

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

Advanced TLP/HMM/HBM Solutions



## 1 Features

- $\pm 6$  kV Human-Body-Model (HBM) test system according to ANSI/ESDA/JEDEC JS-001 standard with  $C=100$  pF,  $R=1.5$  k $\Omega$  discharge network. Optional  $\pm 10$  kV HBM.
- Wafer, package and system level HBM testing
- **True HBM** – the classical RC discharge network of the HBM-TS10-A test system, according to the normative standard, ensures compliant waveforms for all load conditions
- No trailing pulses
- Integrated 10 k $\Omega$  charge removal resistor
- Integrated DUT HBM current sensor for real time transient current monitoring with 1V/A output sensitivity into 50  $\Omega$  digital oscilloscope input
- Integrated DUT HBM voltage sensor for real time transient voltage monitoring with 1/200 V/V output sensitivity into 50  $\Omega$  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  $\Omega$  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

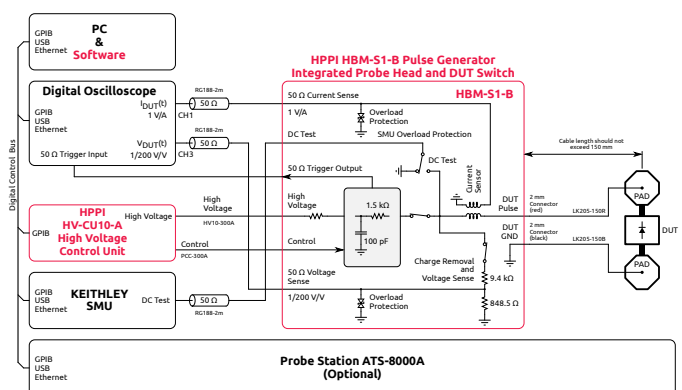


Figure 1: HBM test system HBM-TS10-A (red marked components including cables)

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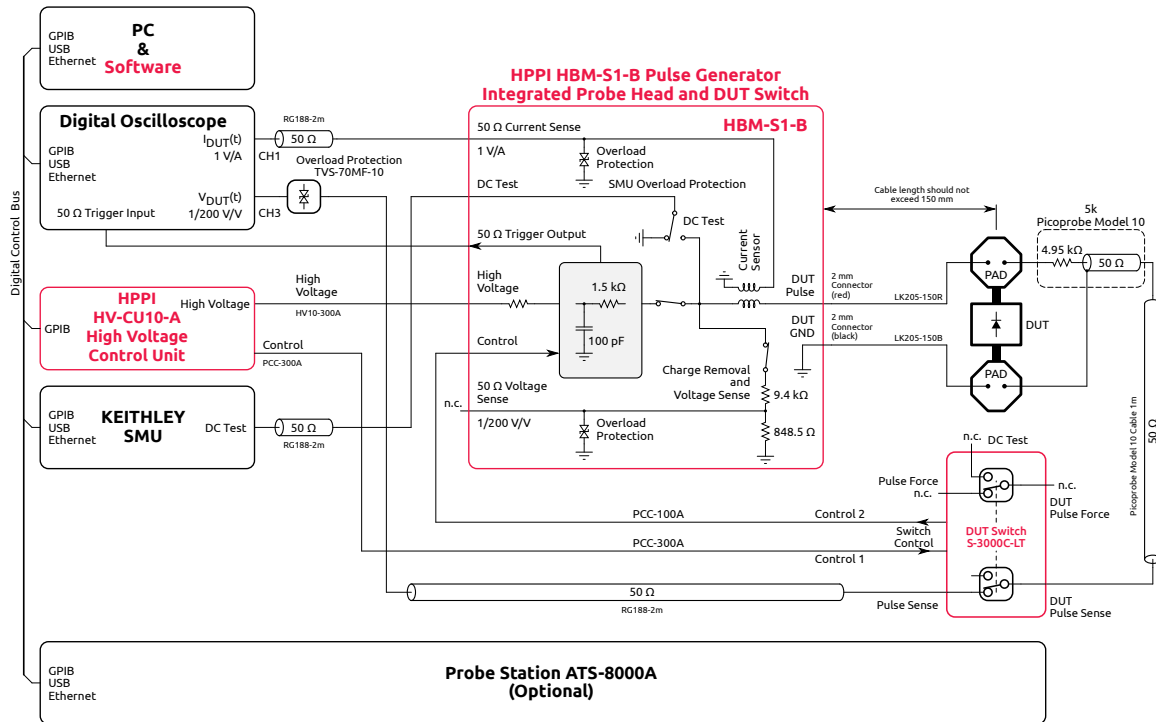


Figure 2: 4-wire setup (optional)

