



**SF2033A**

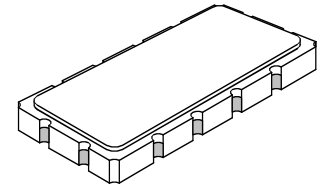
**350.00 MHz  
SAW Filter**

• Complies with Directive 2002/95/EC (RoHS)



**Maximum Rating**

Rating	Value	Units
Input Power Level	+20	dB <sub>m</sub>
Operating Temperature	+25	°C
Storage Temperature	-40 to +85	°C
Suitable for lead-free soldering - Max Soldering Temperature	260°C for 30 s	



**SM13365-12**

**Electrical Characteristics**

Characteristic	Sym	Notes	Min	Typ	Max	Units
Center Frequency	f <sub>c</sub>			350		MHz
Insertion Loss	IL			13.5	14.5	dB
3 dB Bandwidth			2.4	2.64		dB
20 dB Bandwidth				3.8	4	MHz
45 dB Bandwidth				4.5	6	MHz
Amplitude Ripple within ± 0.85 MHz				0.35	.7	dB
Group Delay Ripple within ± 1.1 MHz				30	70	nsec
Substrate Material			Quartz			
Temperature Coefficient of Frequency				$\Delta F/F = -[(T-T_0)/5.4]^2$		ppm/K

Case Style	SM13365-12 13.3 x 6.5 mm Nominal Footprint	
Lid Symbolization (YY=year, WW=week, S=shift, ##=sequence code) dot=pin 1 indicator	SF2033A YYWWS##	
Standard Reel Quantity	Reel Size 7 Inch	500 Pieces/Reel
	Reel Size 13 Inch	2000 Pieces/Reel

**Notes:**

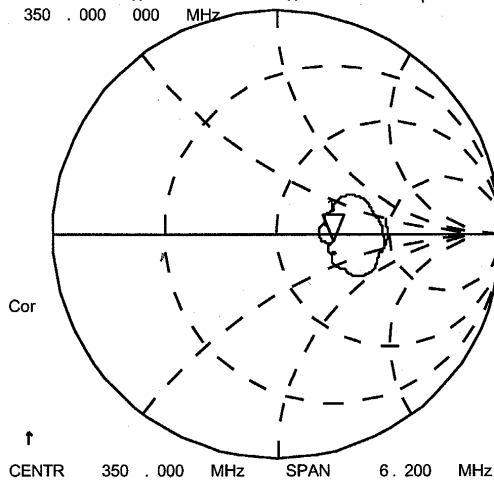
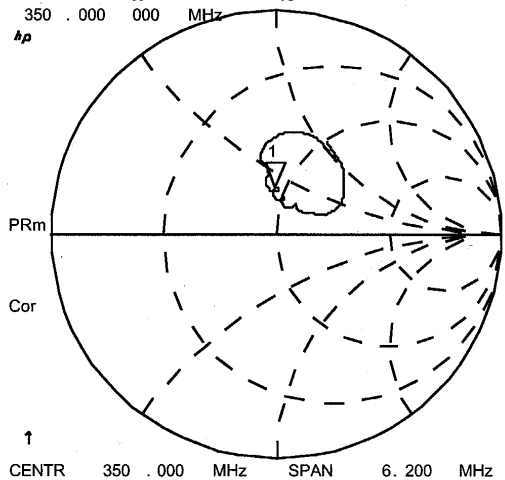
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4. Electrostatic Sensitive Device. Observe precautions for handling.



