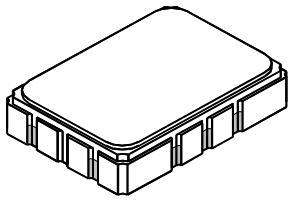
AEC-Q200
This component was always RoHS compliant from the first date of manufacture.

SF2304B

175 MHz SAW Filter

- ***High Performance 175 MHz SAW Filter***
- ***Hermetic 5 x 7 mm Surface-mount Case***
- ***Single-ended or Differential Input Operation***
- ***Complies with Directive 2002/95/EC (RoHS)***



SMP-03

Absolute Maximum Ratings

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

Characteristic	Sym	Notes	Min	Typ	Max	Units
Center Frequency	f_C			175		MHz
Minimum insertion Loss	IL_{MIN}			7.5	10	dB
Amplitude Ripple, f_C ± 0.45 MHz				0.7	1.0	dB_{P-P}
Group Delay Ripple, f_C ± 0.45 MHz				200	300	ns_{P-P}
Absolute Delay				0.68	1.50	µs
1 dB Bandwidth	BW_1		0.90	1.04		MHz
2.5 dB Bandwidth	$BW_{2.5}$		1.20	1.38		
3 dB Bandwidth	BW_3		1.30	1.46		
5 dB Bandwidth	BW_5		1.55	1.66	1.85	
30 dB Bandwidth	BW_{30}			3.21	3.65	
40 dB Bandwidth	BW_{40}			3.47	3.95	
Ultimate Rejection, 186 to 900 MHz			47	50		dB
Input/Output Return Loss, f_C ± 0.45 MHz			10	12		dB

Single-ended Terminating Source Impedance		Z_S = 50 ohms
Differential Terminating Source Impedance		Z_S = 100 ohms
Terminating Load Impedance		Z_L = 50 ohms
Case Style		SMP-03 7 x 5 mm Nominal Footprint
Lid Symbolization, YY = year, WW = week, S = shift		RFM, SF2304B, YYWWS

Electrical Connection

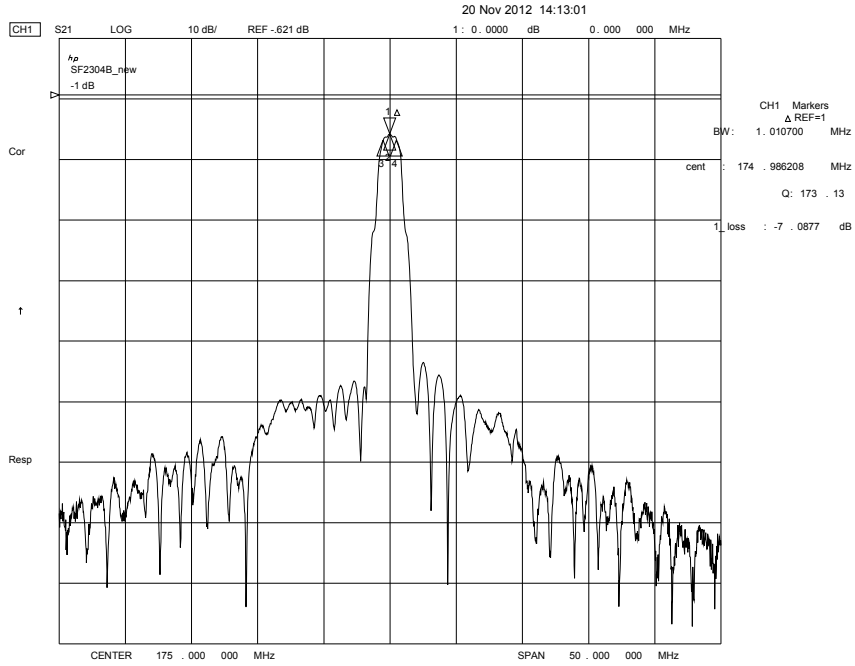
Connection	Terminals
Single-ended Input Port	10
Balanced Input Port	10, 1
Single-ended Output Port	5
Ground	All others

