MODEL 3260

KEY FEATURES

- Reliable high-speed pick & place handler
- Auto contact-force learning
- Gull wing package capability
- No socket damage
- Air damper for contact balance
- IC-in-socket protection
- Invention patent 190373, 190377, 1227324 & 125307
- Thermal Control Configurations
  - Tri Temp Control
  - Close-Loop Active Thermal Control (ATC) Module
  - Unity PTC (Passive Thermal Control)

AUTOMATIC SYSTEM FUNCTION TESTER

MODEL 3260

Chroma 3260 is an innovative handler for high volume/multi-site IC testing at system level. It is capable of handling packages for various types including QFP, TQFP, BGA, PGA, etc. The handler uses pick and place technology to pick up devices from JEDEC trays, move them to the test site, then move them to the appropriate bin after test.

Chroma 3260 can test up to 6 devices in parallel at high temperature with ATC (Auto Temperature Cooling) ranging from -40˚C to 125˚C.

Chroma

AUTOMATIC SYSTEM FUNCTION TEST

The Disruptive Innovation in Semiconductor Test

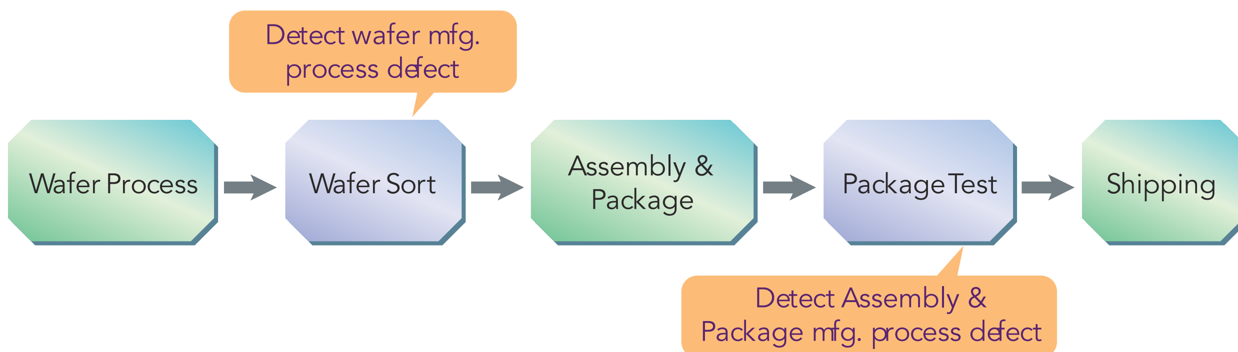
- cited from Dr. Christensen, Harvard University. The Innovator's Solution

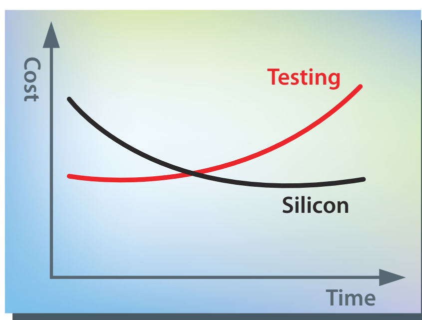
CONVENTIONAL IC MANUFACTURING PROCESS

In conventional IC backend process, to ensure shipment quality, most companies test packaged devices at speed with full function. However this induces several issues,

1. Device shipment quality is not ensured due to the difference between ATE and real working environment.
2. Time to market is delayed due to months-long test program development on ATE's.
3. Test cost continually raises in contrast with reducing silicon cost.

Therefore some companies add manual system function test after package test before shipment. However, with this approach people have to deal with human errors e.g. miss binning, bend-lead and etc.. ◦





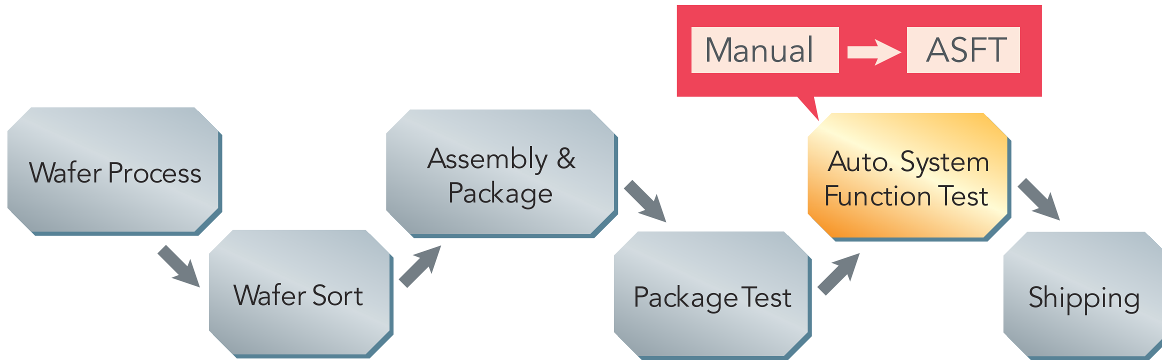
QUESTIONS

Assuming chip design is bugs-free:

- Is there a better solution for testing packaged chip at speed?
- How do we achieve higher level of quality (lower DPPM)?
- How do we ship sample devices before ATE test program is ready?
- How do we reduce overall test cost?

