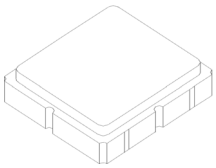
Preliminary

RFM products are now Murata products.

SF2139D

177.0 MHz SAW Filter

- ***Low Insertion Loss***
- ***3.8 X 3.8 X 1.0 mm Surface Mount Case***
- ***Complies with Directive 2002/95/EC (RoHS)***



SM3838-6

Absolute Maximum Ratings

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

Electrical Characteristics

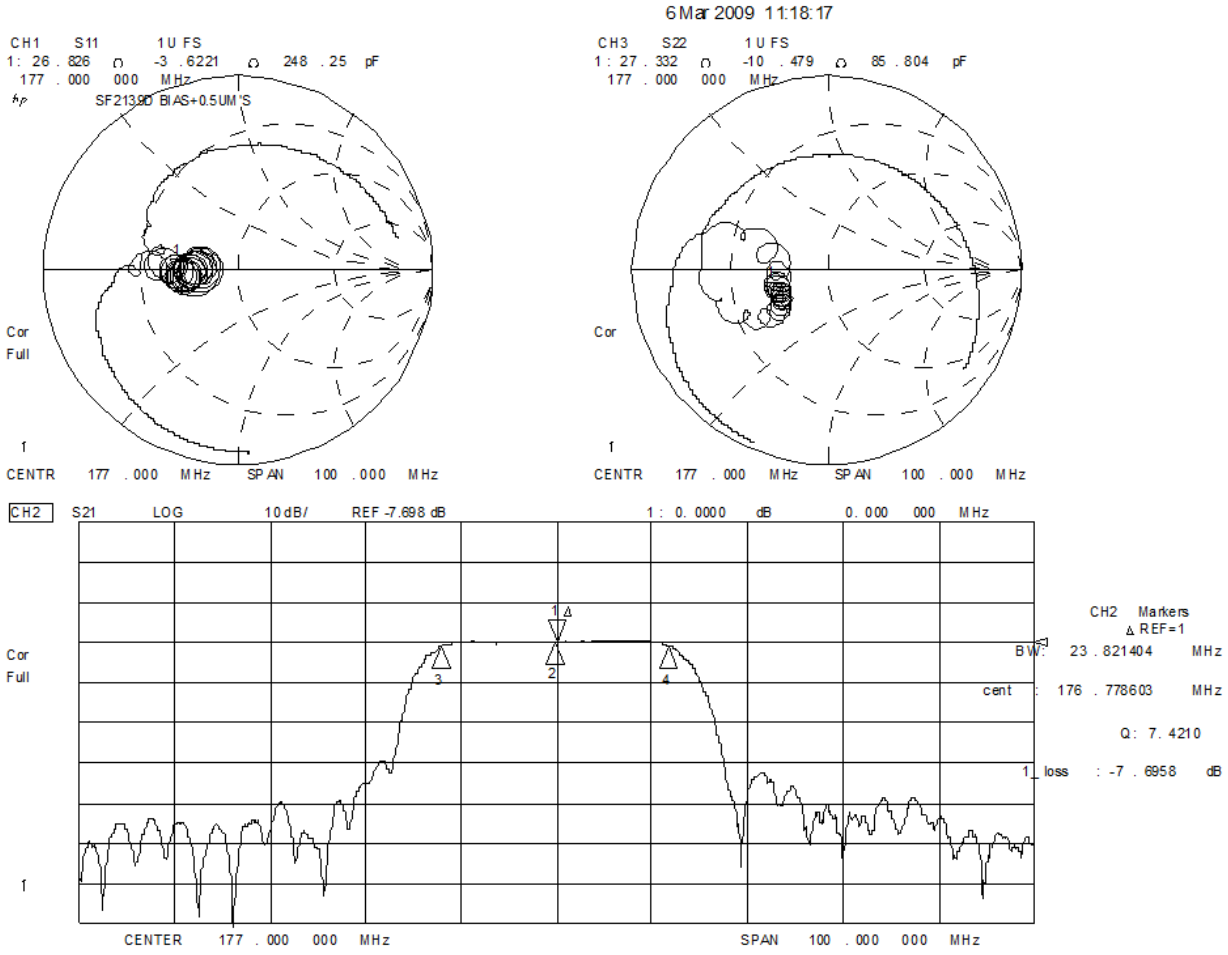
Characteristic		Sym	Notes	Min	Typ	Max	Units
Center Frequency		f_C	1		177		MHz
Source Impedance, Single Ended					50		Ω
Load Impedance, Single Ended					50		Ω
1 dB Bandwidth		BW_1		20	23.8		MHz
40 dB Bandwidth		BW_{40}			40	60	MHz
Template on the Amplitude,	10 to 149 MHz			38	40		dB
Reference is Minimum IL	209 to 350 MHz			37	39		
Maximum Insertion Loss		IL_{MAX}			7.0	9.0	dB
Amplitude Variation over 20 MHz Passband					1.1	1.5	dB_{P-P}
Group Delay Variation over 20 MHz Passband					15	80	ns_{P-P}
Absolute Group Delay at f_C					0.308		µs
Input/Output Return loss over 20 MHz Passband				5	7		dB
Operating Temperature				-40		+85	°C

