Filters

muse
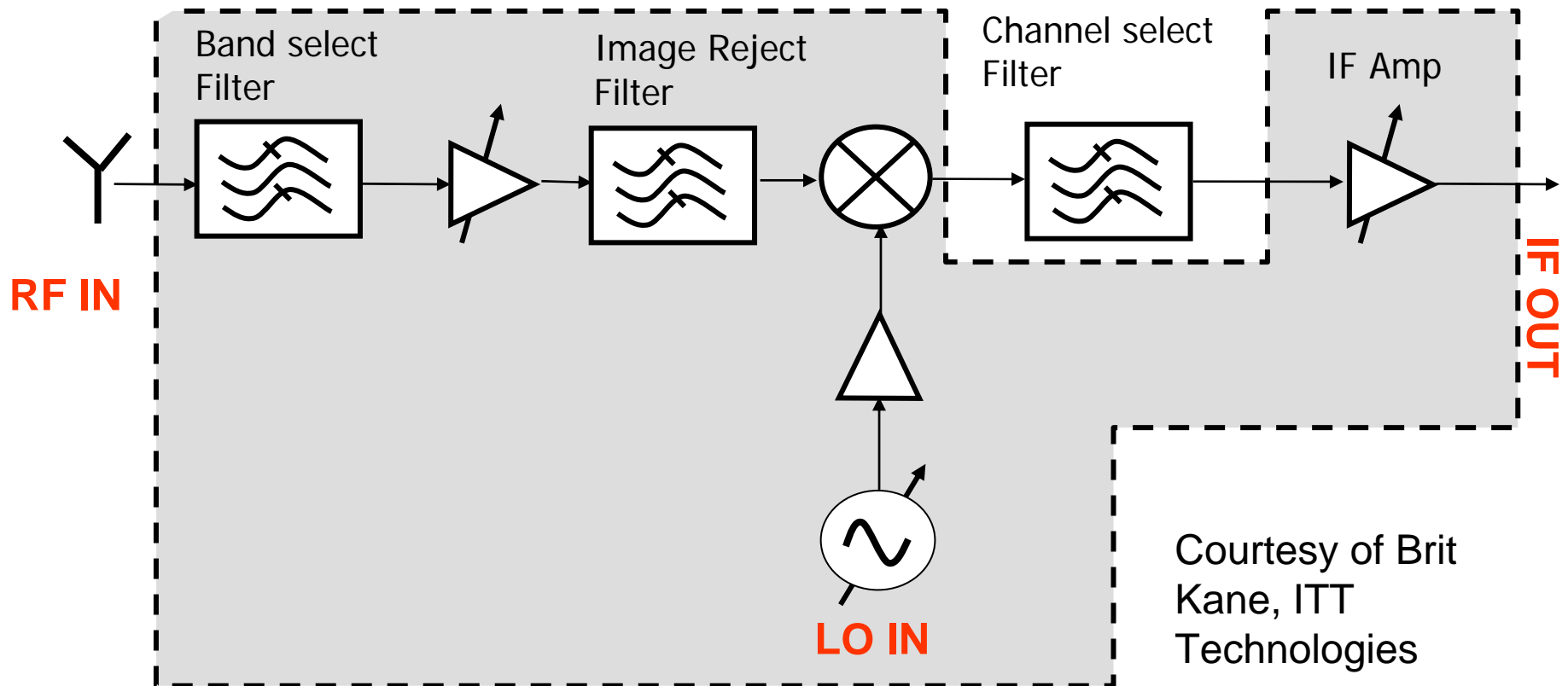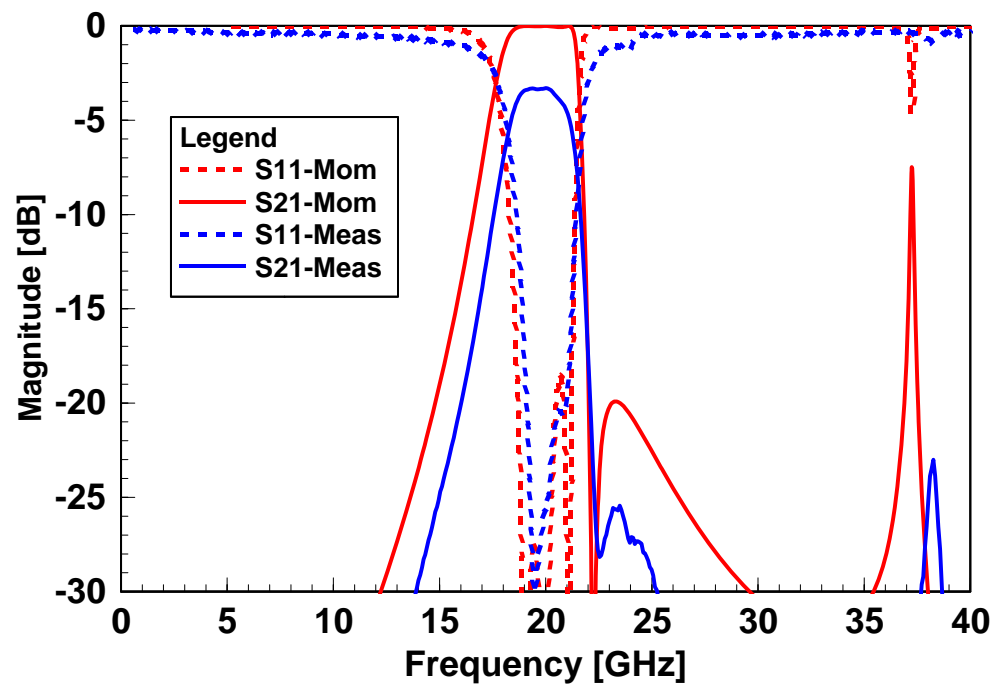
Filters – Part A

