

- 190.00 MHz IF SAW Filter / 21.30 MHz Bandwidth
- Revision 0: 28 Feb. 2013

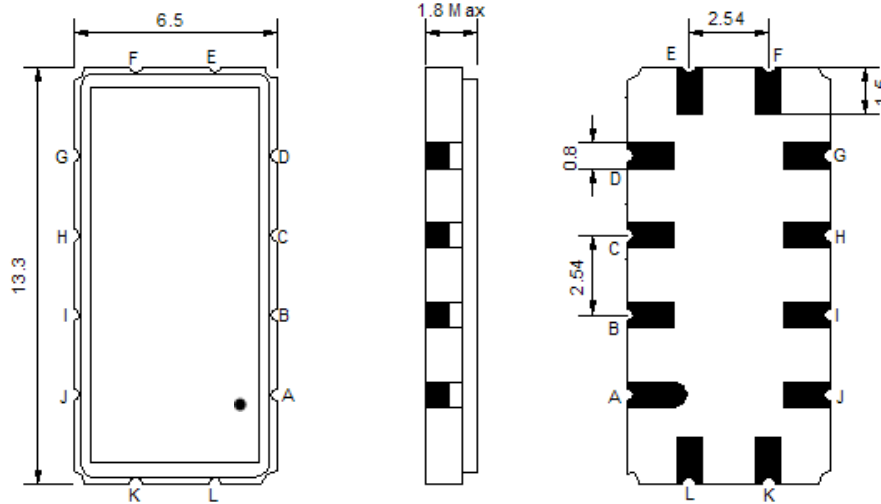
## Electrical Characteristics

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	-	13.30	15.00
Group Delay Variation at Fo ± 9.5 MHz	nsec	-	25	80
Absolute Delay at Fo	usec	-	0.90	1.20
Passband Ripple Variation at Fo ± 9.5 MHz	dB <sub>p-p</sub>	-	0.4	1.0
Bandwidth at -1dB	MHz	20.90	21.30	-
Bandwidth at -3dB	MHz	-	22.15	-
Bandwidth at -40dB	MHz	-	25.65	26.10
Ultimate Rejection	dB	40	47	-
Relative Attenuation:				
Fo - 13.0 MHz	dB	40	47	-
Fo + 13.0 MHz	dB	20	31	-
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.

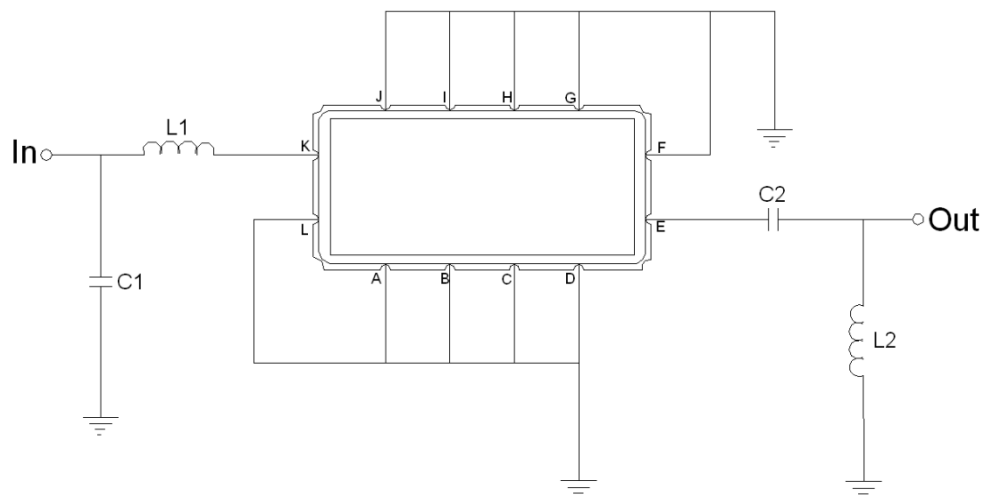
## Package Dimensions



- ① **TRANSKO: Brand**
- ② **TF-019003: 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