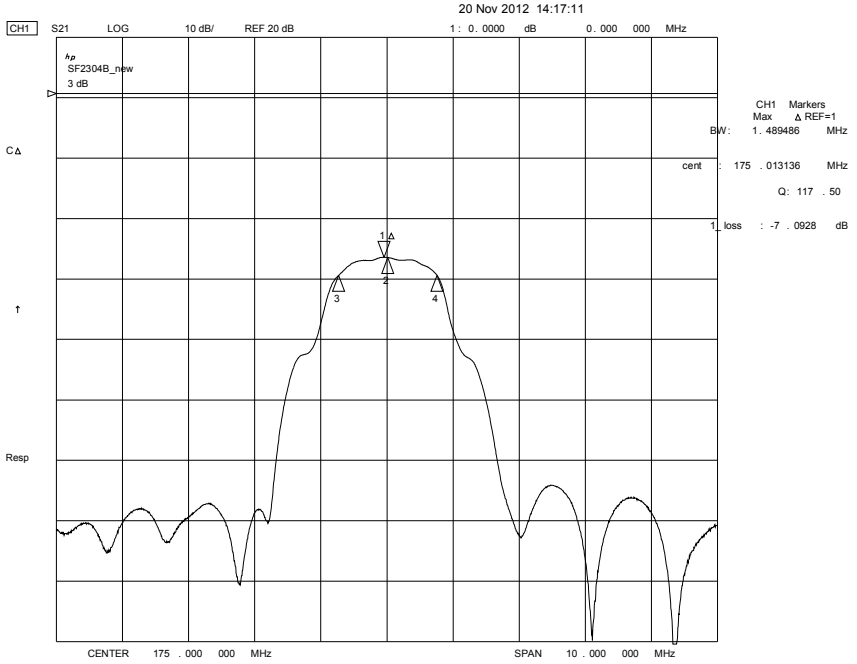
CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.

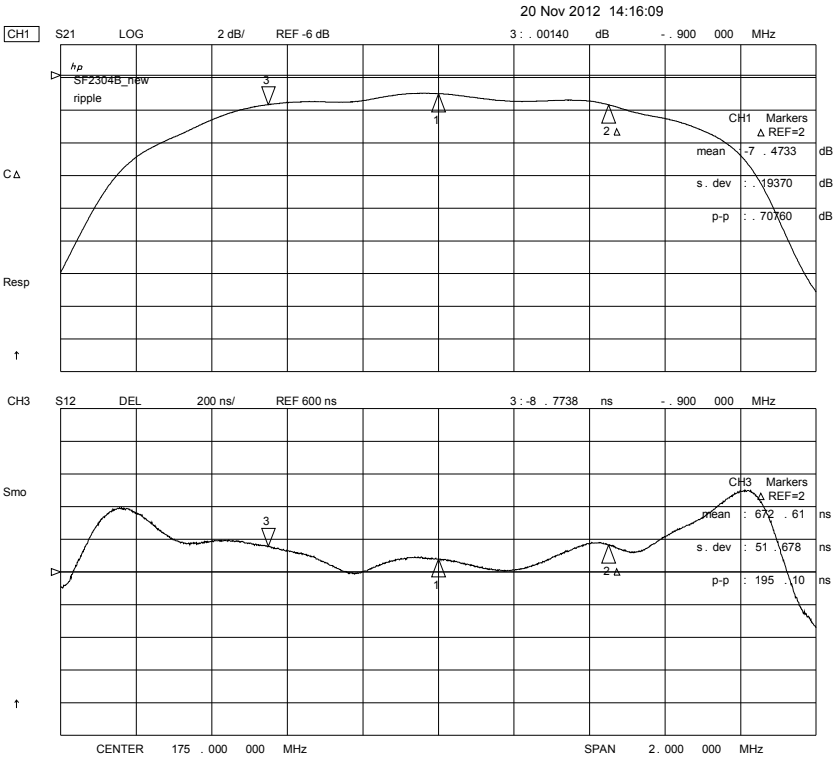
NOTES:

1. The design, manufacturing process, and specifications of this device are subject to change.
2. US or International patents may apply.

