

RF Materials

Company Profile



Hermetic package solutions for various industries

Make it Hermetic! Make it Reliable!

RF Materials specializes in hermetic package for optical communication, optoelectronics, RF and microwave, military and aerospace, industrial and medical laser application

The background features a dark, textured surface with a pattern of hexagonal shapes. Some hexagons are light gray, while others are dark blue or black. Scattered across these hexagons are various electronic components, including gold-plated connectors, circular components with gold rings, and small rectangular chips. The lighting creates highlights on the metallic surfaces of the components.

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09. New Ceramic Production Line
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11. Global Sales Agent

01. History

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2004~2007

2009~2011

- 2009. 09 Awarded as Million dollar Export Company by government
- 2009. 08 Appointed as Gyeonggi-do Promising Company by government
- 2010. 09 Awarded as Outstanding Innovation Company by government
- 2010. 06 Moved to new owned factory in Banwol Industrial Complex of Ansan-city
- 2011. 12 Awarded as Outstanding Export Company by Gyeonggi-do

2012~2014

2015~2018

- 2015. 08 Set up Multi-layer ceramic line
- 2016. 09 Set up the extension plating line (3rd factory)
- 2016. 10 Appointed as specialized root company
- 2017. 11 Contracted Overseas export techniques(Technology Transfer) \$1M
- 2017. 10 M&A with RFHIC
- 2018. 10 Awarded as a company of national merit for Parts & Materials
- 2018. 12 Achieved 3.25 million dollar in export
- 2018. 12 Set up Ceramic Green Sheet line
- 2018. 12 Appointed as Gyeonggi-do Star company

2019~

- Awarded as future growth engine business for material and part 2019. 04
- Appointed as global competitive company 2019. 05
- IATF16949 Certified 2019. 07
- Enlisted in KOSDAQ (Korean Stock Market) 2019. 12
- Established LD Module Division 2020. 05
- Expanded Transfer of Multi Layer Ceramic Line 2020. 12
- Corporate name change to RF Materials Co., Ltd. 2021. 03

01. Company Overview

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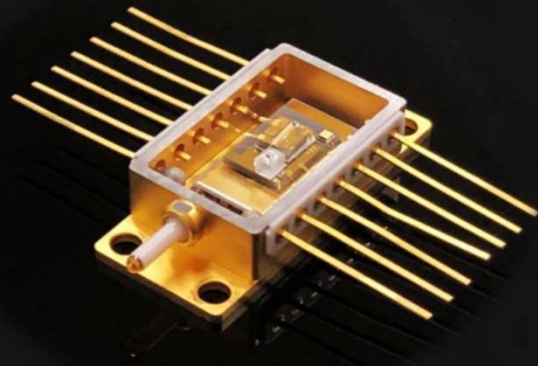
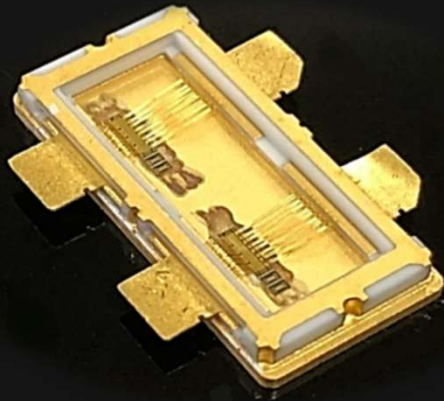
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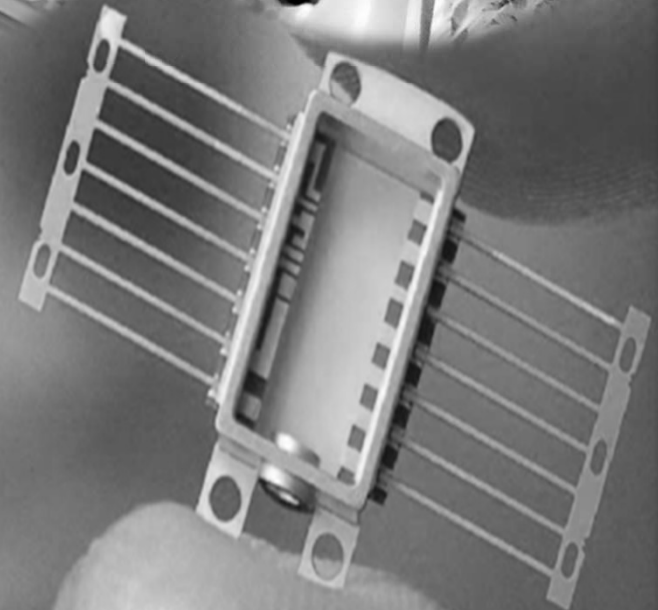
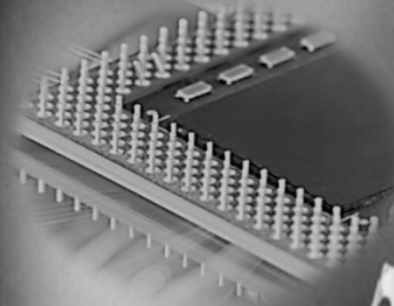
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Provide **Hermetic** Package and Solution required for various industries



