



The system performs dynamic high temperature reverse bias burn-in test for SiC MOS transistor with reference to AQG324 test method. Up to 12 stations can be tested in each test area, with in-dependent pulse source configurations. RT +10°C~200°C test temperature is available for the device. It has the function of short-circuit dis-engagement test of test device, which can auto-matically detach the faulty device from the burn-in test without affecting the normal test of other devices.

- dv/dt>50V/ns (Coss<300pF)
- 2us overcurrent protection
- It can be heated independently at room tempera-ture +10°C~200°C, and is compatible with static HTRB test
- Full experimenter human safety considerations are set

8 ZONE

Dynamic high temperature reverse bias burn-in test system

Zhejiang Hangke Instrument Co., Ltd.
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Hangzhou city Zhejiang province China

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Product Features

Test temperature	RT ~200°C (thermal plate)
Test zone	8 (scalable)
Stations per zone	12 (typical)
Test Method	Passive: Vgs = Vgs, min recom Active: Vgs, off = Vgs, min recom and Vgs, on = Vgs, max
Voltage range	50~1200V
Voltage accuracy	Detection deviation: ±(2%+1V)
Pulse control	1. Pulse frequency (square wave): 0~100kHz; Accuracy: 2%±2LSB (The maximum frequency depends on the voltage, DUT capacitance) 2. Square wave duty cycle 20%~80%; Accuracy: ±2% 3. Voltage rise rate (dv/dt) ≥50V/ns (Coss < 300pF) 4. Voltage overshoot<15% (Vpp > 960V)
VGS voltage test & control range	-0.7V~ -20V/0V
Leakage current detection	Detection range: 0.1uA~20mA. Accuracy: Option1: 0.1uA~0.999uA resolution 0.01uA accuracy: 1%±0.02uA Option2: 1.00uA~99.9uA resolution 0.1uA accuracy: 1%±0.2uA Option3: 100uA~999uA resolution 1uA accuracy: 1%±2uA Option4: 1.0mA~20.00mA resolution 0.1mA accuracy: 1%±0.2mA
Machine power supply	Three-phase AC380±38V
Total weight	700Kg (typical)
Dimensions of machine	800mm (W) x 1400mm (D) x 1950mm (H)

Applicable standards	AEC-Q101 AQG324 JESD22-A108 JEDEC JEP183A
Applicable components	For SiC, GaN, IGBT module, MOS transistor

DHTRB2000



Product Features

Test temperature	RT+10℃~150℃
Test humidity	10%RH~98%RH
Test Method	Passive: Vgs = Vgs, min recom Active: Vgs, off = Vgs, min recom and Vgs, on = Vgs, max
Test zone	14
Stations per zone	6 (typical)
Test voltage	50V~1000V
Voltage detection accuracy	Detection deviation; ±(2%+1V)
Pulse control	1.Pulse frequency (square wave): 10kHz~50kHz; Accuracy: 2%±2LSB (The maximum frequency depends on the voltage, DUT capacitance) 2.Square wave duty cycle 20%~80% Accuracy:±2% 3.Voltage rise rate (dv/dt) ≥30V/ns (Coss < 300pF) 4.Voltage overshoot depends on the amplitude of the pulse voltage, the maximum does not exceed 0.95Vds
VGS voltage test & control range	Passive: -0.7V~ -20V/0V Active: Customized according to the device: VGS voltage: Positive voltage18V, 20V, 22V, 3 options: Negative voltage -3V, -5V, 2 options
Leakage current detection	Detection range: 0.1uA~20mA Accuracy: Option1: 0.1uA~0.999uA resolution 0.01uA accuracy: 1%±0.02uA Option2: 1.00uA~99.9uA resolution 0.1uA accuracy: 1%±0.2uA Option3: 100uA~999uA resolution 1uA accuracy: 1%±2uA Option4: 1.0mA~20.00mA resolution 0.1mA accuracy: 1%±0.2mA
Machine power supply	Three-phase AC380±38V
Total weight	1200Kg (typical)
Dimensions of machine	2000mm (W) x 1505mm (D) x 1950mm (H)

Applicable standards

AEC-Q101 AQG324 JESD22-A108 JEDEC JEP183A

Applicable components

For SiC, GaN, IGBT module, MOS transistor

The system performs dynamic high temperature and humidity reverse bias burn-in test for SiC MOSFET with reference to AQG324 for the test method. Up to 6 stations can be tested in each test area, with independent pulse source configurations. A standard 85℃/85%RH test environment is available for the device. It has the function of short-circuit disengagement test of test device, which can automatically detach the faulty device from the burn-in test circuit without affecting the normal test of other devices.

