HTXB=HTRB+HTGB

The Integrated Test System for Burn-in Test

➢ Overview

Prime-Rel HTXB series products are all in one system for power semiconductor device burn-in test. They are mainly used for High Temperature Gate Bias testing (HTGB), High Temperature Reverse Bias testing (HTRB), for IGBT, DIODE, MOSFET, HEMT, BJT, SCR and other high power devices.

There is much new revolutionary and innovative idea for customers to integrate HTGB / HTRB test capabilities in one platform. The maximum range of power supply voltage is 0 ~ 6000 V, and other voltage capacity can be provided according to the customers' requirements. The maximum temperature range for testing is from room temperature to 260 ℃. HTXB supports to test 1280 discrete devices or 64 modules simultaneously. HTRB and HTGB can be performed at the same time also.

Users can monitor and control HTXB system remotely by ALITA SMART LAB software installed on mobile phone, PAD and PC, so that it's very easy to manage the test process and view real-time test results anytime and anywhere. When an abnormal state of the test process occurs, users will be alerted. In addition, the test data can

be uploaded to local or shared database center automatically. With Prime-Rel's cloud storage and cloud computing technique(ALITA SMART DATA SYSTEM), users are very easy to query, search and analyze the required data stored in database center quickly, which is benefit for product quality control and shortens time to market.

✓ Features and Advantages

High reliability	✓ 20,000 hours commissioning verification. ✓ ISO9001 quality management certification. ✓ High quality components.
Managing Remotely	✓ Supporting to control and monitor the test process remotely through ALITA Smart Lab software on the mobile phone, PAD and PC. ✓ When an abnormal state of the test process occurs, users will be alerted by ALITA Smart Lab, which makes the whole experiment unattended.
High efficiency	✓ Integrating HTRB / HTGB test capacity in a machine, which greatly reduces the cost of experiment. ✓ HTRB and HTGB can be performed at the same time.
High accuracy	✓ HTGB: IGES resolution:0.01 nA , IGES accuracy:1% of reading the value ± 0.5 nA ✓ HTRB: ICES resolution: 0.1 μA, ICES accuracy: 1% of reading the value ± 0.5 μA. ✓ High precision power supply.
Data management	✓ Data stored in local PC and data centre in real time ✓ Users are very easy to query, search, analyze, calculate and statistic the required data stored in database center quickly through Smart Data software
Safety	✓ After over current detected, the system will cut off the power supply rapidly within 100 ms. ✓ Even though the power is off, the temperature of oven will be indicated.
Ease of use	✓ Comfortable and ergonomic operation. ✓ Quick and comfortable experimental parameters setting. ✓ Easy to import and export recipes.

✓ Performance

Equipment ability	**Only HTGB function;** **Only HTRB function;** **Integrated HTRB & HTGB function;**		
Test criteria	JEDEC、MIL-STD-750E、GJB128A、AEC-Q101, ect.		
DUT type	IGBT，MOSFET，DIODE，BJT，SCR，HEMT, ect.		
Temperature conditions(ESPEC)	The room temperature+20℃ ~+200℃, Temperature deviation ： ±1.0℃ at ＋100℃, ±1.5℃ at ＋200℃.	The room temperature+20℃ ~+260℃, Temperature deviation： ±1.0℃ at ＋100℃, ±1.5℃ at ＋200℃, ±2℃ at ＋260℃	
Voltage bias range	HTRB: High precision linear power supply, 0-1000V range, Voltage deviation <1% reading value; High precision linear power supply, 0-2000V range, Voltage deviation <1% reading value; High precision linear power supply, 0-3000V range, Voltage deviation <1% reading value; High precision linear power supply, 0-4000V range, Voltage deviation <1% reading value; High precision linear power supply, 0-6000V range, Voltage deviation <1% reading value.		
	HTGB: High precision linear power supply, 0-32V range, Voltage deviation <1% reading value; High precision linear power supply, 0-100V range, Voltage deviation <1% reading value.		
Numbers of power supply groups	One group power supply. All 16 burn-in boards share a power supply.	Two groups power supply. Per 8 burn-in boards share a power supply.	Four groups power supply. Per 4 burn-in boards share a power supply.
Range of detected current	HTGB： IGES: 0~2000nA HTRB： ICES: 0-98mA		
Accuracy of detected current	HTGB:IGES resolution: 0.01 nA; IGES accuracy: 1% of reading ±0.5 nA HTRB:ICES resolution: 0.1μA , ICES accuracy: 1% of reading ±0.5μA		
Maximum DUT Quantities	1280 discrete devices	64 power modules	
Burn-in board	16 burn-in boards for discrete devices	8 burn-in boards with heat radiator for power modules	
DUT protection	After over current detected, the power of burn-in board will be cut off rapidly within 100 ms. Each DUT is in series with a 100mA fuse. Each burn-in board is in series with a relay	After over current detected, the power of DUT will be cut off rapidly within 100 ms. Each DUT is in series with a 100mA fuse and a relay	
Sample packages	Supporting various packages		
Operating mode	All operations can be done through mobile phone, PAD and PC remotely. Supporting SECS / GEM communication protocol.		

