

# Strong Partners for a Strong Business

Schott and the NEC Corporation are working together successfully as joint venture partners on the development, production and sales of packages for sensitive electronic components.

Japan has long been the world's biggest market for electronic components. Through its partnership with NEC, one of the leading Japanese electronics concerns, Schott has access to attractive markets not only in Japan but also throughout the Southeast Asian region. The German-Japanese joint venture started in October 2000 with a strong foundation for future growth. The start capital included the strong market presence in Japan, growing international business for Schott Glas Electronic Packaging and the strong brand name of its Japanese partner NEC. In addition to the manufacture and sales of joint venture products, special attention will also be given to the sales of Electronic Packaging (EP) products in Japan.

NEC Schott Components Corporation (NSC) is currently concentrating on the mass production of miniaturized quartz oscillator housings and thermal fuses. Japan is a country where wages are high but, by employing a high degree of automation, it has been possible to mass produce there very profitably. Products, which are not economically feasible to manufacture in Japan, are produced in countries where costs are more favorable, as in Thailand.

## Broad Range of Applications

The range of applications for packages for sensitive electronic components is huge given the high degree of electrification that currently exists. Hermetic packages are often used to protect sensitive components from environmental influences and to ensure that they have an adequate working life. Glass-to-metal technology uses a metal package and the electrical connection is insulated by glass. This includes packages for very small quartz oscillators which are used predominantly in quartz watches, PCs and mobile telephones. Other applications are sensors in motor vehicles and electrical connections for compressors in such things as refrigerators and air conditioning units. Thermal fuses can be found in virtually any household appliance that generates heat – such as hair dryers, coffee machines and rice cookers – but also in transformers,

*Quartz oscillator packages are used in mobile telephones, computers and quartz watches.*



*The intensive international cooperation between the various Schott units ensures optimal customer service in the local markets.*

cell phones and computers. These components prevent the appliances from overheating by cutting off the power supply.

"NSC is in a position to supply its customers with a large bandwidth of technical solutions with hermetic housing technology for sensitive electronic components and modules," explains Competence Center manager Ralf Daferner, in Ohtsu. Customers in Japan expect a high level of service and one often very decisive factor is the availability of detailed technical information locally in Japanese. Customers also expect reasonably priced manufacturing, which can be accessed through the Schott EP factories in the Czech Republic and Singapore together with NEC Technologies Thailand for thermal fuses. At the same time, the joint venture has access to Schott EP's development center in Landshut and the Schott and NEC central research laboratories in Mainz and Yokohama respectively. This enables it to produce "tailor made" special glasses and special ceramics for particular applications.

## Innovative and Fast

It is NSC's aim to meet the challenges of the highly dynamic electronic market with new developments and rapid reaction times. In addition to further miniaturization of quartz oscillator packages, the joint venture is working in particular on housings for optical signal data transmission, a market with



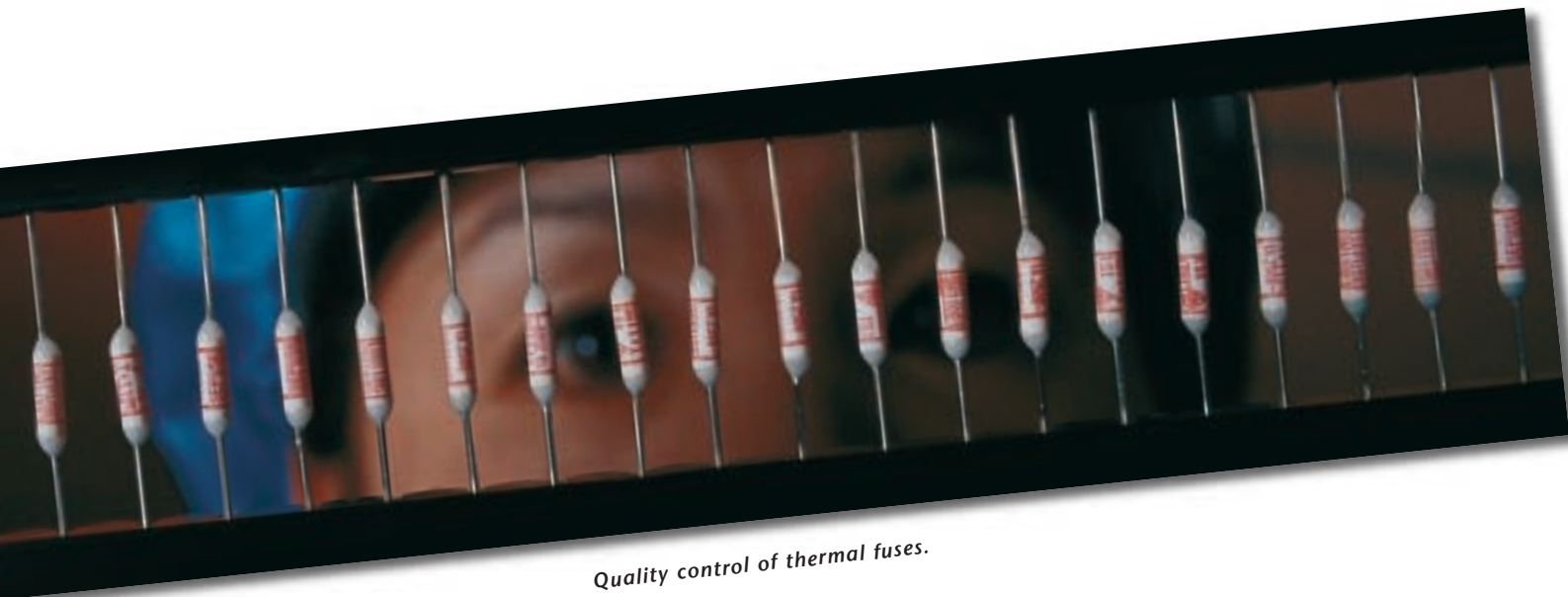
*By cutting off the power supply, thermal fuses (here SF type thermal fuse) prevent laptops and electronic appliances from overheating.*

potential in light of the rapidly expanding Internet (see "Schott info No. 97, page 2). In addition to the active components, packages for electronic components have to be optimized with reference to high frequency properties. "We are developing jointly with Schott EP housing technologies to enable us to play a part in this up-and-coming market where the classical glass-to-metal packages are pushed to their limits," explains NSC's Development Manager Klaus Muecke. This cooperation is not limited by national borders and embraces the entire EP world. Most of the customer contacts are in the United States, while the development work is done in Germany, the US and Japan and with some of the most important material components being produced at NSC in Japan.

The aim is to open up new markets and to make the existing but not utilized production line for ceramic packaging commercially successful. On the basis of existing contacts with well-known Japanese firms such as Nippon Denso and Matsushita, new activities in the automotive field are being pursued. Finally there are plans to expand the potential for ceramic packaging and substrates. In the long term NSC is also thinking of looking into completely new packaging technologies, for example chip size packaging and wafer level packaging ■



*The new NSC joint venture specializes in the mass production of miniaturized quartz oscillator packages and thermal fuses for sensitive electronic appliances.*



*Quality control of thermal fuses.*