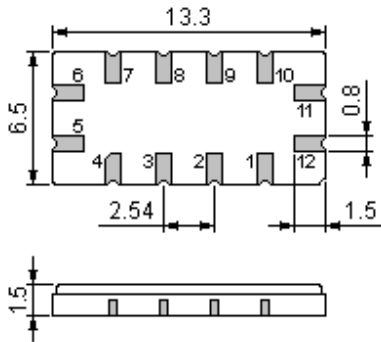


The **NDF2039** is a low-loss, compact, and economical surface-acoustic-wave (SAW) filter in a surface-mount ceramic **SMP-53** case with center frequency **190.000 MHz**.

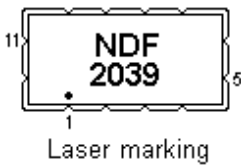
1. Package Dimension (SMP-53)



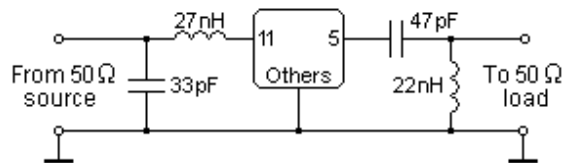
Pin	Configuration
11	Input
5	Output
Others	Ground

Unit: mm

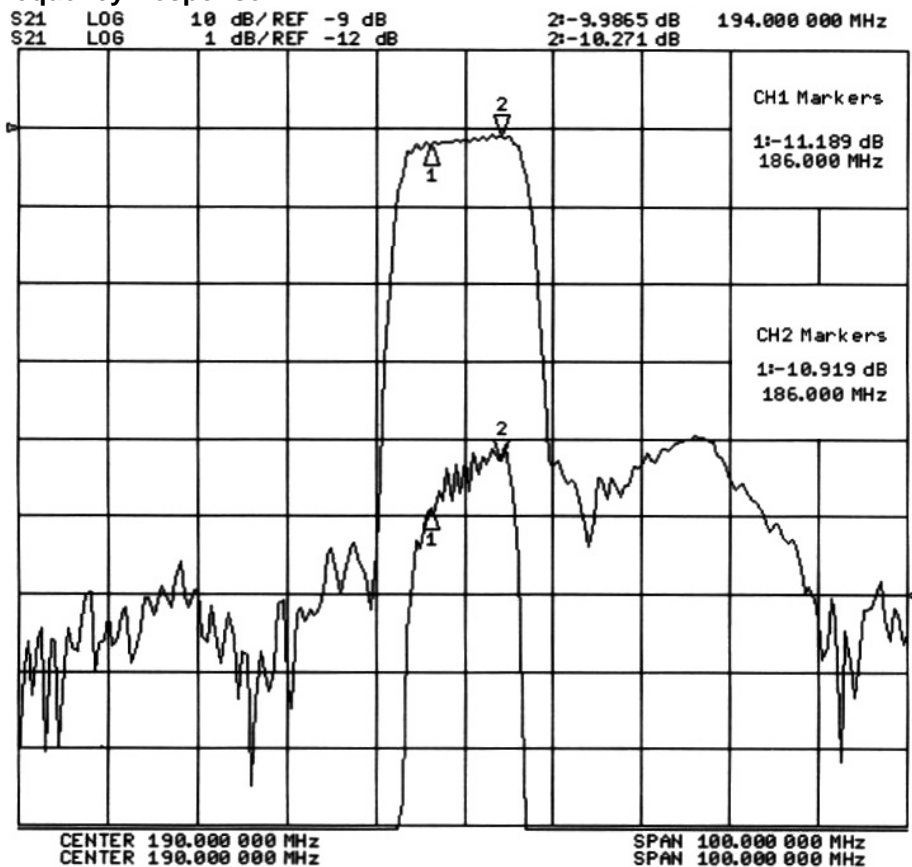
2. Marking



3. Matching Network



4. Typical Frequency Response



5. Performance

5 -1. Maximum Ratings

Rating		Value	Unit
RF Power	P	10	dBm
DC Voltage Between Any Two Pins	V_{DC}	5	V
Storage Temperature Range	T_{stg}	-40 to +85	°C
Operating Temperature Range	T_A	-10 to +60	°C

5 -2. Electronic Characteristics

Characteristic		Minimum	Typical	Maximum	Unit
Center Frequency	f_c	--	190.000	--	MHz
Usable Bandwidth	BW	--	±4	--	MHz
1dB Bandwidth	BW_1	10.5			MHz
40dB Bandwidth	BW_{40}			21.0	MHz
Insertion Loss	IL				
186.00 194.00 MHz		--	11.0	12.0	dB
Relative Attenuation (relative to IL)	α_{rel}				
100.00 180.00 MHz		45	52	--	dB
200.00 230.00 MHz		35	40	--	dB
230.00 500.00 MHz		48	55	--	dB
Passband Ripple	$\Delta\alpha$				
186.00 194.00 MHz		--	1.0	1.5	dB
Group Delay Ripple (p-p)	$\Delta\tau$				
186.00 194.00 MHz		--	--	150	ns

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

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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 email winnsky@winnsky.com