Proven Expertise in SiC & GaN Materials for RF Applications

FULLY INTEGRATED SUBSTRATE AND EPITAXY SUPPLIER

With more than 30 years of development and manufacturing experience, Wolfspeed is driving innovation with the industry’s broadest range of SiC and GaN materials. Delivering semi-insulating substrates and nitride epitaxy options up to the newly available diameter of 150mm, Wolfspeed materials enable performance far exceeding that of any other technology, for telecom, aerospace, or defense applications with world-leading bandwidth, efficiency and frequency of operation.

When you partner with Wolfspeed, you get the best and most innovative materials.

HIGH PURITY SEMI-INSULATING PORTFOLIO

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<th>SiN</th>
<th>HEMT structures</th>
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<td>4H</td>
<td>100 mm</td>
<td>GaN, AlN</td>
<td>GaN, AlN</td>
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<tr>
<td></td>
<td>150 mm</td>
<td>AlGaN, AlInN</td>
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Learn how Wolfspeed can revolutionize your designs at wolfspeed.com/materials or contact us at materials_sales@wolfspeed.com or +1.919.287.7888.

Our materials are ISO-TS 16949 certified. The information in this document is subject to change without notice. Document revised August 30, 2019.
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## High Purity Semi-Insulating SiC Substrate Product Descriptions

<table>
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<tr>
<th>Part Number</th>
<th>Description</th>
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<tr>
<td>W4TRF0R-0200</td>
<td>4H-SiC, HPSI, Research Grade, 100mm, On-Axis, ≥1E6 ohm-cm, Standard MPD, 500µm Thick w/ 32.5mm Flat, Double-Sided Polish Si Face CMP Epi Ready, Bare Substrate</td>
</tr>
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</tr>
<tr>
<td>W4TRG0R-N-0200</td>
<td>4H-SiC, HPSI, Research Grade, 150mm, On-Axis, ≥1E6 ohm-cm, Standard MPD, 500µm Thick w/ Notch, Double-Sided Polish Si Face CMP Epi Ready, Bare Substrate</td>
</tr>
<tr>
<td>W4TPG0R-N-0200</td>
<td>4H-SiC, HPSI, Production Grade, 150mm, On-Axis, ≥1E6 ohm-cm, Standard MPD, 500µm Thick w/ Notch, Double-Sided Polish Si Face CMP Epi Ready, Bare Substrate</td>
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### Nitride Epitaxy Typical Layer Options

- **HPSI Substrate**
- **Cap layer options**
  - SiN (10 to 210 nm) or GaN (2 to 5 nm)
- **Nitride barrier (0.001 to 1 µm)**
  - Al$_x$Ga$_{1-x}$N; 0≤x≤0.3    or    Al$_{1-y}$In$_y$N; 0≤y≤0.2
- **AlN back-barrier option (0.0005 to 1 µm)**
- **GaN buffer and channel (1 to 3 µm)**
  - Undoped GaN channel
  - Insulating GaN Buffer

Each structure is built to customer provided specifications. Custom structures outside of typical layer options and quaternary compositions available upon special request.

### How to Order

- W = Standard
- T = HPSI
- R = ≥1E6Ω-cm
- G = 150mm (6”)
- F = 100mm (4”)
- P = Production
- R = Research
- O = Standard MPD
- 0 = None
- N = 500µm Thickness w/ notch
  - This digit only applicable to 150mm wafers.
- 2 = Double-side Polish, Si-Face CMP
- G = GaN Epitaxy
  - 0 = No Epitaxy
  - A = HEMT ≤ 25% Al
  - E = HEMT > 25% Al
  - I = Other HEMT
- 4 = 4H SiC
- 0 = On-Axis
- 32.5mm Flat

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