

# Thin Film Technology Coupled Line Structure Band Pass Filters

## Current Offerings:

Thin Film Technology Corp. introduces band pass filters for Point-to-point WiMax applications for wireless communication systems. These band pass filters illustrate excellent performance with low insertion loss, and minimal pass band ripple. They provide outstanding rejection of undesired signals for systems operating in WiMax applications. This filter is extremely compact and is offered in a surface mount package.

## Construction:

Our Band Pass Filters are fabricated on low loss, high purity alumina substrates with a coplanar micro-strip design that is capable of supporting frequencies up to 50GHz. The footprint is a Ground-Signal-Ground configuration with gold metallization in a Land Grid Array (LGA) package. The filters are covered with a protective passivation material to eliminate environmental influence.

## Measurement:

All of our filters are 100% performance checked as a final step in our production processing. The filters are measured with high speed Ground-Signal-Ground probes using a 40 GHz Hp network analyzer. The probes are calibrated on calibration substrates designed for the probes. Figure 1 and 2 demonstrates the measurement techniques and the measurement results of the filter respectively.



Figure 1 - measurement setup with G-S-G probes

Filters have also been measured on a Rogers test board, while enclosed in a wave-guide. Figure 3 and 4 demonstrate measurement techniques and result of the filter respectively. Five different filters are measured to realize the variation between product to product. Mounting the filters to the test boards takes

into account the effects of the filter footprint which accounts for the difference of the two measurement plots (Figs 2 & 4).

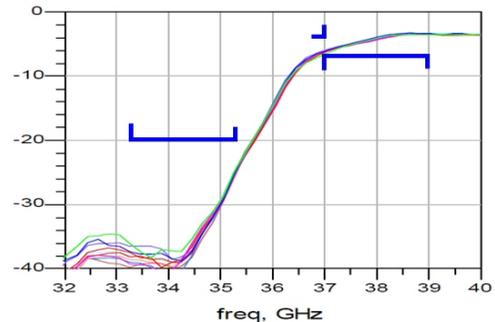


Figure 2 - measurement result of a BPF with a pass band of 38.3-40.0 GHz using G-S-G probes

TFT has the capability to incorporate the footprint into the filter design in order to eliminate any negative performance effects after mounting. Refer to the Application Notes section of our website for more information.



Figure 3 - Filters soldered in a wave-guide test board

## Conclusion:

The band pass filters discussed in this section are related to WiMax applications with pass band frequencies between 35-40 GHz. TFT also has the capability to design and manufacture BPF's for other applications in frequency ranges from 1 to 40 GHz and in different package sizes as well. Contact us for all of your band pass filter needs.

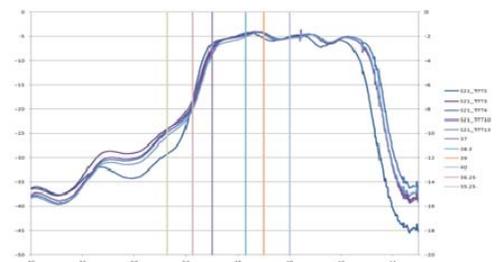


Figure 4 - measurement result of a BPF with a pass band of 38.3-40.0 GHz mounted to the wave-guide test board