Rapid Thermal Process

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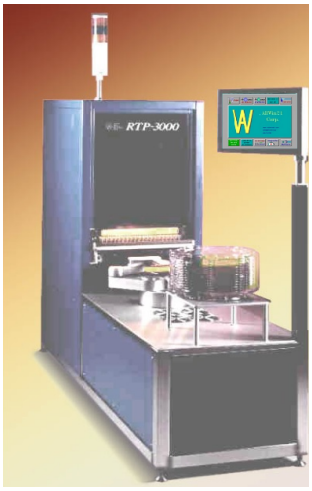


AccuThermo RTP-3000

made in usa

semi MEMBER

CE

Introduction

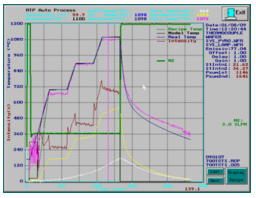
The AccuThermo RTP-3000 is a stand alone atmospheric RTP (Rapid Thermal Processing) system, which uses high intensity visible radiation to heat single wafer for short process periods of time at precisely controlled temperatures. The process periods are typically 1-900 seconds in duration, although periods of up to 9999 seconds can be selected. These capabilities, combined with the heating chamber's cold-wall design and superior heating uniformity, provide significant advantages over conventional furnace processing.

AccuThermo RTP-3000 Key Features

- Long steady time capability RTP/RTA/RTO/RTN system with big stand alone frame and fans in the frame.
- 35 years' production-proven Real RTP/RTA/RTO/RTN system
- Scattered IR light by special gold plated Al chamber surface.
- Allwin21 advanced Software package with real time control technologies and many useful functions.
- Consistent wafer-to-wafer process cycle repeatability.
- Top and bottom cross High-intensity visible radiation Tungsten halogen lamp heating for fast heating rates with good repeatability performance and long lamp lifetime.
- Cooling N2 (Or CDA) flows around the lamps and quartz isolation tube for fast cooling rates
- Elimination of external contamination by Isolated Quartz Tube
- Up to six gas lines with MFCs and shut-off valves
- Energy efficient.
- Made in U.S.A.
- Double O Ring for O2 sensitive applications
- O2 Sensor/Analyzer for O2 sensitive applications in production

Typical Application Areas:

- Chip manufacture
- Compound industry: GaAs,GaN,GaP,GaINP,InP,SiC, III-V,II-VI
- Optronics, Planar optical waveguides, Lasers
- Nanotechnology
- Biomedical
- Battery
- MEMS
- Solar
- LED



Typical Applications (But not limited to)

- Silicon-dielectric growth
- Implant annealing
- Glass reflow
- Silicides formation and annealing
- Contact alloying
- Nitridation of metals
- Oxygen-donor annihilation
- Other heat treatment process

Double O Ring

O2 Sensor/Analyzer

Integrated Solid Robot

E-mail: sales@allwin21.com Website: www.allwin21.com

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AccuThermo RTP-3000 Software Key Features

- Integrated process control system
- Real time graphics display
- Real time process data acquisition, display, and analysis
- Programmed comprehensive calibration and diagnostic functions
- Closed-loop temperature control with temperature sensing.
- Precise time-temperature profiles tailored to suit specific process requirements.
- Faster, easier Programmable comprehensive calibration of all subsystems, leading to enhanced process results.
- A recipe editor to create and edit recipes to fully automate the processing of wafers inside the AccuThermo RTP
- Validation of the recipe so improper control sequences will be revealed.
- Storage of multiple recipes, process data and calibration files so that process and calibration results can be maintained and compared over time.
- Passwords provide security for the system, recipe editing, diagnostics, calibration and setup functions.
- Simple and easy to use menu screen which allow a process cycle to be easily defined and executed.
- Troubleshooting feature which allows engineers and service personnel to activate individual subassemblies and functions. More I/O, AD/DA "expose".
- Use **PowerSum** to save valuable compound material wafers
- Watchdog function: If this board looses communication with the control software, it will shut down all processes and halt the system until communication is restored.
- GEM/SECS II function (Optional).

AccuThermo RTP-3000 Specifications

- Wafer sizes: Small pieces, 8" and 12" wafer capability
- Recommended ramp up rate: Programmable, 10°C to 120°C per second. Maximum Rate: 200°C (NOT RECOMMENDED)
- Recommended steady state duration: 0-600 seconds per step.
- Ramp down rate: Non-programmable, 10°C to 200°C per second.
- Recommended steady state temperature range: 400°C - 1150°C. Maximum 1250°C.
- Temperature sensor 400-1250°C with ±1°C accuracy when calibrated against an instrumented thermocouple wafer.
- Thermocouple 200-400°C or >1250 °C (**Optional**)
- Temperature repeatability: ±0.5°C or better at 1150°C wafer-to-wafer. (Repetition specifications are based on a 100-wafer set.)
- Temperature uniformity: ±8°C across an 8" (200 mm) wafer at 1150°C. (This is a one sigma deviation 100 angstrom oxide.) For a titanium silicide process, no more than 6% increase in non-uniformity during the first anneal at 650°C to 700°C.
- Process/Purge gas inputs: Any inert and/or non-toxic gas regulated to 30 PSIG and pre-filtered to 1 micron. Typically, N2, O2), Ar, He, forming gas, NH3, N2O2 are used.

AccuThermo RTP-3000 Configuration

- RTP-3000 Main Frame with wires.
- Power Type: Three Phase, worldwide power (50/60 Hz).
- CE Mark if Necessary.
- Pentium® class computer with a 15-inch touch screen monitor and Allwin21 Corp proprietary software package.
- Mouse and standard keyboard.
- Aluminum oven chamber with water cooling passages and gold plating plates.
- 400-1250°C temperature sensor.
- **Isolated Quartz Tube** with Window for 400-1250°C temperature sensor.
- Oven control board and one main control board.
- Bottom/Top cross heating IR lamps with **10 bank zones**.
- Quartz Tray for 8" or 12" round wafer or customized.
- Up to **6 Gas line** with 2 of MFCs with shut-off valve.
- USB with original Software backup.
- Shutt-off valve for Quartz Tube&Lamps cooling control
- **Double O Ring**
- **Integrated Solid Robot** and Fixed cassette station

Options:

- Multiple Process Gases (Up to 6) and MFCs with Gas Control Board if necessary.
- Susceptor for small sample, transparent substrate and substrate with metal thin film on top.
- **O2 sensor/analyzer.**
- SMIF Port
- 8-inch, 12-inch TC Wafers, Single Point for temperature sensor calibration
- Omega Meter for temperature sensor calibration
- Susceptors and Susceptor load/unload station
- Chiller for temperature sensor.
- **Thermocouple** for low temperature: 200-400°C

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