Technical Specifications: Semiconductor Device Characterization Analyzer

S.No	Quantity	Description	
1		Semiconductor Device Analyzer should have a upgradability and support of 10 slot modules and include a 4.2 Amp ground unit with 2 (two) Medium Power SMU, & 1 (ONE) Multi Frequency Capacitance Measure unit MFCMUand support device modeling software and parameter extraction software.	
2	2 (TWO)	Medium Power SMU Range & Resolution	10fA / 0.5µV to 100mA/100V , Optional ASU (atto-sense and switch unit) for 100aAresolution and IV/CV switching capability
3	1 (ONE)	CV Measurement Test Signal Frequency	1kHz to 5MHz with 1mHz resolution and accuracy of +/-0.2% 10mV to 250mV with 1mVrms resolution , 25 V built-in DC bias and 100 V DC bias with SMU and SCUU (SMU CMU Unify Unit)
4		Ground Unit (Maximum sink current)	4.2 A
5		Ground Unit (Output Voltage)	0V ±100µV
6		Knob sweep mode	In knob sweep mode, sweep range is controlled instantaneously with the front-panel rotary knob ,
7		Sweep Measurements	SMU's should support a unique range management feature that can prevent damage to sensitive devices when making sweep measurements. This feature can be used to prevent voltage glitches from occurring by forcing the SMU to uprange before any damage can occur
8		IV Sweep Mode	Single & double Staircase sweep, Pulsed sweep, staircase sweep with pulsed bias, IV sampling, CV sweep, C-t Sweep, C-f Sweep, List sweep Linear interval, log interval, stop condition, bias hold and negative hold time.
9		IV Sampling Capability	1ms and 100µS in Fast sampling, linear and log sampling
10		QSCV Measurement	Quasi Static CV measurement with leak compensation.
11		CV measurement function	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
12		CV Measurement Test Signal Frequency	1kHz to 5MHz with 1mHz resolution and accuracy of +/-0.2% 10mV to 250mV with 1mVrms resolution , 25 V built-in DC bias and 100 V DC bias with SMU and SCUU (SMU CMU Unify Unit)

13(a)	1 (ONE)	IV CV measurement switching	**Switching unit to switch between SMUs & CMU including cables** , to do IV & CV measurement without physically changing the connection & support device modeling software **IC-CAP a**nd parameter extraction software
14(a)	Future Upgradeable	High voltage semiconductor pulse generator unit (HV-SPGU)	High voltage output up to ±40 V applicable for non-volatile memory testing ,Two-level and three-level pulse capability by single channel, Flexible arbitrary waveform generation with 10 ns resolution (arbitrary linear waveform generation function) & Two channels per module
14		Arithmetic Functions & User Functions	USER FUNCTIONS should be definable using arithmetic expressions. Measured data and analyzed variables from graphics analysis (marker, cursor, and line data) can be used in computation.
15		Marker Analysis Function	Marker to min/max, interpolation, direct marker, and marker slip
16		Line Analysis Function	Two lines, normal mode, grad mode, tangent mode, and regression mode
17		Automatic Analysis Function	On a graphics plot, the markers and lines can be automatically located using the auto analysis setup. Parameters can be automatically determined using automatic analysis, user function, and read out functions.
18		Data variable display & analysis functions	At least 20 user-defined parameters & 20 user defined analysis functions
19		Trigger	Input: External trigger input starts a sweep or sampling Input Level: TTL level, negative or positive edge trigger
20		Interfaces	GPIB, interlock, USB (USB 2.0, front 2,rear 2), LAN (100BASE-TX/10BASE-T), trigger in/out, digital I/O
21		Offline software	Offline Desktop EasyEXPERT
22		Application Libraries	Application libraries for testing CMOS, FET BJTs, Diode etc.
23	1 (ONE)	**Test Fixture**	Test fixture for **testing packaged devices.**
24		Operating System	Windows 7
25		Control from Remote PC	FLEX, VXI plug & play
26	1 (ONE)	USB to GPIB interface cable with all accessories/software required	**Cable and any other accessory/software tc interface USB to GPIB ports to control the unit using laptop etc**

27		User Interface Options	Touch panel, knob, soft keys, USB keyboard & mouse
28		Device Modeling software support	Hardware should support device modeling software and parameter extraction software, Integrated Circuit Characterization and Analysis Program (ICCAP) which is used to extract complete sets of nonlinear model parameters based on precision DC, CV, and S parameter characterization. It enables users to easily set up measurements, perform circuit simulations and optimizations. Should support Turnkey extraction solutions for industry standard CMOS models, such as BSIM3/BSIM4, PSP and HiSIM, minimize the learning curve and maximize model accuracy.
29		Future Upgradability	System should be future upgradable : High current device measurement upto 40A High Voltage device measurement upto 3000V
30		Triaxial Cables	Each SMU unit must come with at least 2 (TWO) Triaxial cables supporting low current measurement below 1pA
31		Keyboard & Mouse	Keyboard and Mouse to operate the unit.
32	Warranty	Vendor must provide 1(one)-years warranty andshould have service capbility and upgradation centre in India.	
33	Parent company should be an established company with good number of installations and after sales support in India as well : Provide proof		