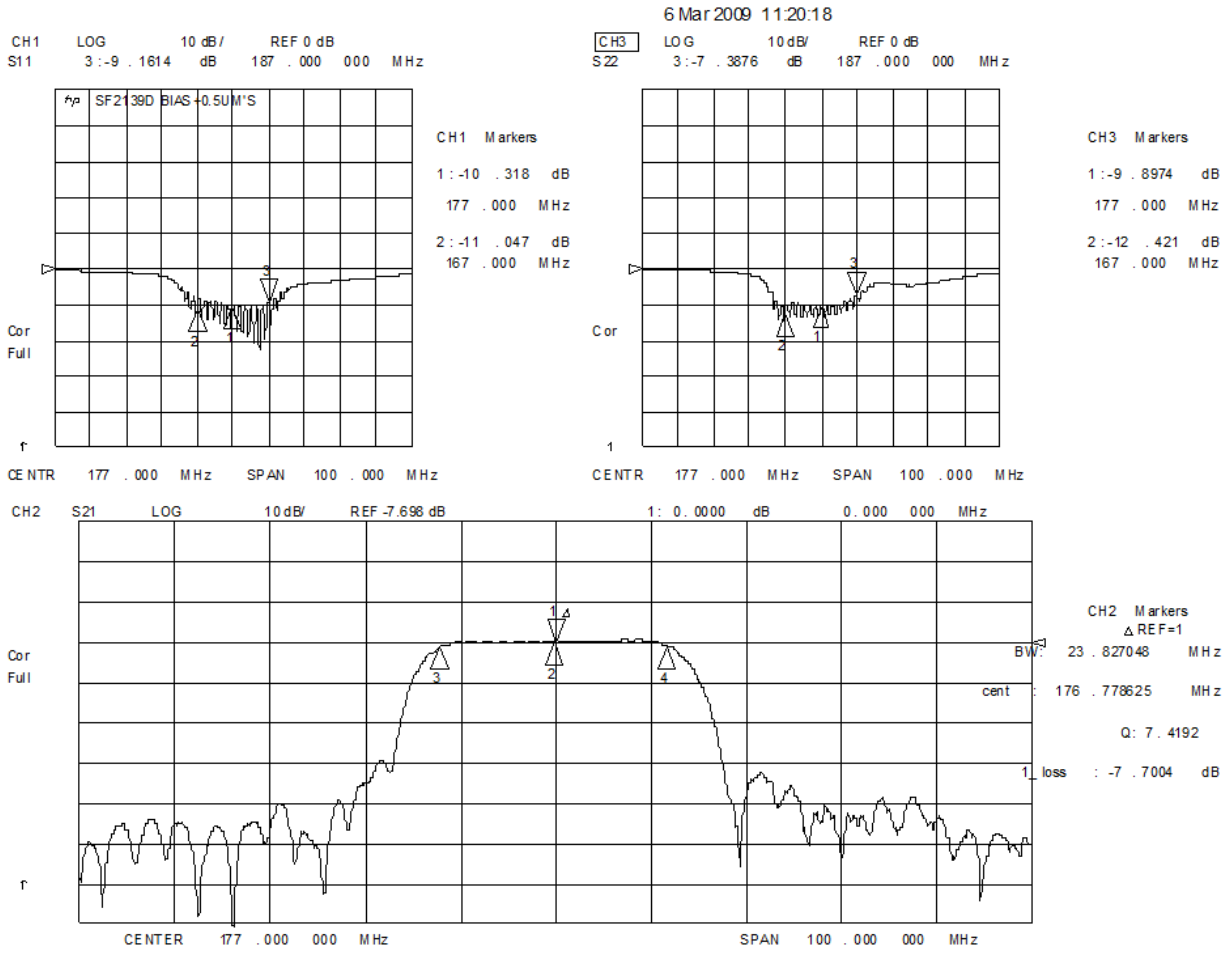
Case Style		SM3838-6 3.8 x 3.8 mm Nominal Footprint
Lid Symbolization (Y=year, WW=week, S=shift) dot=pin 1 indicator		TBD, YWWS
Standard Reel Quantity	Reel Size 7 Inch	1000 Pieces/Reel
	Reel Size 13 Inch	3000 Pieces/Reel

