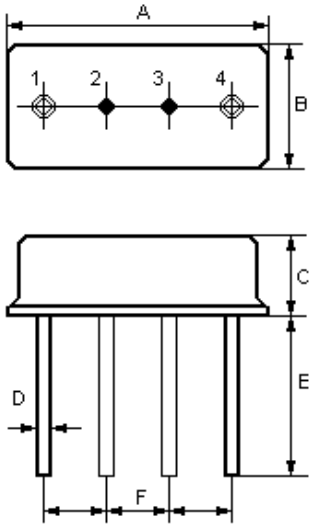
The**NDF110M** is a low-loss, compact, and economical surface-acoustic-wave (**SAW**) filter in a low-profile metal **F-11** case with center frequency 110 MHz.

1. Package Dimension (F-11)



Pin	Configuration
1	Input / Output
4	Output / Input
2/3	Case Ground

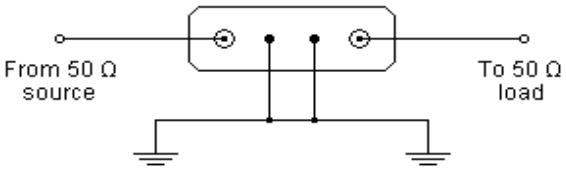
Dimensions	Data (unit: mm)
A	11.0±0.3
B	4.5±0.3
C	3.2±0.3
D	0.45±0.1
E	5.0±0.5
F	2.54±0.2