	Touch screen with 1024*768 resolutions.	
Safety	Reliable personnel security against electric shock, scald. Reliable equipment security against over current, short circuit, leakage, over temperature; The data is stored in PC and data centre in real time.	
Software Function		
Function module	**Function**	**Functional Description**
Operating	Starting	Automatic system and burn-in board state check. Testing according to the setting parameters; Scheduling the start time for an experiment; DUT will be forced by temperature, and electrical stress after starting.
	Ending	The burn-in test of every board can be ended individually during the test; The burn-in test will be stopped after arriving to the end time, over current happened.
Recipe management	Import and export	Test conditions, such as electrical and environmental parameters, can be imported from the recipe library.
	Creating / deleting / modifying	Easy to create / delete / modify recipes for each device.
Data management	Data storage	The data can be selected to store in local PC or upload to data centre in real time;
	Report management	The customers can edit the report format by Smart Data software according to the requirements.
Monitoring	DUT information	The value of DUT's current, voltage is displayed in real time. A variety of curves can be generated, such as current and Tj(calculated value) curve.
	Other information	Monitoring test schedule, logging and the state of oven.
PC	4U standard PC, Windows 10, 1T hard disk capacity.	
device power supply	AC220V 50Hz 5KW	
Size and weight	HTGB & HTRB: 132cm(W)×115cm(D)×195cm(H)，500KG	
Operating environment	The operating temperature is 23~28℃, the operating humidity is 20%~60%RH, the machine need to be far away from EMI and harmful gas.	