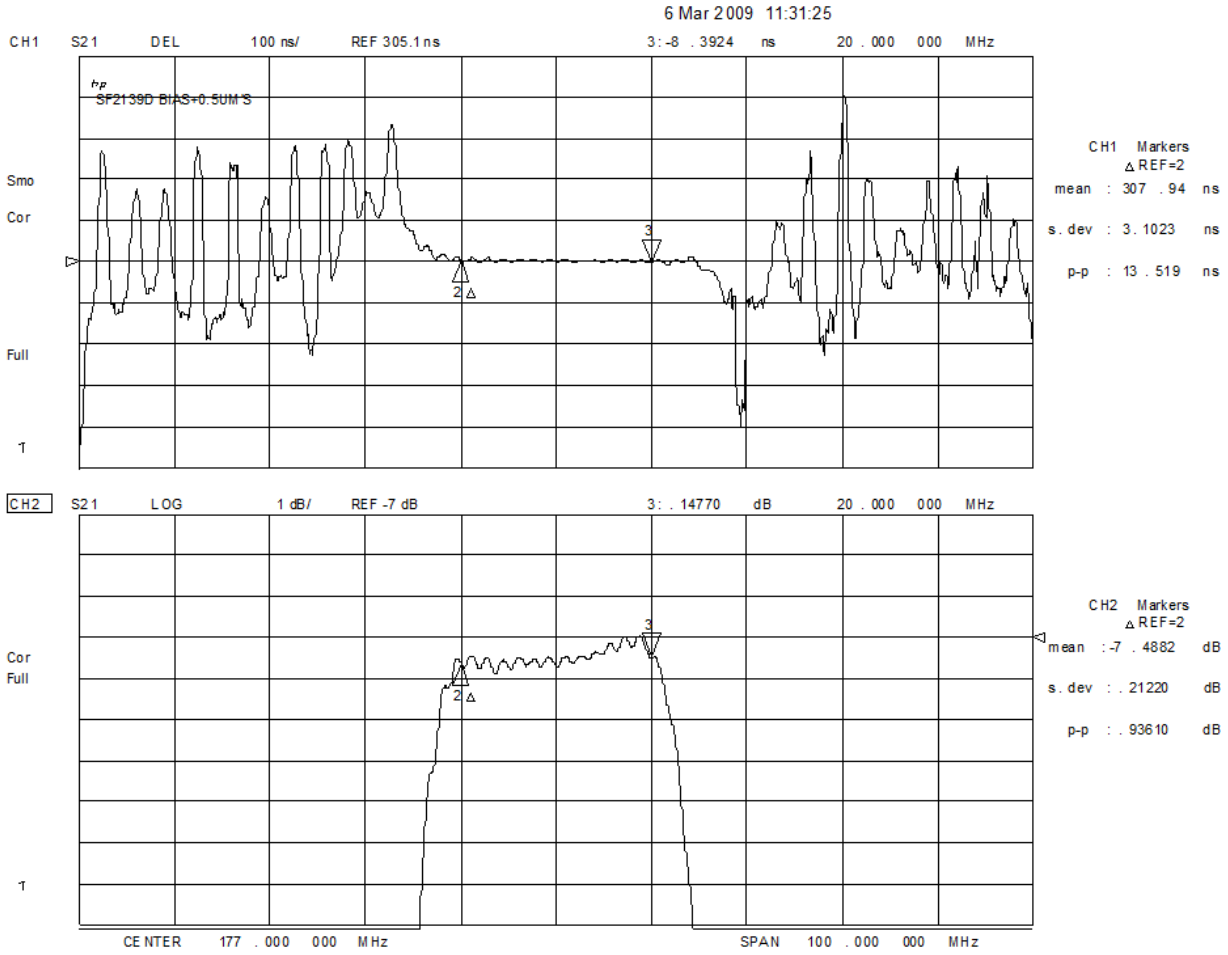
CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.

