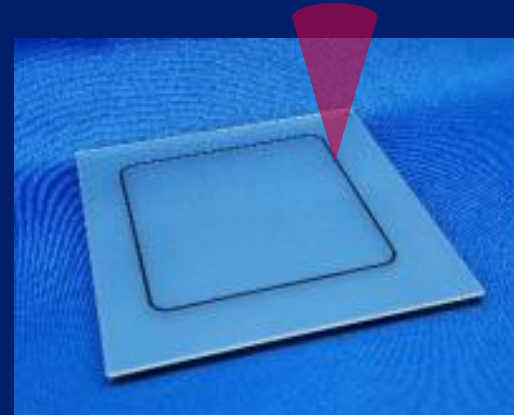


Introduction to AGC Localized Heating Seal Paste

The AGC logo is displayed in a white box on the right side of the slide. It consists of the letters 'AGC' in a bold, blue, sans-serif font, with a small red square positioned between the 'A' and 'G'.

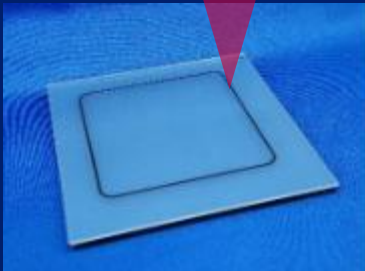
Electronics Company Electronic Materials
General Division
Advanced Materials Division
Semiconductor Materials Management
Department Frit Products Unit



AGC Inc.

Your Dreams, Our Challenge

Product Features



1

Enables Sealing without Thermal Damage to Components

Localized heating sealing **avoids thermal damage** to the devices.

2

Delivers High Hermeticity and Reliability

It provides high hermeticity and moisture resistance, **ensuring reliable long-term protection** for moisture-sensitive components.

3

Compatible with a Wide Range of Component Dimensions

Wide seal margin and product lineup to accommodate various component dimensions

4

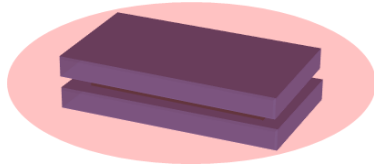
Enables Pre-firing at Low Temperatures

We have a range of products available to match your preferred specifications. Please feel free to contact us.

Features of Hermetic Sealing by Laser Heating

Conventional technology

Furnace Sealing

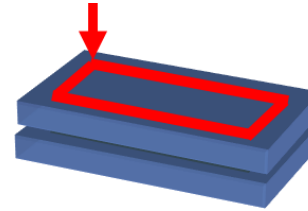


The entire substrate, including the sealant, is heated to 400-500°C.

Components with low thermal resistance **cannot be sealed**

Our Proposals

Laser Sealing



Localized heating with only sealants

The inside can be sealed at room temperature!




Point!

- ❑ Sealing is possible **without causing thermal damage** to internal components.
- ❑ Enables high hermeticity and reliability.

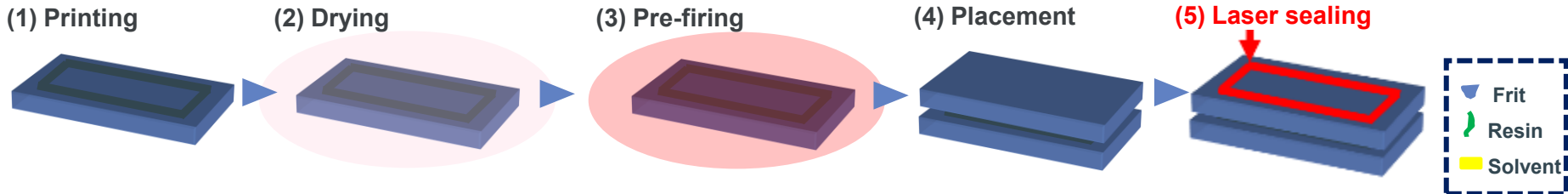


Point!

| | Resin sealing | Glass sealing |
|---|-------------------|-------------------|
| Water permeability g/m ² /day | <10 ⁻¹ | <10 ⁻⁵ |
| Weather resistance 60°C × 90%RH | 1000hr | 10000hr< |

| Targets for protection by glass sealing | Application Examples |
|---|---|
| OLEDs |  OLED |
| Perovskite structure |  Perovskite solar cell  Q-LED |

Laser Sealing Process



| Process | Purpose | Device | Conceptual diagram (Cross section) |
|-------------------|---|--------------------------------------|------------------------------------|
| (1) Printing | Glass paste is printed onto the substrate to form the desired pattern | Screen printing machine or dispenser | |
| (2) Drying | Solvent removal | Drying machine (120–180°C) | |
| (3) Pre-firing | Removal of resin from the substrate and sintering of glass | Firing furnace (350–500°C) | |
| (4) Placement | A pre-fired substrate is placed on a substrate carrying heat-sensitive components | - | |
| (5) Laser sealing | Laser irradiation melts the glass, enabling bonding between the substrates | Laser device | |

END

**We will do our utmost to help
you make your dreams come true.**

Shin-Marunouchi Building
1-5-1 Marunouchi, Chiyoda-ku

AGC

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