SOLUTION - CHROMA 3260 AUTOMATIC SYSTEM FUNCTION TEST

Chroma's solution is "automatic system function test". That is, after package test before shipment, customers add an automatic insertion with Chroma's patented 3260 for testing devices in real working environment.



BENEFITS

- Quality Improvement
  - IC is tested in a real working environment. This process ensures the out-going quality level and reduces DPPM after shipment.
  - Compatibility issues can be checked by this approach.
  - Human errors can also be eliminated.
- Shorten Time to Market
  With ASFT support we can ship tested samples in quantity before ATE test program is ready. This typically shortens time to market from months to weeks.
- Cost Reduction
  As long as we adopt the ASFT, customers no longer need high-performance expensive ATE hence reduce overall cost of test.

THERMAL CONTROL CONFIGURATIONS

Tri Temp Control

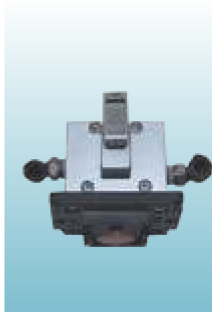
- Temperature Accuracy: ± 1 ˚C
- Device Temperature Feedback (Thermocouple/RTD/Thermistor)
- PID Ramp Control (with Auto-tuning capability)
- PWN TE Power Control
- Die Cushion (Dual Force) Control
- Modularized Dry Air Chamber
- Water Chiller
- Dry Air Supplier

Unity PTC (Passive Thermal Control)

- Temperature Range : <85 ˚C, (up to 300W Heat Dissipation)
- Closed-loop Cooling System (no external piping)
- All in One Attached on Test Arm
- Die Cushion (Dual Force) Control
- Neither Water Chiller nor Dry Air Supplier

Close-Loop Active Thermal Control (ATC) Module

- Temperature Accuracy: ± 1 ˚C
- All in One Attached on Test Arm
- Device Temperature Feedback
- PID Ramp Control (with Auto-tuning capability)
- PWM TE Power Control
- Die Cushion (Dual Force) Control
- Closed-loop Cooling System (no external piping)
- Chamber-less



Cooling Pipe

- Temperature Range : <85 ˚C, (up to 125W Heat Dissipation)
- Compressed Air from test plant. Air : 0.7 MPa, 70 LPM
- Die Cushion (Dual Force) Control
- Change KIT Alike
- Neither Water Chiller nor Dry Air Supplier

SPECIFICATIONS

Model	3260	
Dimension (WxDxH)	2570 mm x 1360 mm x 1780 mm	
Weight	1300 kg	
Facility	Power : AC 220, 50/60 Hz Single-Phase Maximum Power Consumption : 6.0 KVA Max Controller Circuit : 3.0 KVA Max Heater Circuit : 3.0 KVA (Option)	
Compressed Air	Dry Air of 5.0 kg/cm^2 (0.49 Mpa) or higher, constant supply	
Vacuum Source	Build-in Diaphragm Vacuum Pump: Pumping Volume : 100 L/min Ultimate Pressure : 100 Torr (-13.3 Kpa) Max.	
Applicable Device	Type : BGA series, μBGA, Pga, QFP series, CSP, BCC, QFN, Flip-Chip, TSOP Outer dimensions: 4 mm x 4 mm to 45 mm x 45 mm Lead / Ball pitch : 0.4 mm / 0.5 mm and above	
Multiple Testing Layout	6 sites (Pitch 400 mm)	
Index Time	3.0 sec (excluding test communication time)/ One site cycle time : 3.5 Sec	
Ram Rate	1/5000 pcs	
Applicable Tray	JEDEC and EIAJ	
Categories	4 categories (6 categories for option)	
Contact Force	Max. 60 Kgf (accuracy ± 1kgf) by servo motor (80 Kgf for Option)	
Soak Hot Temperature (Option)	Operating Mode : Room Temperature / High Temperature Temperature Range : 50˚C to 150˚C (Heat-up time: Within 30 min) Accuracy : Pre-heater Buffer ± 5˚C, Contact Area ± 3˚C Cooling Head : 10˚C + 5˚C	
Temperature Control (Option)	Operating Mode : Room Temperature / Cold Temperature Temperature Range : room temperature ~ -55˚C Accuracy : Contact Area ± 3˚C	
	Tri Temp Control (Option)	Temperature Range : -40˚C ~ 125˚C ± 2˚C (150˚C Option) or -55˚C ~ 135˚C ± 2˚C (150˚C Option)
	ATC Module (Option)	Temperature Range : Ambient ~ 135˚C ± 2˚C (150˚C Option)
	Unity PTC (Option)	Temperature Range : ~ 85 ˚C (up to 300W Heat Dissipation)
Tester Interface	Standard : RS-232 Option : GPIB, USB and TTL	
Features	Universal kit design ECD function (Easy-edit communication define) Two tray (Color tray) mode available Continuous fail retest function Real pick and place system Yield control (Average yield of socket) Yield monitor (Per contact head plug) System Invention Patent No.: 190373 Process Invention Patent No.: 190377	
Option	CCD camera for device orientation detection Socket sensor / Socket CCD RF Shielding Box : 55db for PCIe, 80~90db for PCI/USB/RS232 Rotator (90 degree) Fault Auto Correlation Test (FACT) Built in Continuity Test (BICT) PoP handling capacity	

All specifications are subject to change without notice.

ORDERING INFORMATION

3260 : Automatic System Function Tester

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