- nA-level leakage current detection accuracy
- dv/dt > 30v/ns (Coss < 300pF)
- The whole machine is refreshed in 30s for full-station data
- Unique high-voltage suppression circuit, the instantaneous breakdown of the device does not affect the burn-in process of other stations
- The independent control function of the burn-in voltage of the station can be customized to realize the over-limit rejection of the burn-in of a single station
- Full experimenter human safety considerations are set

16 ZONE

Dynamic high temperature high humidity
reverse bias burn-in test system



The system is suitable for electrical reliability test for controllable high-temperature for 6/8-inch wafer-level devices based on JEDEC reliability test standard; It provides high-precision and high-voltage output, and saves records high-precision current, controllable temperature and other parameters, and according to the recorded test data, export experiment tables and MAP diagrams in multiple formats.

- Customized high-temperature adjustment semi-automatic probe station, supporting ≤5 wafers simultaneous burn-in test
- Support the independent protection function of each wafer die, and control the over-current and over-voltage beyond the limit
- Support nitrogen protection to prevent wafer oxidation, and support overvoltage protection when filling
- Support to change the Burn-in Board or probe card to different package devices for test
- Support wafer mounting contact spot detection, real-time temperature and pressure detection
- Support HTGB, HTRB and other burn-in test functions, Vth/IDS/IGS and other parameters of automatic testing and data analysis
- Support built-in wafer layout MAP configuration, real-time display of data and query of historical data
- Support access to the centralized control station (smart core protection cloud) system, customized docking with the MES system

1 ZONE

Wafer-level reliability test system

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Product Features

Test temperature zone	1 (Support customization ≤5)
Test temperature	RT~200℃
Applicable products	GaN/SiC and other 6-inch and 8-inch wafers
Multi-station parallel test	1 (Support customization ≤5)
Temperature overshoot	<2℃
Grid voltage range (accuracy)	±60V (0.1%±10mV)
Grid current range (accuracy)	HTGB:0.1nA-1uA (1%+ -100pA) Vth: 0-20mA(0.1%+ -20uA)
Source voltage range (accuracy)	50~2000V (0.5%+Vmax+1V)
Source current range (accuracy)	1nA-1mA (1%+ -5nA)
Voltage and current overshoot	HTRB overcharged<2%, HTGB overcharged<200mV
Methods of communication	TCP network/485 serial port
Operating system	Windows 7 and above
MES system interface	Customize and integrate with third-party systems and data
Total weight	850Kg
Single-chamber size	1920mm (W) x 1250mm (D) x 300mm (H)
Dimensions of machine	2050mm (W) x 1400mm (D) x 1750mm (H)

Applicable standards

AEC-Q101 JEP183 IEC60749-23 JESD22-A108F

Applicable components

For high-temperature and high-voltage reliability test of wafers such as GaN/SiC, and automatic test and data analysis of Vth, Igs, Ids and other parameters.

CWBS1000



The system supports dual temperature zones, and can carry out HTOL burn-in test at room temperature +10°C~150°C, and detect the out-put signal of the device in real time during the burn-in process, in which the vectors are automatically compared.

- Each burn-in board provides 8 programmable power supplies (0.5~10V/0~25A), and the power supply specifications can be customized individually
- Each burn-in board is available with 184 DR channels and 32 bidirectional I/O channels
- Each chamber can support up to 4 kw of heat dissipation
- Vector files in STIL, VCT, VEC formats can be directly imported and used
- Chip BIST test is allowed
- Fully compatible with DL601H machined burn-in boards, plug and play
- Full experimenter human safety considerations are set

