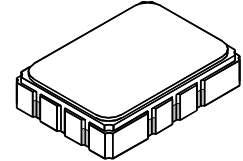


**SF2025B**

**259.861 MHz  
SAW Filter**



**SMP-03**

- **Designed for SDARS Receiver IF Application**
- **Low Insertion Loss**
- **5.0 X 7.0 mm Surface-Mount Case**
- **Differential Input and Output**
- **Complies with Directive 2002/95/EC (RoHS)**
- **Moisture Sensitivity Level: 1**
- **AEC-Q200 Qualified**

**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 +105	°C
Suitable for lead-free soldering - Max Soldering Temperature	260°C for 30 s	

**Electrical Characteristics**

Characteristic	Sym	Notes	Min	Typ	Max	Units	
Nominal Center Frequency	$f_c$			259.861		MHz	
Passband	Minimum Insertion Loss	IL		13.3	15.5	dB	
		1.5 dB Passband	BW <sub>1.5</sub>	13.8			MHz
		3 dB Passband	BW <sub>3</sub>	14.5			
Amplitude Ripple from fc-6.354 MHz to fc-4.2885 MHz (-20 to 85°C)					1	dB <sub>p-p</sub>	
Amplitude Ripple from fc-6.354 MHz to fc-4.2885 MHz (-40 to -20°C)					1.5		
Amplitude Ripple from fc-4.4965 MHz to fc-2.431 MHz					1		
Amplitude Ripple from fc-2.639 MHz to fc+0.079 MHz					1		
Amplitude Ripple from fc-0.079 MHz to fc+2.639 MHz					1		
Amplitude Ripple from fc+2.431 MHz to fc+4.4965 MHz					1		
Amplitude Ripple from fc+4.2885 MHz to fc+6.354 MHz (-40 to 60°C)					1		
Amplitude Ripple from fc+4.2885 MHz to fc+6.354 MHz (60 to 85°C)					1.15		
Group Delay Variation over fc-6.354 MHz to fc-2.431 MHz and from fc+2.431 MHz to fc+6.354 MHz	GDV1			40	60	ns <sub>p-p</sub>	
		Group Delay Variation over fc±2.639 MHz	GDV2	40	120		
Rejection	fc-28 to fc-12 MHz and fc+12 to fc+33 MHz		36	43		dB	
		fc-12 to fc-10.5 MHz	30	40			
		fc+9 to fc+12 MHz	18	36			
Operating Temperature Range	T <sub>A</sub>		-40		+85	°C	
Frequency Temperature Coefficient				-18		ppm/°C	
Differential Input and Output Impedance	L & C Match to 150 ohms						
Case Style	SMP-03 7 x 5 mm Nominal Footprint						
Lid Symbolization (YY=year, WW=week, S=shift, ##=sequence code )	RFM, SF2025B, YYWWS##						

**Electrical Connections**

Connection	Terminals
Port 1 Hot	10
Port 1 Ground Return	1
Port 2 Hot	5
Port 2 Ground Return	6
Case Ground	All Others



**CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.**

**NOTES:**

1. The design, manufacturing process, and specifications of this device are subject to change.
2. US or International patents may apply.
3. RoHS compliant from the first date of manufacture.

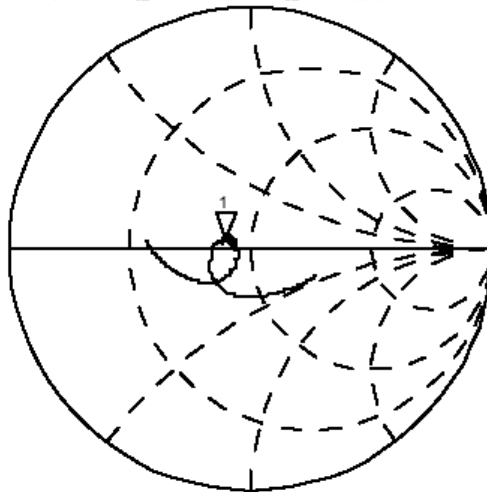
CH1 S11 1 UFS 1: 40 . 799 3. 3672 2. 0623 nH 259 . 861 000 MHz

