

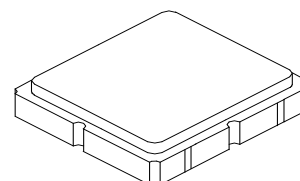
- **High Performance SAW Filter**
- **3.8 x 3.8 x 1.4 mm Surface-mount Package**
- **Complies with Directive 2002/95/EC (RoHS)**
- **Moisture Sensitivity Level: 1**

Absolute Maximum Ratings

Rating	Value	Units
Maximum Incident Power in Passband	+10	dBm
Maximum DC Voltage Between any Two Active Terminals	30	VDC
Storage Temperature Range in Tape and Reel	-40 to +85	°C
Operating Temperature Range	-40 to +85	°C
Suitable for Lead-free Soldering - Maximum Soldering Profile	260 °C for 30 s	

SF2223D

**184.32 MHz
SAW Filter**



SM3838-8

Electrical Characteristics

Characteristic	Sym	Notes	Min	Typ	Max	Units
Nominal Center Frequency	f_c			184.32		MHz
Minimum Insertion Loss	IL_{MIN}			8.5	10.0	dB
1 dB Bandwidth	BW_1		30	32		MHz
Amplitude Ripple, 169.32 to 199.32 MHz				0.6	1.0	dB _{P-P}
Group Delay Ripple, 169.32 to 199.32 MHz				18	50	ns _{P-P}
Rejection referenced to IL_{MIN} :						
1.00 to 137.88 MHz			45	60		dB
149.32 MHz			16.5	60		
219.32 MHz			16.5	60		
261.48 to 600.00 MHz			45	50		

Case Style	SM3838-8 3.8 x 3.8 mm Nominal Footprint					
Lid Symbolization, Y=year, WW=week, S=shift, Dot=pin 1 indicator	959, <u>YWWS</u>					
Standard Reel Quantity	Reel Size 7 Inch	500 Pieces/Reel				
	Reel Size 13 Inch	3000 Pieces/Reel				

Electrical Connections

Connection	Terminals
Balanced Input Option	1 and 2
Single-ended Input Option	1
Output	5
Case Ground	All others

