PRODUCT SPECIFICATION

REV A January 2011

Oscilent Controlled Document

Ordering Code / Part Number	Product Description
813-SL60.0M-11	60.0MHz IF SAW Filter 12.0MHz Bandwidth

Specification Contents

- Mechanical Dimensions
- Test Circuit
- Maximum Ratings
- Electrical Specification
- Frequency Response
- Smith Chart
- VSWR

Notes

- Electrostatic Sensitive Device (ESD)
- Avoid excessive ultrasonic exposure
- Solderability compatible with JEDEC J-STD-020C Pb-free process, 260°C peak reflow temperature
- This product complies with EU directive 2002/95/EC (RoHS compliance)

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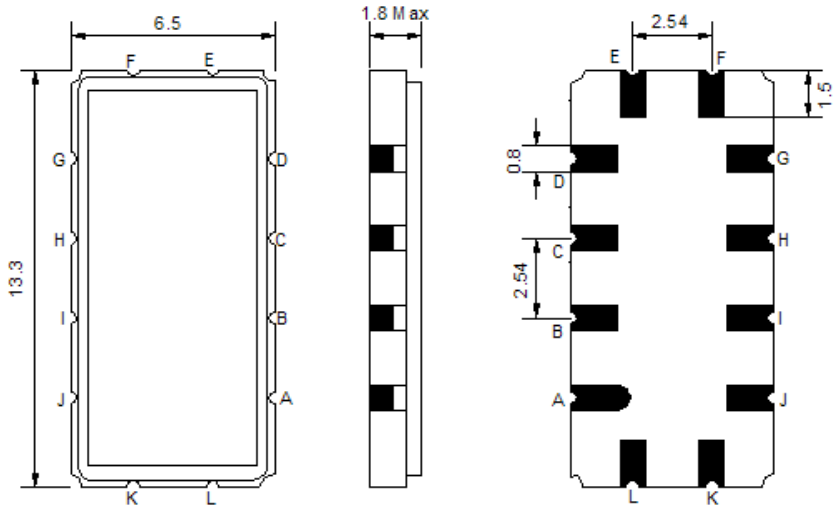
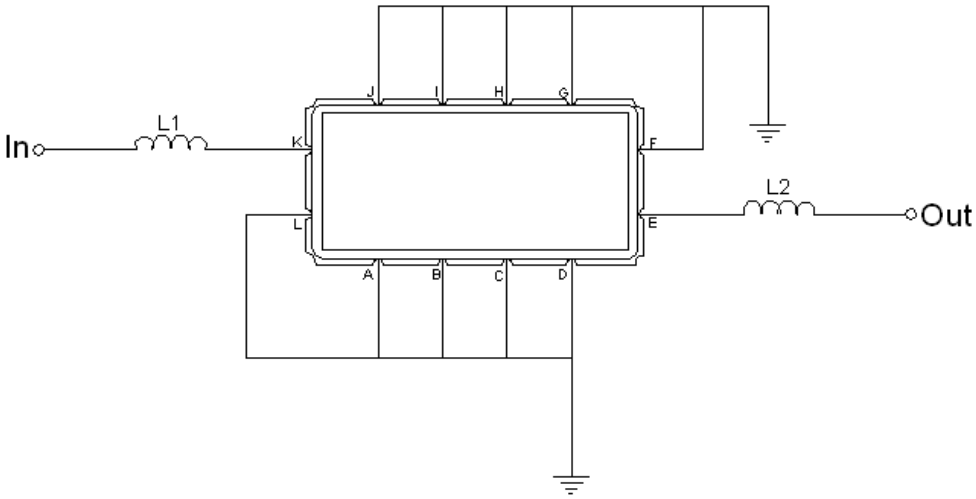
Mechanical Dimensions (mm)



Pin Description	
A, B, C, D, F, G, H, I, J, L	Ground
K	Input
E	Output

Test Circuit



Test Fixture & Values	
Input	L1=270 nH, Q>40
Output	L2=220 nH, Q>40
Source/Load Impedance	50 Ω