hp

Cor

PRm

HId



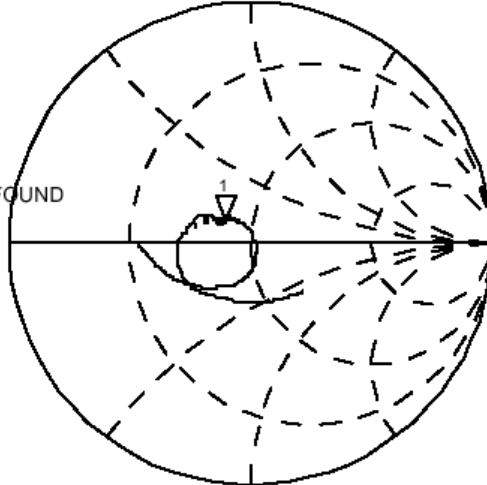
**CH2** S22 1 UFS 1: 39 . 922 7. 5566 4. 6282 nH 259 . 861 000 MHz

Cor

CH2 TARGET VALUE NOT FOUND

PRm

HId



CH2 Markers

BW : 0. 000000 MHz

cent : 0. 000000 MHz

Q: 0. 0000

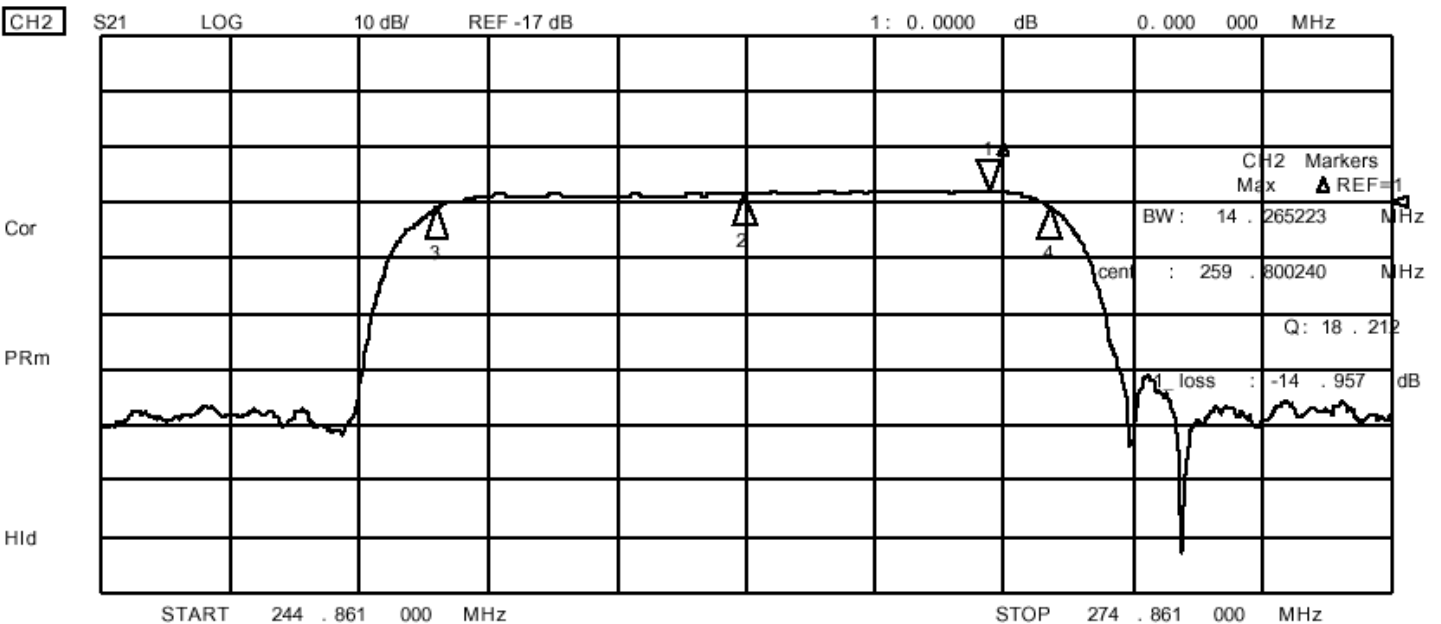
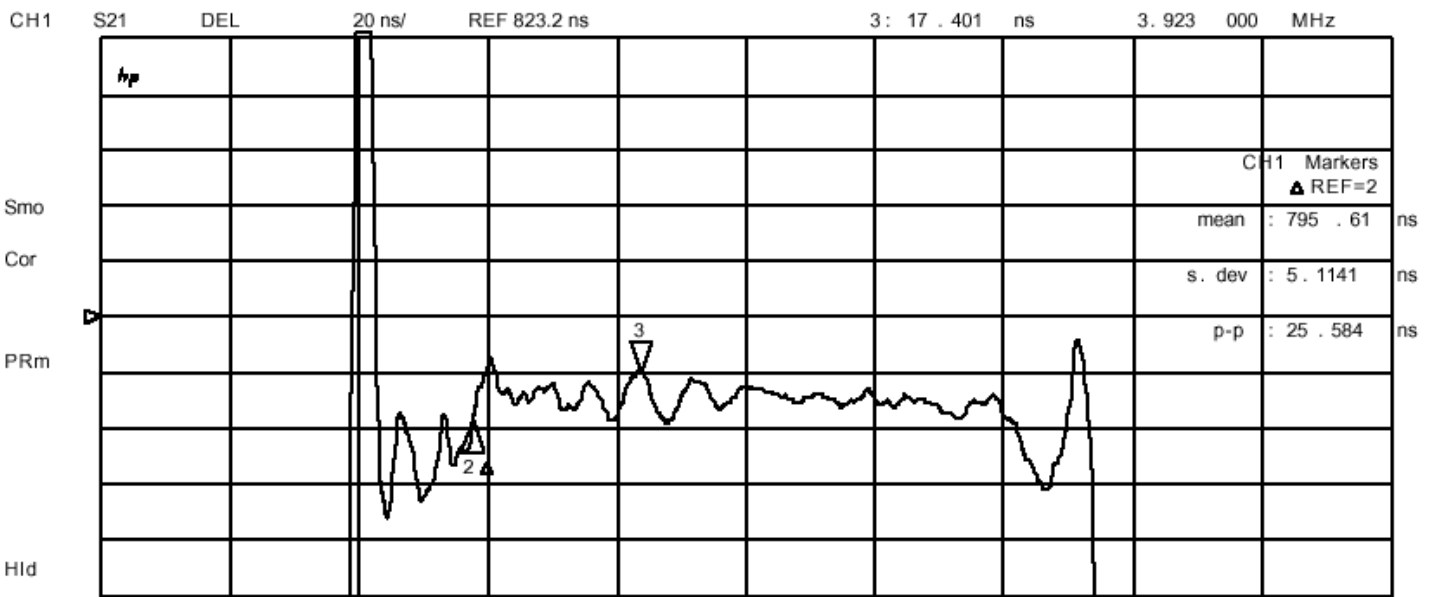
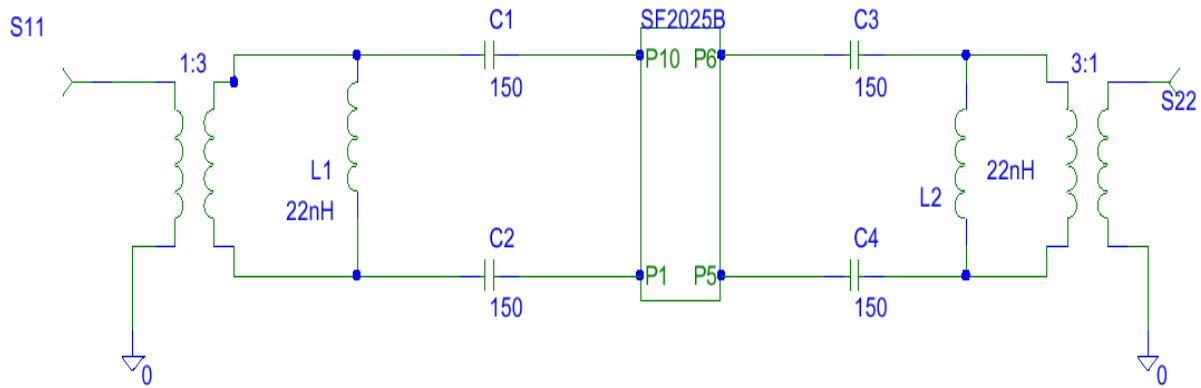
1\_ loss : 39 . 922