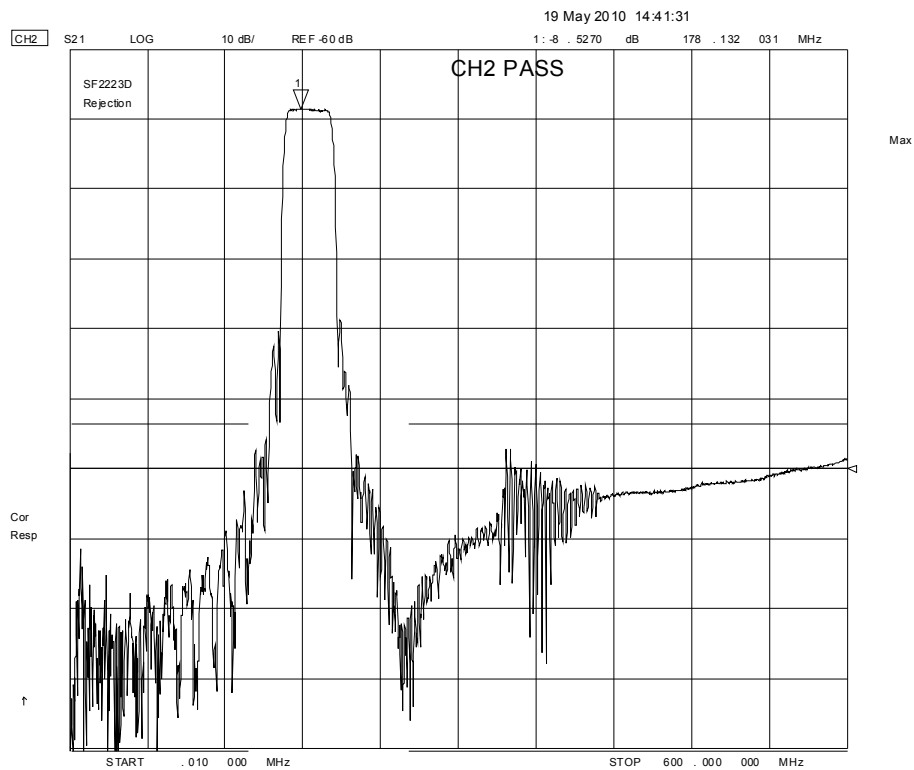
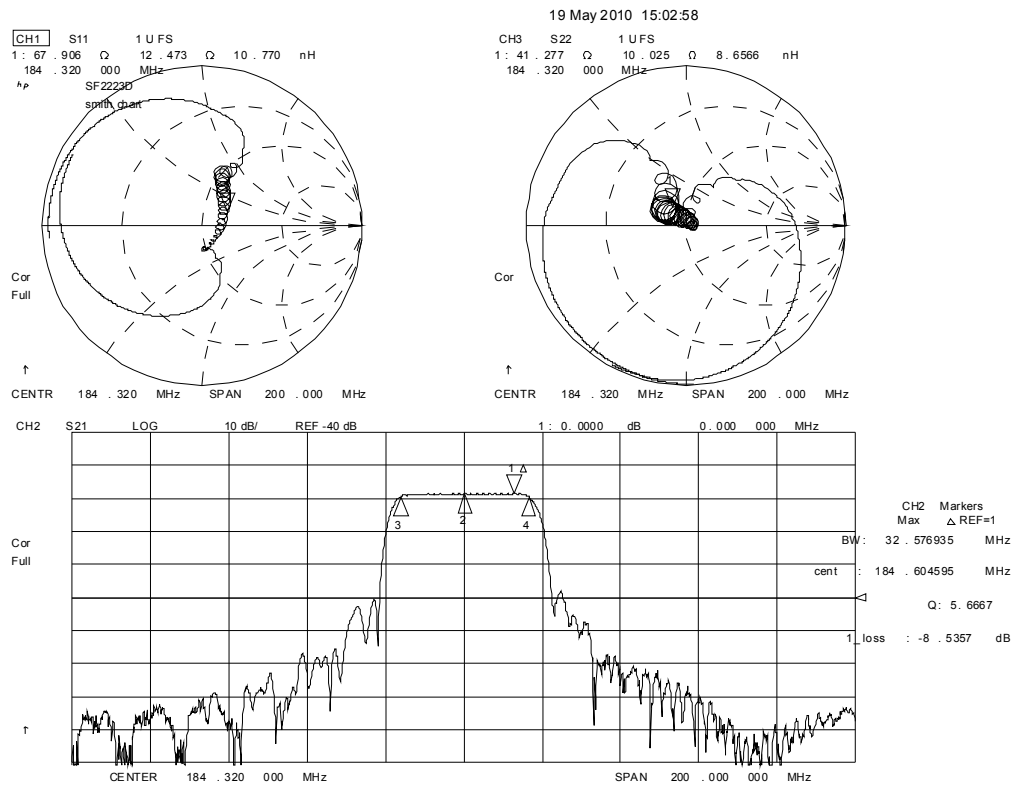


CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.

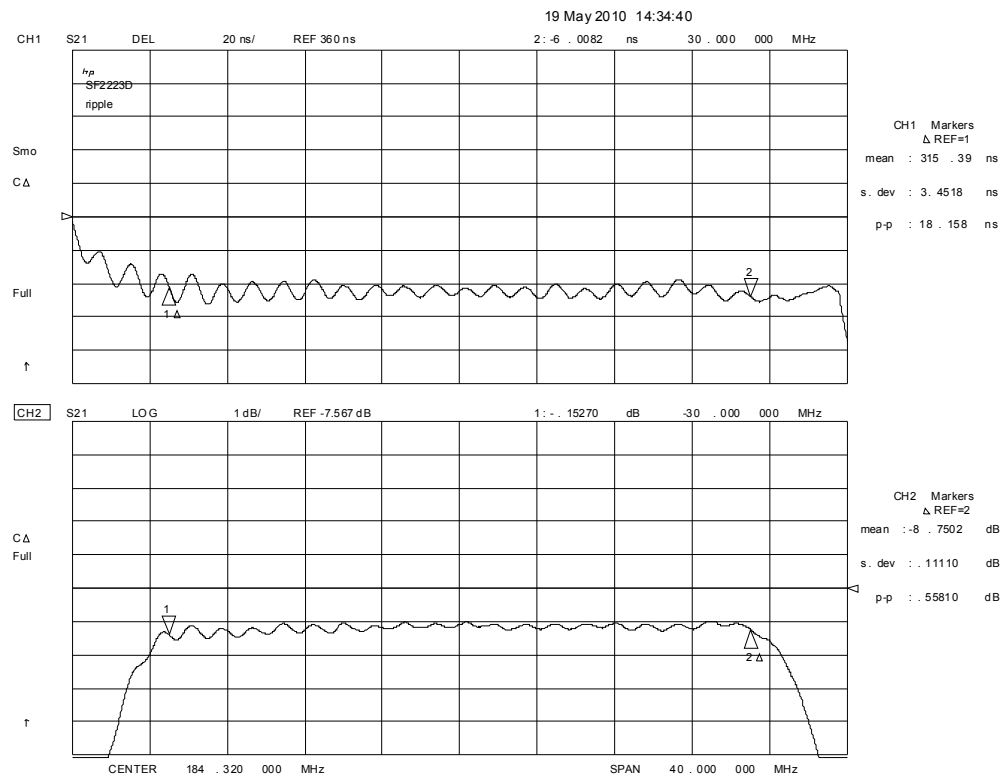
NOTES:

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.

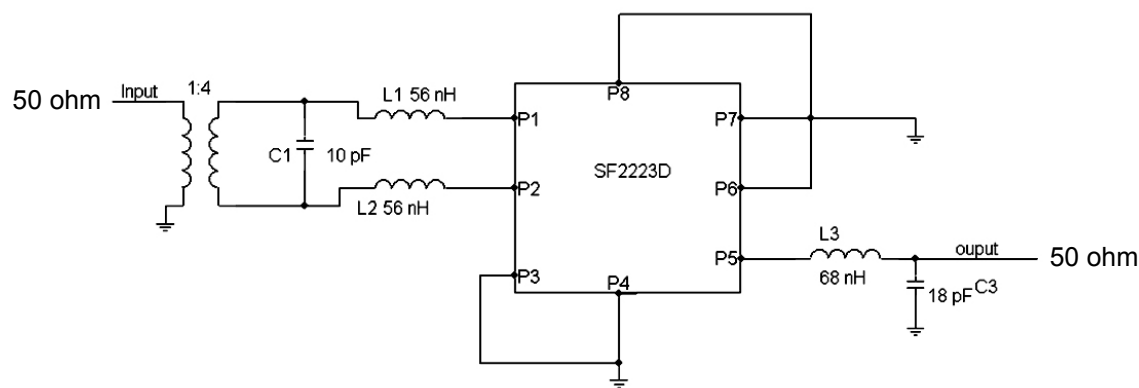
Filter Amplitude and Impedance Plots for Balanced Input