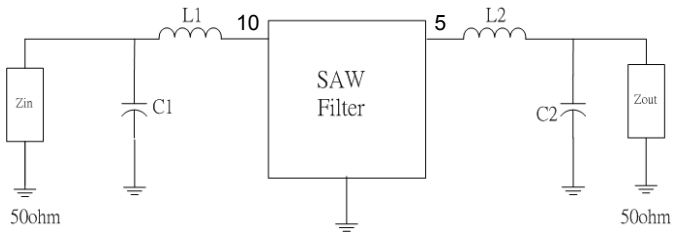
Filter Response Plots





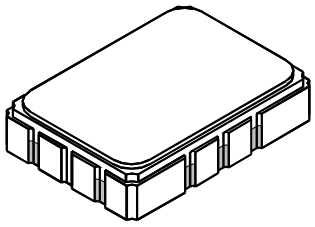


Typical Matching Network

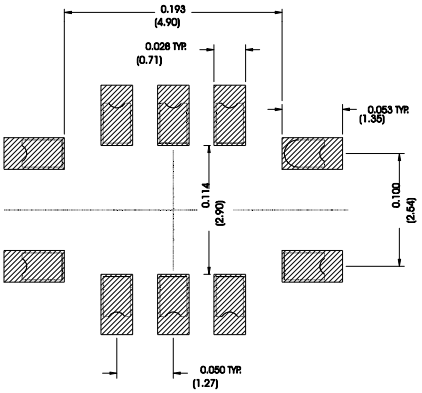


C1 = 33 pF, L1 = (150 + 22) nH, L2 = (24 + 150) nH, C2 = 36 pF

SMP-03 10-Terminal Ceramic Surface-mount Case
5 x 7 mm Nominal Footprint



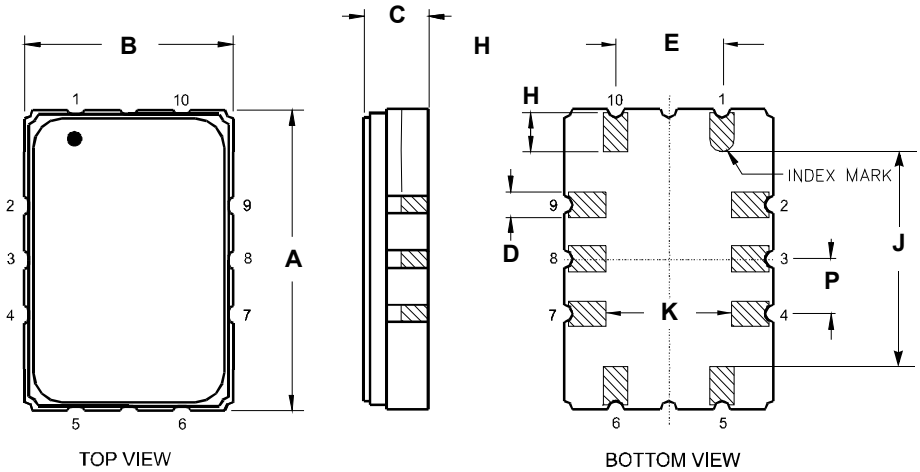
Recommended PCB Footprint



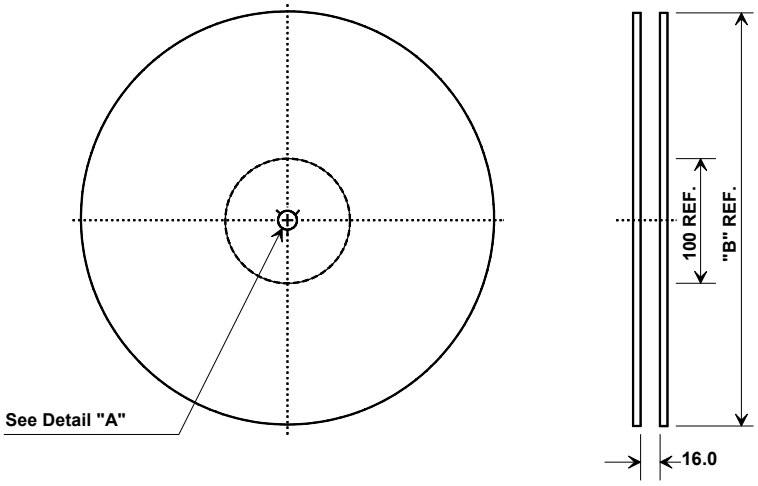
Case Dimensions						
Dimension	**mm**			**Inches**		
	Min	**Nom**	**Max**	**Min**	**Nom**	**Max**
A	6.80	7.00	7.20	0.268	0.276	0.283
B	4.80	5.00	5.20	0.189	0.197	0.205
C	-	1.65	2.00	-	0.065	0.079
D	0.47	0.60	0.73	0.019	0.024	0.029
E	2.41	2.54	2.67	0.095	0.100	0.105
H	0.87	1.0	1.13	0.034	0.039	0.044
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