START 244 . 861 000 MHz

STOP 274 . 861 000 MHz

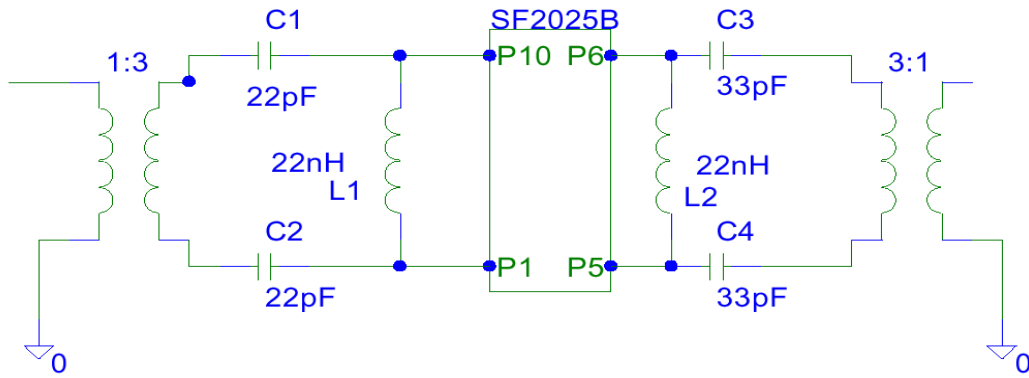
**SF2025B**  
**50 Ohm System**

## Matching Circuits



# Matching Circuits

better rejection tuning



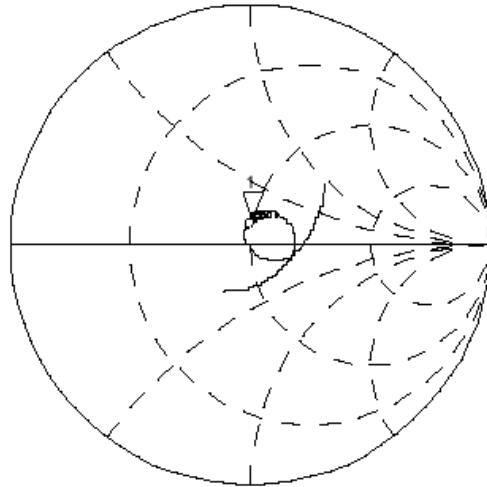
CH1 S11 1 UFS 1: 50 .018 11 .121 6.8112 nH 259 .861 000 MHz