Filters

- Overview
- Performance Parameters
- Filter Technologies and Considerations
- Discrete Element Filter Design and Simulation Techniques
- Other Filter Technologies (BAW, MEMS)
- Impact on System Design

Overview

Filters = Critical Parts of Analog Signal Processing Puzzle

Overview

Performance Parameters

For now, let's limit our discussion to the following types of filters:

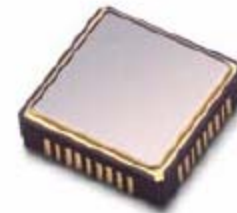LOW-PASS   HIGH-PASS   BAND-PASS

- Insertion Loss
- In-Band Ripple
- Return Loss
- Cut-off Frequency

Performance Parameters (contd.)

- Bandwidth
- Out-of-Band Rejection
- Group Delay
- Power Handling
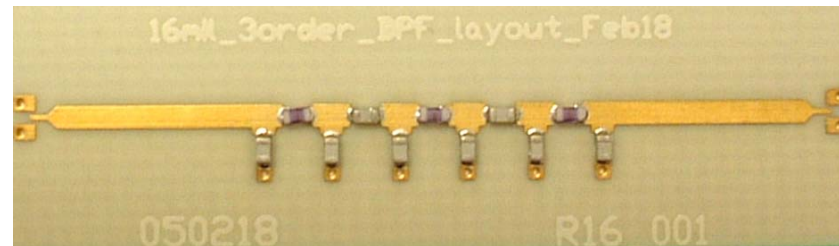
Filter Technologies / Considerations

