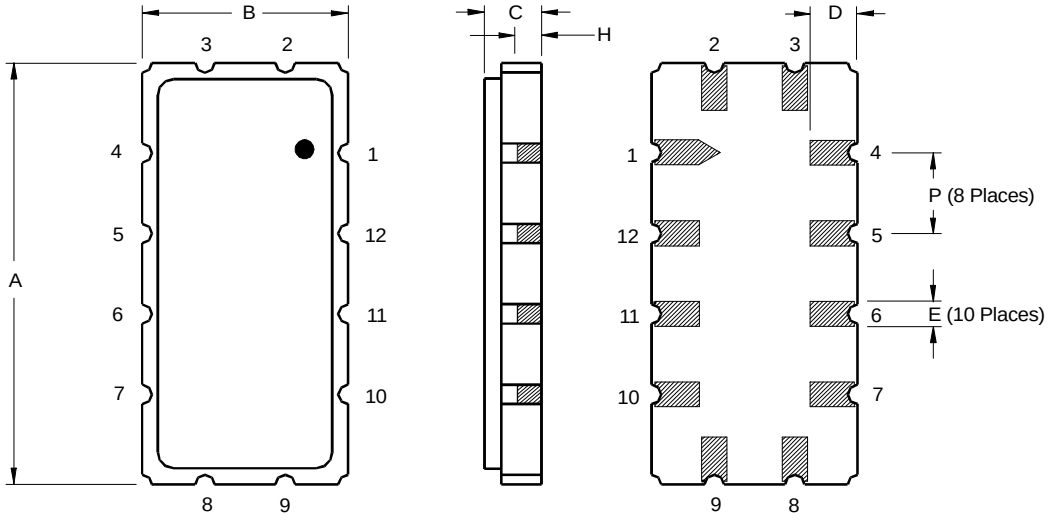
12-Terminal Ceramic Surface-Mount Case
13.3 x 6.5 mm Nominal Footprint



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 uInches (76.2-152 uM) over 80-200 uInches (203-508 uM) Ni.
Lid	Fe-Ni-Co Alloy Electroless Nickel Plate (8-11% Phosphorus) 100-200 uInches 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**



TOP VIEW BOTTOM VIEW

NOTES:

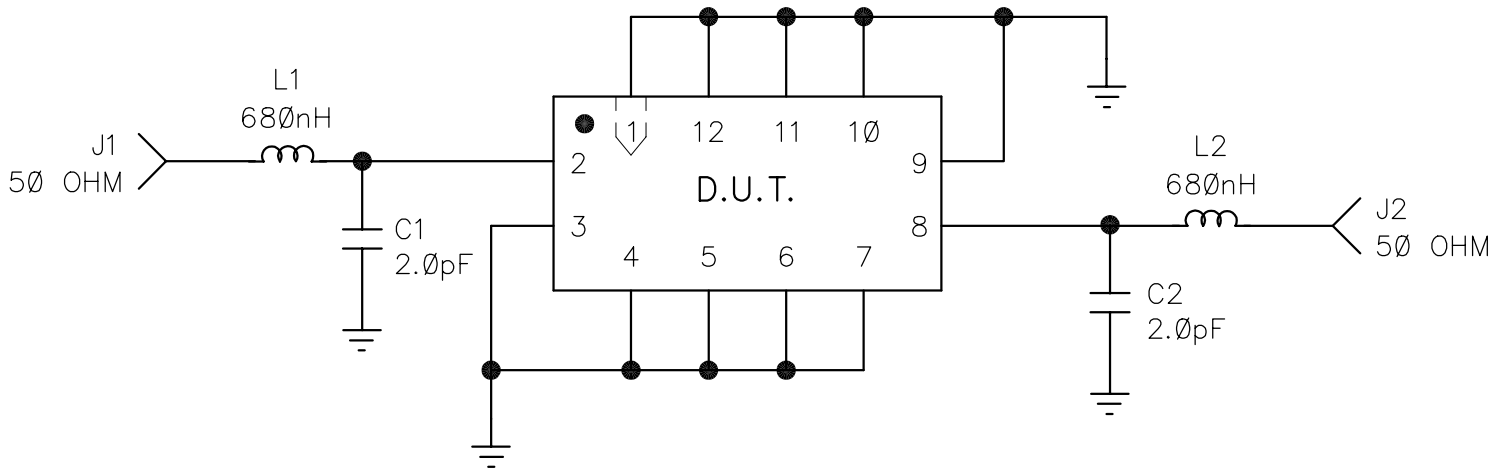
REV	ECN NO.	DESCRIPTION	APP/DA
B	34Ø3	CHANGE PCB/VAR CAPS	VB
C	3465	REP 2pF CAPS W/TRIMMER	FR
D	4632	UPDATE	
E	1Ø225	REVISED PIN NUMBERING	Ø4oct

