ANSI/ESDA/JEDEC JS-001 HBM 2-Pin Tester HBM-TS10-A

Advanced TLP/HMM/HBM Solutions

1 Features

- ±6 kV Human-Body-Model (HBM) test system according ANSI/ESDA/JEDEC JS-001 standard with C=100 pF, R=1.5 kΩ discharge network. Optional ±10 kV HBM.
- Wafer, package and system level HBM testing
- **True HBM** – the classical RC discharge network of the HBM-TS10-A test system, according the normative standard, ensures compliant waveforms for all load conditions
- No trailing pulses
- Integrated 10 kΩ charge removal resistor
- Integrated DUT HBM current sensor for real time transient current monitoring with 1 V/A output sensitivity into 50 Ω digital oscilloscope input
- Integrated DUT HBM voltage sensor for real time transient voltage monitoring with 1/200 V/V output sensitivity into 50 Ω digital oscilloscope input
- Integrated overvoltage protection of the DUT voltage sensor, DUT current sensor and DC test interface for efficient overload protection of the digital oscilloscope and SMU during high voltage HBM testing
- Integrated DC test DUT switch with automatic switch control
- Integrated 50 Ω precision hardware trigger output for high speed digital oscilloscopes
- Fast HBM measurements, typically 0.5 s per pulse including one-point DC measurement between pulses
- Efficient software for system control and waveform data management (fully compatible with TLP measurement data)
- The software can control automatic probers for fast measurements of wafers
- System controller size 483 mm x 487 mm x 133 mm
- Compact size 145 mm x 82.5 mm x 44 mm of the integrated HBM pulse generator probehead

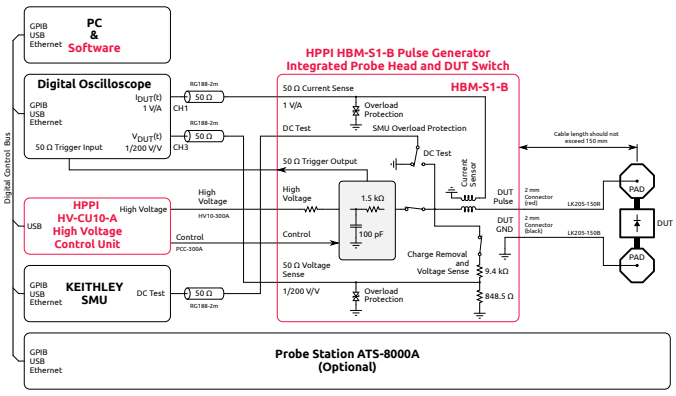

Figure 1: HBM test system HBM-TS10-A
(red marked components including cables)

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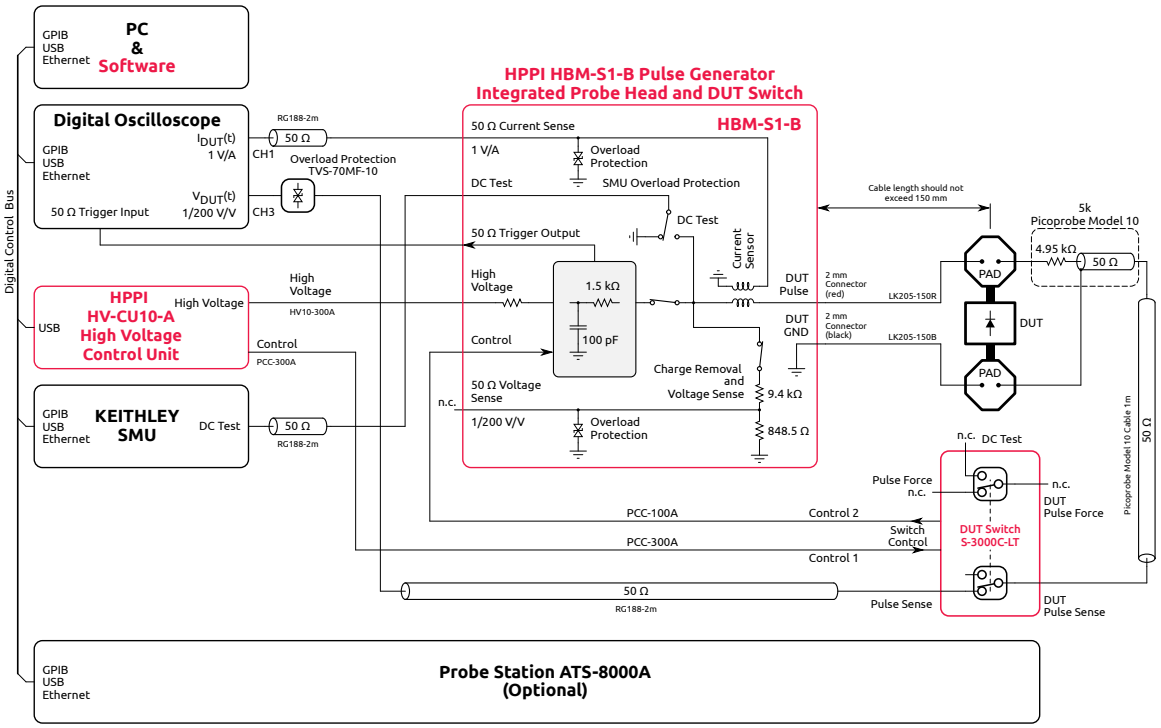