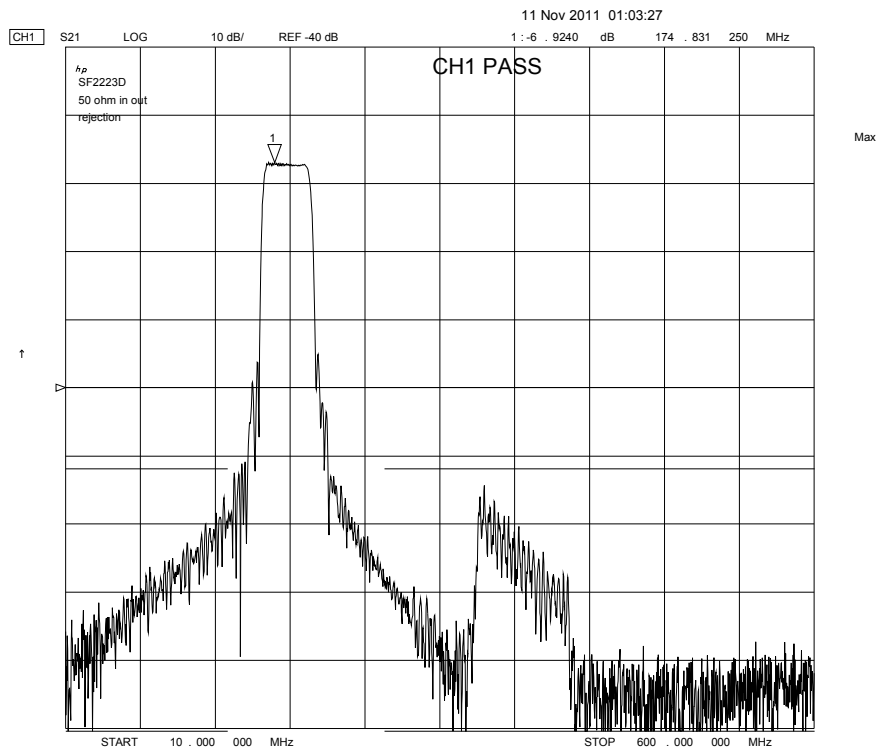
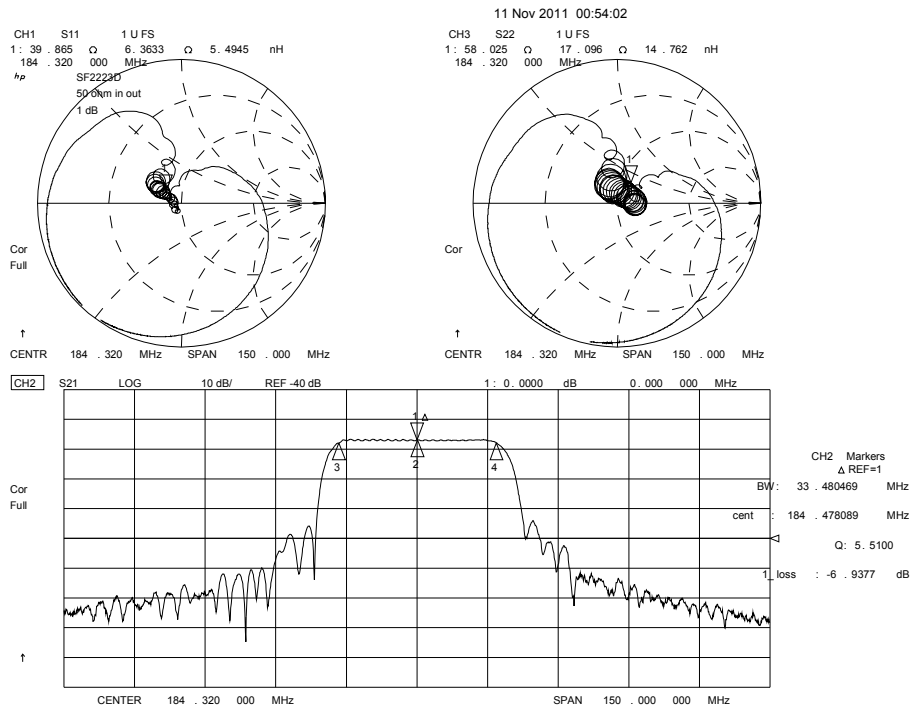
Filter Passband Group Delay and Amplitude Plots for Balanced Input