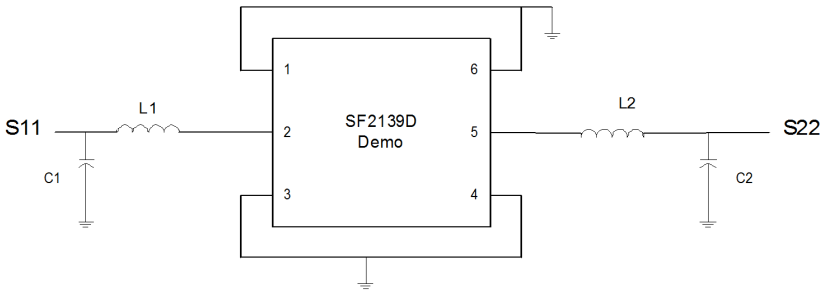
NOTES:

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. The design, manufacturing process, and specifications of this filter are subject to change.
5. 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.
6. US and international patents may apply.
7. Murata, stylized Murata logo, and Murata N.A., Inc. are registered trademarks of Murata Manufacturing Co., Ltd.


6 Mar 2009 11:18:17
CH1 S11 1 U FS
1: 26.826 Ω -3.6221 Ω 248.25 pF
177.000 000 MHz
SF2139D BIAS+0.5UM'S
Cor
Full
CENTR 177.000 MHz SPAN 100.000 MHz
CH3 S22 1 U FS
1: 27.332 Ω -10.479 Ω 85.804 pF
177.000 000 MHz
Cor
CENTR 177.000 MHz SPAN 100.000 MHz
CH2 S21 LOG 10 dB/ REF -7.698 dB
1: 0.0000 dB 0.000 000 MHz
Cor
Full
CH2 Markers
Δ REF=1
BW: 23.821404 MHz
cent : 176.778603 MHz
Q: 7.4210
1_loss : -7.6958 dB
CENTER 177.000 000 MHz
SPAN 100.000 000 MHz

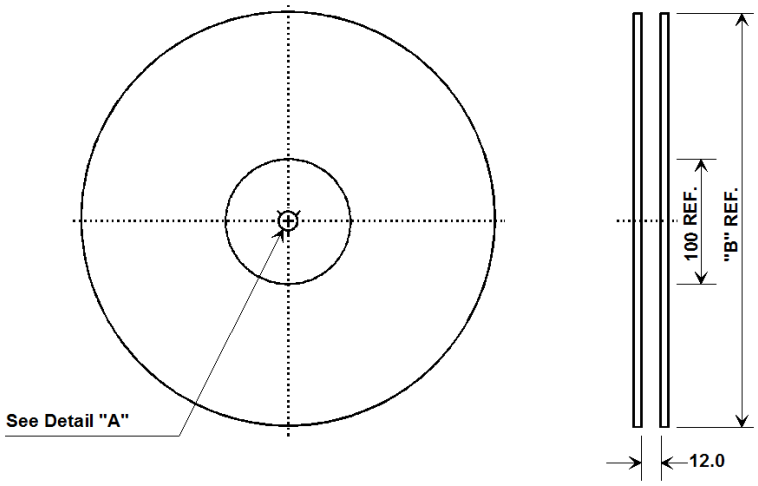






PCB:	401-1720-002	
L1:	501-0782-121	0805CS, 120 nH
L2:	501-0782-101	0805CS, 100 nH
C1:	500-1275-068	0805CS, 6.8 pF
C2:	500-1275-150	0805CS, 15 pF