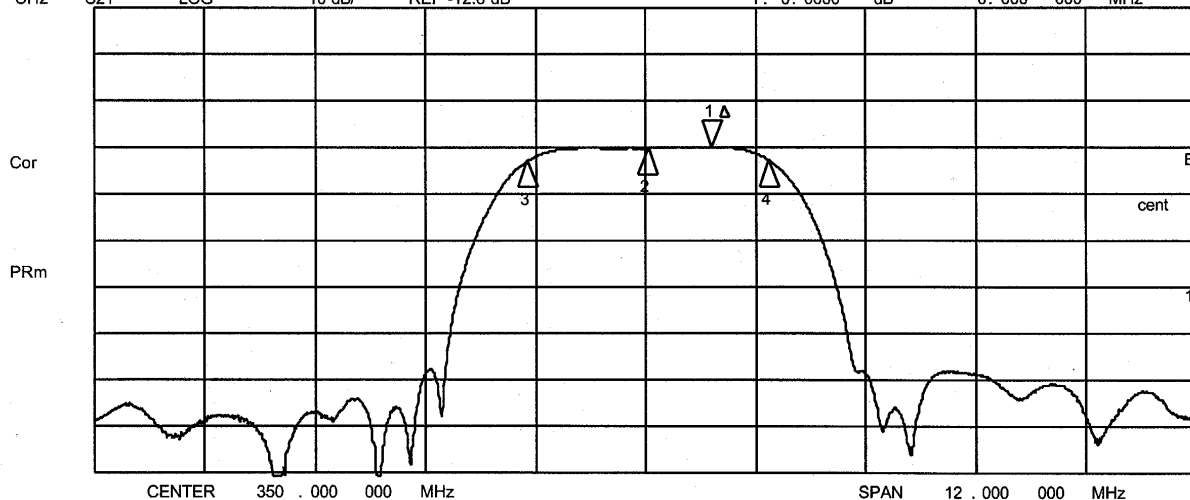
27 May 2004 07:54:44

CH1 S11 1 U FS  
1: 45.654 19.053 8.6638 nH  
350.000 000 MHz

CH3 S22 1 U FS  
1: 83.516 -6.3594 71.505 pF  
350.000 000 MHz



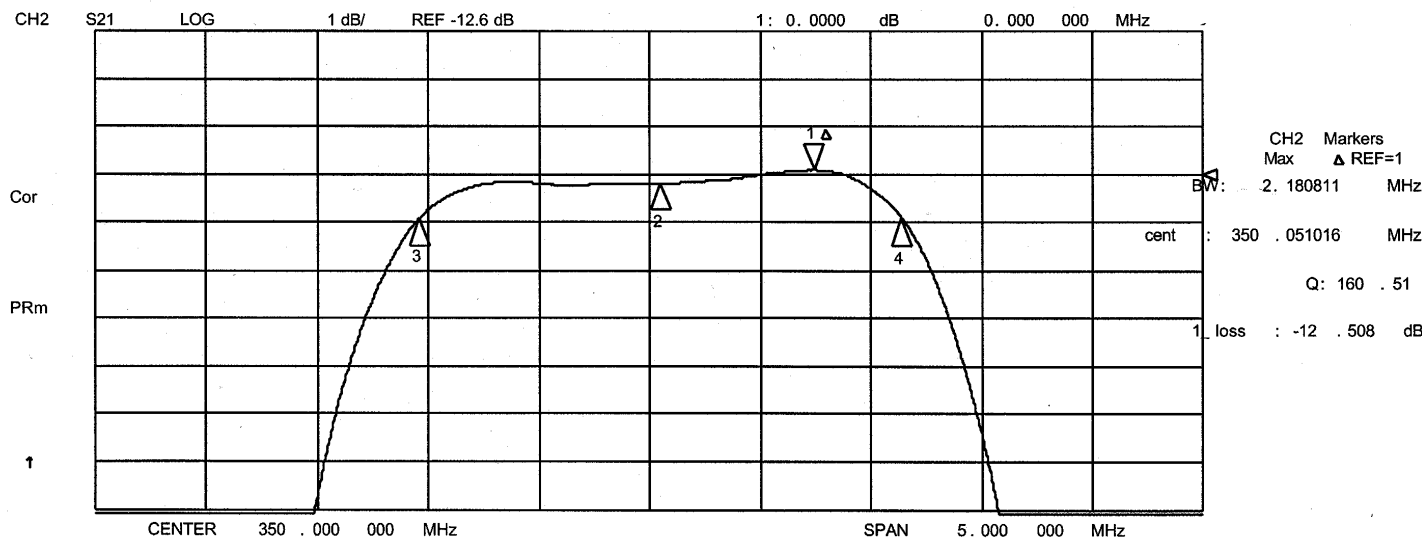
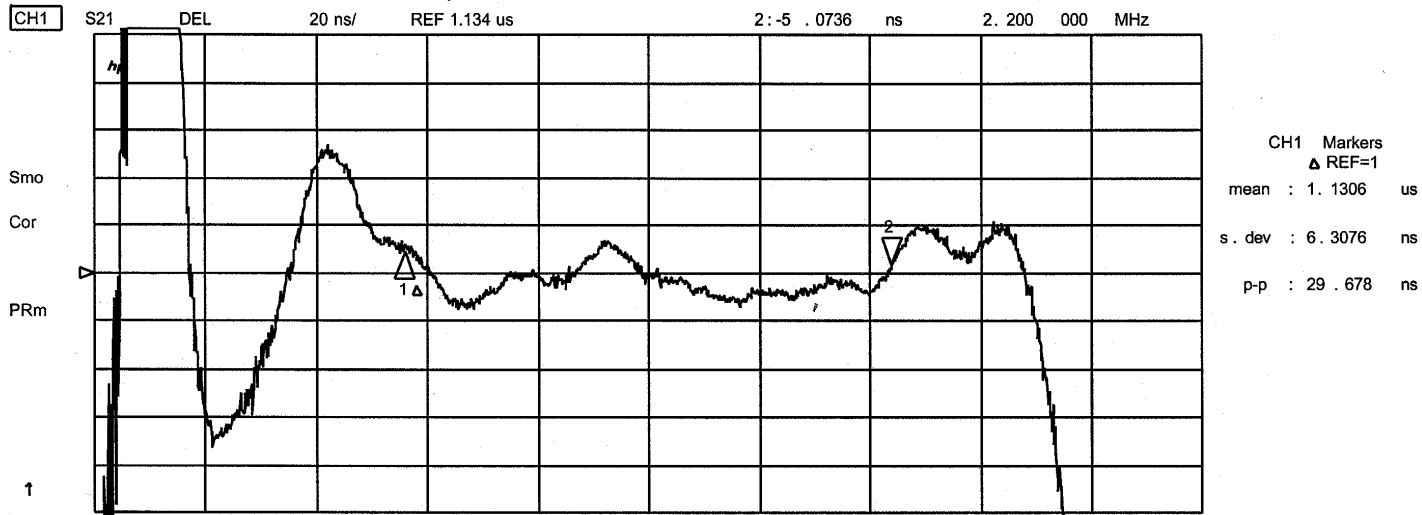
CH2 S21 LOG 10 dB/ REF -12.6 dB 1: 0.0000 dB 0.000 000 MHz