Electrical Connections		
Connection		**Terminals**
Port 1	Single-ended Input	10
Port 1	Differential Input	10, 1
Port 2	Single-ended Output	5
Ground		All others

Case Materials	
Solder Pad Plating	0.3 to 1.0 µm Gold over 1.27 to 8.89 µm Nickel
Lid Plating	2.0 to 3.0 µm Nickel
Body	Al_2O_3 Ceramic
Pb Free	

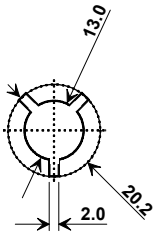


Tape and Reel Specifications



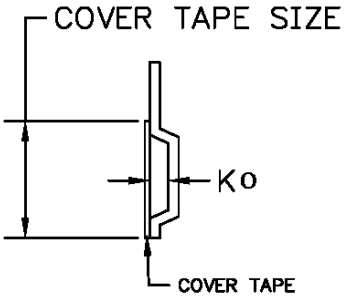
Tape and Reel Standard per ANSI/EIA-481

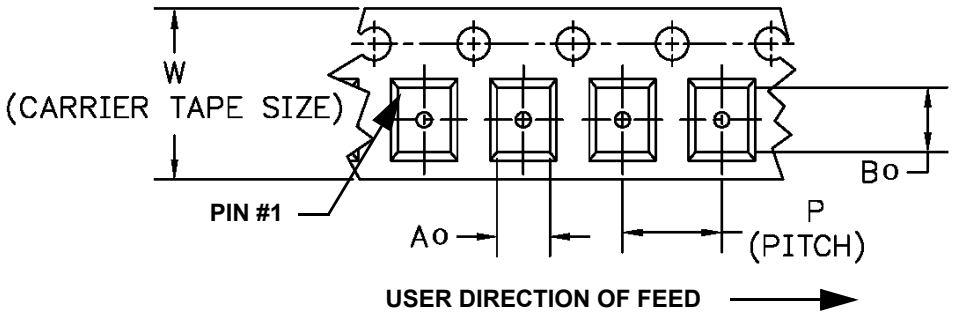
"B" Nominal Size		Quantity Per Reel
Inches	millimeters	
7	178	500
13	330	2000



COMPONENT ORIENTATION and DIMENSIONS

Carrier Tape Dimensions	
Ao	5.6 mm
Bo	7.6 mm
Ko	2.0 mm
Pitch	8.0 mm
W	16.0 mm





Recommended Reflow Profile

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