

- 190.00 MHz IF SAW Filter / 21.30 MHz Bandwidth
- Revision 0: 26 Apr. 2013

### Electrical Characteristics

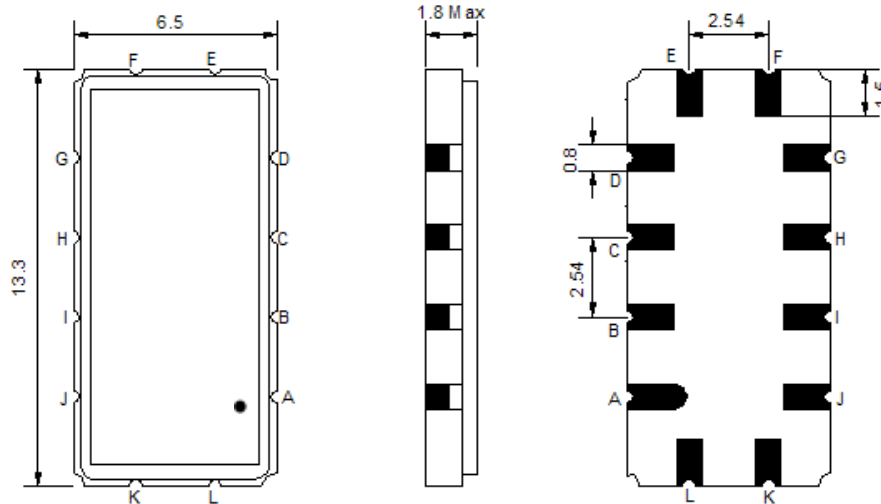
MAXIMUM RATING				
PARAMETERS DESCRIPTION	UNIT	MINIMUM	TYPICAL	MAXIMUM
Operation Temperature Range	°C	-	25	-
Storage Temperature Range	°C	-45	-	85
Maximum DC Voltage	V	-	-	10
Maximum Input Power	dBm	-	-	10
Source Impedance (single ended) <sup>(1)</sup>	Ω	-	50	-
Load Impedance (single ended) <sup>(1)</sup>	Ω	-	50	-
Package type & size	S90			
Length x Width	mm <sup>2</sup>	-	13.3 x 6.5	-
Height	mm	-	-	1.8

ELECTRICAL SPECIFICATION				
PARAMETERS DESCRIPTION	UNIT	MINIMUM	TYPICAL	MAXIMUM
Center Frequency (Fo)	MHz	-	190.00	-
Insertion Loss at Fo	dB	-	13.00	15.00
Group Delay Variation at Fo ± 9.5 MHz	nsec	-	45	90
Absolute Delay at Fo	usec	-	0.90	1.20
Passband Ripple Variation at Fo ± 9.5 MHz	dB <sub>p-p</sub>	-	0.45	1.0
Bandwidth at -1dB	MHz	20.90	21.30	-
Bandwidth at -3dB	MHz	-	22.15	-
Bandwidth at -40dB	MHz	-	25.80	26.30
Ultimate Rejection	dB	40	43	-
Relative Attenuation:				
Fo - 13.0 MHz	dB	40	49	-
Fo + 13.0 MHz	dB	20	28	-
Temperature Coefficient	ppm/°C	-	-86	-

**Notes :** (1) With Matching Network (Ref. Testing Environment Circuit as shown below).

Those impedances could be modified with different impedance values and/or structures, if necessary.

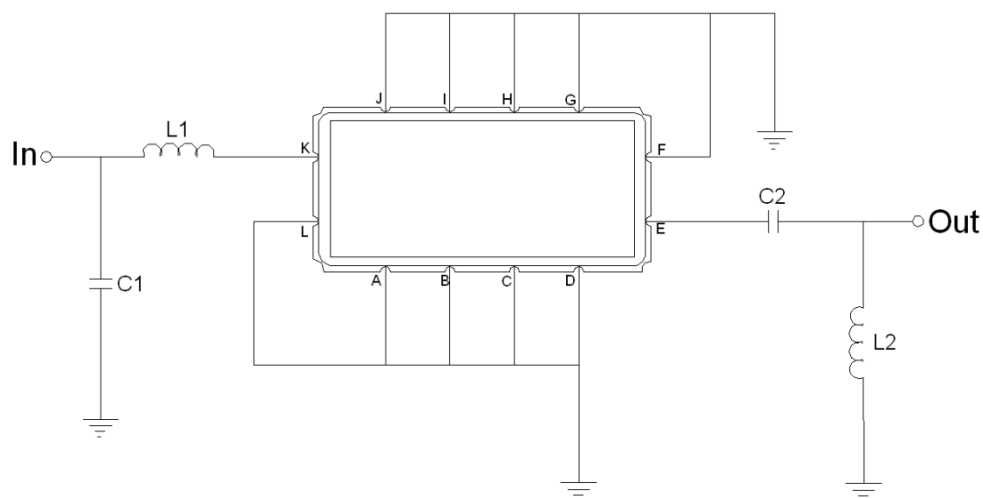
## Package Dimensions



- ① **TRANSKO:** Brand
- ② **TF-019004:** Model Name
- ③ **X :** Date Code (Year)
- ④ **Y :** Date Code (Month)
- ⑤ **Z :** Date Code (Date)
- : Index Dot