- ## Main Technologies in Use Today
  - – Surface Acoustic Wave
  - – Discrete (Lumped) Element
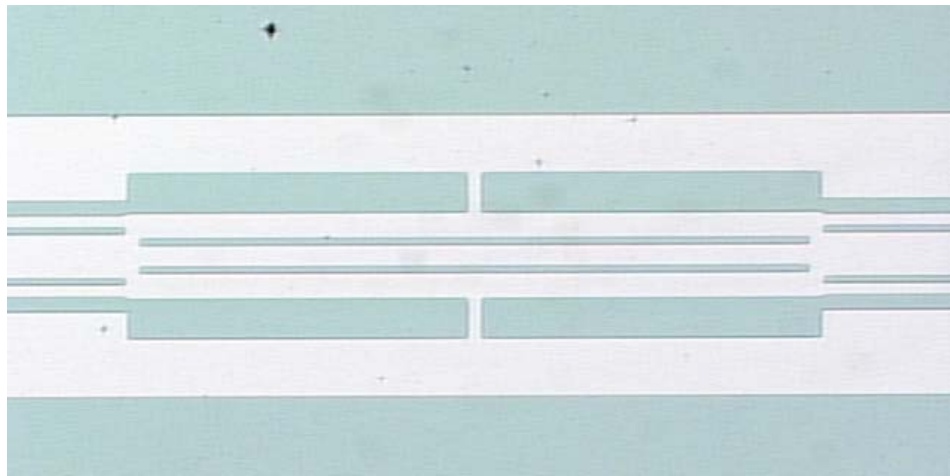 - – Coaxial
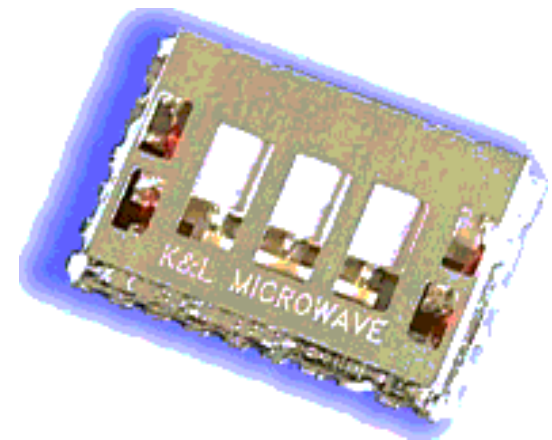

ICS SAW PLL

Dc to 1.8GHz

Filter Technologies / Considerations (contd.)

- Main Technologies in Use Today
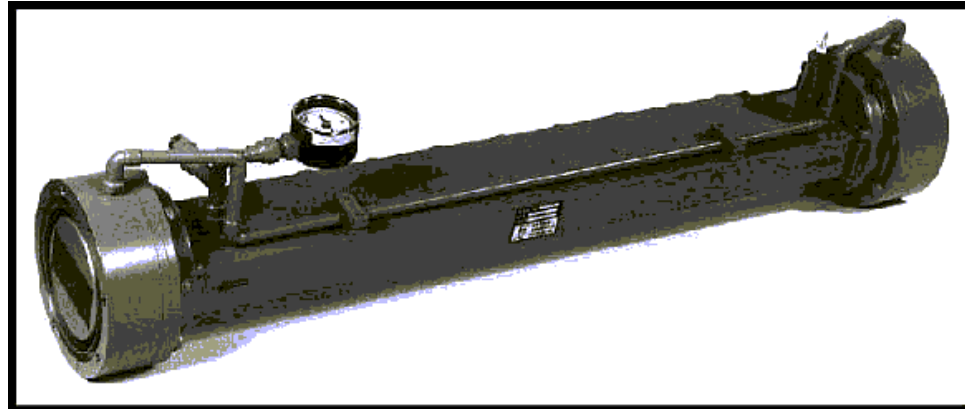 - Ceramic
  - Planar

Top View

End View

Filter Technologies / Considerations (contd.)

- Main Technologies in Use Today
  - Waveguide

Filter Technologies / Considerations (contd.)

Loss vs. Size:
- SAW
- Lumped Element
- Planar
- Ceramic
- Coaxial
- Waveguide

Loss vs. Cost:
- SAW
- Lumped Element
- Planar
- Coaxial
- Ceramic
- Waveguide