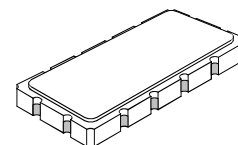


**PX1002**

- **Designed for TDMA IS-54 Receiver IF Applications**
- **Low Insertion Loss**
- **Excellent Selectivity**
- **Hermetic 13.3 X 6.5 mm Surface-Mount Case**
- **Unbalanced Input and Output**

**86.85 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
Max Soldering Profile	265°C for 10 s	

Electrical Characteristics

Characteristic	Sym	Notes	Min	Typ	Max	Units
Nominal Center Frequency	f_c	1	86.850			MHz
Passband Insertion Loss at f_c	IL	1, 2		3	4.0	dB
3 dB Passband	BW ₃		±12	±25		kHz
Amplitude Ripple over f_c ±15 kHz					1.0	dB _{p-p}
Group Delay Variation over f_c ±10 kHz	GDV				6.0	µs _{p-p}
Third-Order Intermod. for -20 dBm tones at f_c ±60 & 120 kHz					-95	dBm
Rejection f_c ±60 kHz		1, 2, 3	11	16		dB
f_c -880 kHz to f_c -940 kHz			65			
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 PX1002 YYWW

Electrical Connections

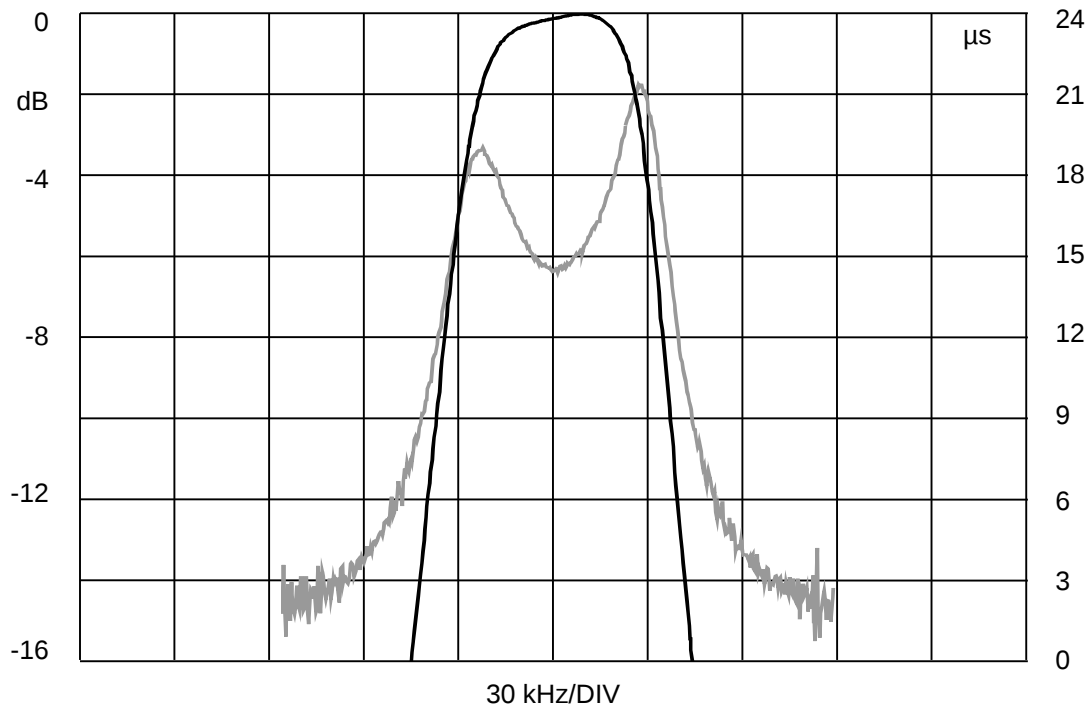
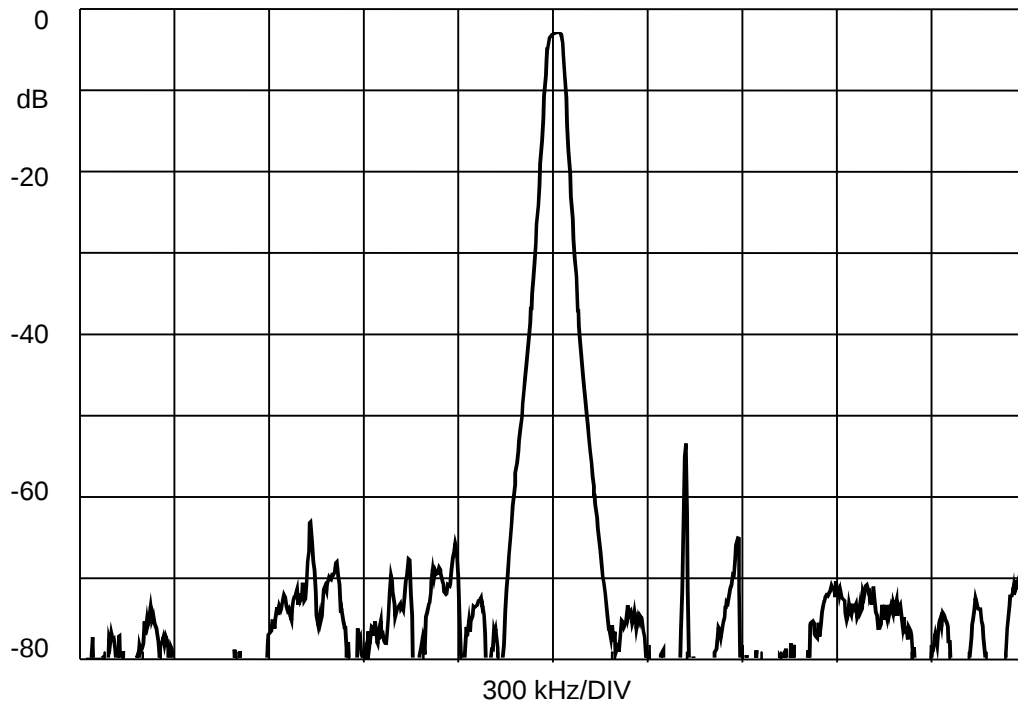
Connection	Terminals
Port 1 Hot	2
Port 1 Gnd Return	3
Port 2 Hot	8
Port 2 Gnd Return	9
Case Ground	All Others