2. Marking

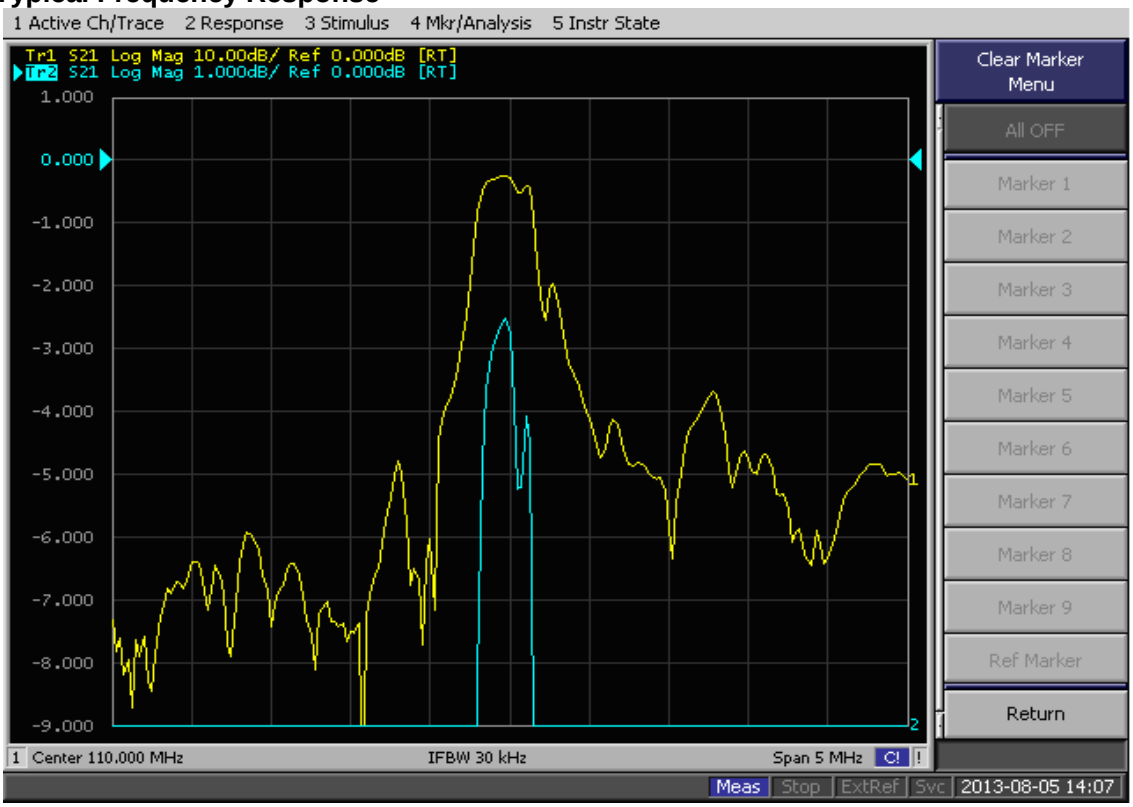
NDF110M

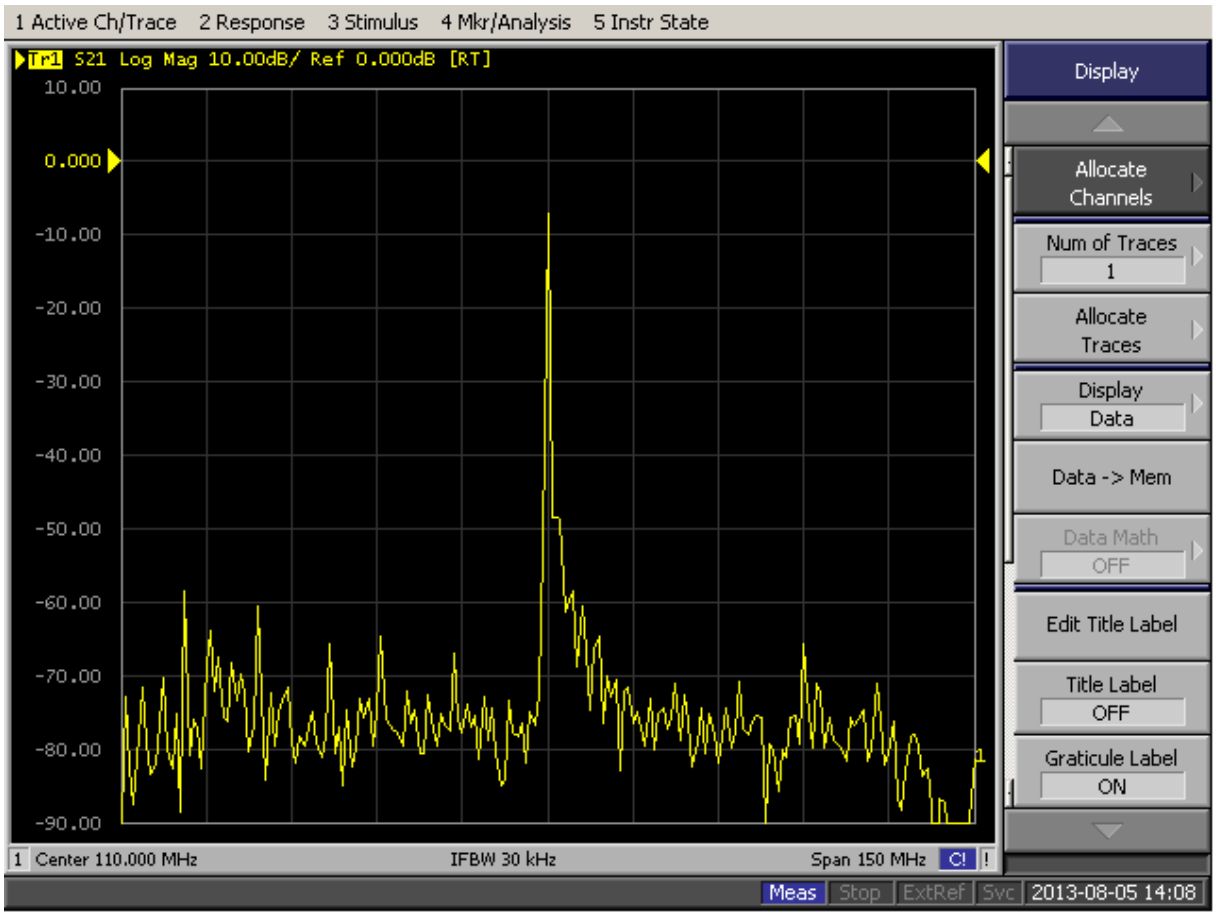
Color: Black or Blue

3. Test Circuit



4. Typical Frequency Response





5. Performance

5-1. Maximum Ratings

Rating		Value
RF Power Dissipation	P	0 dBm
DC Voltage	V_{DC}	10 V
AC Voltage	V_{PP}	10V 50Hz/60Hz
Storage Temperature Range	T_{stg}	-40 to +85 ℃
Operating Temperature Range	T_A	-20 to +60 ℃