#p

Cor

PRm

Hid



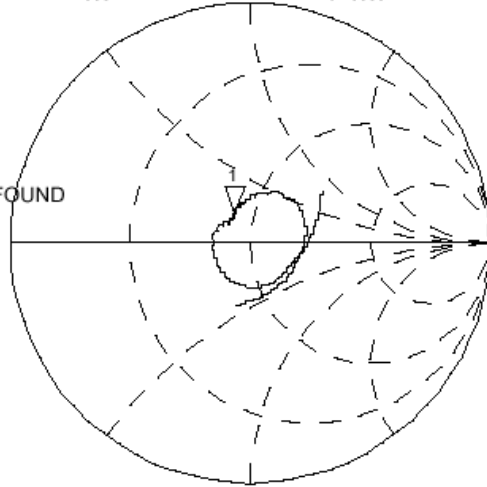
CH2 S22 1 UFS 1: 42 .555 11 .117 6.8089 nH 259 .861 000 MHz

CH2 TARGET VALUE NOT FOUND

Cor

PRm

Hid



CH2 Markers

BW: 0.000000 MHz

cent: 0.000000 MHz

Q: 0.0000

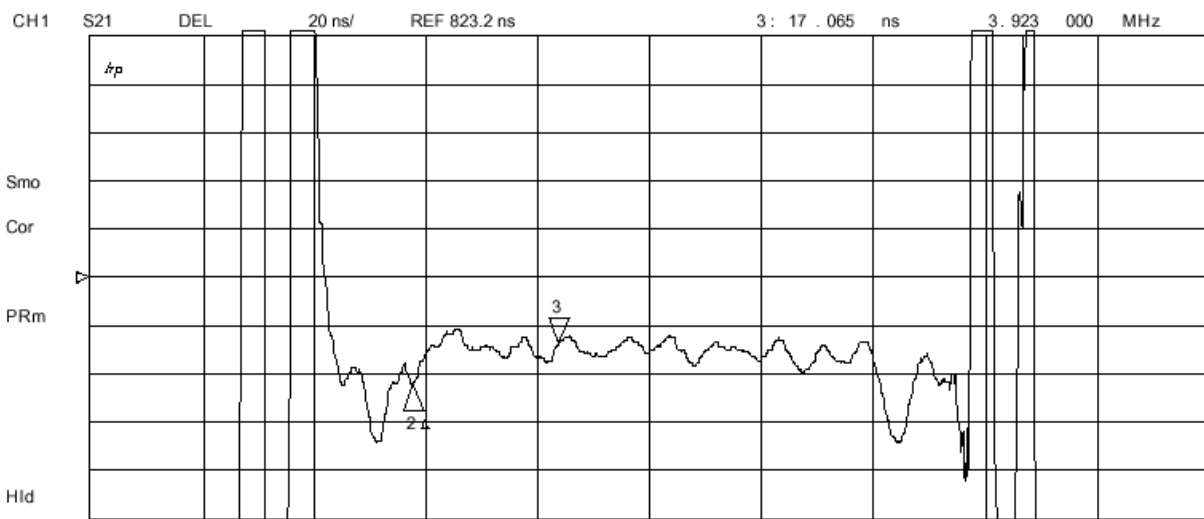
1\_loss: 42.555 Ω

START 244 .861 000 MHz

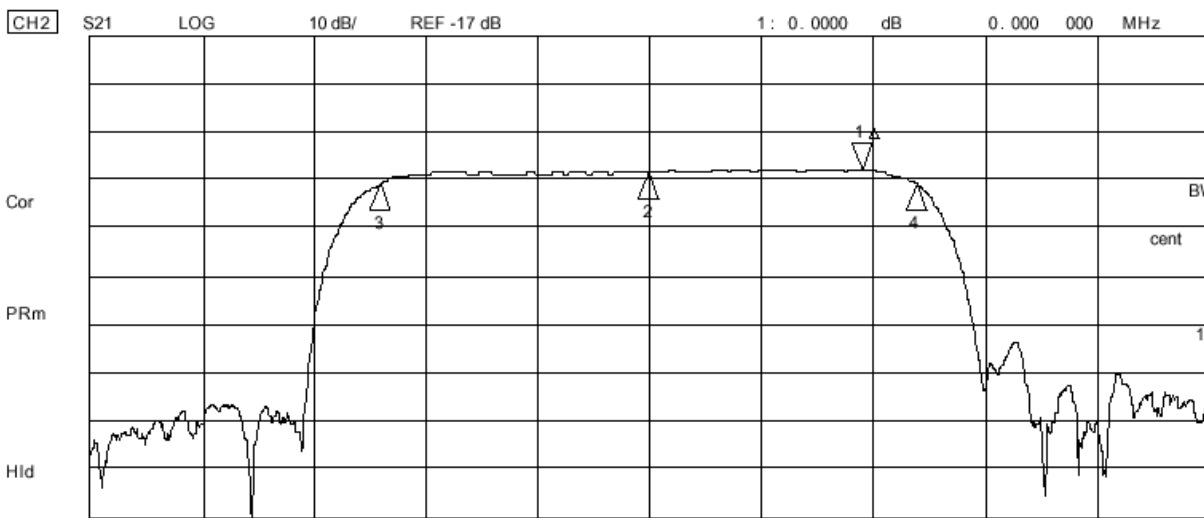
STOP 274 .861 000 MHz

**SF2025B**  
**50 Ohm System**

22 Dec 2003 16:58:01