BILL OF MATERIALS

SEQ	QTY	RFM P/N	DESCRIPTION	REF DES	REFERENCE/COMMENTS
1	1	4ØØ–Ø735–ØØ1	PCB (REV X3)	PCB1	
2	2	5ØØ–ØØØ3–Ø2Ø	CAPACITOR, 2.ØpF	C1,2	±.25pF
3	2	N/A	CHIP IND. 68ØnH	L1,2	± 1Ø%
4	2	5ØØ–Ø248–ØØ1	CONN, COAX FLANGE MT. JACK	J1,2	
5	1	4ØØ–Ø533–ØØ1	SHIELD, BRASS	SHLD1	

DRAWN BY/DATE: D. GAY Ø3/Ø8/94			TITLE: DEMO PCB, PX1ØØ4				
RF Monolithics, Inc. DALLAS, TEXAS 75244	CHECKED/APPROVED	SIZE **A**	CODE IDENT **2U874**	DWG. NO. PX1ØØ4(DEMO)		REV E	SHE 1/

SCHEMATIC, PX1ØØ4 (DEMO)

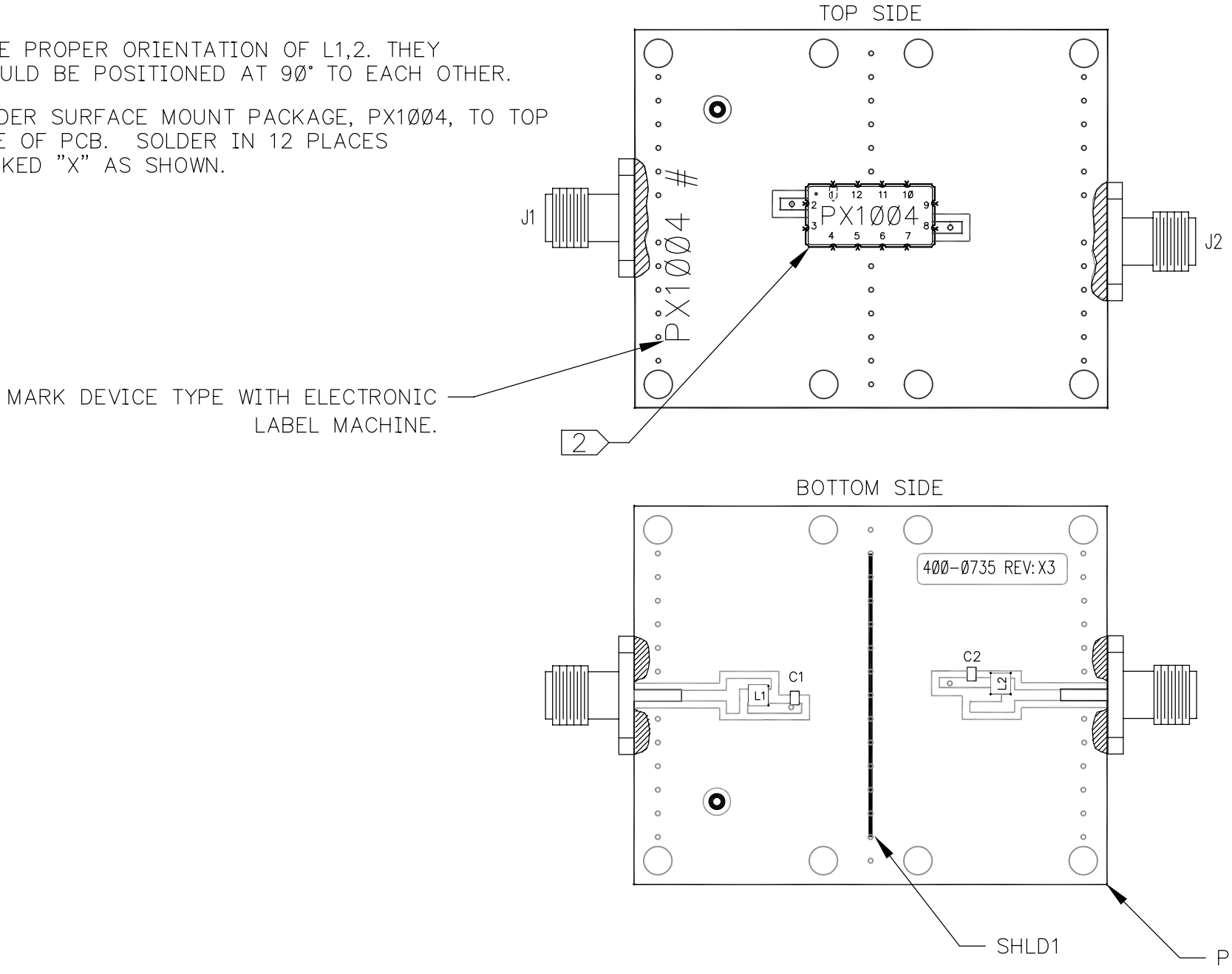


RF Monolithics, Inc. DALLAS, TEXAS 75244		SIZE A	CODE IDENT 2U874	DWG. NO. PX1ØØ4(DEMO)	REV E	SHE

NOTES:

1 NOTE PROPER ORIENTATION OF L1,2. THEY SHOULD BE POSITIONED AT 9Ø° TO EACH OTHER.

2 SOLDER SURFACE MOUNT PACKAGE, PX1ØØ4, TO TOP SIDE OF PCB. SOLDER IN 12 PLACES MARKED "X" AS SHOWN.



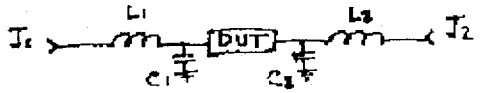
RF Monolithics, Inc. DALLAS, TEXAS 75244		SIZE A	CODE IDENT 2U874	DWG. NO. PX1ØØ4(DEMO)	REV E	SHE

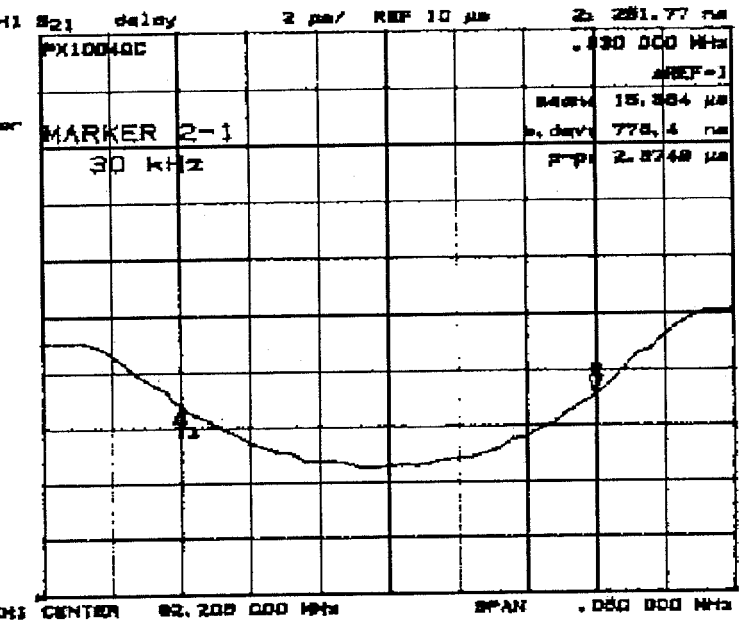
TUNING:

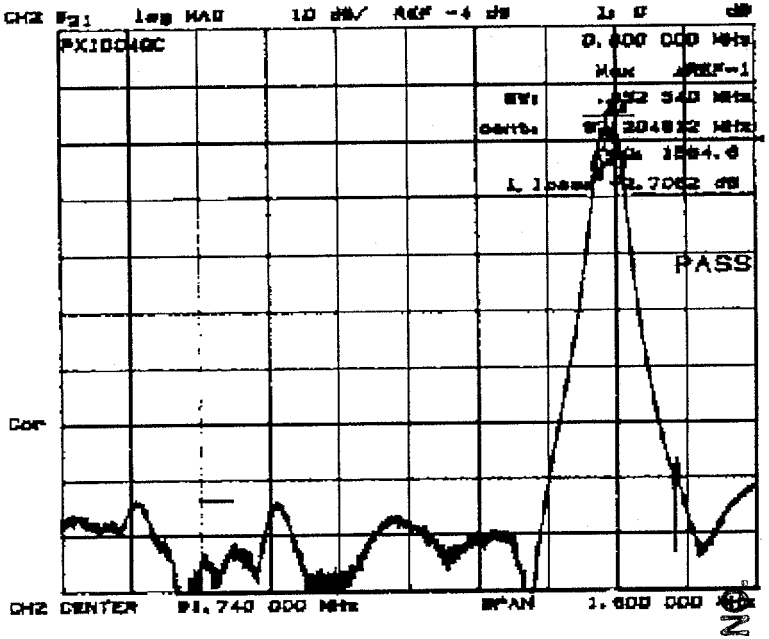
Plot A shows typical tuning respose S21 and smith chart. Plot B is to be delivered with each demo. The tuning component values may vary in order to achieve proper tuning due to component tolerances. Note component values and tolerances on each plot.

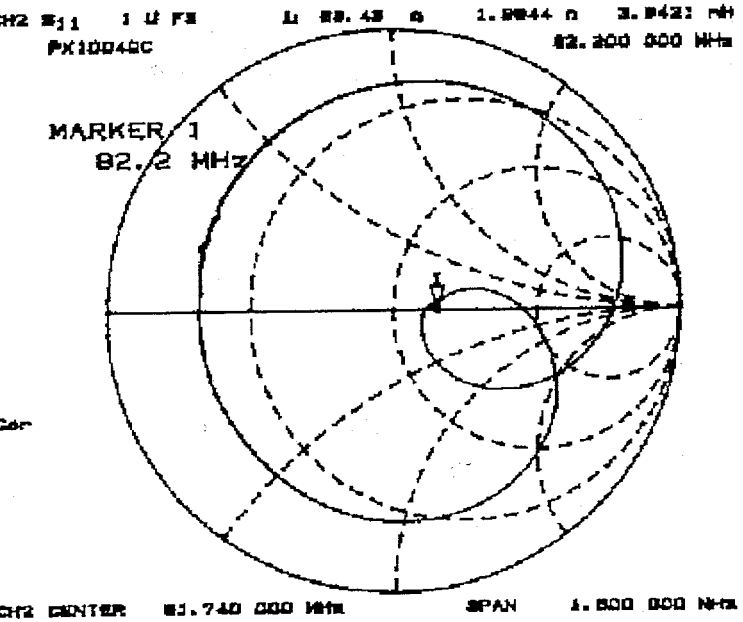
RF Monolithics, Inc. DALLAS, TEXAS 75244		SIZE A	CODE IDENT 2U874	DWG. NO. PX1ØØ4(DEMO)	REV E	SHE 4

