RoodMicrotec
powerful solutions

RoodMicrotec Newsletter 5

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All test activities in one place

In general, the political and economic situation in Europe is creating a great deal of unrest. We find this among our customers, as we stated in the press release announcing our half-year figures. In spite of this, after taking on a number of engineers, we still have vacancies in test engineering and in Failure & Technology Analysis.

In both sectors we have had a shortage of engineers in recent times, which affected sales negatively. Our order intake remains satisfactory.
Over the summer we have transferred the test activities from Stuttgart to Nördlingen in order to achieve greater efficiency and improve quality.

Optimum use of FIB systems

RoodMicrotec has beefed up its Focused Ion Beam (FIB) team, allowing it to use the current two systems in parallel. The team is made up of Friedrich Dreher (pictured left), who has no less than 20 years experience in FIB, Günter Kohm (pictured right) with seven years experience, and Timo Mohamed EL Khawaga. Timo has been trained as a FIB specialist by RoodMicrotec in-house and with EMPA in Zürich. Currently, he is gaining experience. With this team, we are able to serve our customers 12 hours a day.

We have highlighted Focused Ion Beam method before in an earlier edition of this newsletter, but here is a refresher.

A FIB system works very similarly to a scanning electron microscope (SEM), except that it uses a finely focused beam of gallium ions instead of electrons. It is a powerful technique for failure analysis in micro- and nanoscale, because it enables analysis of failures from any specific region of interest in the material and it results in significant times savings. Processes that used to take several weeks can be condensed into 2-3 hours.
The applications are inter alia chip modifications, cross-sectional analysis, TEM lamella preparations, micro and nano-structuring, and process monitoring, and much more.

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RoodMicrotec focus on chip modifications and cross-sectional analysis.

Monitoring burn-in: better quality of devices

Frank Weber first entered the field of chip testing 25 years ago with Siemens. After Qimonda's insolvency in March 2009, he moved to Diotec Semiconductor AG, a diode and rectifier manufacturer located nearby Freiburg as a quality manager. He joined RoodMicrotec in August of this year as manager of the qualification, reliability and burn-in business unit.

With his extensive experience in monitoring burn-in, it feels like going back to his roots, he says.

Within this business unit, RoodMicrotec offers the service for all qualifications and reliability tests of the customers products according to the various international standards.

In this interview, Frank explains the difference between static, dynamic and monitoring burn-in.

Burn-in is the process of stressing and testing electrical devices to detect and eliminate initial failures. This process forces defectiv semiconductor devices to fail before they are incorporated into assemblies where they can cause reliability problems in the end-product. A distinction can be made between static burn-in and dynamic burn-in. Static burn-in is at a constant input of voltage and a constant load for a predetermined time at high temperature. While dynamic burn-includes all the features of the static burn-in plus exercising the device at high temperature and other harsh conditions, stressing the internal circuitry of a complex system as much as possible. A drawback of this burn-in method is that it does not reveal any failures of the devices during burn-in. Monitoring burn-in goes one step further. It not only identifies passing and failing devices during the burn-in process, it also demonstrates under which conditions a device is failing and guarantees that the device is actually getting the proper inputs and receiving the specified burn-in to achieve targeted reliability. This improves quality, increases productivity and therefore provides greater production cost-effectiveness.

Frank Weber states proudly that to his knowledge RoodMicrotec is the only test house and test laboratory in Europe that has this monitoring burn-in system.

The Burn-in chamber has 2 times 24 slots (Burn-in board positions), each of the chambers (left and right side) can run at an independent temperature, and every slot can run with a different product. This results in maximum 2 times 24 different products at two different temperatures to be processed in parallel.

Colophon

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