ADVANTEST®

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Advantest Introduces New M4542AD Dynamic Test Handler at SEMICON Japan

New Handler Provides Wide Temperature Range of -60 to +150°C

TOKYO, Japan, December 2, 2002 – Advantest Corporation (TSE: 6857, NYSE: ATE) announced today that it has developed a new test handler for use in the evaluation and mass-production of system-on-a-chip (SoC) devices that generate high temperatures and devices designed to operate at wide temperature ranges. With its newly adopted temperature control system, the M4542AD Dynamic Test Handler enables device testing at temperatures of anywhere from -60 to +150°C. In addition, the M4542AD also provides a high maximum throughput of 6,000 devices/hour when performing simultaneous testing of eight devices. Shipments of this product are scheduled to begin in spring 2003.

The M4542AD will be on display at SEMICON Japan 2002, to be held from December 4th to 6th at the Makuhari Messe convention center in Chiba Prefecture, Japan.

As device manufacturers increase their use of SoC designs, which strive to cram an ever increasing amount of memory, logic, and analog circuits on to single pieces of silicon, the semiconductor industry is quickly reaching new levels of circuit integration. One drawback to this trend, however, is that these devices tend to generate excessive heat, which can cause them to become damaged and malfunction during testing. Microprocessors and devices such as high-speed telecommunication chips that have to switch frequently between different signals are particularly susceptible to this phenomenon. Therefore, to accurately test such devices, manufacturers need access to handlers that can cool these chips off once they exceed pre-set temperature limits. Similarly, there has also been an increase in devices, such as the microprocessor control units (MCU) used in automobiles, that need to be able to operate over extreme temperature ranges as wide as -40 to +140°C.

To enable the testing of such devices, the M4542AD uses a new Active Thermal Control (ATC) function that maintains the pre-set surface temperature of the device during testing, allowing customers to test their devices at temperatures of anywhere from -60 to +150°C. The ATC function works by using temperature sensors located at the device junctions to constantly

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monitor the surface temperature of the device. If the device's surface temperature exceeds the pre-set limit, a 50W cooling mechanism is activated to lower the temperature of that particular device. On the other hand, if the device's surface temperature drops below its pre-set temperature, the M4542AD also contains a built-in heater to heat it up.

The M4542AD is the technological successor to Advantest's earlier M4541AD Dynamic Test Handler, which was released in November 2001. In addition to a simultaneous testing capacity of eight devices and a maximum throughput of 6,000 devices/hour, the M4542AD also has a motorized pickup arm that automatically adjusts its stroke and speed to prevent devices from cracking and chipping. This helps reduce the number of damaged devices and thus contributes to lower test costs. To reduce contact fails, the M4542AD uses a pressure control mechanism that enables constant, uniform pressure with the device.

Main Specifications

- Target Packages: Ball grid arrays (BGA), quad flat packs (QFP), chip scale packages (CSP), land grid arrays (LGA), etc.
- Simultaneous Testing Capacity: 1, 2, 4, or 8 devices
- Throughput: 6,000 devices/hour
- Index Time: 1.0 sec.
- Heating Method: Heating plate
- Device Cooling Capacity: Max. 50W/device
- Temperature Range: Room temperature, -60 to +150°C.
- No. of Sorts : 5

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