CH2 Markers  
Max  $\Delta$  REF=1  
BW: 2.625488 MHz  
cent: 350.035472 MHz  
Q: 133.32  
1 loss: -12.507 dB

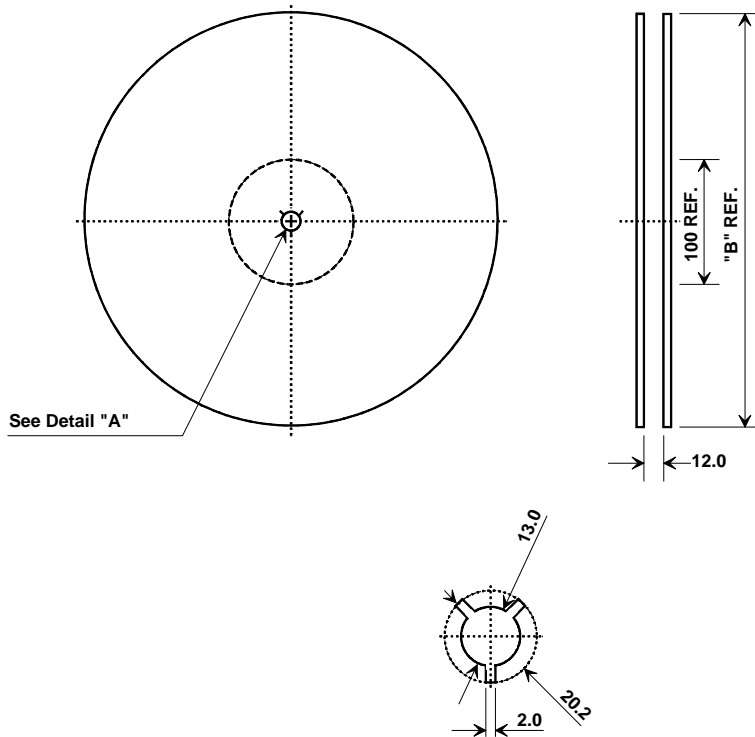
SF2033A  
Demo S/N2  
demo2s.hgl

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SF2033A  
 Demo S/N2  
 demo2t.hgl

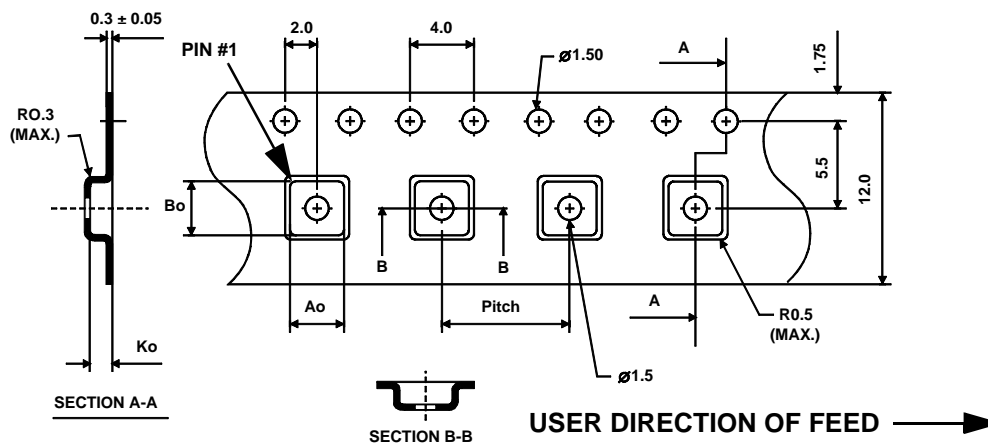
## Tape and Reel Specifications



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

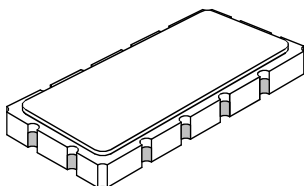
## COMPONENT ORIENTATION and DIMENSIONS

Carrier Tape Dimensions	
<b>Ao</b>	7.0 mm
<b>Bo</b>	13.8 mm
<b>Ko</b>	2.2 mm
<b>Pitch</b>	12.0 mm
<b>W</b>	24 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 ulnches (76.2-152 uM) over 80-200 ulnches (203-508 uM) Ni.
Lid	Fe-Ni-Co Alloy Electroless Nickel Plate (8-11% Phosphorus) 100-200 ulnches Thick
Body	Al <sub>2</sub> O <sub>3</sub> 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
<b>Single Ended Operation</b>		<b>Return is ground</b>
<b>Differential Operation</b>		<b>Return is hot</b>