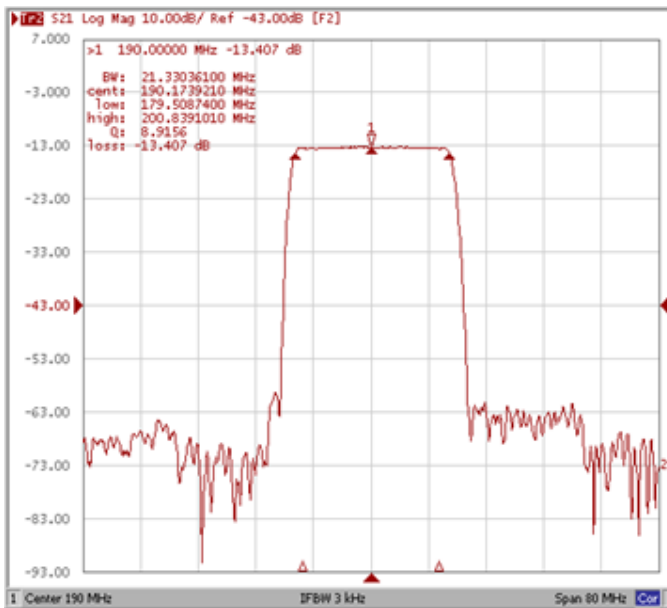
Test Fixture & Values	
Input	L1 = 18nH, C1= 15pF
Output	L2 = 47nH, C2= 82pF
Source/Load Impedance	50 Ω