Product Features

Test temperature zone	2
Test temperature	RT +10°C ~+150°C
Burn-in test zone	16 ZONE/32 SLOTS
Digital signal frequency	12.5MHz
Vector depth	16M depth
Signal channels	184 channels (including 32 bidirectional I/O)
Clock groups	8
Signal period	80~20480nS
Timing edge	2 edges
PIN format	8 types
Programmable VIH	0.5~5V
Voltage compare range	0.5~5V
I/O drive current	DC≥50mA, Instantaneous current≥80mA
DPS power supply	0.5~6.0V/25A (10V/10A optional)
DPS power supplies	8(can be configured according to customer requirements)
DPS output protection	OVP (Overvoltage) , UVP(Undervoltage) , OCP(Overcurrent)
Machine power supply	Three-phase AC380±38V
Maximum power	35KW (typical)
Total weight	1600Kg (typical)
Dimensions of machine	3200mm (W) × 1675mm (D) × 2370mm (H)

Applicable standards

MIL-STD-883 MIL-STD-38510 AEC-Q101

Applicable components

For general-purpose integrated circuit memory, FPGA, ARM, DSP and other VLSI.

16 ZONE/32 SLOTS

Large scale integrated circuit burn-in test system

LSIC7000



Product Features

Test temperature zone	2
Test temperature	Water cooling plate:+10~+80 °C, Oil cooling plate:-10~+150 °C
Burn-in test zone	3
Constant temperature system control accuracy	Water cooling system:±0.5°C Oil cooling system:±0.1°C
Junction temperature test accuracy	±2°C
Cold plate and shell temperature testing accuracy	±2°C
Heating current	1000A/zone (supporting three zones in parallel 3000A)
Test current	±(10~1000mA)
Test current accuracy and resolution	±(0.3%+2mA), resolution 0.1mA
Machine power supply	Three-phase AC380±38V
Maximum power	30KW (typical)
Total weight	500Kg (typical)
Dimensions of machine (without water cooler)	1400mm (W) × 900mm (D) × 1300mm (H)

Applicable standards
JESD51 AQC324

Applicable components
For various sizes of IGBT module and MOS module.

The system is suitable for power cycling test of various sizes of IGBT modules and uses the advanced JEDEC static test method (JESD51-1) to generate temperature changes by varying the input power of the electronic component. During the change, through transient temperature response curve of the tested chip and data processing of the test waveform to obtain the full thermal characteristics of the electronic component.

- Support minute/second power cycling test.
- Equipped with oil-cooled platform, which can quickly and automatically calibrate the K-factor of the component.
- Fixture supports adjustable strength and depth for effective clamping of different packaging of modules.
- With solenoid water valve, can automatically adjust the cooling water flow according to the actual situation, or manually adjust.
- Through the transient temperature response curve of the test component, data processing of the test waveform to obtain the comprehensive thermal characteristics of the electronic component.
- Full experimenter human safety considerations are set

3 ZONE

PC3000A

IGBT power cycle test system



The system is suitable for continuous power testing of IGBT power modules of various sizes. Based on practical application environments, burn-in parameter test is built perform electrical stress burn-in test on the system. Simulate the working conditions of IGBT power modules in the use of the entire vehicle for longterm high current burn-in and motor stall testing. Real time monitoring of peak current, average current, input voltage, output voltage and temperature of the tested device during burn-in process, record burn-in test data as needed, and export test reports.

- Supports minute/second level power test
- Real time monitoring of flow and temperature of water cooler, temperature and flow can be set
- The driving circuit has a protection function, and the damage of the module does not affect the normal operation of the equipment,
- It has the function of quickly cutting off the busbar voltage, which is convenient for failure analysis
- Full experimenter human safety considerations are set

