



### Request for Quote and Specifications of pulsed I-V setup

- The GEECI (Gallium Nitride Ecosystem Enabling Centre and Incubator) at SID-Indian Institute of Science is seeking bids from qualified vendors for pulsed I-V measurement system with the specifications mentioned below.
- 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 and by 5 pm on the 21<sup>st</sup> day or next weekday in case the 21<sup>st</sup> day falls on a weekend.
- 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 setup will be used toward research development at the Centre for Nano Science and Engineering (CeNSE), Indian Institute of Science (IISc). IISc is India's No. 1 academic institution on higher learning and the Center for Nano Science and Engineering is home to one of the best academic fabs in the world.
- The technical response, corresponding to the setup being 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 for 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 system being offered should be included.

Bids should be sent to Prof. Srinivasan Raghavan, CeNSE, IISc, Bangalore, 560012. Direct all questions concerning this acquisition to Prof. Srinivasan Raghavan at [sraghavan@iisc.ac.in](mailto:sraghavan@iisc.ac.in) and [geeci.sid@iisc.ac.in](mailto:geeci.sid@iisc.ac.in)

## Specification for Pulsed IV and RF characterization System.

1. Standalone synchronous dual pulsing system capable of simultaneously pulsing gate and drain of FETs from a quiescent point to any point on the desired IV curve.
2. System should be suitable for measuring DC IV measurement also.
3. The system should be fully integrated turn-key solution with high flexibility and modularity, and should be upgradable
4. All measurement control must be available at one central user interface.
5. Power sources should be built in or embedded.
6. The system should comprise the following basic components:
  - i. Pulsed IV system for Pulsed, DC characterization
  - ii. Control software
  - iii. Compact Modelling Software
7. The pulsers should provide DUT and thermal breakdown protections, and should enable emergency stop when the operating point exceeds the specified current or voltage or frequency or temperature
8. The setup must enable characterization of both on-wafer as well as packaged devices. Any fixture required for the same, should be provided.

## SPECIFICATIONS OF THE PULSED IV SYSTEM

| SL No | Equipment         | Qty | Specification Details                | Specifications                   |
|-------|-------------------|-----|--------------------------------------|----------------------------------|
| 1     | Drain Pulser Head | 1   | Maximum voltage                      | +/- 200V or higher               |
|       |                   |     | Maximum current pulsed               | +/- 30A or higher                |
|       |                   |     | Maximum DC current                   | 3 A or higher                    |
|       |                   |     | Power Handling                       | 100 W (DC) and > 2 kW (pulsed)   |
|       |                   |     | Pulse Width (Min. /Max.)             | 200 ns to DC                     |
|       |                   |     | Duty cycle (Min. /Max.)              | up to 100% (i.e., continuous DC) |
|       |                   |     | Rise and fall times (10-90%, 90-10%) | 40 ns or lower                   |
|       |                   |     | Maximum measurement error            | 1% or better                     |
| 2     | Gate Pulser Head  | 1   | Maximum voltage                      | +/- 20V or higher                |
|       |                   |     | Maximum current pulsed               | +/- 500mA or higher              |
|       |                   |     | Maximum DC current                   | 200 mA or higher                 |

|  |  |  |                           |                                    |
|--|--|--|---------------------------|------------------------------------|
|  |  |  | Power Handling            | 2W or higher (DC)<br>10 W (pulsed) |
|  |  |  | Pulse Width (Min. /Max.)  | 200 ns to DC                       |
|  |  |  | Duty cycle (Min. /Max.)   | up to 100% (continuous DC)         |
|  |  |  | Maximum measurement error | 1% or better                       |

|   |                                      |   |
|---|--------------------------------------|---|
| 3 | Pulsed IV Characterization Software  | Vendor to supply suitable software for the instrument control and operation, display of test results and analysis of test data                          |
| 4 | Compact Modeling Extraction Software | Nonlinear compact model extraction software. Vendor to supply basic software for model extraction and display of test results and analysis of test data |
| 5 | System configuration                 | Pulsed IV System with enhanced user interface, high-definition display, system software and documentation   |

## Terms & Conditions:

- Control and measurement software:** All the control and measurement software provided, must control all the associated instrumentation without requiring any manual intervention.
- Service / Support:** Telephone/web support should be free of charge for the warranty time.
- Manuals:** Operation and service manuals for the measurement system along with the manuals for respective third-party equipment should also be supplied (Both hardcopies and softcopies).
- Licensing:** Software must be licensed in the name of IISc.
- Warranty:** Minimum One year (preferred 2 years) for the entire system including third party equipment / modules.
- Installation & Trainings:** Price should include installation, set-up, and minimum 5 days training at IISc. Additional online training as and when required must be available. Besides, the local engineer should be available for on-site visit in case of issues (this should be without charge) and as and when we require additional training (IISc will pay travel and accommodation of this).