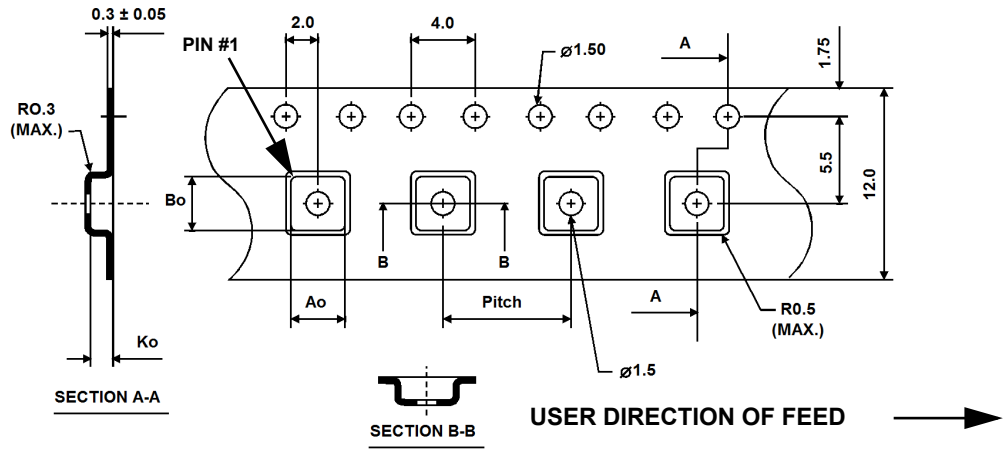
Tape and Reel Specifications



"B "		Quantity Per Reel
Inches	millimeters	
7	178	1000
13	330	3000

COMPONENT ORIENTATION and DIMENSIONS

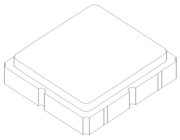
Carrier Tape Dimensions	
Ao	4.25 mm
Bo	4.25 mm
Ko	1.30 mm
Pitch	8.0 mm
W	12.0 mm



SM3838-6 Case

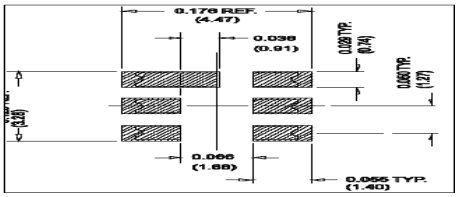
6-Terminal Ceramic Surface-Mount Case

3.8 X 3.8 mm Nominal Footprint



Case Dimensions						
Dimension	mm			Inches		
	Min	Nom	Max	Min	Nom	Max
A	3.60	3.80	4.0	0.14	0.15	0.16
B	3.60	3.80	4.0	0.14	0.15	0.16
C	1.30	1.50	1.70	0.05	0.06	0.067
D	0.95	1.10	1.25	0.037	0.043	0.05
E	2.39	2.54	2.69	0.090	0.10	0.110
G	0.90	1.0	1.10	0.035	0.04	0.043
H	1.90	2.0	2.10	0.75	0.08	0.83
I	0.50	0.6	0.70	0.020	0.024	0.028
J	1.70	1.8	1.90	0.067	0.07	0.075

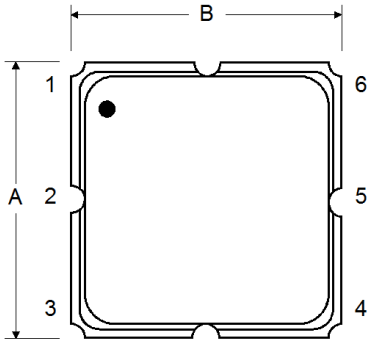
Electrical Connections		
Connection		Terminals
Port 1	Single-ended Input	2
Port 2	Single-ended Output	5
	Ground	All others
Single-ended Operation Only		
Dot indicates Pin 1		

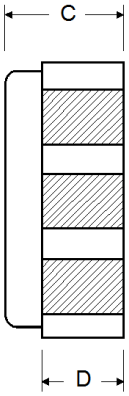


PCB Footprint

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