

Request for quote and specifications for GaN HEMT on SiC epi-wafers to be used in III-nitride technology for RF Applications

- The GEECI (Gallium Nitride Ecosystem Enabling Centre and Incubator) at SID-Indian Institute of Science is seeking bids from qualified industries for GaN HEMT on SiC epi-wafers to be used in III-N technology for RF applications. The specifications for these consumables are listed in Table 1.
- Companies need to submit two bids, a technical bid and a commercial bid, in two separate sealed envelopes. The bids should be submitted no later than 21 days from the date of posting of this tender, as listed on the website date/time stamp, and by 5 pm on the 21st day or next weekday in case the 21st day falls on a weekend or a national holiday.
- Both technical and commercial bids should be addressed to “The Chief Executive, SID, IISc, Bangalore 560012.”
- The envelopes should be addressed to “Prof. Srinivasan Raghavan, GEECI, CeNSE, IISc, Bangalore, 560012” and submitted to the office at CeNSE, IISc in Room No. GF 15 between 9 am and 5 pm.
- All questions regarding this tender should be addressed to Prof. Srinivasan Raghavan at the email address sraghavan@iisc.ac.in
- Post such submission all vendors should send an email to sraghavan@iisc.ac.in with the subject line: “GEECI_Bidder’s name_HEMT on SiC” to intimate him of the submission within one day.
- Deviations from the technical specifications requested are allowed. Such deviations must be highlighted and justified. Their acceptance or rejection will be left to the discretion of the technical committee.
- The substrates sought will be used at the Centre for Nano Science and Engineering (CeNSE), Indian Institute of Science (IISc). IISc is India’s No. 1 institution on higher learning and the Centre for Nano Science and Engineering is home to one of the best academic fabs in the world.
- The technical response, corresponding to the substrates offered, should be in the form of a compliance table with at least 5 columns. Serial number in column 1. Each of the numbered technical items below should be addressed in a separate row of the table in column 2. Compliance to this requirement, in Yes/No, deviation from it and justification should be provided in the neighboring columns 3-5. Post the opening of a hard copy of the technical bid the committee will request a soft copy of the files for further processing. Companies should NOT mail soft copies of the files unless specifically requested for.
- Detailed technical specifications of the substrates being offered should be included.
- Any additional capabilities or technical details, that you would like to bring to the attention of the purchase committee, can be listed at the end of the technical table.
- Vendors are encouraged to highlight the advantages of their substrates over comparable substrates from the competitors.
- The commercial bid should be broken up to the maximum extent possible into separate items with a cost against each to enable better comparison of price for various configurations across the bidders. As an option, please provide itemized cost for any suggested add-ons that may enhance the usability, capability, accuracy or reliability of the substrates. Vendors are encouraged to quote for as many add-ons as their portfolio permits.

Table 1: Technical Specifications for GaN HEMT on SiC epi-wafers.

S. No.	Size	Specifications of the GaN HEMT stack	Quantity (Pcs)
1.	4"	<ul style="list-style-type: none"> • Substrate: 4" High-purity Semi-insulating 4H-SiC substrate ($500 \pm 25 \mu\text{m}$ thick) • Al concentration in AlGaN: 22-25% • AlGaN Thickness: 20-25 nm • Cap/passivation layer: GaN cap of 2-3 nm • Sheet resistance $< 350 \Omega/\text{sq}$ • Carrier concentration $> 9\text{E}12 \text{ cm}^{-2}$ • 2DEG Mobility $> 2000 \text{ cm}^2/\text{Vs}$ • GaN Buffer: Fe-doped with standard thickness and with $[\text{Fe}] \leq 1\text{E}+18$ • GaN Channel: Standard thickness • Wafer Bow $< 50 \mu\text{m}$ • Thickness Variation across the wafer $< 10\%$ 	25



Society for Innovation & Development



Terms and conditions:

1. Vendors can quote for a subset of the substrates above.
2. Shipping: On all the items the cost of shipping is up to IISc. IISc will help the shipping company to take care of the customs clearance at Bangalore Airport. Please include your payment option. IISc would prefer payment after receipt of the substrates.
3. References: Bidders should provide details of other locations/users across the globe where similar material was delivered.
4. The lead time for the delivery of the material should preferably be less than 4 weeks from the date of receipt of our purchase order. The smallest lead time will be appreciated. Else, the lead time should be specified.
5. The validity period of the quotation should be 90 days at least.
6. The vendor should be flexible with parts delivery. We may spread the entire requirement into 3 years and ask for delivery in lots.
7. The quantity of substrates to be purchased may change which is left to the discretion of the technical committee.