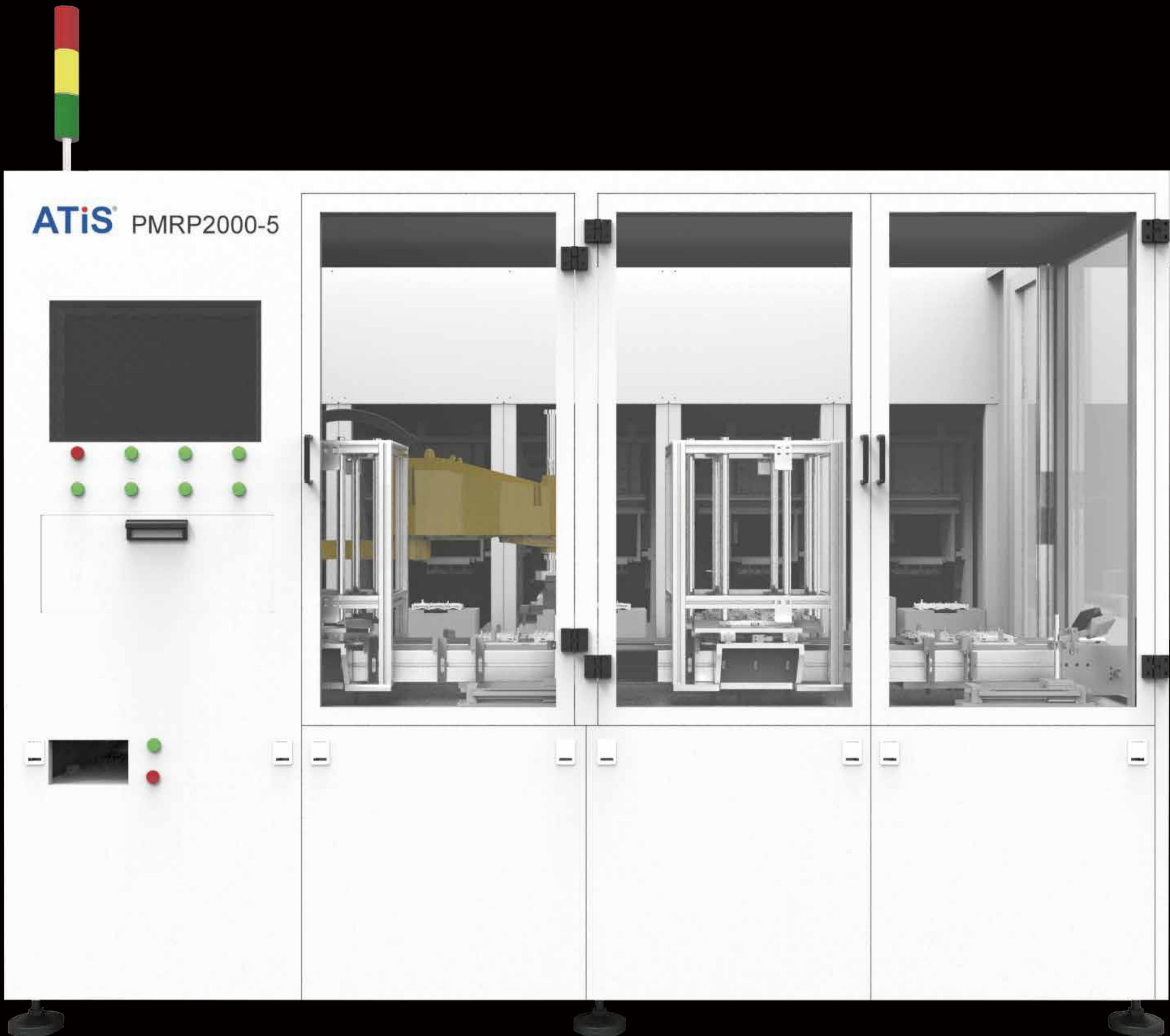
1 ZONE

IGBT power module test system

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The all-in-one supports the parallel use of multiple machines, and can realize automatic loading and unloading.

Product Features

Test temperature zone	1
Test temperature	+25℃~+85℃
Burn-in test zone	1
Busbar voltage range	100V~1000V, power 40KW
Current range	Maximum peak current 600A@15s
Load current range	Three-phase power load rated current 600A
Machine power supply	Three-phase AC380V±38V
Maximum power	40KW (typical)
Total weight	1000Kg (Reactor included))
Dimensions of machine	800mm (W) × 1100mm (D) × 2000mm (H)
Water temperature machine	780mm (W) × 1000mm (D) × 1200mm (H)

Applicable standards

GB/T 18488.1-2015 GB/T 18488.2-2015 GB/T 29307-2012 QCT893-2011
GB/T 18385-2005

Applicable components

For IGBT power module of various sizes.

PMRP2000

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The system performs dynamic high temperature gate bias burn-in test capabilities for the third-generation SiC MOS transistor, and each test area can independently burn up to 12 work stations, independently 12 configurable pulses, and the leakage current of the test gate does not interfere with each other. The device is available at room temperature +10°C ~ 200°C. It has the function of short-circuit disengagement test of test device, which can automatically detach the faulty device from the burn-in test without affecting the normal test of other devices.