Maximum Ratings

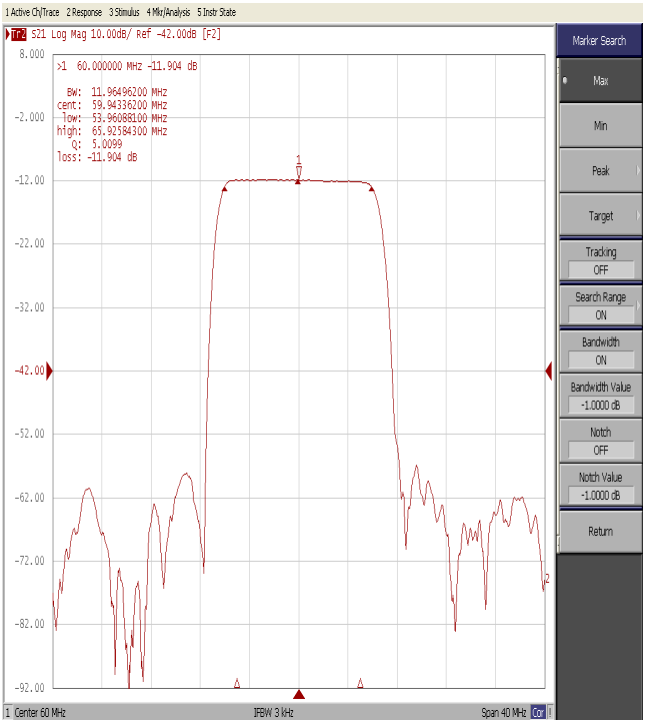
Parameters Description	Unit	Minimum	Typical	Maximum
Operating Temperature Range	°C	-30	-	80
Storage Temperature Range	°C	-40	-	85
Maximum DC Voltage	V	-	-	10
Maximum Input Power	dBm	-	-	10
Source Impedance (single ended)(1)	Ω	-	50	-
Load Impedance (single ended)(1)	Ω	-	50	-

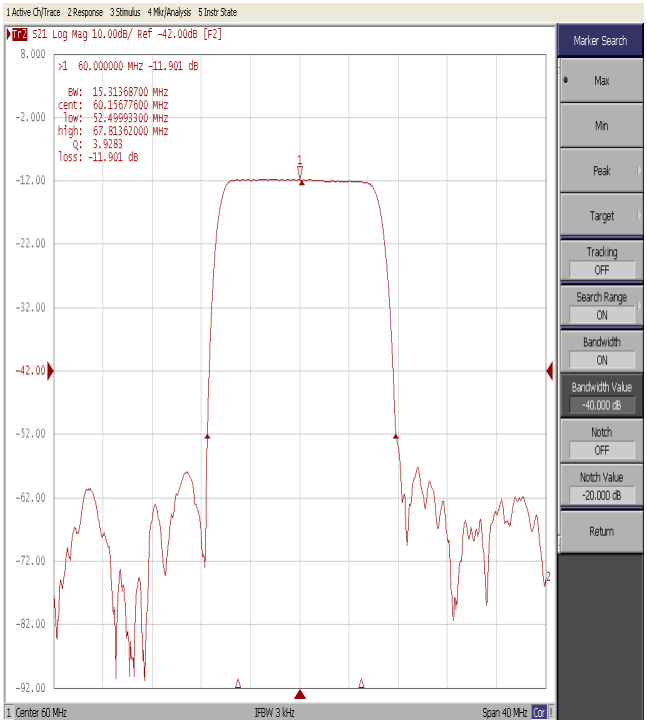
Notes: With Matching Network (Ref. Testing Environment Circuit as shown above).
Those impedances could be modified with different impedance values and/or structures, if necessary.

