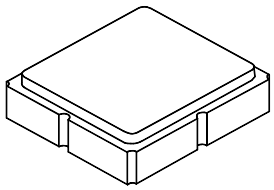
Preliminary

RFM products are now Murata products.

SF2193E

1228 MHz SAW Filter

- ***Low-loss SAW Filter for GPS Receiver***
- ***Surface-mount 3.0 x 3.0 mm Package***
- ***Complies with Directive 2002/95/EC (RoHS)***



SM3030-8

Absolute Maximum Ratings

Rating	Value	Units
Input Power Level	5	dBm
DC Voltage on any Non-ground Terminal	3	V
Operating Temperature Range	-30 to +85	°C
Storage Temperature Range in Tape and Reel	-40 to +85	°C
Maximum Soldering Profile, 5 cycles/10 seconds maximum	265	°C

Electrical Characteristics

Characteristic	Sym	Notes	Min	Typ	Max	Units
Center Frequency	f_C			1228		MHz
Insertion Loss, 1218 to 1238 MHz	IL			3.4	4.4	dB
Amplitude Ripple, 1218 to 1238 MHz				0.9	1.7	dB
Attenuation, 0 dB Reference:						dB
0 to 1088 MHz			40	52		
1088 to 1178 MHz			32	50		
1178 to 1190 MHz			15	50		
1268 to 1288 MHz			13	29		
1288 to 1378 MHz			30	41		
1378 to 1480 MHz			36	54		
1480 to 2500 MHz			28	47		
2500 to 4000 MHz			13	20		
Source Impedance, Unbalanced	Z_S			50		Ω
Load Impedance, Balanced	Z_L			50		

Case Style		SM3030-8 3.0 x 3.0 mm Nominal Footprint
Lid Symbolization, Y=year, WW=week, S=shift, dot=pin 1 indicator		906, YWWS
Standard Reel Quantity	Reel Size 7 Inch	500 Pieces/Reel
	Reel Size 13 Inch	3000 Pieces/Reel

Electrical Connections

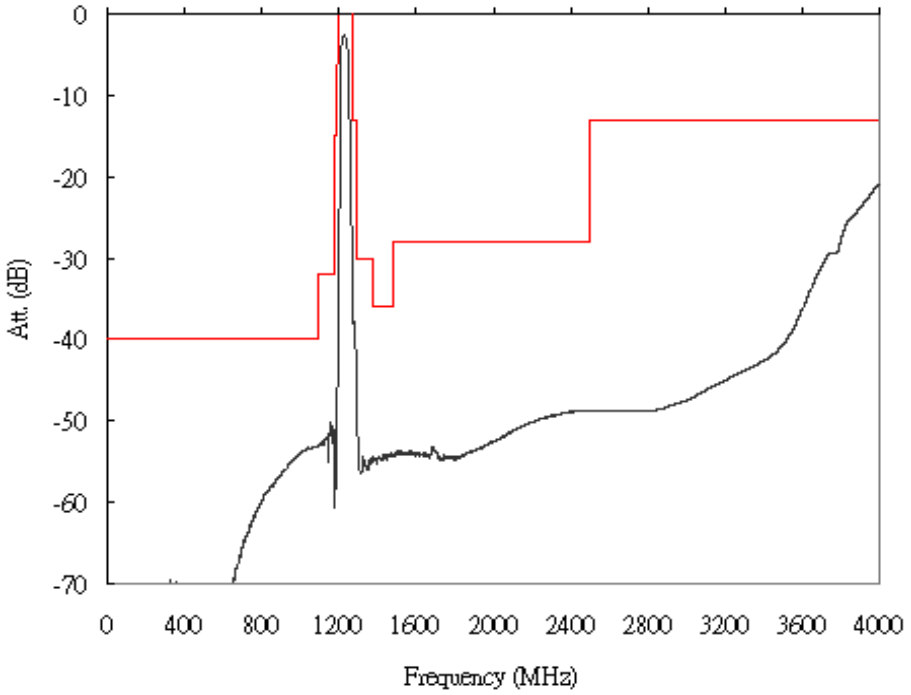
	Connection	Terminals
	Unbalanced Input	2
	Balanced Output	5, 7
	Ground	All Others
Dot Indicates Pin 1		

CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.