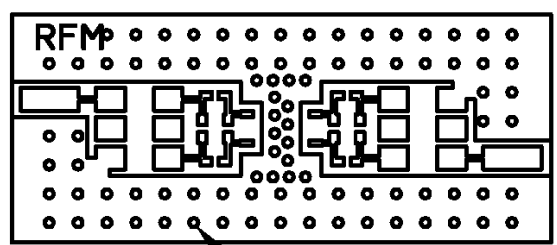
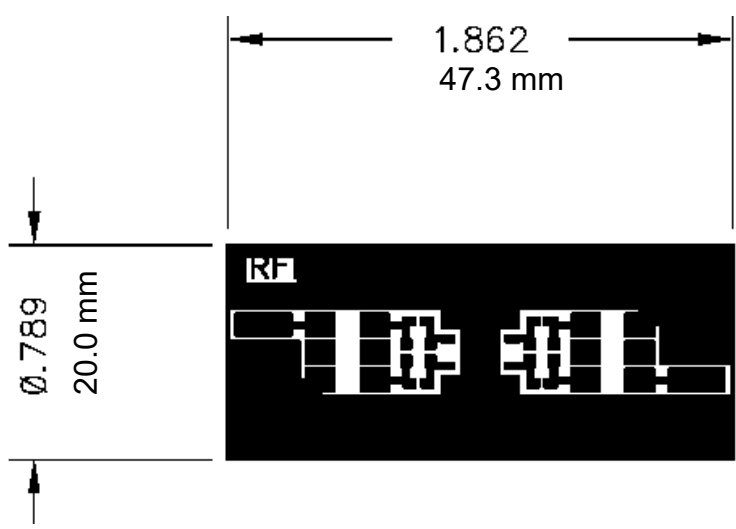


CH1 Markers  
 $\Delta$  REF=2  
 mean : 793.54 ns  
 s. dev : 4.4506 ns  
 p-p : 23.142 ns



CH2 Markers  
 Max  $\Delta$  REF=1  
 BW: 14.376387 MHz  
 cent : 259.844175 MHz  
 Q: 18.074  
 1\_loss : -14.984 dB

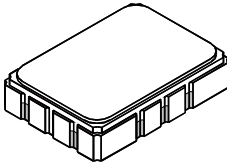
START 244.861000 MHz STOP 274.861000 MHz