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, 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. RFM, stylized RFM logo, and RF Monolithics, Inc. are registered trademarks of RF Monolithics, Inc.
9. ©Copyright 1999, RF Monolithics Inc.
10. Electrostatic Sensitive Device. Observe precautions for handling.



PX1002 86.85 MHz SAW Filter



RF Monolithics, Inc.
4347 Sigma Road
Dallas, Texas 75244
USA

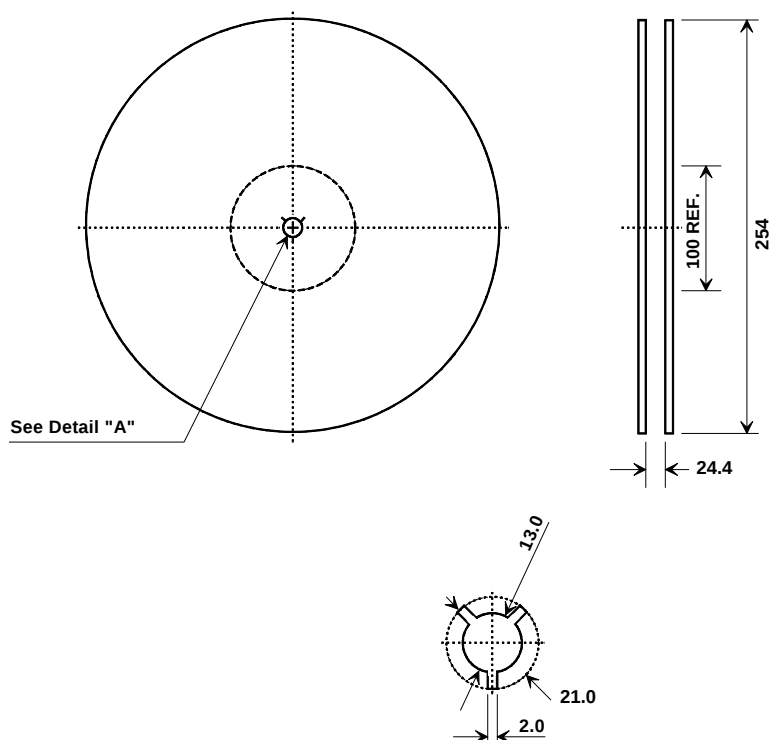
Phone: +1(972)233-2903
Fax: +1(972)387-8148
e-mail: info@rfm.com
Home page: www.rfm.com