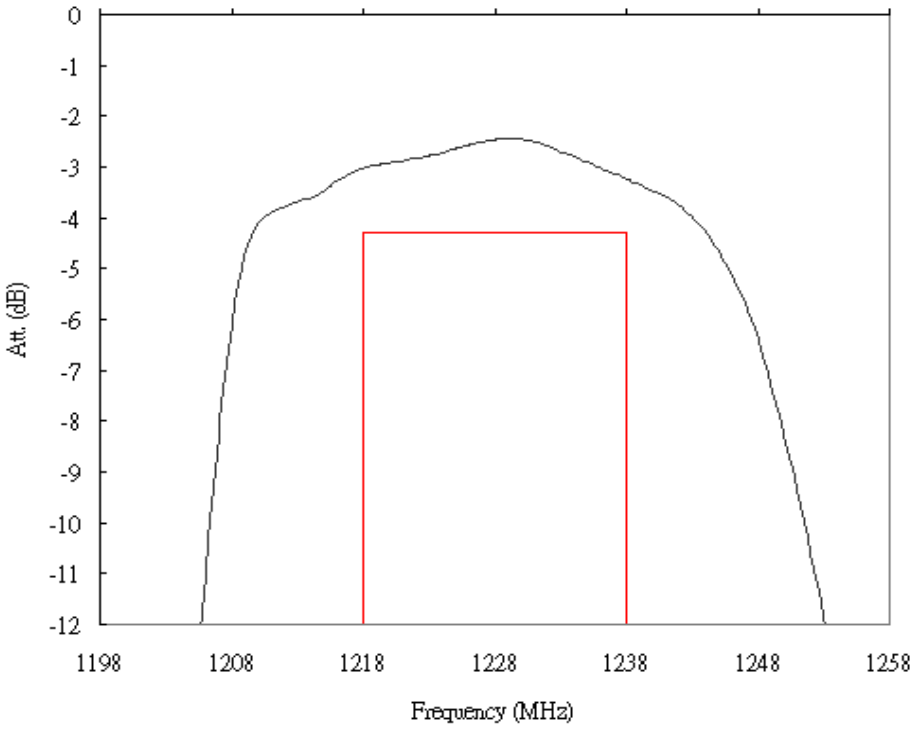
NOTES:

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, fc.
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. Murata, stylized Murata logo, and Murata N.A., Inc. are registered trademarks of Murata Manufacturing Co., Ltd.