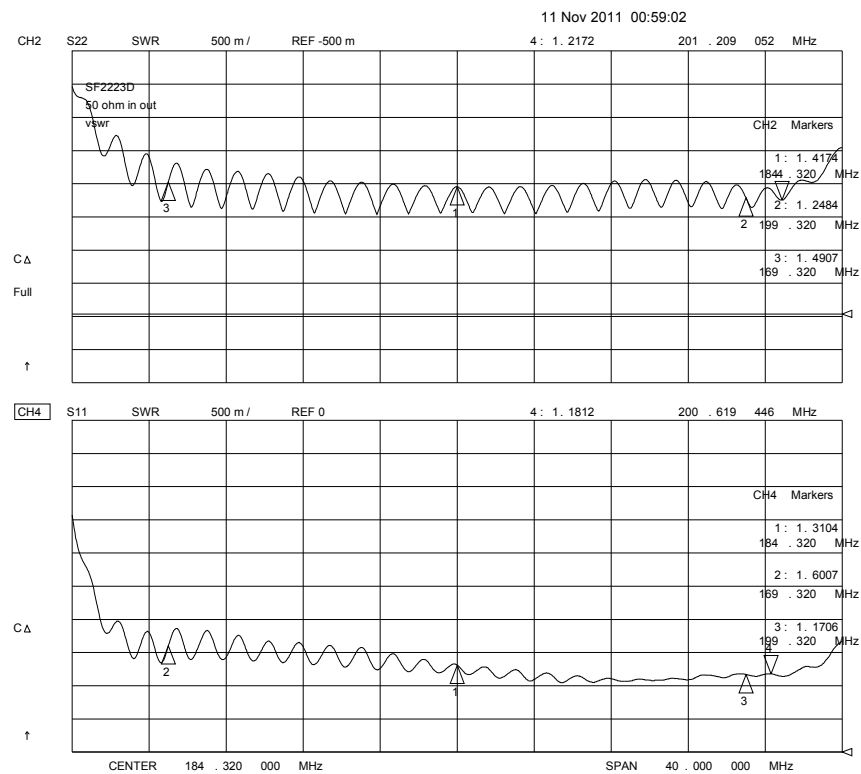
Balanced Input Filter Test Circuit



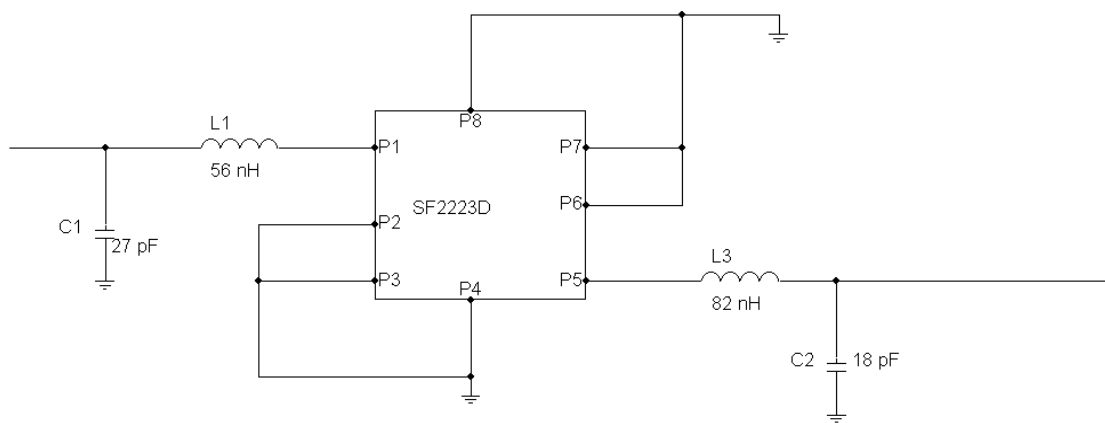
Filter Amplitude and Impedance Plots for Single-ended Input



Filter Passband Group Delay and Amplitude Plots for Single-ended Input

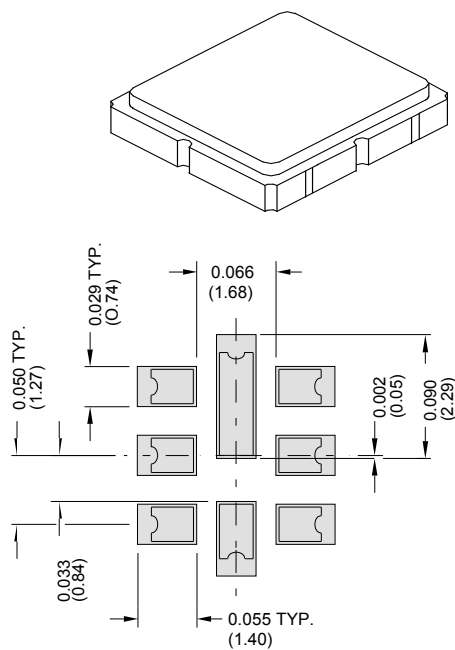


Single-ended Input Filter Test Circuit



SM3838-8 Case

8-Terminal Ceramic Surface-Mount Case 3.8 X 3.8 mm Nominal Footprint



PCB Footprint

Case Dimensions

Dimension	mm			Inches		
	Min	Nom	Max	Min	Nom	Max
A	3.6	3.8	4.0	0.142	0.150	0.157
B	3.6	3.8	4.0	0.142	0.150	0.157
C	1.05	1.20	1.35	0.041	0.047	0.053
D	0.95	1.10	1.25	0.037	0.043	0.049
E	0.90	1.00	1.10	0.035	0.040	0.043
F	0.50	0.60	0.70	0.020	0.024	0.028
G	2.39	2.54	2.69	0.090	0.100	0.110
H	1.40	1.75	2.05	0.055	0.069	0.080

