

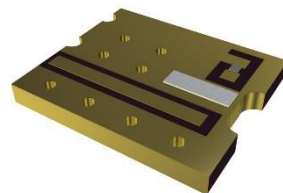
Company Profile

Company Name	Japan Fine Ceramics Co., LTD.
Location	Sendai, Miyagi, JAPAN
Established	April 5, 1984
Capital	300 Million Yen
Net Sales (FY ended 3/30/2019)	8,800 Million Yen
Number of Employees	460

* Side Pattern

* RF Bridge

* EML Carrier design



Company Feature

➤ Material

- In-house material
 - Al₂O₃(99.9%, 99.5%), Zirconia
- Outsourcing material
 - AlN(170/200/230W/m·K), Quartz, Black Alumina etc.

➤ Technologies

- High precise fine patterning (L/S=20μm/15μm)
- Side Pattern ■ Thin film resistor
- Step fabrication ■ Grooves
- Via (Cu Filled, Through Via, Castellation)

➤ Products

- EML, PD, MPD Carrier
- RF bridge/RF Launcher
- Optical Bench/Board

New Material

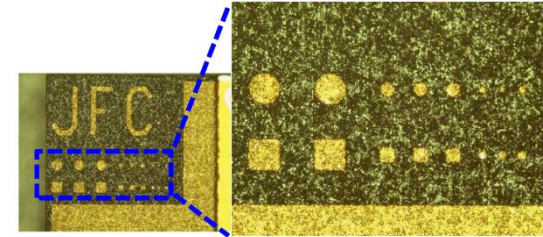
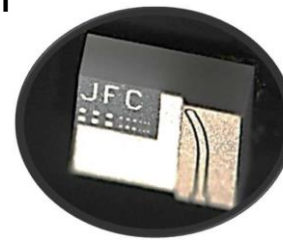
➤ SiN Substrate

= Under-development =

- ✓ Coefficient thermal expansion
- $2.5 \times 10^{-6}/K$ (RT~400°C)
- ✓ Flexural strength (bending)
- 700 MPa
- ✓ Thermal Conductivity
- 90 W/m·K
- ✓ Fracture toughness
- $6 \text{ MPa} \cdot \text{m}^{1/2}$

Development Technologies

➤ Patterning on stepped surface



- ✓ Advantage
 - Cost effective to eliminate jointing process
 - Enables monolithic design

Development Product

➤ Cu Thick Submount for High Power Laser Applications

= Under-development =

- ✓ Metallization configuration
- Ti(0.07μm)/Pd(0.12μm)/Cu(75μm)/Ni(0.5μm)/Au(1.5μm MIN)

Characteristics of discrete semiconductor devices are often undermined due to the heat that is generated from inside module. To solve this, mounted substrates require heat dissipation, electric insulation and CTE which matches semiconductor chips.