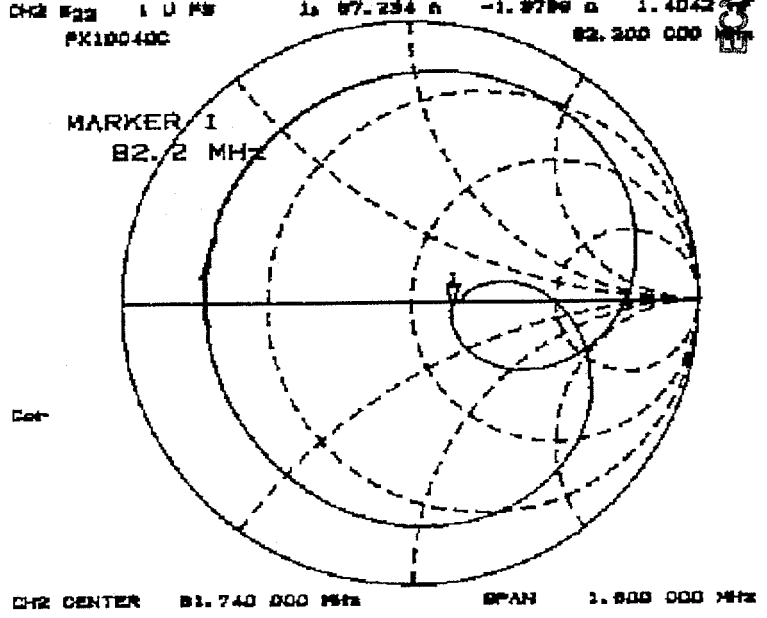
PX1004, Plot A Rev t











10225 13

SHEET

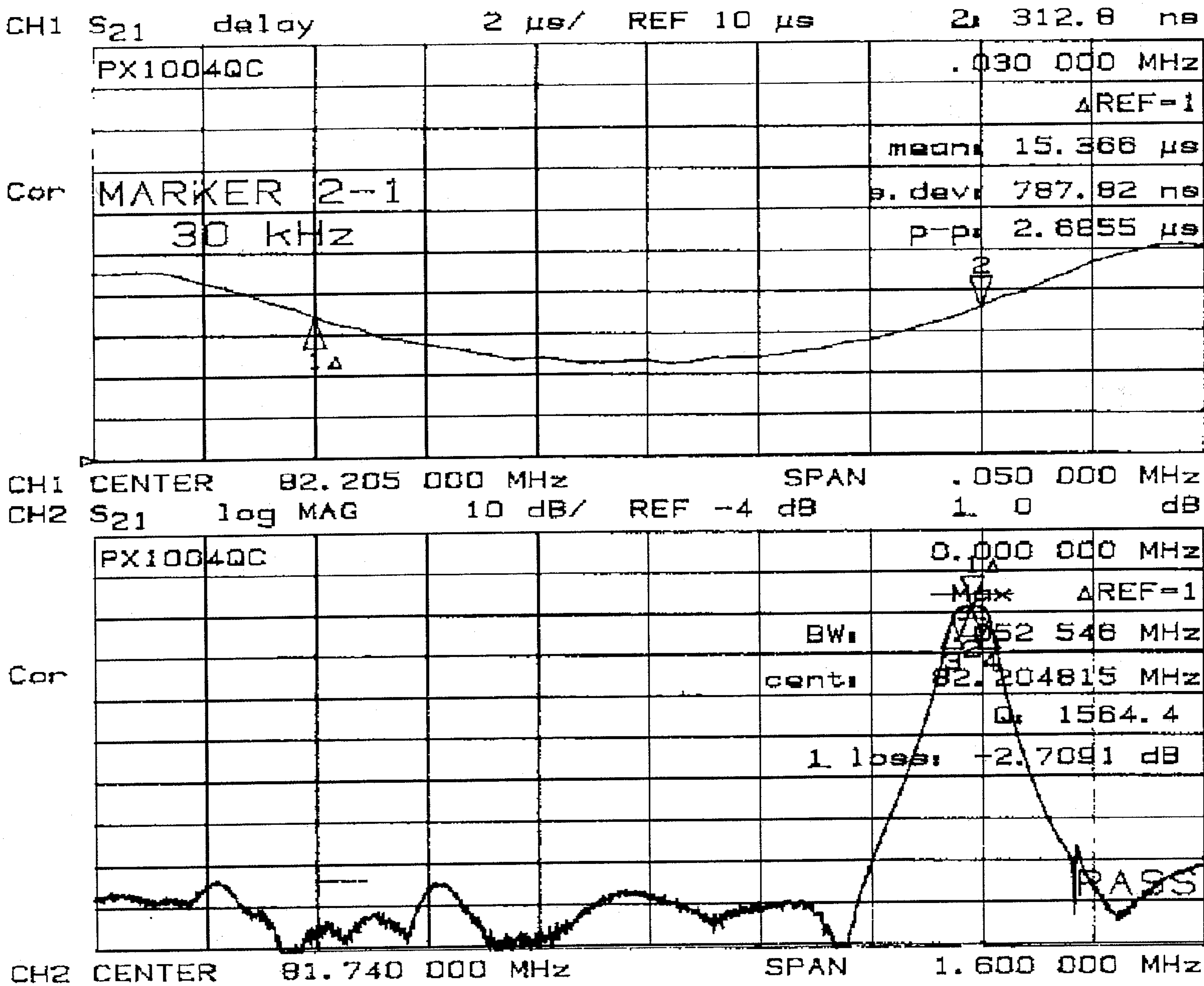
Sheet 5 of 6

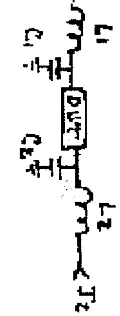
Rev E

PX1004, Plot B

PX1004
Demo #
dev. #
d/c 9521 F
2014-56

ECN NO. S.
10225





L1,L2 680 nH
C1,C2 2.0pf

Sheet 6 of