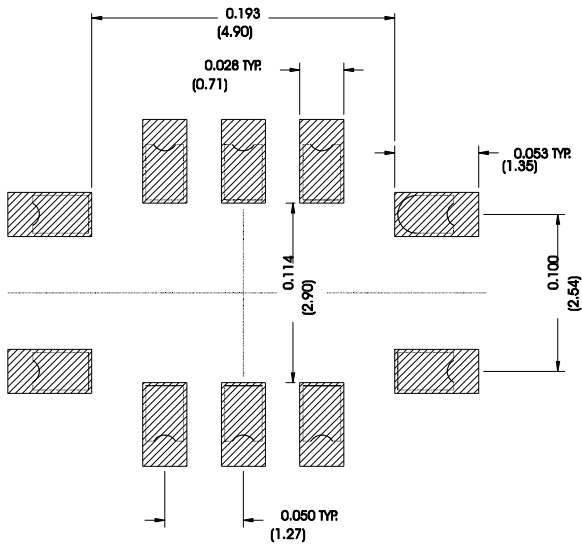
ALL HOLES PLATED THRU -  $\phi$ 1/32 DRILL

# SMP-03 Case

## 10-Terminal Ceramic Surface-Mount Case 7 x 5 mm Nominal Footprint



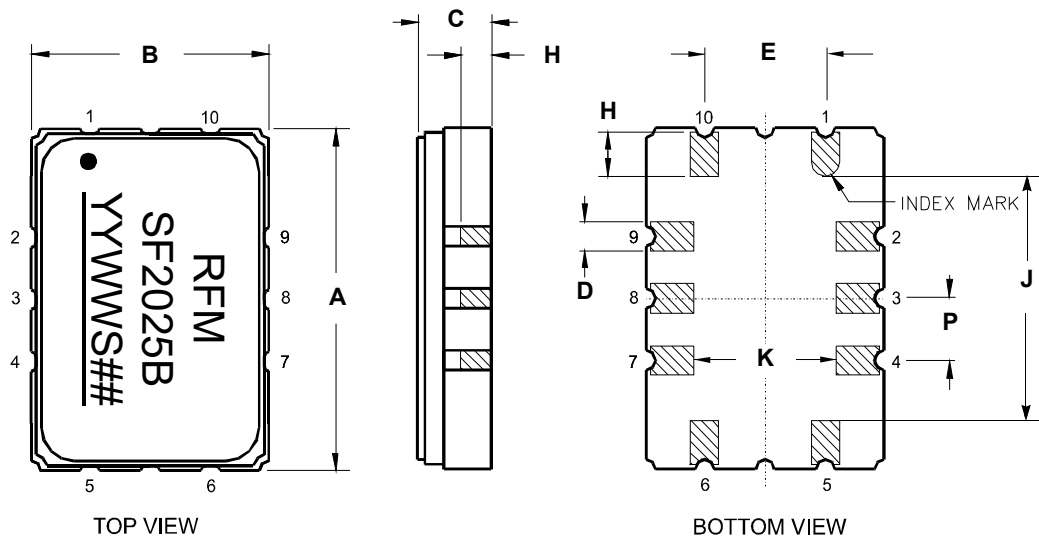
Recommended PCB Footprint



Case Dimensions						
Dimension	mm			Inches		
	Min	Nom	Max	Min	Nom	Max
A	6.80	7.00	7.20	0.268	0.276	0.283
B	4.80	5.00	5.20	0.189	0.197	0.205
C		1.65	2.00		0.065	0.079
D	.47	0.60	.73	0.019	0.024	0.029
E	2.41	2.54	2.67	0.095	0.100	0.105
H	0.87	1.0	1.13	0.034	0.039	0.044
J	4.87	5.00	5.13	0.192	0.197	0.202
K	2.87	3.00	3.13	0.113	0.118	0.123
P	1.14	1.27	1.40	0.045	0.050	0.055