European Sales Office

86.85 MHz

SAW Filter

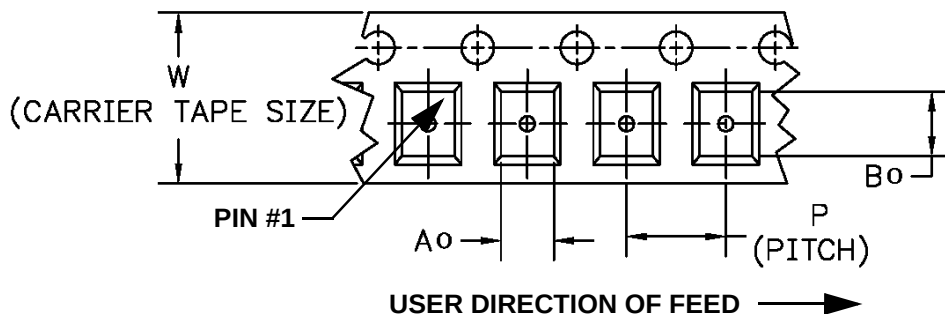
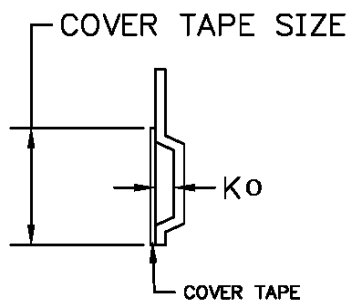
Tape and Reel Specifications



Quantity Per Reel
100 Min
1000 Max

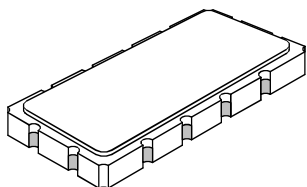
COMPONENT ORIENTATION and DIMENSIONS

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

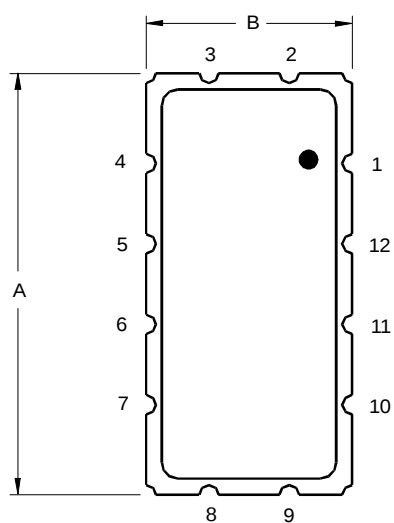
12-Terminal Ceramic Surface-Mount Case
13.3 x 6.5 mm Nominal Footprint

**Case Dimensions**

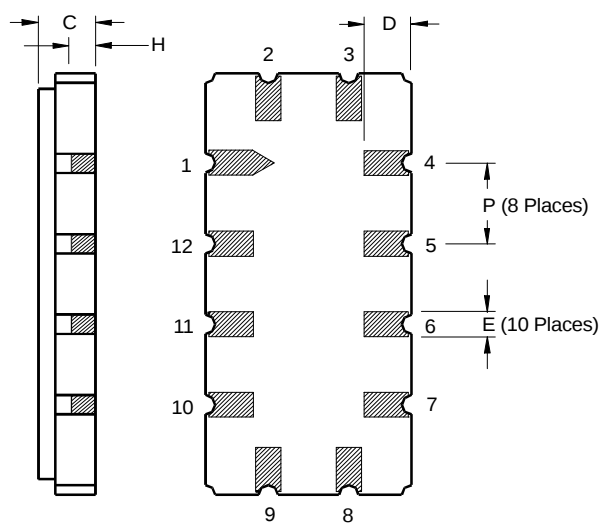
Dimension	mm			Inches		
	Min	Nom	Max	Min	Nom	Max
A	13.08	13.31	13.60	0.515	0.524	0.535
B	6.27	6.50	6.80	0.247	0.256	0.268
C		1.91	2.00		0.075	0.079
D		1.50			0.059	
E		0.79			0.031	
H		1.0			0.039	
P		2.54			0.100	