- High-speed dv/dt>1V/ns
- nA leakage current test
- Threshold value voltage test
- Customized burn-in test boards are available for different device packaging, power requirements, etc
- Full experimenter human safety considerations are set

8 ZONE

Dynamic high temperature gate bias burn-in test system

Zhejiang Hangke Instrument Co., Ltd.
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Product Features

Test temperature	RT~200°C (thermal plate)
Test zone	8 (scalable)
Stations per zone	12 (typical)
Test method	V _{DS} =0V V _{GS, off} =V _{GS, min} , recom and V _{GS, on} =V _{GS, max}
Test voltage	Test control range: ±30V Detection deviation: ±(1%+2LSB) Voltage resolution: 0.01V
Pulse control	1. Pulse frequency (square wave): 0~500kHz; Accuracy: 2%±2LSB (The maximum frequency depends on the voltage, DUT capacitance) 2. Square wave duty cycle 20%~80%: Accuracy:±2% 3. During the dynamic DGS test, the slope of the grid pole voltage can reach dv/dt>1V/ns (Ciss < 5nF) 4. Voltage overshoot<5% (test voltage amplitude is greater than 25V)
Alarm voltage VGSTH	1. VGS voltage test & control range: 1~10V (100nA~50mA constant current source) 2. Resolution: 0.01V, Accuracy: 1%±0.01V
IGS leakage current detection	Detection range: 1nA~99.9uA Option1: 1nA~99nA resolution 1nA leakage current detection deviation: 1%±2LSB Option2: 100nA to 999nA resolution 10nA Leakage current detection deviation: 1%±2LSB Option3: 1uA~99.9uA resolution 100nA Leakage current detection deviation: 1%±2LSB
Machine power supply	Three-phase AC380±38V
Total weight	700Kg (typical)
Dimensions of machine	800mm (W) x 1400mm (D) x 1950mm (H)

