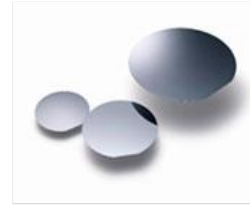


## Gallium Nitride HEMT Epiwafer

Gallium nitride (GaN) is used as the wide band gap material for next generation power semiconductors and high frequency devices. We achieved high voltage resistance and good flatness on the gallium nitride HEMT Epiwafers using our proprietary buffer layers. (GaN on Si HEMT Epiwafers)

We are also engaged in the development of p-GaN cap layers and AlGaN DH structure for the realization of normally-off HEMT Epiwafers.

We also handle GaN Epiwafers on silicon carbide (SiC) and sapphire and AlN templates for high-quality LED (on sapphire wafer).



|                                |  |
|--------------------------------|--|
| <p><b>Applications</b></p>     | <p><b>GaN on Si HEMT Epiwafer</b></p> <hr/> <p>For power semiconductors: Inverter and AC-DC converter</p> <hr/> <p>For high-frequency devices: For mobile phone base stations</p> <hr/> <div style="display: flex; justify-content: space-around;"> <div data-bbox="512 734 876 1048"> <p>Inverter for air conditioner and so on</p> </div> <div data-bbox="895 734 1259 1077"> <p>For high frequency devices such as mobile phone base stations</p> </div> </div> |
| <p><b>Product features</b></p> | <p><b>GaN on Si HEMT Epiwafer</b></p> <hr/> <p>High voltage resistance (1000V) and low leak current (1E-6A)</p> <hr/> <p>Crack-free</p> <hr/> <p>Good bow feature (Bow &lt; 50μm)</p> <hr/> <p>Wafer size (3, 4, and 6 inches)</p> <hr/> <p>Capable of handling thick films (4.8μm)</p> <hr/> <p>p-GaN cap layer and AlGaN DH structure</p> <hr/>  |

### Standard HEMT Structure

| Layer     | Composition                         | Thickness | x    |
|-----------|-------------------------------------|-----------|------|
| 4         | GaN                                 | 1nm       |      |
| 3         | Al <sub>x</sub> Ga <sub>1-x</sub> N | 30nm      | 0.25 |
| 2         | GaN                                 | 1500nm    |      |
| 1         | Buffer                              | 3300nm    |      |
| Substrate | Si                                  | 625um     |      |

### Substrate

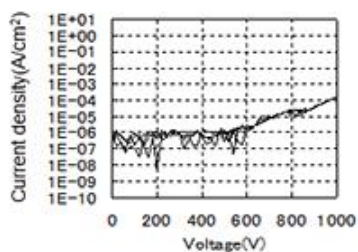
|                       |            |
|-----------------------|------------|
| Material              | Silicon    |
| Orientation           | <111>      |
| Crystal growth method | CZ         |
| Type                  | p type     |
| Size(inch)            | 3,4,6      |
| Thickness(um)         | 625 or 675 |
| Backside              | rough      |

### Electrical properties

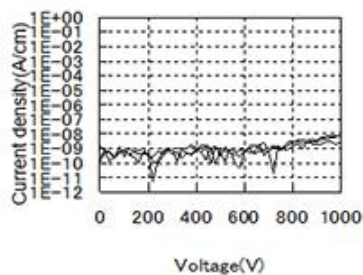
|                                    |               |
|------------------------------------|---------------|
| Hall measurement                   | Typical value |
| Sheet resistance(ohm/sq)           | 400           |
| Carrier density(/cm <sup>2</sup> ) | 1.00E+13      |
| Mobility(cm <sup>2</sup> /Vs)      | 1550          |

### Vertical/Horizontal leak current

- Vertical leak current



- Horizontal leak current



### - Remarks

Recommended application: Switching Devices

Please note that structure, substrate and electrical properties are typical value.

Customizations are available on request.

p-GaN cap layer and AlGaN DH structure are available.