

*Micro-Machined Fiber-Coupled  
Photoconductive Sampling Probe  
with 15 nV/√Hz Sensitivity*

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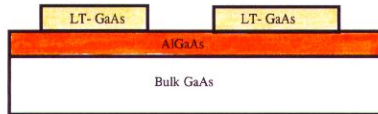
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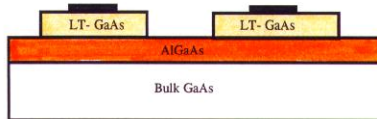
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# FABRICATION

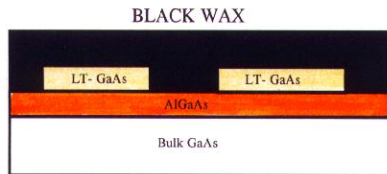
## 1. MESA ETCHING



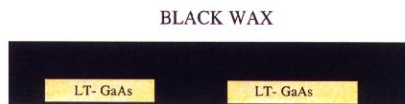
## 2. METALLIZATION



## 3. PROTECTION



## 4. LAPPING AND ETCHING



## 5. REMOVAL OF BLACK WAX



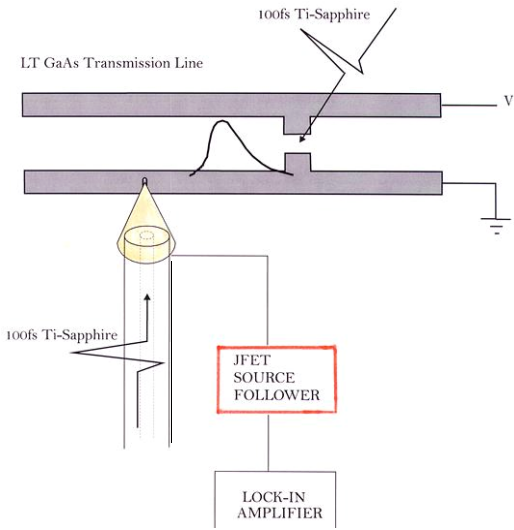


Mounted onto single mode fiber with 45 degree polished bevel via uv cement to eliminate the need for laser realignment

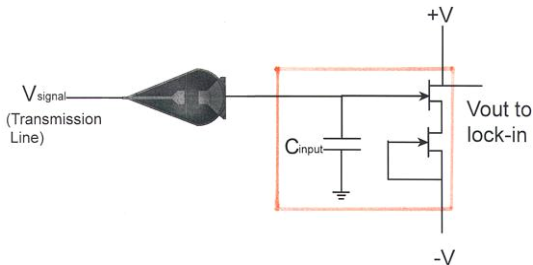
- Epitaxial layer
- Flexible cantilever tip
- Low switch capacitance
- Repeatable and reliable contact
- High yield



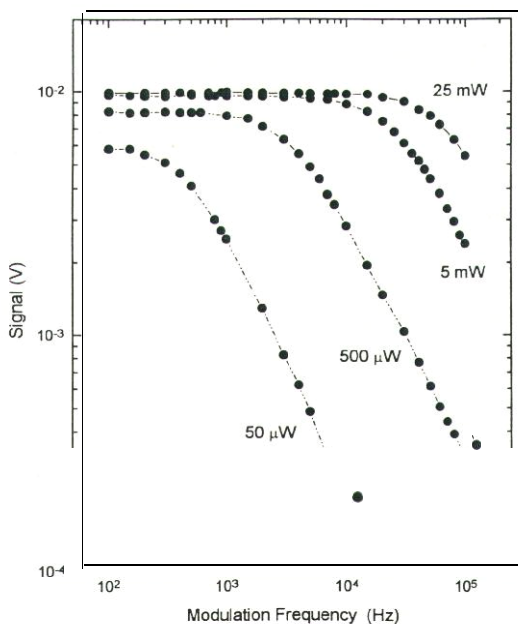
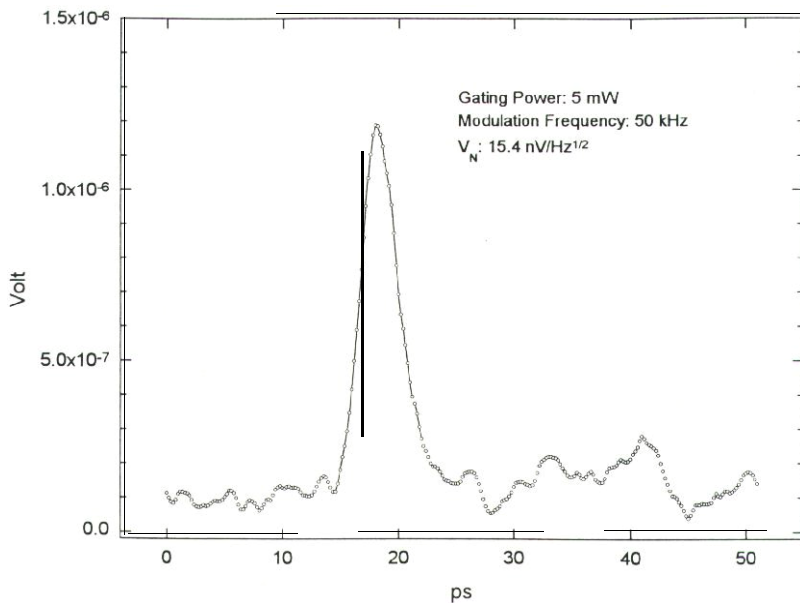
## EXPERIMENTAL SETUP



## JFET SOURCE FOLLOWER



- Buffer between the probe and the lock-in
- $C_{\text{input}} = 3\text{pF}$
- Increased modulation frequency
- Increased sensitivity



## Other Applications:

- Launcher of picosecond signals
- Detection of signals thru passivated layer
- Atomic Force Microscopy

## Future Work:

- Device and circuit testing
- Carrier transport studies of quantum-wires

## Quantum-wire Wavepacket Dynamics