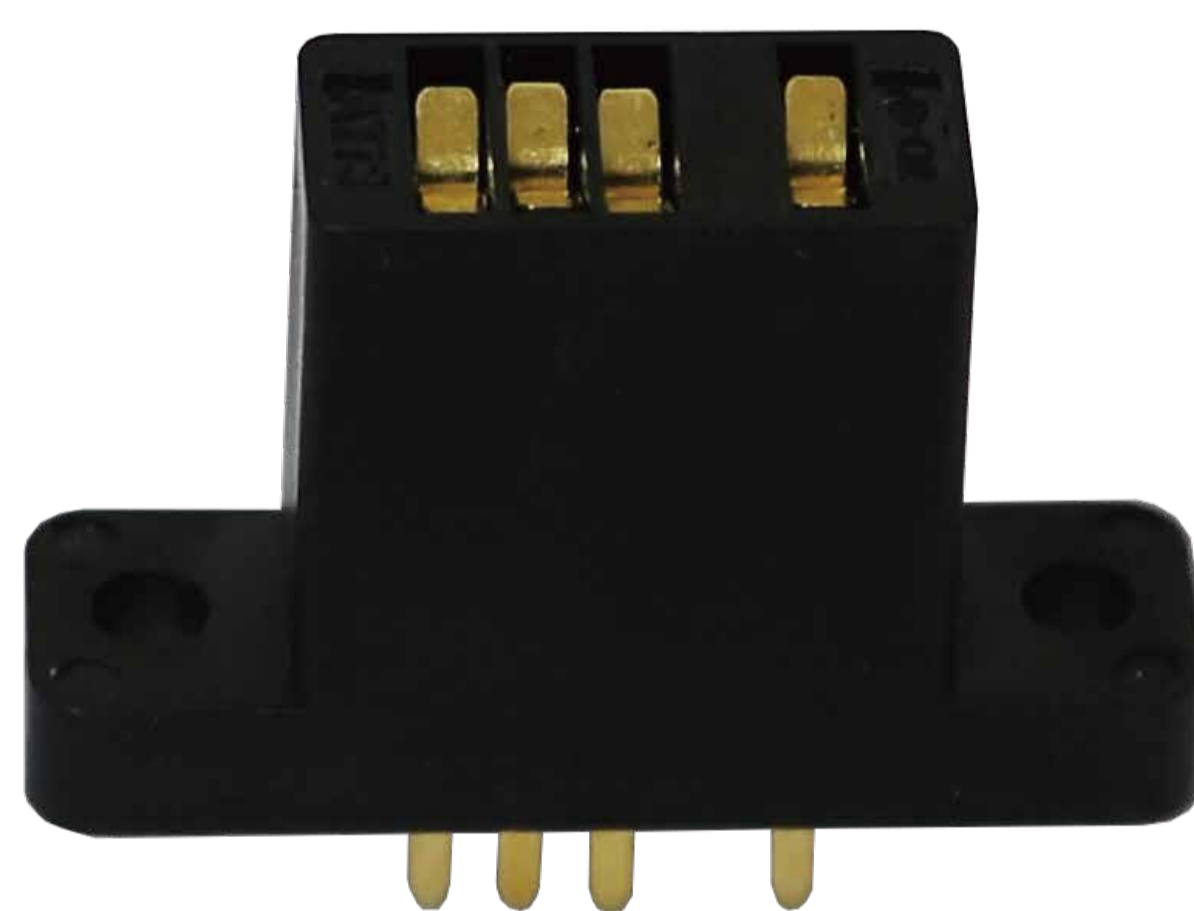
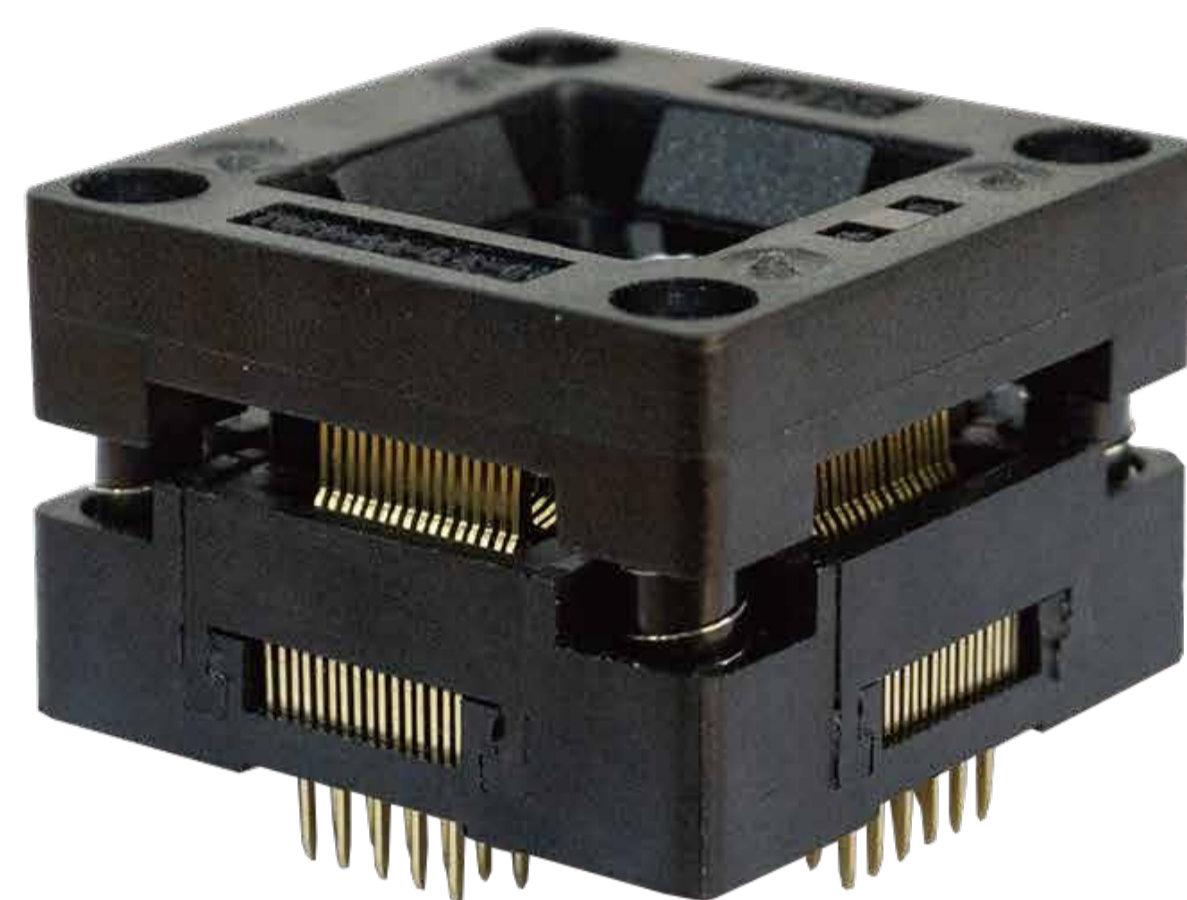
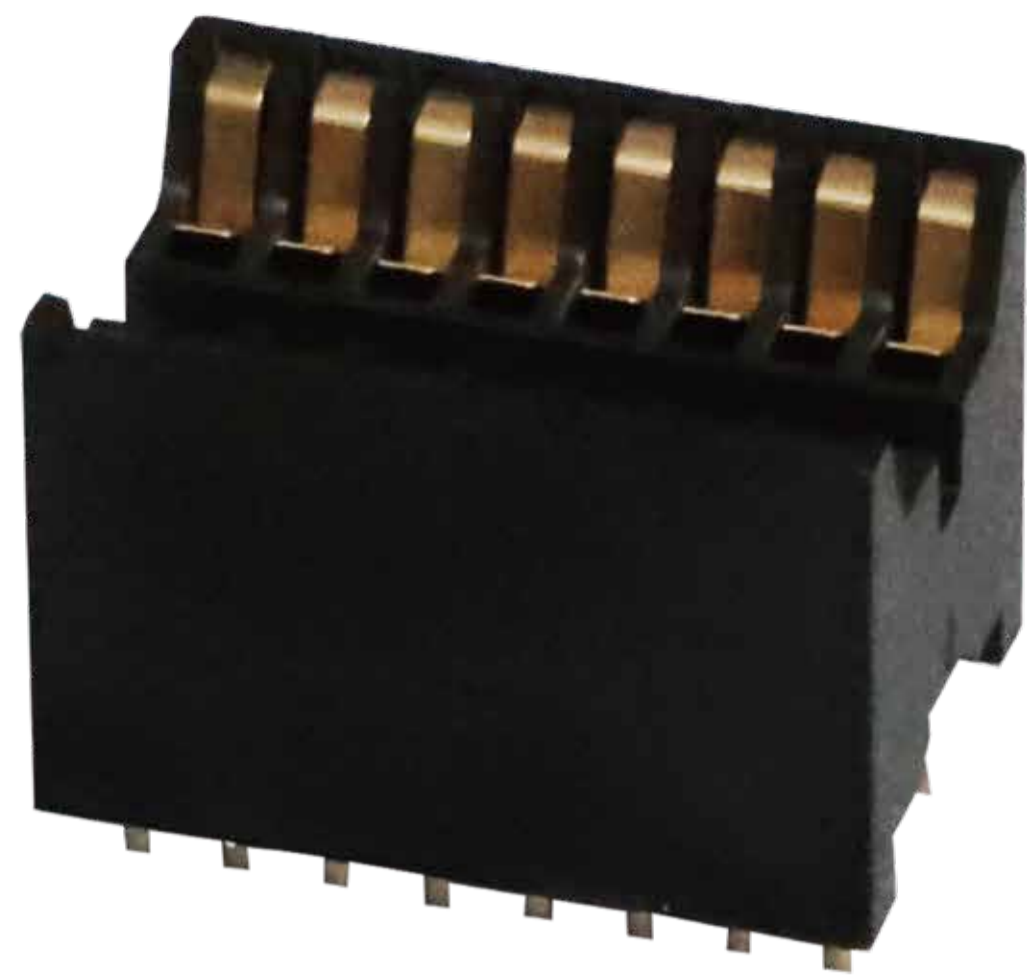
Applicable standards
AEC-Q101 AQG324 JESD22-A108 JEDEC JEP183A
Applicable components
For SiC, GaN, IGBT module, MOS transistor

