

Application: 5226

## SCHOTT Lightweight Microelectronic Packages

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**Page: General Information**

Provide information about the company to be considered for the award. If you will be nominating an individual, specify the nominee's employer.

**Name of Organization/Company**

SCHOTT

**Additional Contacts**

I would also like to have others receive emails about the disposition of our entries.

**Page: Entry Information**

**Entry Title**

SCHOTT Lightweight Microelectronic Packages

**Category**

B03. Technical Innovation of the Year - Aerospace Technology

**Technical Innovation of the Year Submission Format**

Written Answers

**a. Briefly describe the organization that achieved the nominated technical innovation: its history and past performance (up to 200 words). Required**

International technology group SCHOTT produces high-quality components and advanced materials, including specialty glass, glass-ceramics, and polymers. Many SCHOTT products have high-tech applications that push technological boundaries, such as flexible glass in foldable smartphones, glass-ceramic mirror substrates in the world's largest telescopes, and laser glass in nuclear fusion. With their pioneering spirit, SCHOTT's 17,050 employees in over 30 countries work as partners to industries such as healthcare, home appliances, consumer electronics, semiconductors, optics, astronomy, energy, and aerospace.

To make aviation projects, astronomy and space missions possible, we partner with the industry to create innovative materials that overcome challenges and realize visions. For over a century, SCHOTT has provided cutting-edge solutions including glass-ceramics, specialty glass, and glass-to-metal sealings. Due to their extraordinary properties, such as radiation resistance, thermal and mechanical stability, our products are ideally suited for the harshest environments and toughest conditions.

In fiscal year 2023, SCHOTT generated 2.9 billion euros in sales. In addition to innovation, one of its important corporate goals is sustainability, with a commitment to climate-neutral production by 2030. SCHOTT was founded in 1884 and is headquartered in Mainz, Germany. The company belongs to the Carl Zeiss Foundation, which uses its dividends to promote science.

**b. Outline the nominated technical innovation. Be sure to describe it in terms that someone with limited knowledge of the technology can understand and appreciate (up to 250 words). Required**

SCHOTT's lightweight microelectronic packages can be used as microwave / RF packages, DC/DC converter packages, and hermetic sensor packages, particularly in aircraft and satellite applications. Made of aluminum, the new packaging is designed to protect against the harsh conditions of aviation and space, while weighing up to two-thirds less than conventional microelectronic Kovar packaging.

These hermetic packages meet the toughest specifications, including extreme performance and lifetime expectations where other components fall short. The high quality of our microelectronic packages offers reliability in high pressure, vibration, and temperature conditions, as well as optimal processability for our customers' production lines. This enables an increase in efficiency and cost-savings when it comes to protecting communication, navigation, and propulsions monitoring systems against the harsh environment of space. These packages offer seal hermeticity reaching an average temperature resistance of greater than 250 °C, thermal shock stability of -65 °C to 150 °C for 15 cycles, and the option to add special coatings designed to guard against corrosion.

**c. Explain why the technical innovation you have highlighted is unique or significant (up to 250 words). Required**

Previously, electronic packaging offered more protection and required heavier materials. SCHOTT's lightweight microelectronic packages match the high level of reliable protection offered by conventional Kovar packaging, but weigh up to two-thirds less. SCHOTT lightweight packages are completely customizable, meaning they can be specifically designed to fulfill even the most unique, and difficult requirements. The smallest reduction in a satellite's overall weight converts to a reduction in the fuel needed to launch it into orbit. Traditionally, aviation and space manufacturers were forced to decide between fuel-efficiency and long-term, reliable protection. SCHOTT's lightweight microelectronic packages maintain the highest level of reliable protection against extreme pressure, vibration, and temperature conditions – in addition to being a fraction of the weight and fully customizable.

SCHOTT's microelectronic packaging stands apart for its unique glass-to-metal sealing technology. With SCHOTT lightweight microelectronic packages, manufacturers no longer need to sacrifice fuel-efficiency for protection for their microelectronics. Specially designed and manufactured using aluminum, this new electronic packaging solution is two-thirds lighter than traditional packaging solutions made of Kovar – yet provides the same reliable protection.

**d. Reference any attachments of supporting materials throughout this nomination and how they provide evidence of the claims you have made in this nomination (up to 250 words). Optional**

**Webpage Link**

<https://www.schott.com/en-hr/news-and-media/media-releases/2023/schott-launches-lightweight-microelectronic-packages-for-aerospace> (<https://www.schott.com/en-hr/news-and-media/media-releases/2023/schott-launches-lightweight-microelectronic-packages-for-aerospace>)

**Would you like to add an additional webpage link?**

Yes

**Webpage Link 2**

<https://www.schott.com/en-us/news-and-media/media-releases/2024/schott-wins-silver-edison-award-for-lightweight-microelectronic-packages#:~:text=SCHOTT%20Wins%20Silver%20Edison%20Award%20for%20Lightweight%20Microelectronic%20Packages,-Friday%2C%20May%203&text=SCHOTT%20was%20honored%20as%20a,the%20future%20and%20improve%20lives>. (<https://www.schott.com/en-us/news-and-media/media-releases/2024/schott-wins-silver-edison-award-for-lightweight-microelectronic-packages#:~:text=SCHOTT%20Wins%20Silver%20Edison%20Award%20for%20Lightweight%20Microelectronic%20Packages,-Friday%2C%20May%203&text=SCHOTT%20was%20honored%20as%20a,the%20future%20and%20improve%20lives>.)

**Would you like to add an additional webpage link?**

No

**Supporting Document**

No File Uploaded

**Would you like to add an additional supporting document?**

No

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