Glass frit for laser-sealing can create hermetic seals between glass lids and ceramic packages. This glass frit has a lower CTE* than conventional products and excellent wettability with ceramics. Therefore, this glass frit is suitable for hermetic sealing applications requiring high reliability.

*CTE: coefficient of thermal expansion

**Features**
- Similar CTE to ceramic material CTE: 6.5 to 7.2ppm/°C
- Excellent wettability with ceramics
- Prevents thermal damage to internal devices
- Glass lid with glass frit, paste and the most suitable LTCC* are also available.

*LTCC: low temperature co-fired ceramics

**Structural Examples of Deep-UV LED Packages**

- **Deep UV-transmitting glass**
  - CTE: 4.2ppm/°C
  - Aluminum nitride CTE: 4.2ppm/°C

- **Deep UV-transmitting glass (high-CTE type)**
  - CTE: 6.6ppm/°C
  - Alumina CTE: 7.0 to 7.4ppm/°C

- **Deep UV-reflecting LTCC (under development)**
  - CTE: 6.5ppm/°C

**Applications**
- Micro Electro Mechanical Systems (MEMS) packages
- Deep UV LED packages
- Hermetic sealing for packages
- OLED devices
Supply Forms and Processes

- Our general supply methods are given below.
- Customers can simplify the process.

1. We (Nippon Electric Glass) supply laser-sealed packages to customers.

   ![Diagram](image1)

   - Customer: Supplies packages with devices to our company
   - Nippon Electric Glass: Applies paste by screen printing to glass lid
   - Nippon Electric Glass: Drying and firing
   - Nippon Electric Glass: Laser seals glass lid and package with device
   - Resultant then returned to customer

2. We supply glass lids with glass frit printed and fired. Customers conduct laser sealing on their own.

   ![Diagram](image2)

   - Nippon Electric Glass: Applies paste by screen printing to glass lid
   - Nippon Electric Glass: Supplies glass lid with glass frit after drying and firing
   - Customer: Laser seals glass lid and package with device

- In addition, a combination of a glass lid with glass frit and LTCC cavity made by our company that is suitable for laser-sealing can be supplied. In such case, we can also supply the same in the form of a package after sealing by our company.
- Customers can select the optimal glass lid with fired glass frit from our various glass lids with a wide CTE range.