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

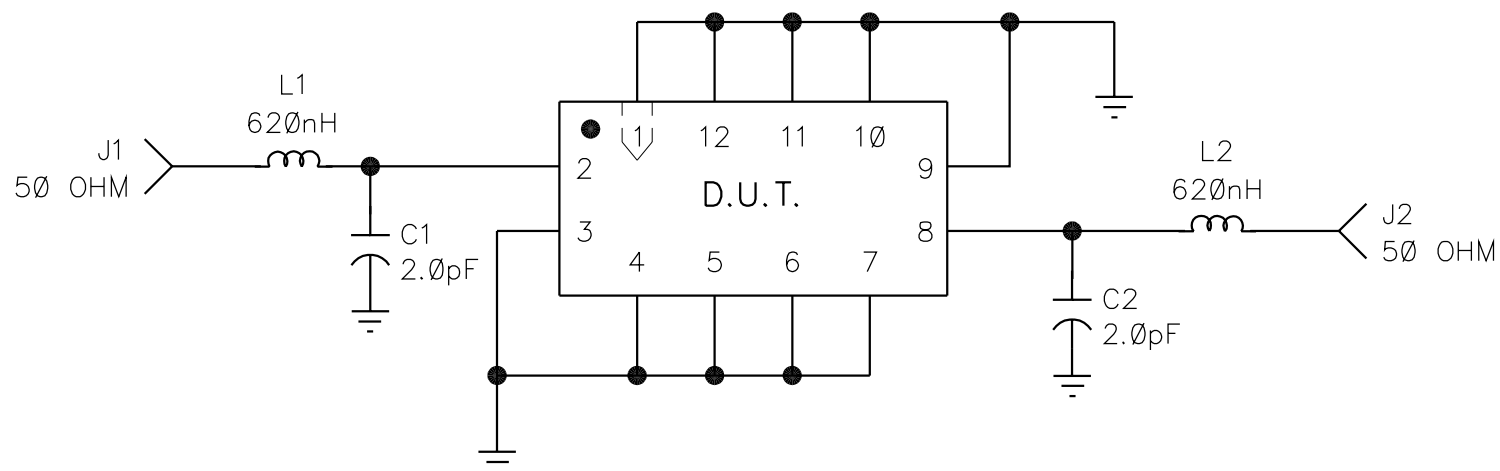


TOP VIEW



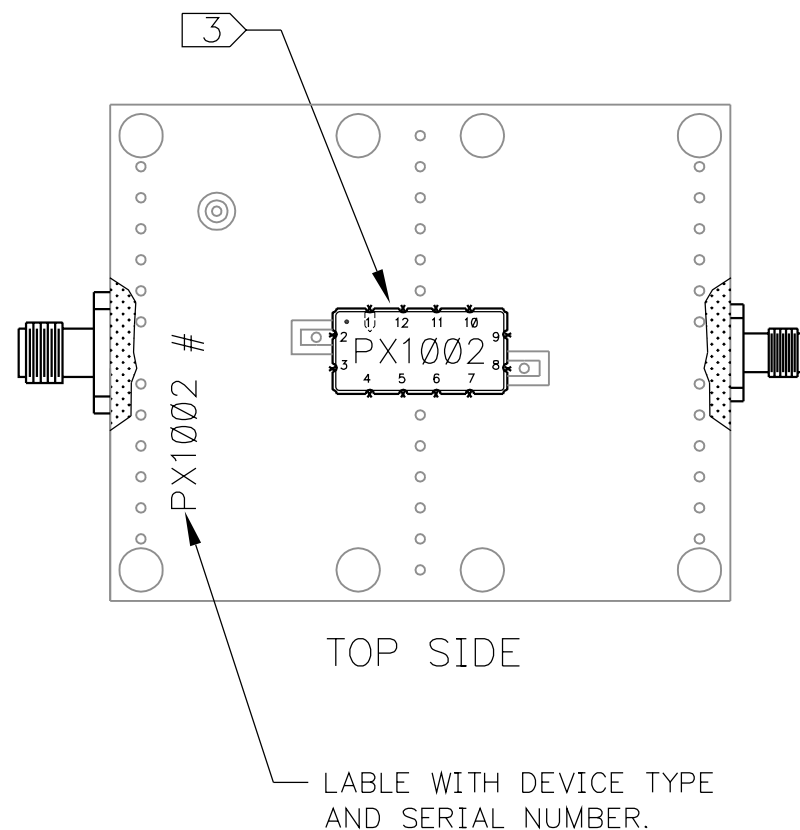
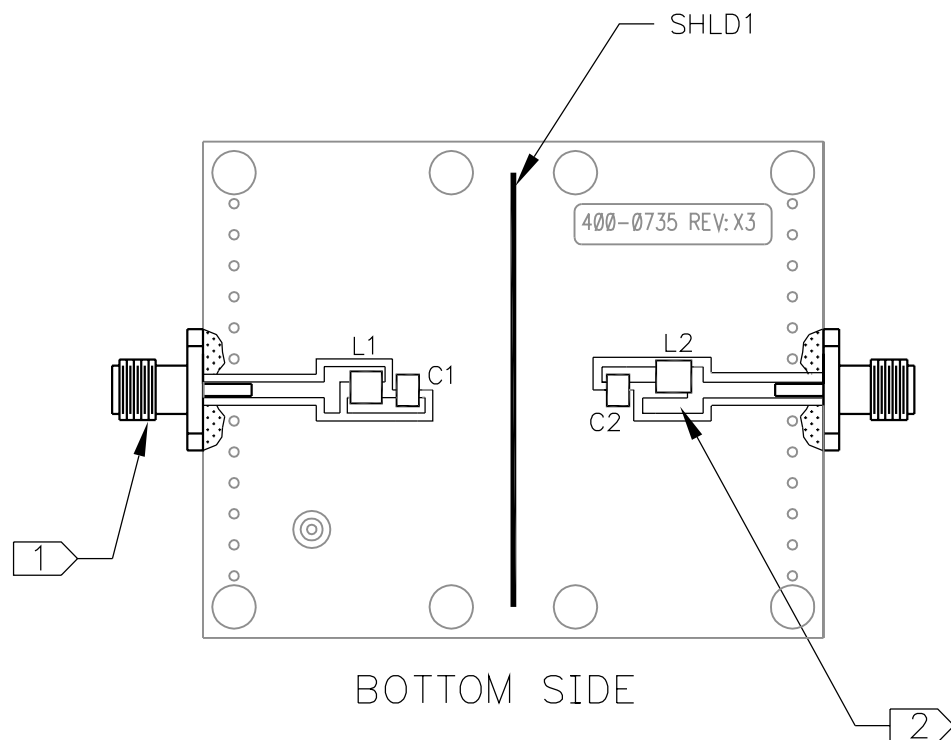
BOTTOM VIEW

SCHEMATIC, PX1002 (DEMO)



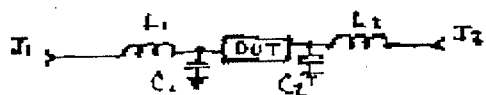
NOTES:

1. SOLDER CONNECTORS, J1 & J2, TO PCB. SOLDER ON TOP AND BOTTOM SIDE OF PCB AS SHOWN.
2. NOTE PROPER ORIENTATION OF INDUCTORS L1 AND L2. INDUCTORS SHOULD BE POSITIONED AT 90° TO EACH OTHER.
3. SOLDER SURFACE MOUNT PACKAGE, PX1002, TO TOP SIDE OF PCB. SOLDER AT 12 PLACES MARKED "X" AS SHOWN.