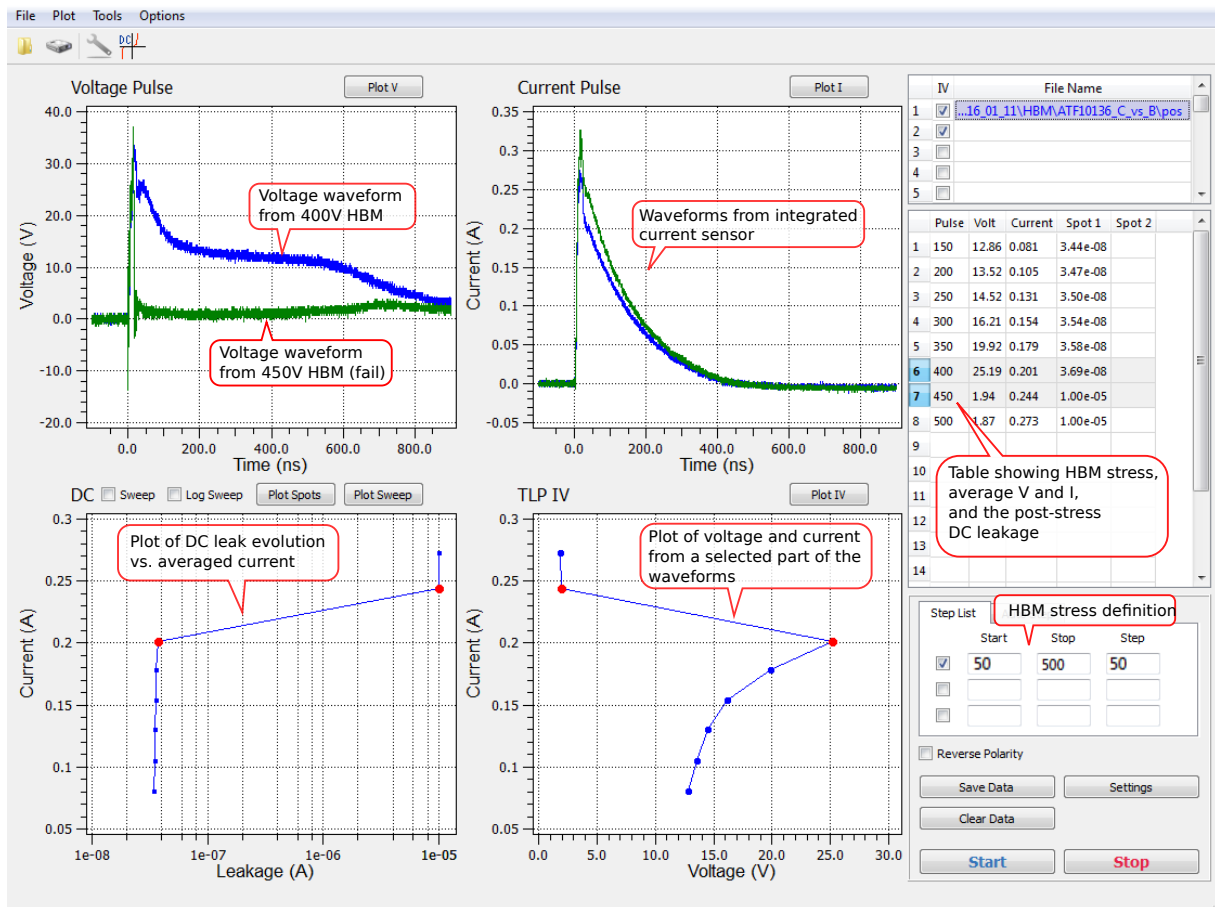


Figure 3: Screenshot of the software main window.

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## 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	works down to 10 V at limited specifications
HBM test voltage step size	$V_{\Delta}$		1		V	GPIB programmable
DUT voltage range	$V_{DUT}$	-1.2		+1.2	kV	open load condition
DUT current range	$I_{DUT}$	-4		+4	A	according to $\pm 6$ kV HBM
Charge removal resistance	$R_{CR}$		9447		Ω	Voltage sense output to be terminated with 50 Ω
Voltage sense output sensitivity	$k_V$		$\frac{1}{200}$		V/V	$\pm 10$ % 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	$\pm 3$ % 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 <sub>P</sub>	50 Ω
Measurement pulse repetition time	$t_m$		500		ms	state dependent, GPIB programmable.
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 <sup>3</sup>	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 <sup>3</sup>	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					
Certification marks	<p>The HBM-TS10-A is in line with:</p> <ol style="list-style-type: none"> <li>the requirements set forth in the Code of Federal Regulations CFR 47, Part 15, Sections 15.107 and 15.109 (Class A) of the Federal Communication Commission (FCC) and the Interference-Causing Equipment Standard ICES-003 Issue4, Sections 5.2 and 5.4 (Digital Apparatus) of Industry Canada (IC).</li> <li>the EN61326-1:2006, Class A, EN 61000-3-2:2006, EN 61000-3-3:1995 + A1:2001 + A2:2005.</li> <li>UL61010-1: 2004.</li> </ol>					

Table 1: ANSI/ESDA/JEDEC JS-001 HBM 2-Pin Tester HBM-TS10-A specifications

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

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## 3 Ordering Information

Pos.	Description	Part No.
01	ANSI/ESDA/JEDEC JS-001 HBM 2-Pin Tester <ul style="list-style-type: none"> <li>• High voltage controller HV-CU10-A</li> <li>• Integrated HBM pulse generator HBM-S1-B</li> <li>• External DUT-switch S-3000C-LT for 4-wire setup (optional)</li> <li>• HPPI Software for Windows (MacOS on request)</li> <li>• Interconnection cables</li> </ul>	HBM-TS10-A

### General

The product data contained in this data-sheet is exclusively intended for technically trained staff. You and your technical departments will have to evaluate the suitability of the product for the intended application and the completeness of the product data with respect to such application. Our products are solely intended to be commercially used internally and should not be sold to consumers. This data-sheet is describing the specifications of our products for which a warranty is being granted by HPPI GmbH. Any such warranty is granted exclusively pursuant the terms and conditions of the respective supply agreement. There will be no guarantee of any kind for the product and its specifications. For further information on technology, specific applications of our product, delivery terms, conditions and prices please contact HPPI:

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