Figure 2: 4-wire setup (optional)

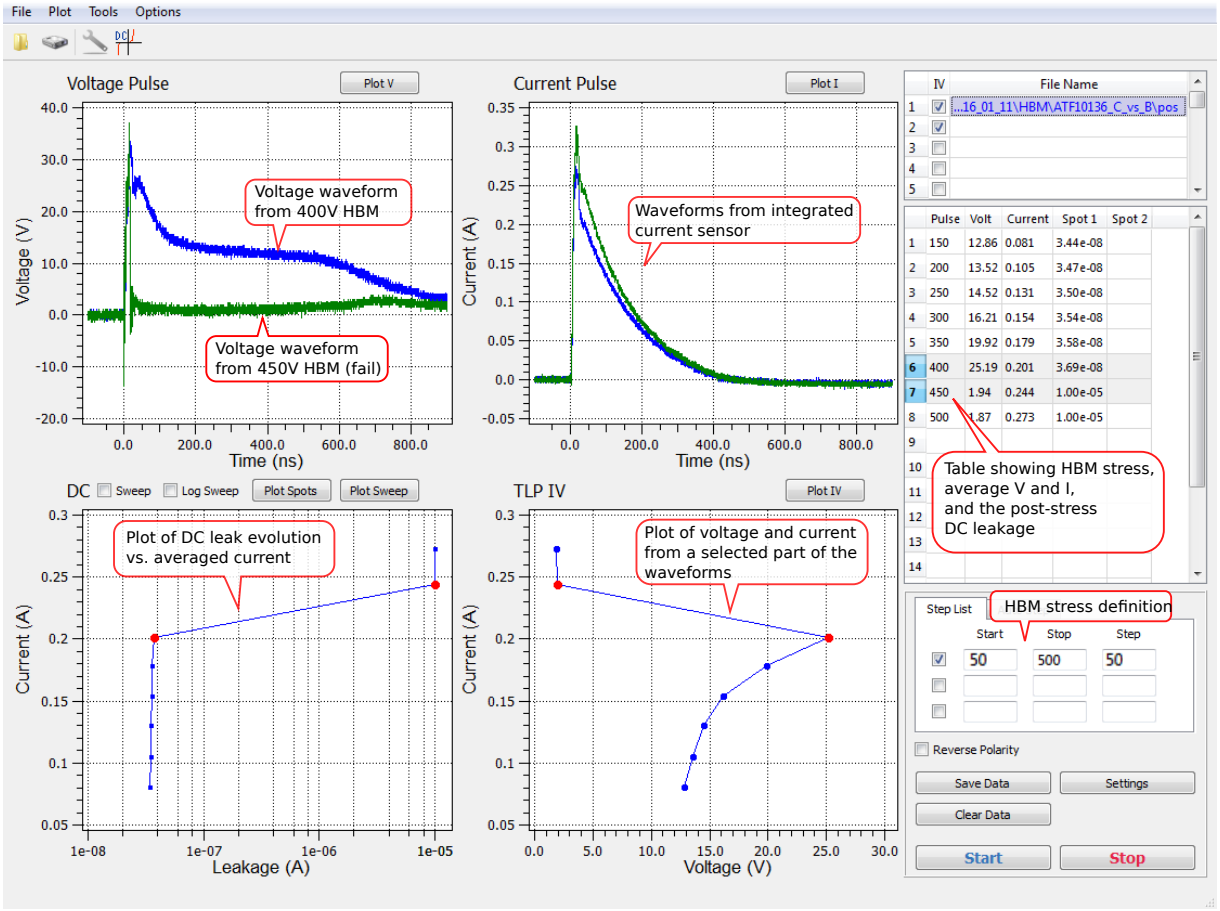

Figure 3: Screenshot of the software main window.