✓ Test Results

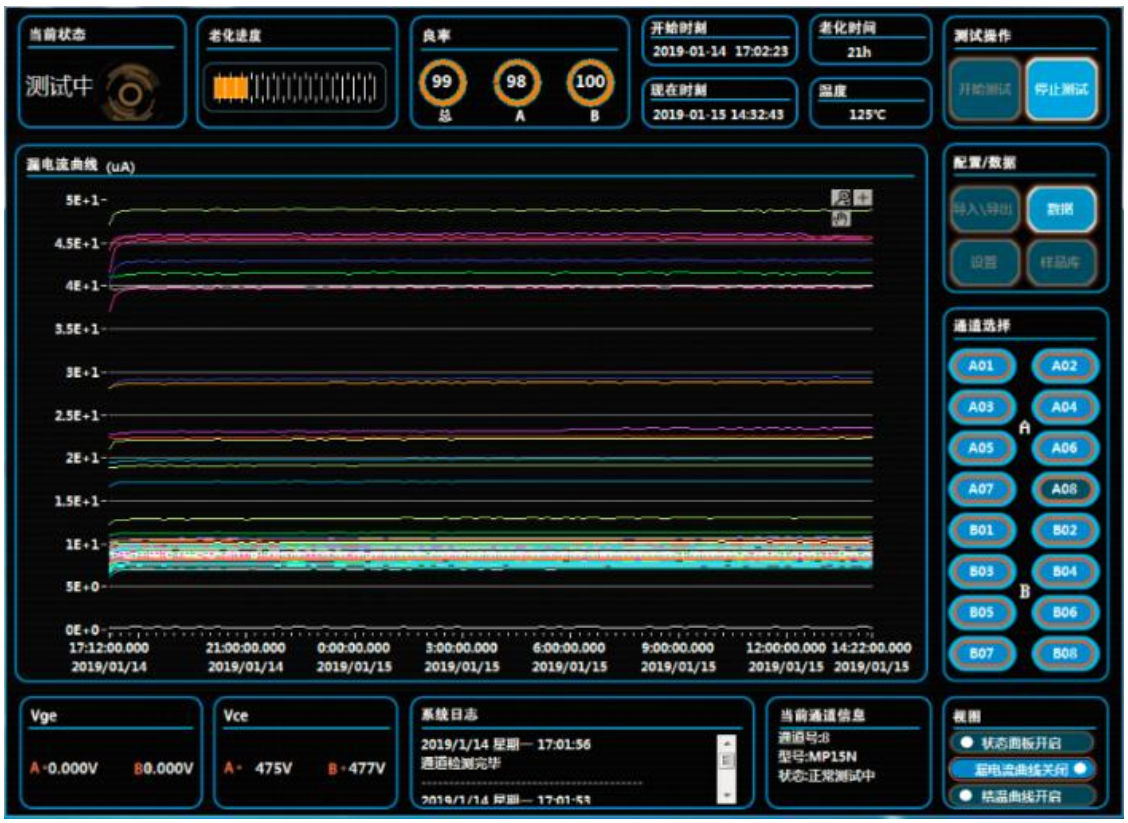

FIG. 1 Monitoring leakage current curve

FIG. 2 Monitoring leakage current data

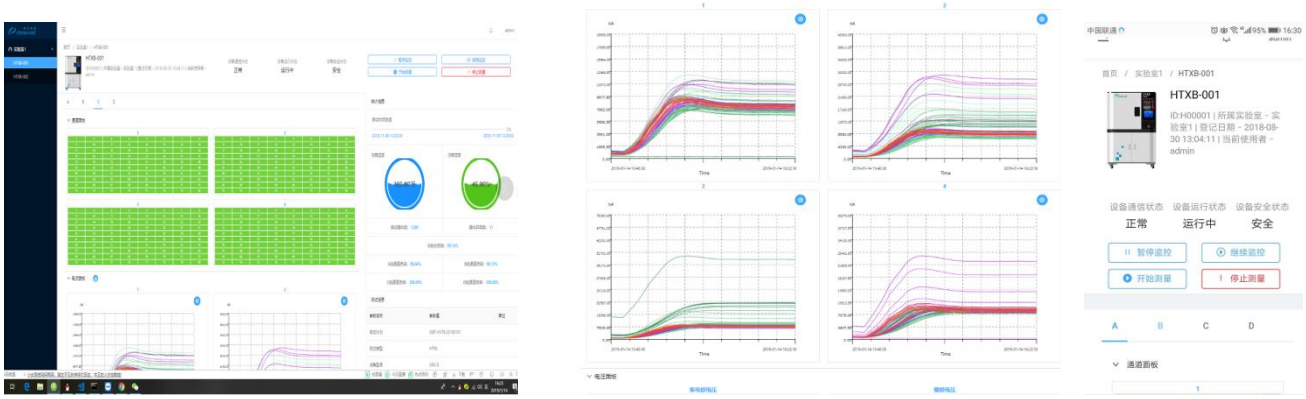

FIG. 3 Monitoring data remotely by PC or mobile phone

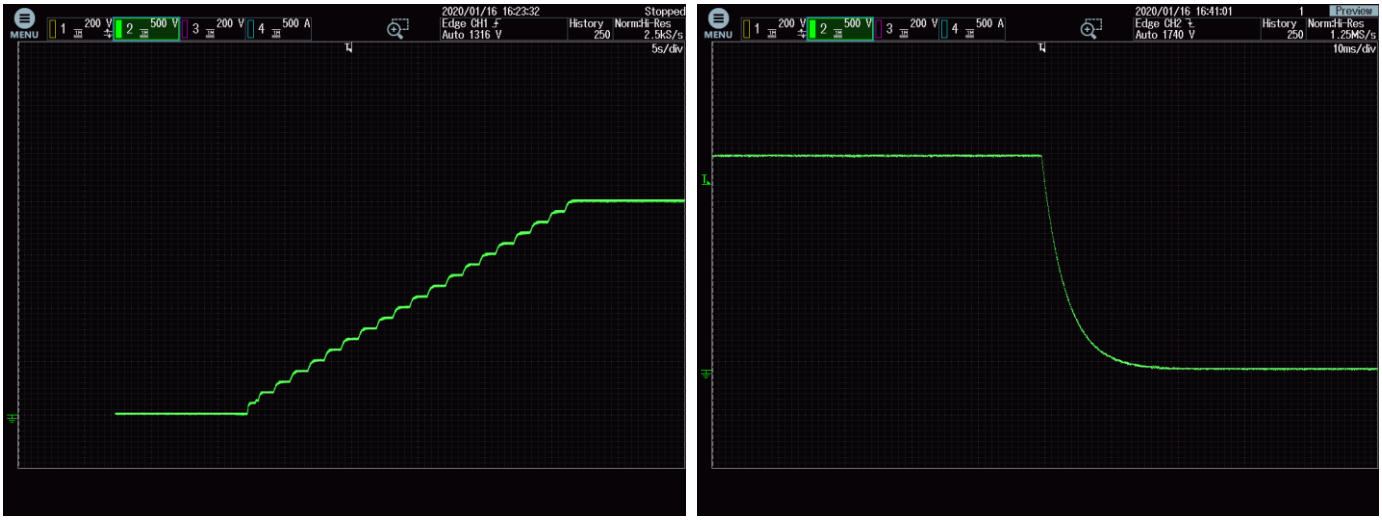

FIG.4 The waveform of power on (from 0V to 2000V) and power off (from 2000V to 0V) process