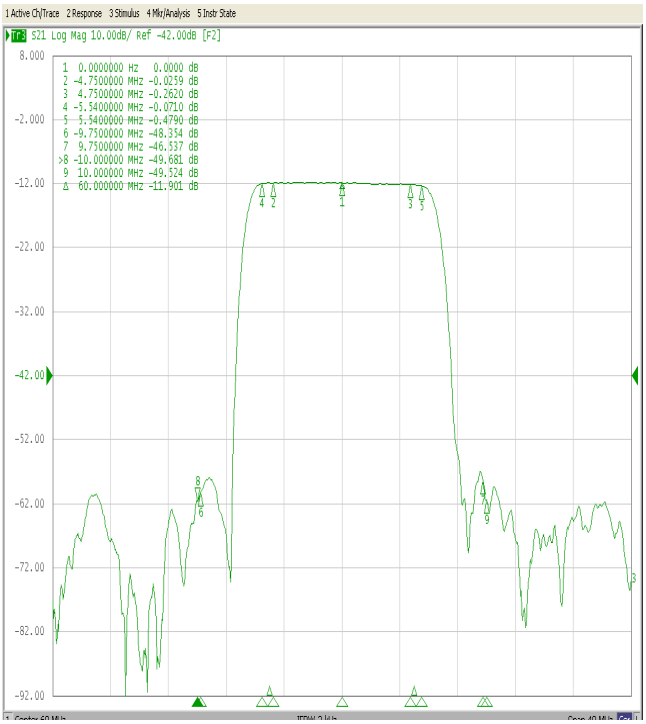
Electrical Specification

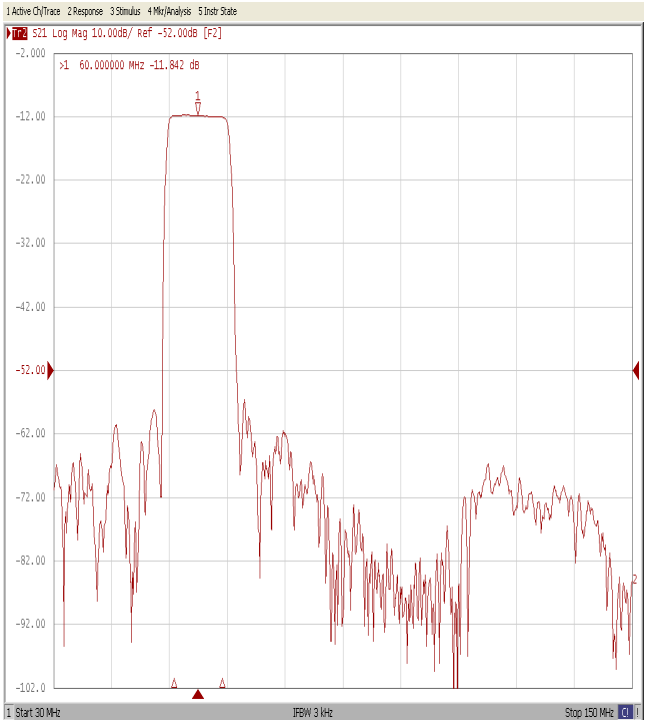
Parameters Description	Unit	Minimum	Typical	Maximum
Center Frequency (Fo)	MHz	-	60.0	-
Insertion Loss at Fo	dB	-	11.8	13.0
Amplitude Ripple Variation at Fo±5.0MHz	dB_{p-p}	-	0.4	1.0
Group Delay Variation at Fo±5.0MHz	nsec	-	38	70
Absolute Delay at Fo	μsec	-	1.1	-
Temperature Coefficient	ppm/°C	-	-94	-
Bandwidth at –1.0 dB	MHz	10.0	12.0	-
Bandwidth at –3.0 dB	MHz	-	12.7	-
Bandwidth at –40.0 dB	MHz	-	15.3	17.0
Relative Attenuation:				
Fo±9.75 MHz	dB	40	45	
Fo±10 MHz	dB	40	48	
Fo±20 MHz	dB	45	55	
DC ~ 45.25MHz	dB	40	45	-
74.75 ~ 120MHz	dB	40	45	-
VSWR (55.0 ~ 65.0MHz)	dB	-	3.0	4.5