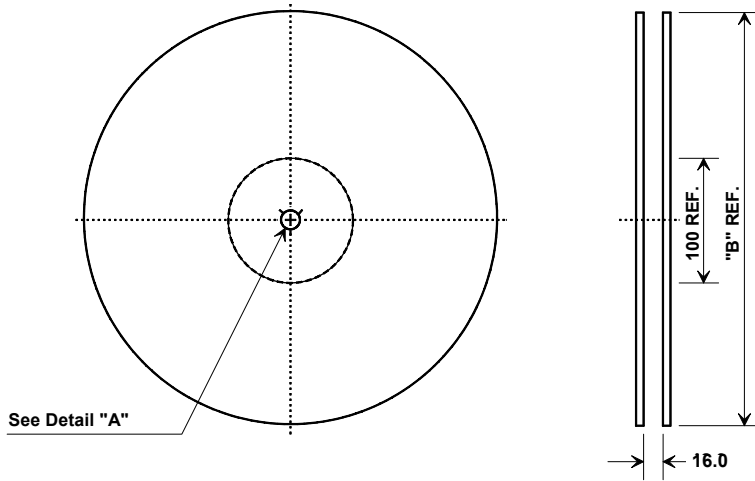
Materials	
Solder Pad Termination	Au plating 30 - 60 μmches (76.2-152 μm) over 80-200 μmches (203-508 μm) Ni.
Lid	Fe-Ni-Co Alloy Electroless Nickel Plate (8-11% Phosphorus) 100-200 μmches Thick
Body	Al <sub>2</sub> O <sub>3</sub> Ceramic

Electrical Connections		
Connection		Terminals
Port 1	Input or Return	10
	Return or Input	1
Port 2	Output or Return	5
	Return or Output	6
Ground		All others
Single Ended Operation		Return is ground
Differential Operation		Return is hot

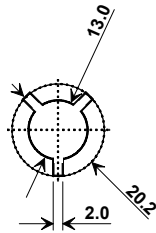


## Tape and Reel Specifications

Tape and Reel Standard per ANSI/EIA-481

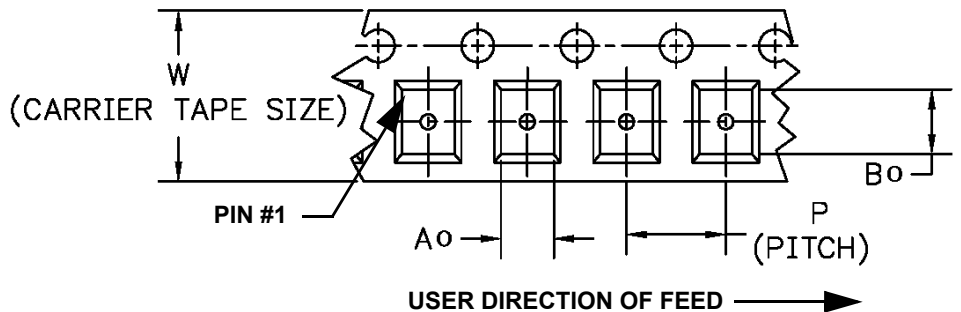
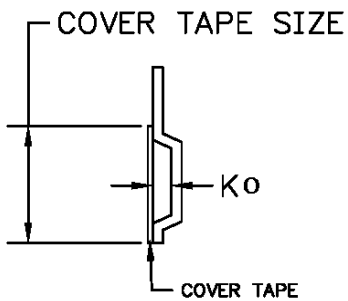


"B "		Quantity Per Reel
Nominal Size		
Inches	millimeters	
7	178	500
13	330	2000



### COMPONENT ORIENTATION and DIMENSIONS

Carrier Tape Dimensions	
<b>Ao</b>	5.5 mm
<b>Bo</b>	7.5 mm
<b>Ko</b>	2.0 mm
<b>Pitch</b>	8.0 mm
<b>W</b>	16.0 mm



## Recommended Reflow Profile

1. Preheating shall be fixed at 150~180°C for 60~90 seconds.
2. Ascending time to preheating temperature 150°C shall be 30 seconds min.
3. Heating shall be fixed at 220°C for 50~80 seconds and at 260°C+0/-5°C peak (10 seconds).
4. Time: 5 times maximum.