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

## Testing Environment



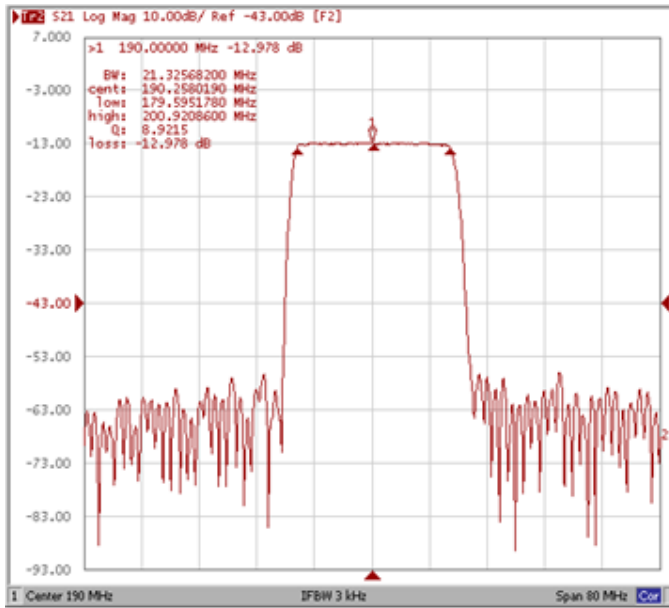
Test Fixture & Values	
Input	L1 = 33nH, C1= 24pF
Output	L2 = 39nH, C2= 100pF
Source/Load Impedance	50 Ω

