

Press Release

010 30 October 2002

Better Heat Transfer At Reduced Costs

*Innovative production process allows
direct bonding of semiconductors to heatsinks*



By means of 2001 introduced industrial process "cold spraying" Diotec has managed to solder silicon chips directly onto heatsinks made from aluminium. Up to now semiconductors had to be bonded in a first step to a copper substrate, e. g. a socket of a press-fit diode, while a second step was necessary for mounting the whole part to a heatsink. Beside higher production costs this leads in general to a reduced heat transfer due to the transition between substrate and heatsink.



High resolution picture on request, see below

At the new technology copper particles are sprayed at supersonic speed onto the aluminium heatsink forming a thin, adhesive coating. For the adhesion only kinetic energy is responsible, there is no melting of the material and therefore no unwanted oxidation. On the so formed copper layer silicon chips can be direct soldered, upper side contacting is made by lead wires. Finally the assembly is molded for mechanical protection. Expensive substrate materials made from copper can be avoided, as well as the usual necessary further production step. Direct heat transfer from semiconductor to heatsink is possible without any barrier.

The new packaging technology can be used where ever the heatsink is also conducting current, e. g. at output rectifiers of car alternators or at diode assemblies for welding equipment. High currents and high amounts of heat can be handled safely, load cycling is proved as well.

Diotec Semiconductor GmbH located in Heitersheim/Germany produces and sells semiconductors like diodes, rectifiers, diacs and transistors with more than 25 years experience. **Further informations** are available from Udo Steinebrunner, Tel.: +49-7634-5266-83, Fax: +49-7634-5266-61, Email: u.steinebrunner@diotec.com or on our website <http://www.diotec.com/>.