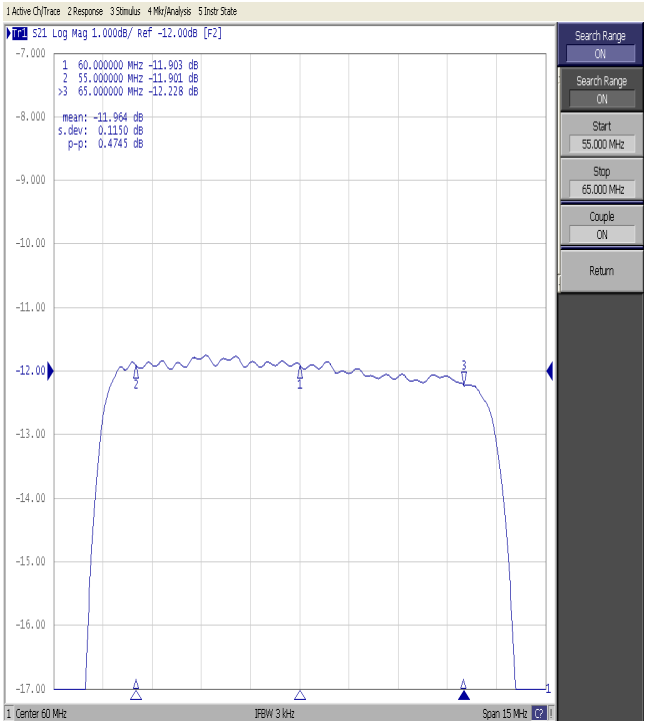
Frequency Response

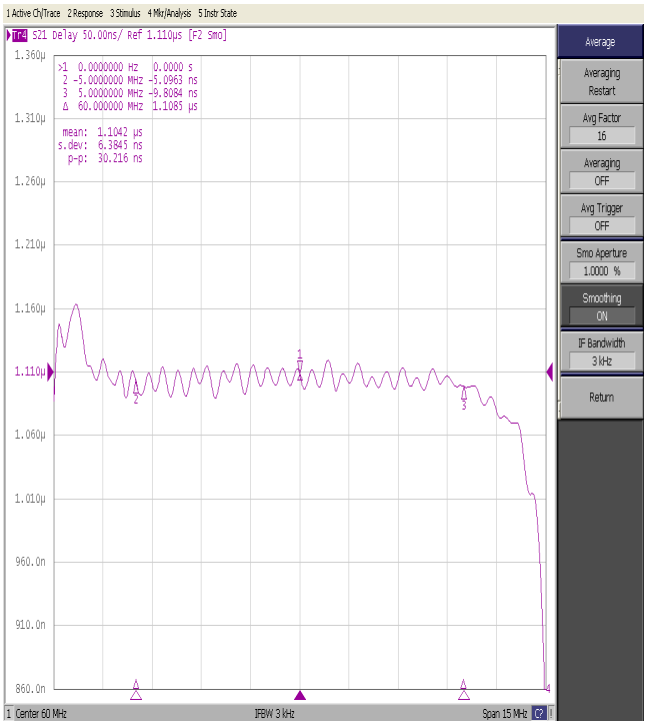




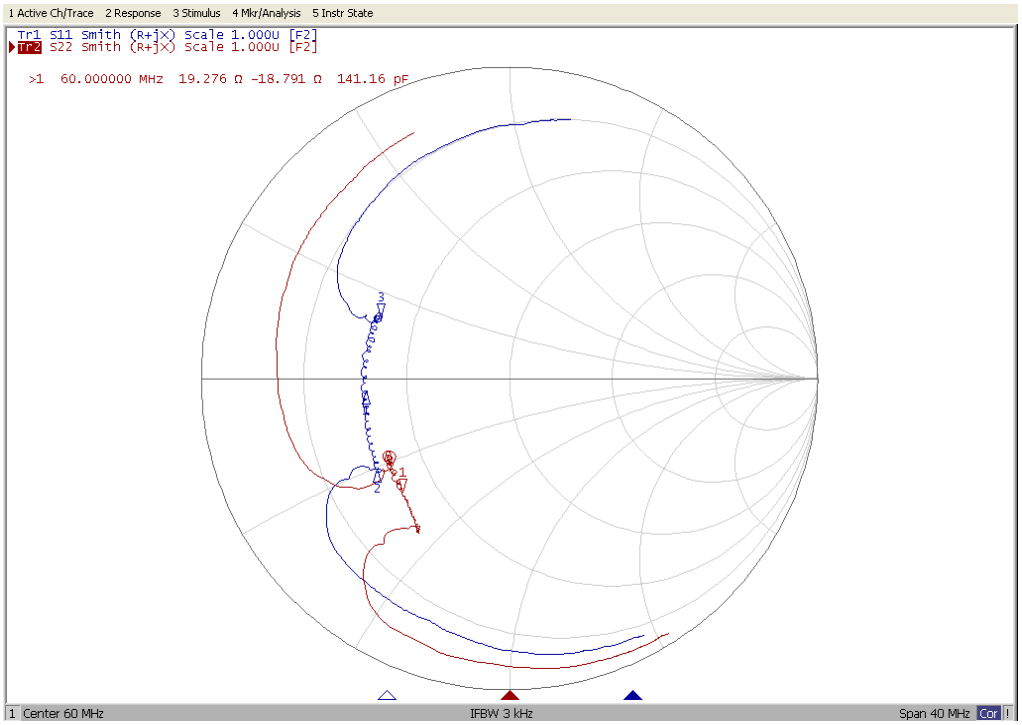





1 Active Ch/Trace 2 Response 3 Stimulus 4 Mkr/Analysis 5 Instr State
Tr1 S21 Log Mag 1.000dB/ Ref -12.00dB [F2]
1 60.000000 MHz -11.903 dB
2 55.000000 MHz -11.901 dB
>3 65.000000 MHz -12.228 dB
mean: -11.964 dB
s.dev: 0.1150 dB
p-p: 0.4745 dB
Search Range
ON
Search Range
ON
Start
55.000 MHz
Stop
65.000 MHz
Couple
ON
Return
1 Center 60 MHz
IFBW 3 kHz
Span 15 MHz


1 Active Ch/Trace 2 Response 3 Stimulus 4 Mkr/Analysis 5 Instr State
Tr4 S21 Delay 50.00ns/ Ref 1.110µs [F2 Smo]
>1 0.0000000 Hz 0.0000 s
2 -5.0000000 MHz -5.0963 ns
3 5.0000000 MHz -9.8084 ns
Δ 60.000000 MHz 1.1083 µs
mean: 1.1042 µs