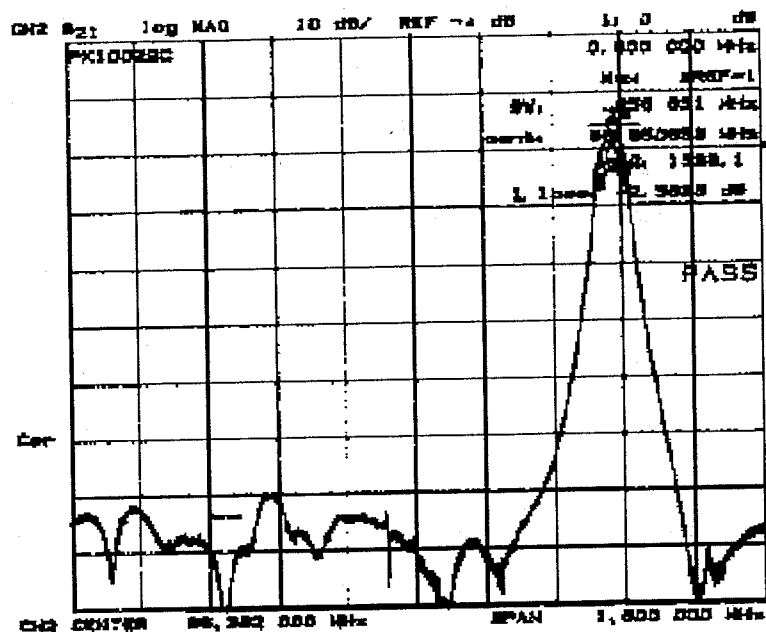
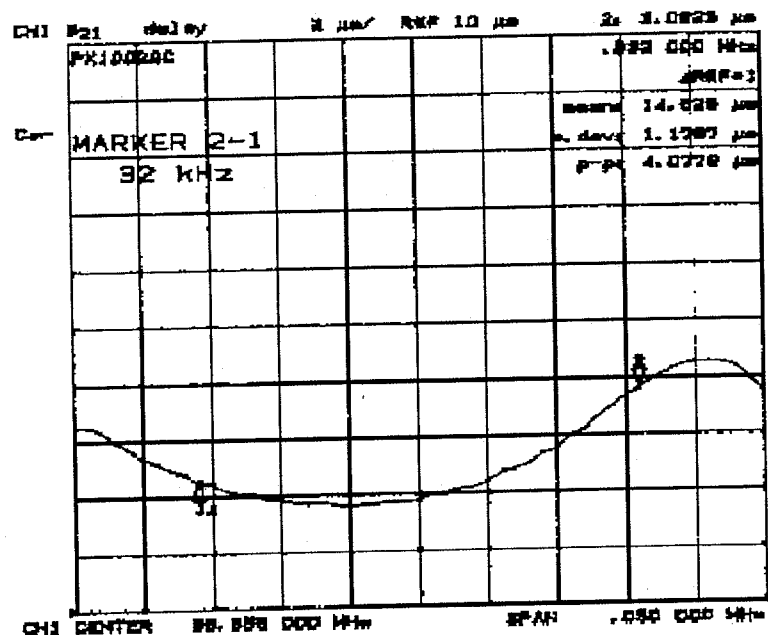


TUNING:

PLOT A SHOWS TYPICAL TUNING RESPONSE 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.