DHTGB2010

Dynamic high temperature gate bias burn-in test system

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Zhejiang Hangke Precision Instrument Co., Ltd., a wholly-owned subsidiary of Zhejiang Hangke Instrument Co., Ltd., is independent on March 7, 2023, head quartered in Xiaoshan District, Hangzhou City, Zhejiang Province, formerly known as the Fourth Research Institute of Zhejiang Hangke Instrument Co., Ltd.

After its establishment, the company focused on the design and production of various burn-in sockets, test sockets, connectors and probe products, and has the design and production capacity of metal molds and plastic molds, and is equipped with a number of advanced production equipment, such as SODICK wire cutting machines, precision CNC machining centers, grinding machines, German ARBURG and Japanese Sumitomo injection molding machines.

Since its establishment, the company has always been close to clients' needs, adhere to independent research and development, has a mature sales system and excellent after-sales team can quickly respond to customer needs, products and services reach the whole world, and are affirmed by many clients.

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SOCKET

burn-in test

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Product Features

Test temperature zone	1
Test temperature	RT +10℃~+150℃
Burn-in test zone	32
Digital signal frequency	10MHz
Vector depth	16M depth
Signal channels	256 independent programmable bidirectional I/O
Clock groups	8
Signal period	80~20480nS
Timing edge	2 edges
PIN format	8 types
Programmable VIH	0.5~5V
Voltage compare range	0.5~5V
I/O drive current	DC≥100mA, Instantaneous current > 200mA
DPS power supply	0.5~6.0V/25A (10V/10A, 6V/50A optional)
DPS power supplies	10 (can be configured according to customer requirement)
DPS output protection	OVP(Overvoltage),UVP(Undervoltage) ,OCP(Overcurrent)
Machine power supply	Three-phase AC380±38V
Maximum power	100KW (typical)
Total weight	2200Kg (typical)
Dimensions of machine	2500mm(W)×1450mm(D)×2470mm(H)

Applicable standards

MIL-STD-883 MIL-STD-38510 AEC-Q101

Applicable components

For general-purpose VLSI circuits, SoC, FPGA, ARM, AI, and low-power GPUs.

The system can perform HTOL test on the chip at room temperature +10℃~150℃. The output signal of the component is monitored in real time and the vector is automatically compared during the burn-in process.

- Each burn-in board provides 10 programmable power supplies (0.5~10V/0~25A), and the power supply specifications can be customized individually
- Each burn-in board is available with 256 bidirectional I/O channels
- Each chamber can support up to 38kw of heat dissipation
- Vector files in STIL, VCT, VEC formats can be directly imported and used
- Chip BIST test is allowed
- Supports up to 24 independent temperature control workstations
- Full experimenter human safety considerations are set

2X16 ZONE

Large scale integrated circuit burn-in test system

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LSIC9000



The test chamber is suitable for testing the life and durability of the whole machine device, parts and materials in a high temperature environment, and can check and evaluate product defects through the test, effectively improving the product qualification rate and product quality.

- RS485 communication interface is provided.
- It can be equipped with independent secondary over-temperature protection.

HTC2020 Product Features

Product volume	432L
Temperature range	RT+20°C ~ +200°C
Temperature uniformity	≤3°C
Temperature deviations	≤±2°C
Temperature fluctuations	≤0.5°C
Temperature overshoot	≤1°C
Heating time	≤40min (Closed door with no load, RT ~ +200°C)
Machine power supply	AC220V
Inner box dimension	600(W)X600(D)X1200(H)
Dimensions of machine	1200(W)X792(D)X1700(H)
Total weight	250Kg

Applicable standards

GB/T 5170.2-2017

Applicable components

For high temperature burn-in, heat treatment and drying treatment.



The test chamber is suitable for testing the life and durability of the whole machine device, parts and materials in a high temperature environment, and can check and evaluate product defects through the test, effectively improving the product qualification rate and product quality.

- RS485 communication interface is provided.
- It can be equipped with independent secondary over-temperature protection.

HTC2010 Product Features

Product volume	242L
Temperature range	RT+20°C ~ +200°C
Temperature uniformity	≤3°C
Temperature deviations	≤±2°C
Temperature fluctuations	≤0.5°C
Temperature overshoot	≤1°C
Heating time	≤40min (Closed door with no load, RT ~ +200°C)
Machine power supply	AC220V
Inner box dimension	630(W)X600(D)X640(H)
Dimensions of machine	1400(W)X786(D)X1085(H)
Total weight	150Kg

Applicable standards

GB/T 5170.2-2017

Applicable components

For high temperature burn-in, heat treatment and drying treatment.

HTC2020

HTC2010

High temperature environment test chamber