s.dev: 6.3845 ns
p-p: 30.216 ns
Average
Averaging Restart
Avg Factor
16
Averaging
OFF
Avg Trigger
OFF
Smo Aperture
1.0000 %
Smoothing
ON
IF Bandwidth
3 kHz
Return
1 Center 60 MHz
IFBW 3 kHz
Span 15 MHz

Smith Chart


1 Active Ch/Trace 2 Response 3 Stimulus 4 Mkr/Analysis 5 Instr State
Tr1 S11 Smith (R+jX) Scale 1.000U [F2]
Tr2 S22 Smith (R+jX) Scale 1.000U [F2]
>1 60.000000 MHz 19.276 Ω -18.791 Ω 141.16 pF
1 Center 60 MHz
IFBW 3 kHz
Span 40 MHz

VSWR


1 Active Ch/Trace 2 Response 3 Stimulus 4 Mkr/Analysis 5 Instr State
Tr1 S11 SWR 1.000/ Ref 1.000 [F2]
Tr2 S22 SWR 1.000/ Ref 1.000 [F2]
1 60.000000 MHz 2.7510
2 55.000000 MHz 3.1438
>3 65.000000 MHz 2.7143
11.00
10.00
9.000
8.000
7.000
6.000
5.000
4.000
3.000
2.000
1.000
1 Center 60 MHz
IFBW 3 kHz
Span 40 MHz