SCHOTT Glass Powders

Passivation, Sealing and Solder Glasses

SCHOTT offers more than 100 standard glass types with lead-free solutions for all major applications. Our glass is produced with state-of-the-art methods, including patented technologies.

Characteristics and applications

Passivation glasses

protect the sensitive p/n junctions of semiconductors and can serve as hermetic packaging at the same time. They can be applied to semiconductors by a variety of techniques, such as doctor blading, photo-spinning or screen printing:

- Sinter glass diodes and rectifiers
- Wafer passivation, i.e. diodes and thyristors
- High-voltage varistors

Sealing glasses

are used to hermetically join together metals and other materials. They have defined coefficients of thermal expansion and processing temperatures of 800 °C to 1000 °C. They meet the requirements of both matched and compression seals in applications such as:

- Glass-to-metal seals
- Solid oxide fuel cells (SOFC) and electrolyzer cells (SOEC)
- High-temperature sensors

Solder glasses

with particularly low softening points (below 550°C) allow the joining of different materials (e.g. glass, ceramics or metals) without thermally damaging the component. To enable stress-free and hermetic sealing, the coefficient of thermal expansion is closely matched to the sealing partners:

- Opto-electronic packaging (window and lens caps)
- Flash lights and sensors
- Sealing of display devices

Customized Glasses

developed in close cooperation in order to meet specific customer requirements and application needs.

SCHOTT
glass made of ideas

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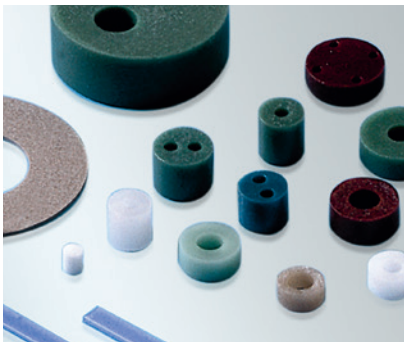
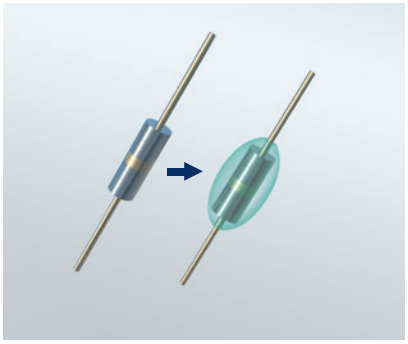
Glass compositions

Type	Description	Size*	Grain size d_{50} [µm]	Grain size d_{99} [µm]
K	Standard grind	K1	30 ± 10	≤ 150
		K2	16 ± 4	≤ 100
		K3	10 ± 2	≤ 63
		K4	7 ± 1	≤ 40
		K5	5 ± 1	≤ 40
		K6	3 ± 1	≤ 40
FK	Special grind with low abrasion level	FK3.5	3.5 ± 1	≤ 20
		FK2.5	2.5 ± 0.5	≤ 15
		FK2.0	2.0 ± 0.25	≤ 15
		FK1.5	1.5 ± 0.25	≤ 10
SM	Special grind with narrow distribution	SM3.5	3.5 ± 1	≤ 13



Preforms for hermetic glass-to-metal sealing



Protective passivation glass

Grain sizes are defined by the absolute size of the grains as well as grain size distribution:
d50 = 50 % of measured grains are equal or smaller than the specified value
d99 = 99 % of measured grains are equal or smaller than the specified value

*Individual grain sizes available, depending on the glass composition.

Application-specific formats supplied by SCHOTT

Sealing glass pastes consist of glass powder mixed with organic binder and solvents. Featuring a defined viscosity, they are ready to be screen-printed or dispensed for sealing and over-glazing purposes.

Sintered preforms are pressed and sintered glass beads, "pearls," rods or spacers in various shapes. They are mostly used for the production of hermetic glass-to-metal seals.

Find out more:

Passivation glass

Sealing and Solder glass

schott.com

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