RTA-pieces

STANDARD OPERATING PROCEDURE

CORAL NAME: RTA-Pieces

Model: ANNEALSYS RTP Micro

What it does: Rapid Thermal Processing

Introduction:
The system can run a large variety of semiconductor materials based on the Process
Technology Committee (PTC) approval.

The AS-One 150HT has the following process capabilities:
It is a hot wall system running under Thermocouple control.
It allows wafers or pieces smaller than 1" diameter, and thinner than 700 um,
placed in a Silicon Carbide-covered Graphite susceptor.
Thermocouple control temperature range: 100C – 1000C
Maximum ramp up rate on SiC susceptor: 30C/sec
Maximum step duration: varies with the temperature level.
Lamps time life varies with the temperature-time budget values: > 1000 Hours.

Gases:
Nitrogen, Forming Gas and Ammonia with maximum flow: 1 SLPM
Can operate at low pressure (a few millitorr).

The AS-ONE Micro RTP runs under recipe control; recipes are located in the specific
 recipe libraries. The recipes are created upon user request, taking into account the
setup configuration, the limits of operating parameters and the PTC approved
processes.

Safety:
    -    The Ammonia (NH3) and Forming Gas (5.5%H in 95% N2) MSDSs can be
found in the binders located in lab areas & in the Web.
    -    The system has hardware interlocks that forbid mixing
Ammonia with air or Oxygen; the same applies to Forming Gas.
    -    Parts inside the chamber could be very hot; avoid direct
contact.

Procedure:

1. Engage the RTA-Pieces machine in Coral.
2. Push the green power ON button on the machine panel.
3. Click the "AnnealSoft" icon on the computer display and login into your account.

4. Click "PROCESS" button at the base of the computer window, and select the recipe
   you plan to use from the dropdown recipe list.
   Click on "Download" button on the top right side of the window.
5. Click on the "Unlock chamber" button, open the process chamber by pushing up
   on the top cap handle, place your wafer inside on the Quartz pins, close down
   the top cap and click on the "Lock chamber" button.
6. Click on "START" button on the right side of the window. A new window will
   pop up with the prompt for the file name and time stamp to save the run data in.
7. Push the new "START" button in the new window to start the process.
8. The system will show a graphic display with real time process parameters;
   at the end of the run a window will pop up: "Recipe finished successfully" :
   Click "OK" to acknowledge it.
9. Click the "Unlock chamber" button, open the process chamber, take out the wafer,
   close the chamber and click the "Lock chamber" button.
10. You can see the automatically-stored run data by pushing the " Historical"
button
11. Turn off power to the machine by pushing the red OFF button on the front panel,
    and click on the "COM" button on the top right corner of the computer display to
    cancel the alarm, push the "Shut down" button on the right bottom corner of
    the display to close the software application .
12. Disengage the machine in "Coral" and add your comments.

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