RoodMicrotec
powerful solutions

RoodMicrotec Newsletter

3

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We will continue to work towards improving results and increasing turnover.

We can look back on an interesting shareholders' meeting, which at the time this newsletter appears is already more than a month ago. One of the issues discussed there was the (lagging) share price compared to EBITDA.

Of course, there is little we can say about that. All we can do is make our best efforts to make the share attractive by continuing to improve our results and the trend of an average annual growth of turnover of 15% over the next few years.
We announced a strengthening of our supervisory board in a press release of 11 May. We will hold an extraordinary shareholders meeting on 30 June to seek approval for this nomination, and we hope to be able to welcome you there.

New Method to Determine Voids.

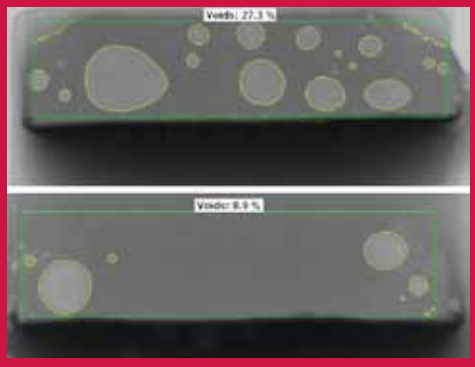
RoodMicrotec has developed a new software-based method to detect voids in solder joints in combination with an X-ray microscope. This is a non-destructive method to investigate the formation and the quantitative evaluation of voids in solder joints.

Solder joints are widely used to join two metallic materials, providing an electrically conductive bond that has low thermal impedance and high mechanical durability. In semiconductor applications, solder joints are used to attach passive and active devices, for example microprocessors, to a heat spreader. In this specific case this requires that the solder joint should have low thermal impedance and uniform heat conduction properties in order to avoid general overheating as well as hot spots in the device.

A conventional way to form a solder joint between metal surfaces includes deposition of flux on the metal surfaces, placing a solder material between the surfaces, and then heating the solder material to form the solder joint. The flux, which outgases as the solder is heated, can disperse into the solder material and form voids. These voids reduce the mechanical strength and the thermal conductivity of the solder joint. This may result in overheating and damage and can ultimately cause the device to fail.

Furthermore, understanding of the formation of voids in solder joints is important for predicting the long-term reliability of solder interconnections because voids augment the sensitivity to stress caused e.g. by temperature cycles.

'Our X-ray microscope allows for fully automatic photographic documentation and void calculation of all devices mounted on a printed board assembly. Even when we have different background contrasts caused by vias (a via is a vertical electrical connection between different layers of conductors in a printed circuit board) the software is able to calculate the percentage of the voiding area', explains Jürgen Gruber, who introduced the method and showed its importance for several types of applications.



The figure shows on top one solder joint (field of view: 1.6 x 0.4 mm) of an SMD resistor where the X-ray inspection reveals 27% voids within the solder area underneath the part. The part at the bottom has only 9% voids. A shear test then showed that the shear force of the bottom part is 5% greater.

MANOS, one of several interesting projects RoodMicrotec is working on.

MANOS, or 'modular assembly of systems with nano-modified surfaces for automotive and industrial sensors' was selected for the funding program 'ICT 2020 - Research for Innovation' from the German Federal Ministry of Education and Research (BMBF).

The kick-off of the project was held on May 9 and 10. Our well-known partners Würth Elektronik, ContiTemic, Sick, KERONA and Fraunhofer IZM will work with RoodMicrotec in the joint research project. The total volume for RoodMicrotec is € 450,000, of which 54% is funded by BMBF.
The 3-year project (2011-2014) aims to design and prototype electrical and optical sensors for boards with integrated electronic components for automotive and industrial applications. Our focus in the project is to develop test and qualification strategies for electrical and optical sensors. Major advantages will include cost savings and compactness. Normally, devices are mounted on top of the board, but in this case they are integrated so they require less space.

Modular Assembly of systems with Nanomodified Surfaces for Automotive- and industrial-Sensor Systems.

'Over the past few years the industry has developed different applications for this technology. We have now moved a step further towards making it suitable for the automotive industry. That means that we will have to meet high standards in terms of humidity stress, mechanical stress and temperature cycles', says Reinhard Pusch.

Function and relation of project partners:

The MANOS-Project partners

Conti Temic microelectronic GmbH
DELO GmbH
Fraunhofer IZM
KERONA GmbH
RoodMicrotec Stuttgart GmbH
SICK AG
Würth Elektronik Rot am See GmbH & Co. KG
Würth Elektronik Schopfheim GmbH & Co. KG

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