PX1002, Plot A Rev C



CH2 S21 1 U FS 1x 80.500 μ s 2.975 μ s 7.0075 μ s

PX1002BC

86.850 000 MHz

CH2 S21 1 U FS 1x 80.500 μ s 2.975 μ s 7.0075 μ s

PX1002BC

86.850 000 MHz

MARKER 1
86.85 MHz

MARKER 1
86.85 MHz

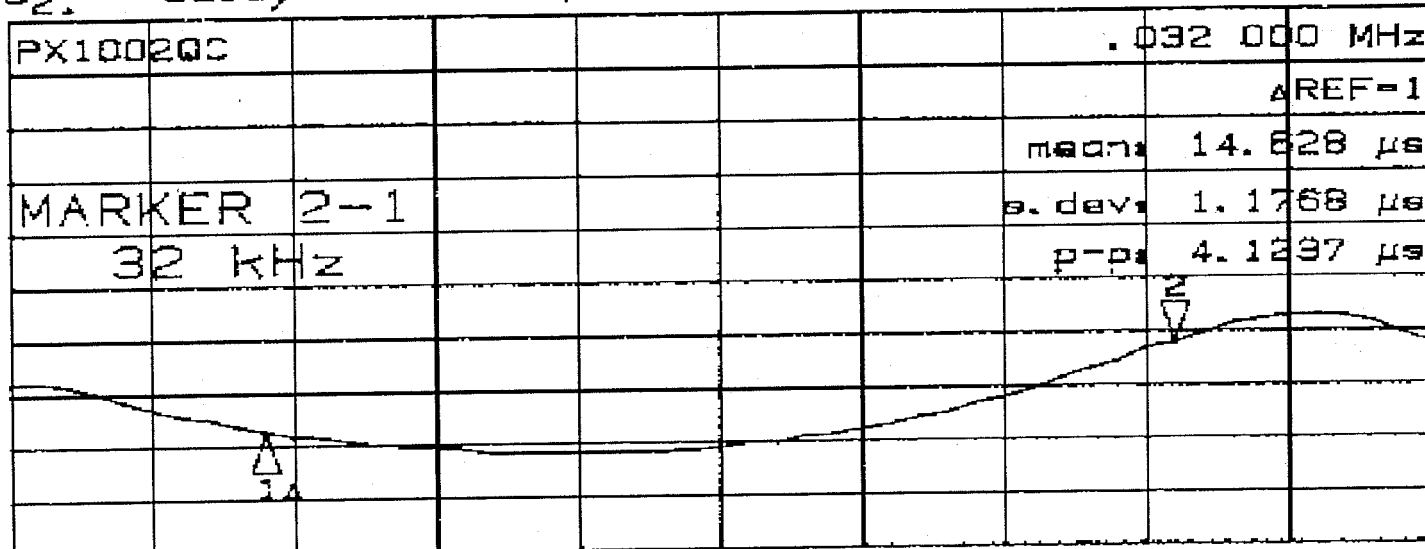
ECN NO

CH2

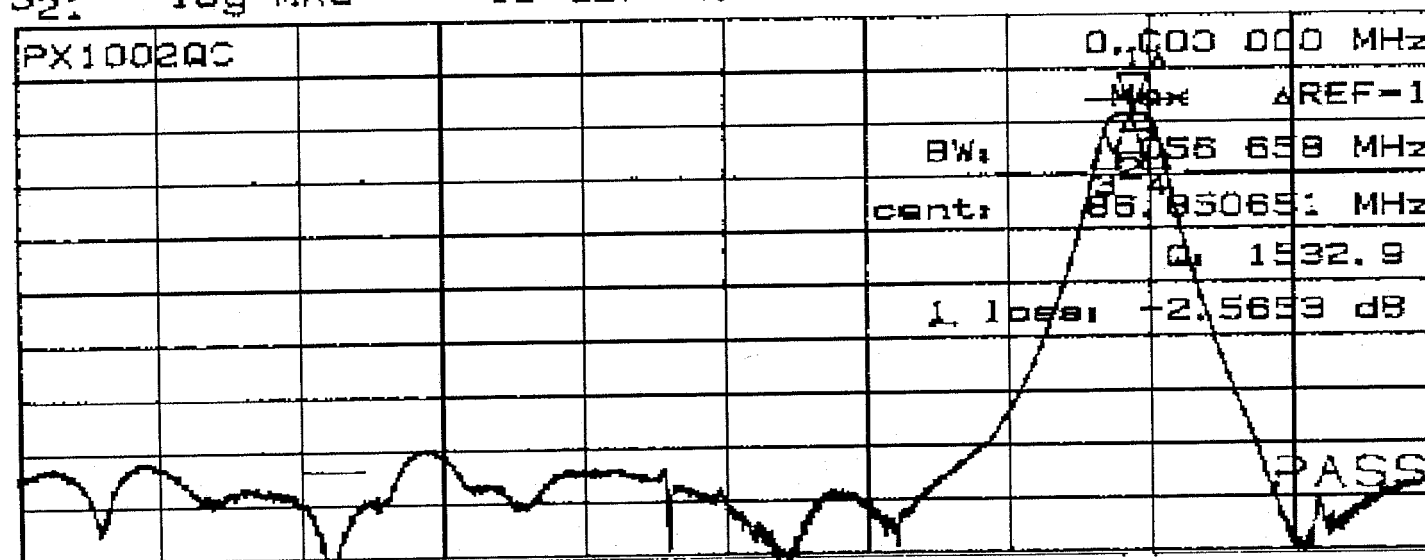
CH2 CENTER 86.850 000 MHz SPAN 1.000 000 MHz

CH2 CENTER 86.850 000 MHz SPAN 1.000 000 MHz

CH1 S2: delay 2 μ s/ REF 10 μ s 2: 3.1204 μ s



CH1 CENTER 86.856 000 MHz SPAN .050 000 MHz
CH2 S2: log MAG 10 dB/ REF -4 dB 1 0 dB



CH2 CENTER 86.892 000 MHz SPAN 1.600 000 MHz

PX1002
Demo #
Rev. #5
2-14-91

SSO
10

SHEET

L1, L2 620 nH $\pm$ 10%
C1, C2 10 pF $\pm$.25 pF