2 Specifications

Tab. 1 summarizes the specifications of the ANSI/ESDA/JEDEC JS-001 HBM 2-Pin Tester HBM-TS10-A.

Parameter	Symbol	Limit Values			Unit	Remarks
		Min.	Typ.	Max.		
Compliant to HBM standard	ANSI/ESDA/JEDEC JS-001 (C=100 pF, R=1.5 kΩ)					
Maximum HBM test voltage	$V_{HBM,max}$	−6.0		+6.0	kV	
Minimum HBM test voltage	$V_{HBM,min}$	−100		+100	V	at limited specifications
HBM test voltage step size	V_{Δ}		1		V	digital programmable
DUT voltage range	V_{DUT}	−1.2		+1.2	kV	open load condition
DUT current range	I_{DUT}	−4		+4	A	according to ±6 kV HBM
Charge removal resistance	R_{CR}		10		kΩ	Voltage sense output to be terminated with 50 Ω
Voltage sense output sensitivity	k_V		$\frac{1}{200}$		V/V	±10 % into a 50 Ω load
Maximum voltage sense output voltage	$V_{max,V}$	−8		+8	V	internally clamped by a bi-directional TVS diode
Current sense output sensitivity	k_I		1		V/A	±3 % into a 50 Ω load
Maximum current sense output voltage	$V_{max,I}$	−8		+8	V	internally clamped by a bi-directional TVS diode
Internal current sensor series load impedance	Z_{CS}		50		mΩ	current sense output to be terminated with 50 Ω
Trigger Output Voltage	V_{TR}		1		V_P	50 Ω
Pulse repetition frequency	f_p		1	5	Hz	state dependent, digital programmable.
Digital control interface	-	USB			-	Industrial isolated and EMI/ESD protected USB 2.0 interface
AC line voltage range	V_{AC}	100		240	V	47-63 Hz, max. 1.8 A
Dimensions HBM-TS10-A system controller	D_{TS10-A}	428 (482.6) x 132.5 x 485			mm^3	428 mm body, 482.6 mm rack flange
Dimensions HBM-S1-B integrated pulse unit and probe head	$D_{HBM-S1-B}$	145 x 82.5 x 44			mm^3	stand-alone
Weight HBM-TS10-A system controller	W_{TS10-A}		7		kg	excluding accessories
Weight HBM-S1-B integrated pulse unit and probe head	$W_{HBM-S1-B}$		1		kg	excluding accessories
Software support of oscilloscopes	All models from Tektronix, Agilent and LeCroy. New models will be added on request.					
Software support of SMU source meters	Keithley 24xx/26xx series SMU, Keithely 230 voltage source. Agilent B2900A. 5 SMUs can be controlled by the system: 1 leakage measurement SMU and 4 independent bias SMU.					
Supported automatic probe stations	all Suss, Cascade and Signatone probe stations					

Table 1: HBM-TS10-A specifications

3 Ordering Information

Pos.	Description	Part No.
01	ANSI/ESDA/JEDEC JS-001 HBM 2-Pin Tester • HBM pulse unit HBM-S1-B • high voltage controller HV-CU10-A • external DUT-switch S-3000C-LT for 4-wire setup (optional) • HPPI unified tester software GUI including remote control API • 1 pcs. 10 dB, 18 GHz SMA attenuator type 18AH-10 • 1 pcs. control cable PCC-200A • 4 pcs. flexible RG188A/U SMA(m)/SMA(m) 50 Ω cable, 2 m, RG188-2m • 1 pcs. high voltage cable HV10-300A • 1 pcs. memory stick with software and manuals (16 GB Transcend)	HBM-TS10-A

General

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