Electrical Connections

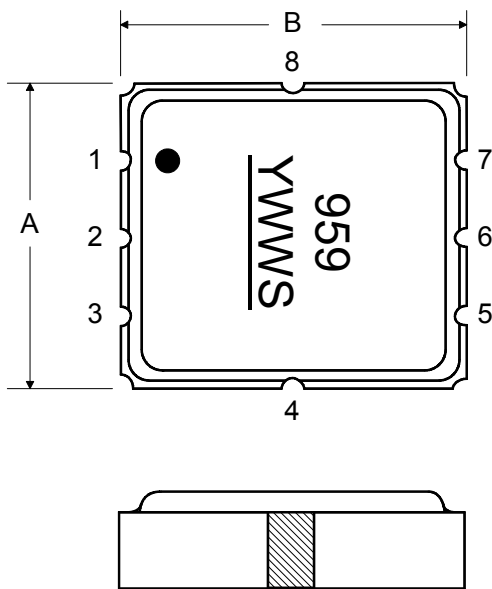
	Connection	Terminals
Port 1	Balanced Input	1,2
Port 2	Single-ended Output	5
	Ground	All Others

Dot Indicates Pin 1

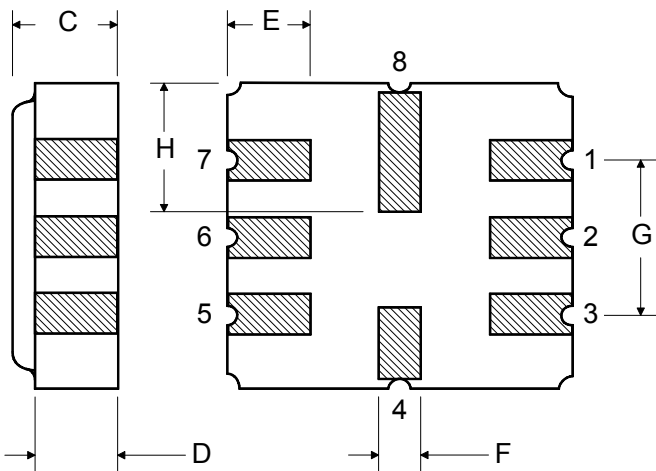
Materials

Solder Pad Plating	0.3 to 1.0 μ m Gold over 1.27 to 8.89 μ m Nickel
Lid Plating	2.0 to 3.0 μ m Nickel
Body	Al ₂ O ₃ Ceramic

TOP VIEW



BOTTOM VIEW

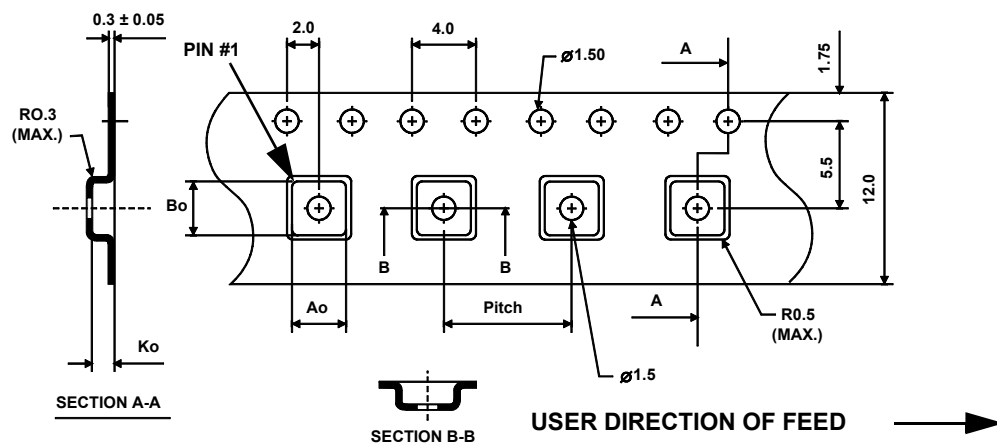


Tape and Reel Standard per ANSI/EIA-481

The technical drawing illustrates the ANSI/EIA-481 tape and reel standard. It includes three views: a top view, a side view, and a detail view. The top view shows a circular reel with a central hub and a concentric circle representing the tape path. A leader line points from the text 'See Detail "A"' to the central hub. The side view shows the profile of the reel, with dimensions 100 REF. and 'B' REF. indicating the reference height and the height of the tape path, respectively. The detail view, labeled 'A', shows a cross-section of the tape path with dimensions 13.0, 20.2, and 2.0 indicating the width of the tape path, the width of the tape, and the width of the tape carrier, respectively.

"B"		Quantity Per Reel
Inches	millimeters	
7	178	500
13	330	3000

Carrier Tape Dimensions	
Ao	4.25 mm
Bo	4.25 mm
Ko	1.30 mm
Pitch	8.0 mm
W	12.0 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.