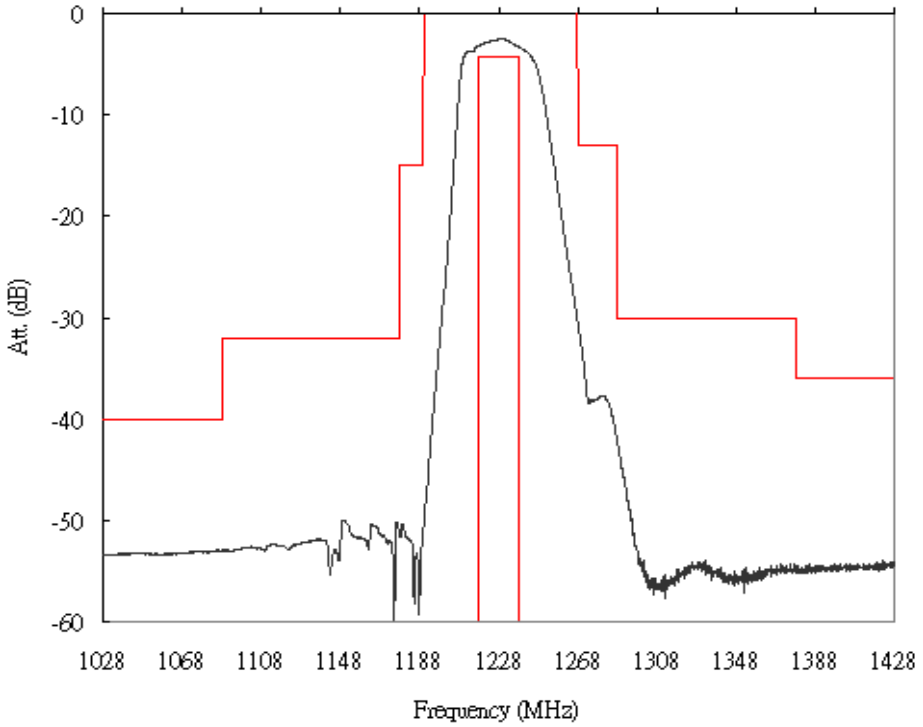
Filter Wideband Response



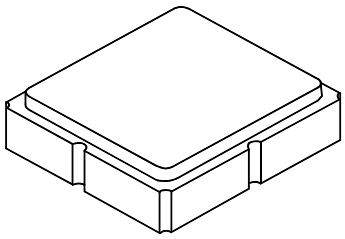
Filter Passband Response

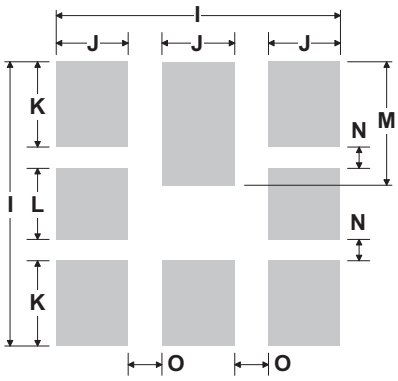


Filter Near-in Response



8-Terminal Ceramic Surface-Mount Case
3.0 X 3.0 mm Nominal Footprint





PCB Footprint Top View

Case and PCB Footprint Dimensions

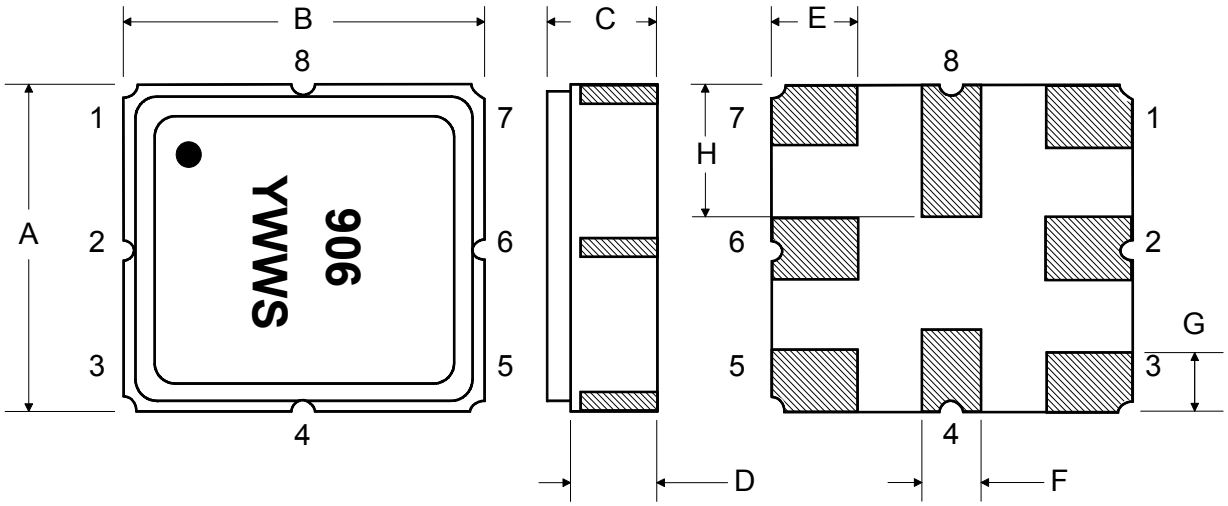
Dimension	mm			Inches		
	Min	Nom	Max	Min	Nom	Max
A	2.87	3.0	3.13	0.113	0.118	0.123
B	2.87	3.0	3.13	0.113	0.118	0.123
C	1.14	1.27	1.40	0.045	0.050	0.055
D	0.79	0.92	1.05	0.031	0.036	0.041
E	0.62	0.75	0.88	0.024	0.029	0.034
F	0.47	0.60	0.73	0.018	0.024	0.029
G	0.47	0.60	0.73	0.018	0.024	0.029
H	1.07	1.20	1.33	0.042	0.047	0.052
I		3.19			0.126	
J		0.81			0.032	
K		0.96			0.038	
L		0.81			0.032	
M		1.39			0.055	
N		0.23			0.009	
O		0.38			0.015	

Case Materials

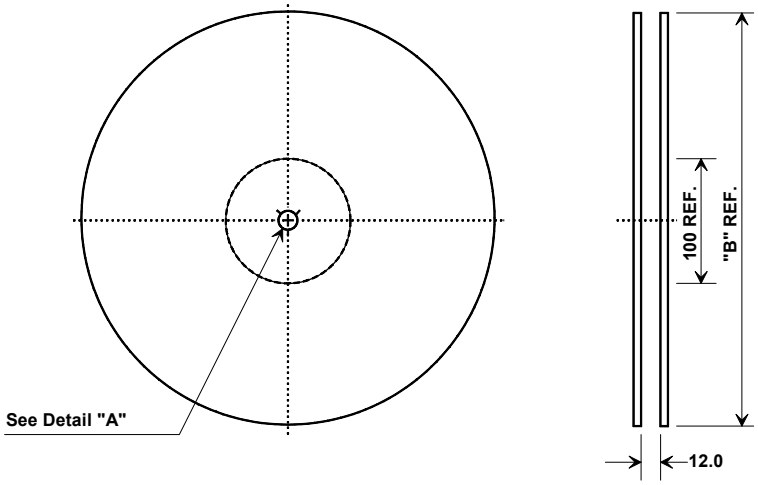
Materials	
Solder Pad Plating	0.3 to 1.0 µm Gold over 1.27 to 8.89 µm Nickel
Lid Plating	2.0 to 3.0 µm Nickel
Body	Al_2O_3 Ceramic
Pb Free	

TOP VIEW

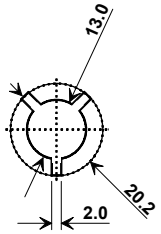
BOTTOM VIEW



Tape and Reel Specifications



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



Carrier Tape Dimensions	
Ao	3.35 mm
Bo	3.35 mm
Ko	1.4 mm
Pitch	8.0 mm
W	12.0 mm

COMPONENT ORIENTATION and DIMENSIONS