## Frequency Characteristics

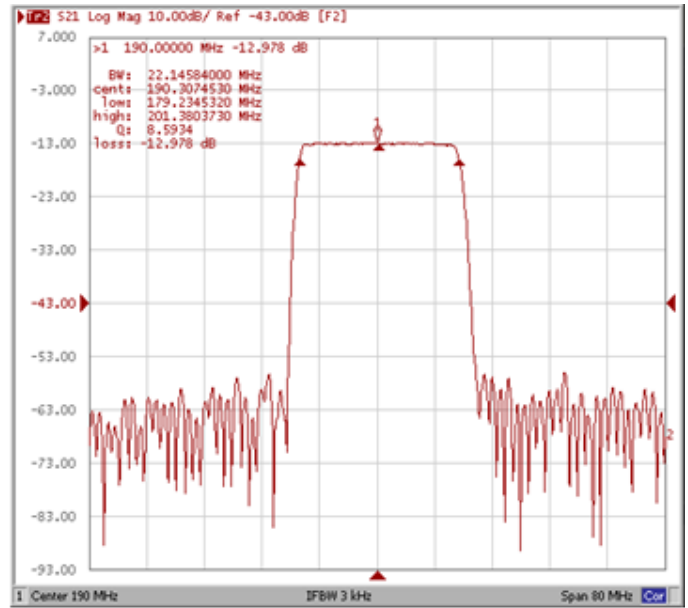
**Frequency Response**

Operating Temperature: +25°C

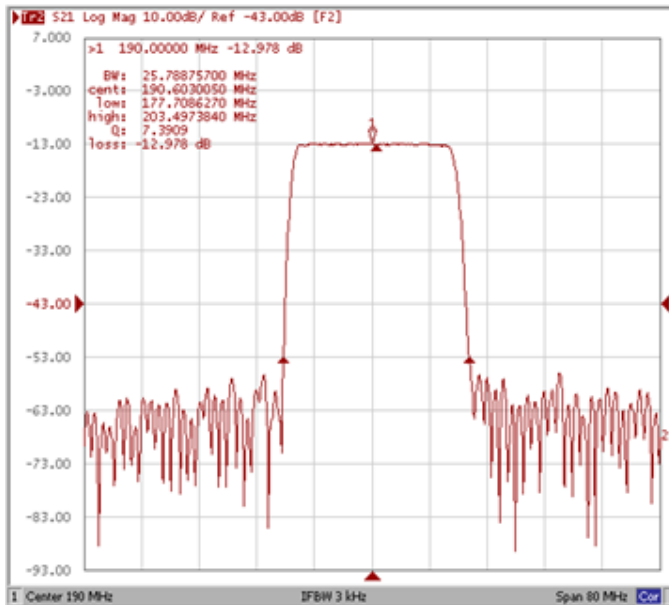
### Bandwidth at -1.0 dB



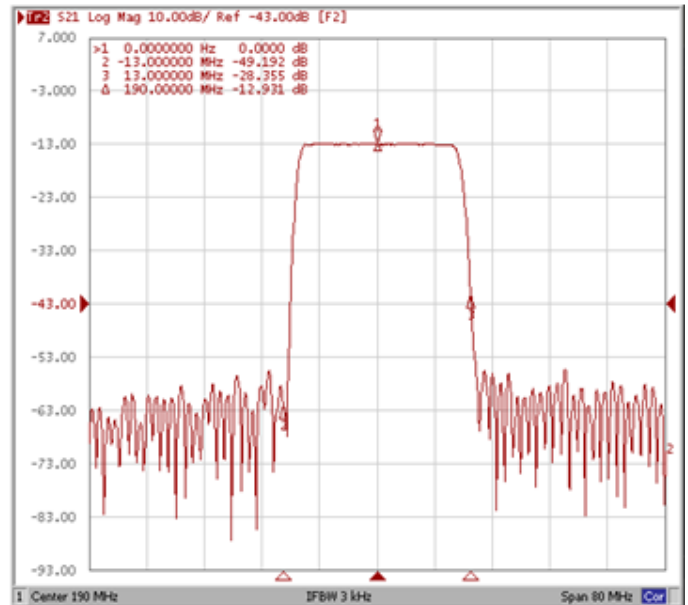
### Bandwidth at -3.0 dB



### Bandwidth at -40.0 dB

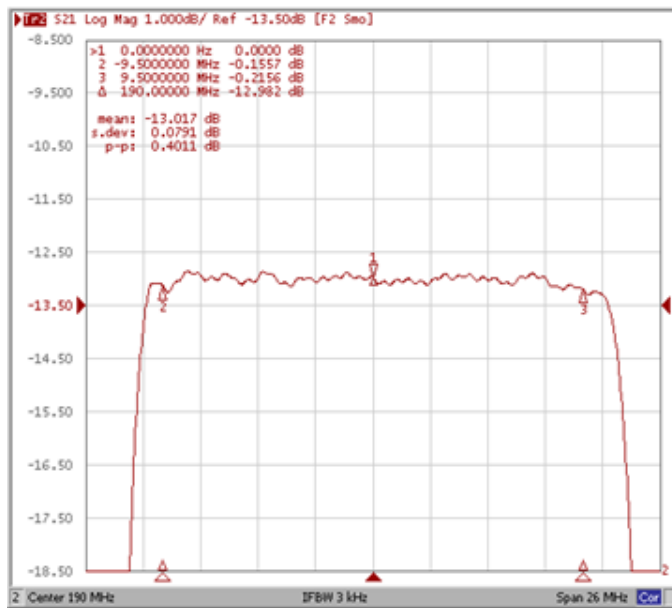


### Relative Attenuation Fo ± 13.0 MHz

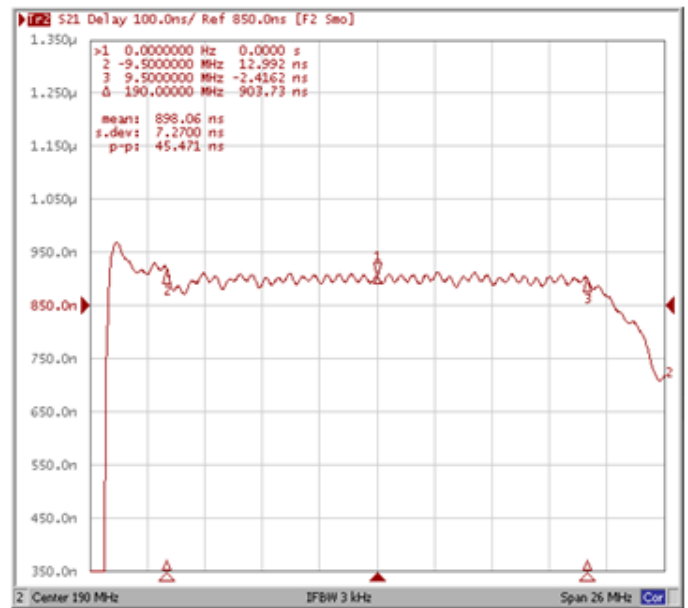


**Frequency Response**

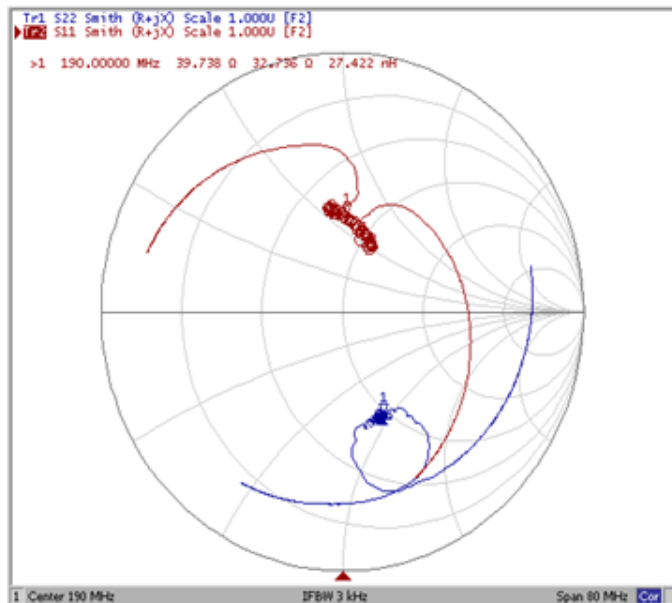
**Ripple Variation Fo±9.5MHz**



**Group Delay Variation Fo±9.5MHz**



**Smith Chart**



**VSWR**