5-2. Electronic Characteristics

Characteristic		Minimum	Typical	Maximum	Unit
Nominal Center Frequency	f_C		110		MHz
-3dB Bandwidth	BW	250--	300	--	kHz
Insertion Loss	IL	--	3.5	4.5	dB
Relative Attenuation (relative to IL) 1) $f_C \pm$ 1.5 MHz--- $f_C \pm$ 1.5 MHz 2)$f_C \pm$ 1.5 MHz--- $f_C \pm$ 75 MHz	α_{rel}	 30 50	 35 55	 -- --	dB

Aabsolute Delay		3	3.5	usec
Passband variation		2	2.5	dB
Temperature Coefficient	18			ppm
Package Size	F11			

ⓘ**CAUTION: Electrostatic Sensitive Device. Observe precautions for handling!**

6. Reliability

6.1 Mechanical Shock

The components shall remain within the electrical specifications after 1000 shocks, acceleration 392m/s^2, duration 6 milliseconds.

6.2 Vibration Fatigue

The components shall remain within the electrical specifications after loaded vibration at 20 Hz, amplitude 1.5mm, for 2 hours.

6.3 Terminal Strength

The components shall remain within the electrical specifications after pulled 2 Kgs weight for 10 seconds towards an axis of each terminal.

6.4 High Temperature Storage

The components shall remain within the electrical specifications after being kept at the 85℃±2℃for 48 hours, and then kept at room temperature for 2 hours.

6.5 Low Temperature Storage

The components shall remain within the electrical specifications after being kept at the -25℃±2℃for 48 hours, and then kept room temperature for 2 hours.

6.6 Temperature Cycle

The components shall remain within the electrical specifications after 5 cycles of high and low temperature testing (one cycle: 80℃for 30 minutes →25℃for 5 minutes → -25℃for 30 minutes) than kept at room temperature for 2 hours.

6.7 Solder-heat Resistance

The components shall remain within the electrical specifications after dipped in the solder at 260℃ for 10±1seconds, and then kept at room temperature for 2 hours. (Terminal must be dipped leaving 1.5 mm from the case).

6.8 Solder ability

Solder ability of terminal shall be kept at more than 80% after dipped in the solder flux at 230℃ ± 5℃ for 5 ± 1 seconds.

7. Remarks

7.1 Static voltage

Static voltage between signal load & ground may cause deterioration & destruction of the component. Please avoid static voltage.

7.2 Ultrasonic cleaning

Ultrasonic vibration may cause deterioration & destruction of the component. Please avoid ultrasonic cleaning.

7.3 Soldering

Only leads of component may be soldered. Please avoid soldering another part of component.

1. The frequency f_C is defined as the midpoint between the 3dB frequencies.
2. Unless noted otherwise, all measurements are made with the filter installed in the specified test fixture that is connected to a 50Ω test system with VSWR≤1.2:1. The test fixture L and C are adjusted for minimum insertion loss at the filter center frequency, f_C. Note that insertion loss, bandwidth, and passband shape are dependent on the impedance matching component values and quality.
3. Unless noted otherwise, specifications apply over the entire specified operating temperature range.
4. The specifications of this device are based on the test circuit shown above and subject to change or obsolescence without notice.
5. All equipment designs utilizing this product must be approved by the appropriate government agency prior to manufacture or sale.
6. Our liability is only assumed for the Surface Acoustic Wave (SAW) component(s) per se, not for applications, processes and circuits implemented within components or assemblies.
7. For questions on technology, prices and delivery please contact our sales offices or e-mail winnsky@winnsky.com.