

INDIAN INSTITUTE OF TECHNOLOGY KANPUR
Department of Electrical Engineering

Enquiry No.: EE/YSC/2016/14

Opening Date: 24th July, 2017

Closing Date/time: 10AM on 8th August, 2017

Sub.: Purchase of High Power Device Measurements Setup

Our organization is an educational institute of the repute and liable to get education discount from manufacturer. Please send sealed quotation, to undersigned, for the same.

There will be two steps in the tender process:

1. Technical specifications with compliance table should be put in one sealed envelope. SPECIFY company name and component number, and attach detailed technical specification for each part/component. Also attach technical brochure from manufacturer.
2. Financial details i.e. budget quotation should be in a separate sealed envelope. This quotation will not be opened if technical details of the product do not match with our specifications.

Specifications:

- Please see technical specifications and compliance table. Mark, whether your system complies or not with the specifications along with details.
- Parent company should be an established company with good number of installations and after sales support in India as well.
- Vendor must provide 3(THREE)-years warranty for all parts/components and servicing.

Technical Specifications and Compliance table:

- The measurement setup is required for characterizing high power devices like GaN HEMTs, LDMOS and IGBT etc. An integrated system supporting up to 3kV and 500A should be quoted and should be as per below specifications. The instrument should be capable of performing IV, pulsed-IV, CV and GaN current collapse measurement.
- The instrument should be based on SMUs fit in to a single mainframe with built in controller, software/firmware to control the instrument and large inbuilt display.
- The main instrument should be upgradable up to 10kV and up to 1500A in future.
- The supplied instrument should be seamlessly compatible with existing device modelling software IC-CAP.

Specifications for high power device measurements setup	
Parameter	Specifications
Mainframe	
Number of slots	Ten or more
Ground unit	Should include a Ground unit apart from the ten slots for SMUs
Ground unit sink current	at least 4A should support Kelvin connection with Kelvin connectors

Interlock	Interlock provision should be available for user protection
Display	15 inch touch-screen display.
Interfaces	GPIB, LAN, USB and VGA output
Operating system	Should come with windows 7 or better
Test fixture	<ul style="list-style-type: none"> • A Fixture for IV testing of discrete deice should be provided supporting up to 500A and appropriate connector 3 pin inline package device should be provided • Should have built in selector to select between High voltage and high current based on measurement without changing physical connection • The measurement fixture should be compatible with thermal plates for measurement up to 250 degree Celsius. All the necessary cables for connectivity has to be provided.
IV capabilities on different port should support the following using SMUs and accessories as a whole system	
High voltage capability	<ul style="list-style-type: none"> • Voltage up to 3kV with minimum measurement resolution of 200uV • Current measurement up to 4mA and measurement resolution of up to 10fA
High Current Capability	<ul style="list-style-type: none"> • Up to 500A with measurement resolution of 500uA • Voltage up to 60V with measurement resolution of up to 100uV • Pulse capability of up to 10us Pulse width
High Voltage – Medium current capability	<ul style="list-style-type: none"> • Voltage up to 2200V and current up to 2.5A with current measurement resolution of up to 200nA • Pulse capability of up to 10us Pulse width
GaN Current collapse measurement capability (Critical measurement capability)	
Up to 3kV should be usable to stress the device in OFF-condition and then measure current up to 20A in ON-condition with fast switching capabilities. The necessary accessories and supporting SMUs should be part of the system.	
CV measurement capability	The integrated system should be capable of measuring Capacitance with the below specification
Frequency range of the capacitance measurement Unit	1 kHz to 5 MHz with 1mHz (minimum) resolution with accuracy of 0.01%
In built DC Bias	0 to ± 25 V
Measurement parameters must also include	Cp-G, Cp-D, Cp-Q, Cp-Rp, Cs-Rs, Cs-D, Cs-Q, Lp-G, Lp-D, Lp-Q, Lp-Rp, Ls-Rs, Ls-D, Ls-Q, R-X, G-B, Z- θ , Y- θ
High voltage Bias tee to support 3kV Bias should be provided	Frequency – 10kHz to 1MHz
Other accessories	Other accessories including high voltage cables, Ground unit cables, capacitance measurement unit cables, Universal resistance boxes and any other adapters necessary for above mentioned connections and measurements should be included
Software or	Software to control the instrument and other accessories for setting up

Firmware	measurements, performing measurements, displaying and analyzing data and management of measurement data must be included
Flexibility of performing the above, either from the software installed within instrument or external controller should be there	
Should have self-test, self-calibration and diagnostic menu	
Graphical display, automated analysis capabilities and data generation to Excel and image for analysis and reporting	
Should support oscilloscope view	
Should have readymade measurement setup in the form of library for at least Ids-Vds, Rds-Id, Ids-Vgs, Vth, Cgs, Cds, Cgd, Current collapse, Breakdown, QSCV for MOSFETs	
Should allow tracer test mode	Should allow interactive sweep control using a rotary knob similar to a curve tracer allowing sweep in positive direction, negative direction or in both directions
Should have the provision for sequencing multiple tests without external programming	
Operating temperature range	At least 5 to 40 degree Celsius

Note:

1. Your quotation shall contain Authorization Letter from manufacturer specifically for this tender.
2. Quotation must be valid for 90 days.
3. Delivery period should not be more than **10 weeks**.
4. Send complete detail of the product(s) including brochure from manufacturer.
5. Price must include all taxes and charges.

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