## Frequency Characteristics

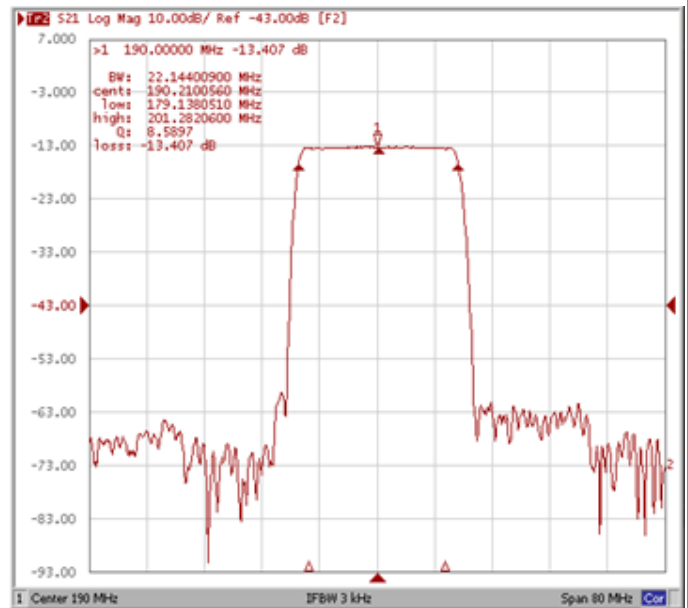
### Frequency Response

Operating Temperature: +25°C

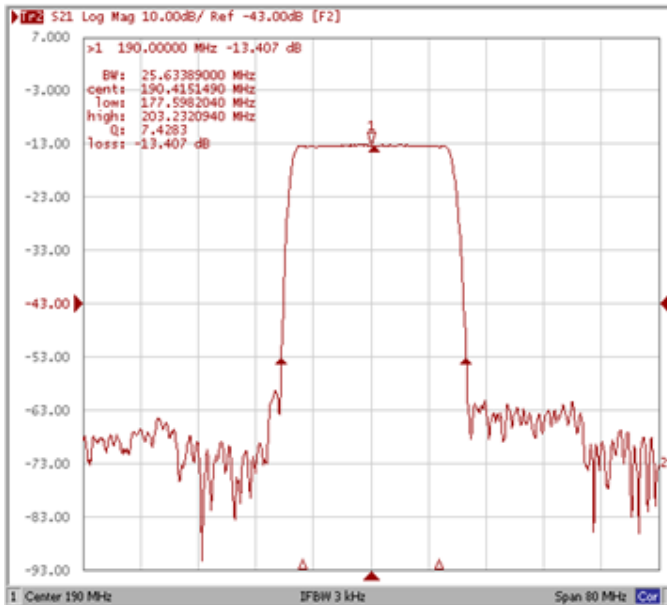
#### Bandwidth at -1.0 dB



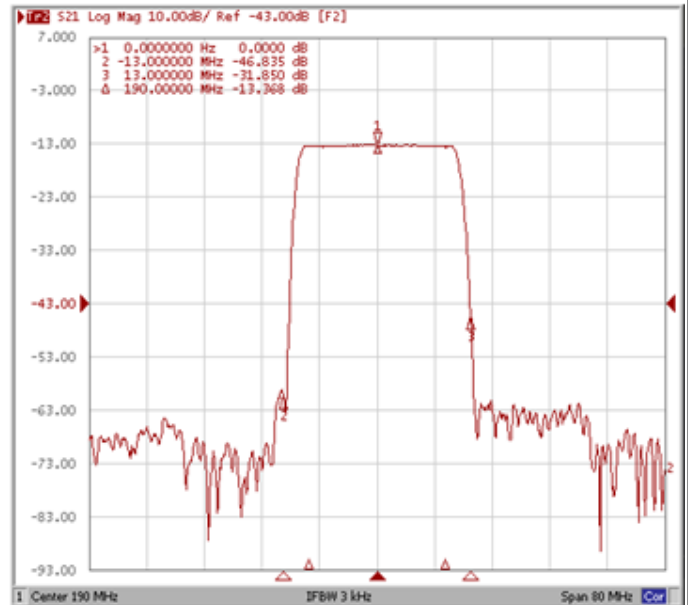
#### Bandwidth at -3.0 dB



#### Bandwidth at -40.0 dB



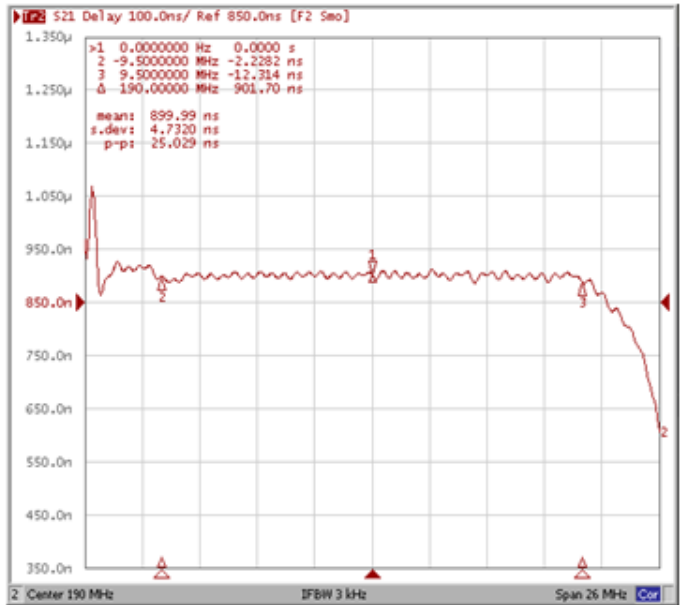
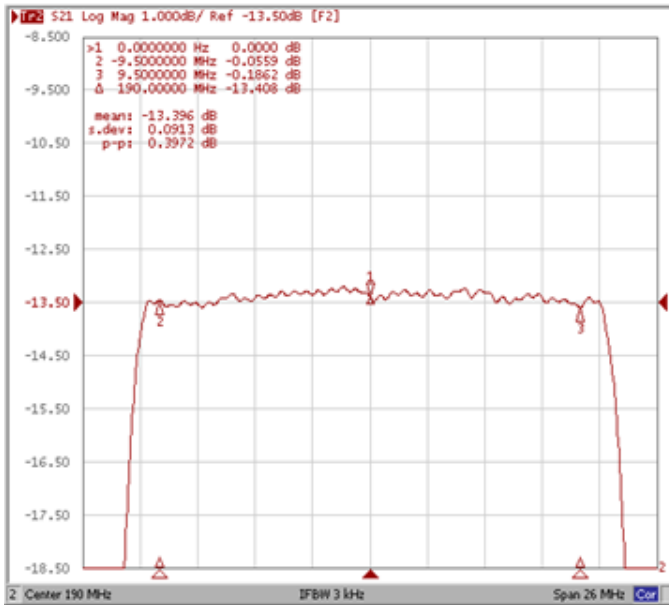
#### Relative Attenuation Fo ± 13.0 MHz



**Frequency Response**

**Ripple Variation Fo±9.5MHz**

**Group Delay Variation Fo±9.5MHz**



**Smith Chart**

**VSWR**