Package for Compound Semiconductor



02. Major Business Sector

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02. 5G

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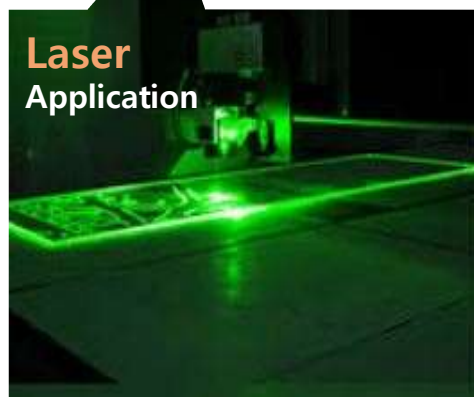
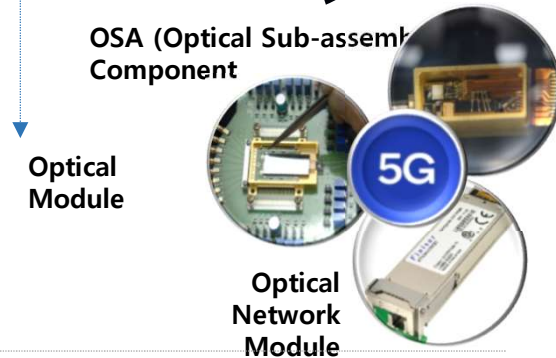
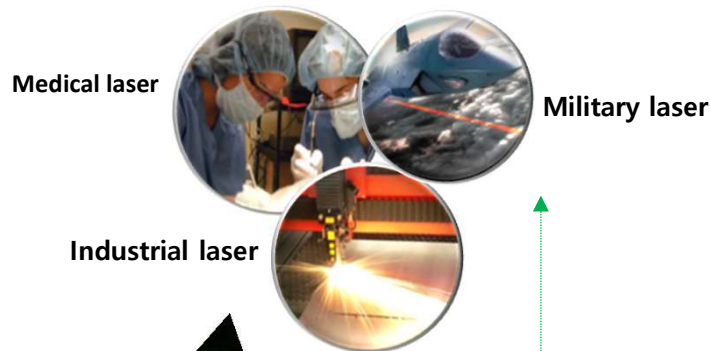
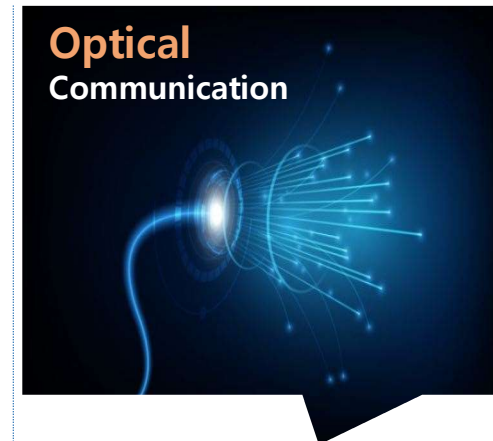
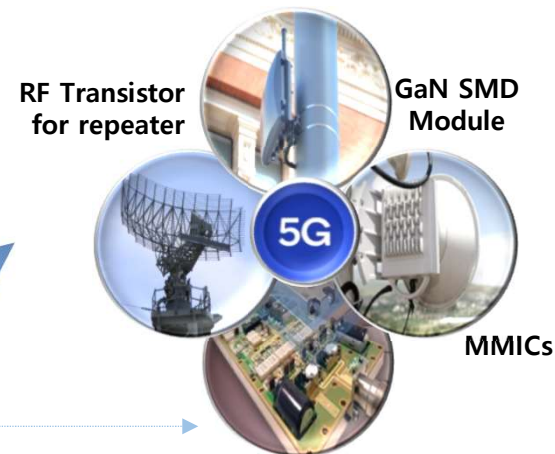
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03. Organization

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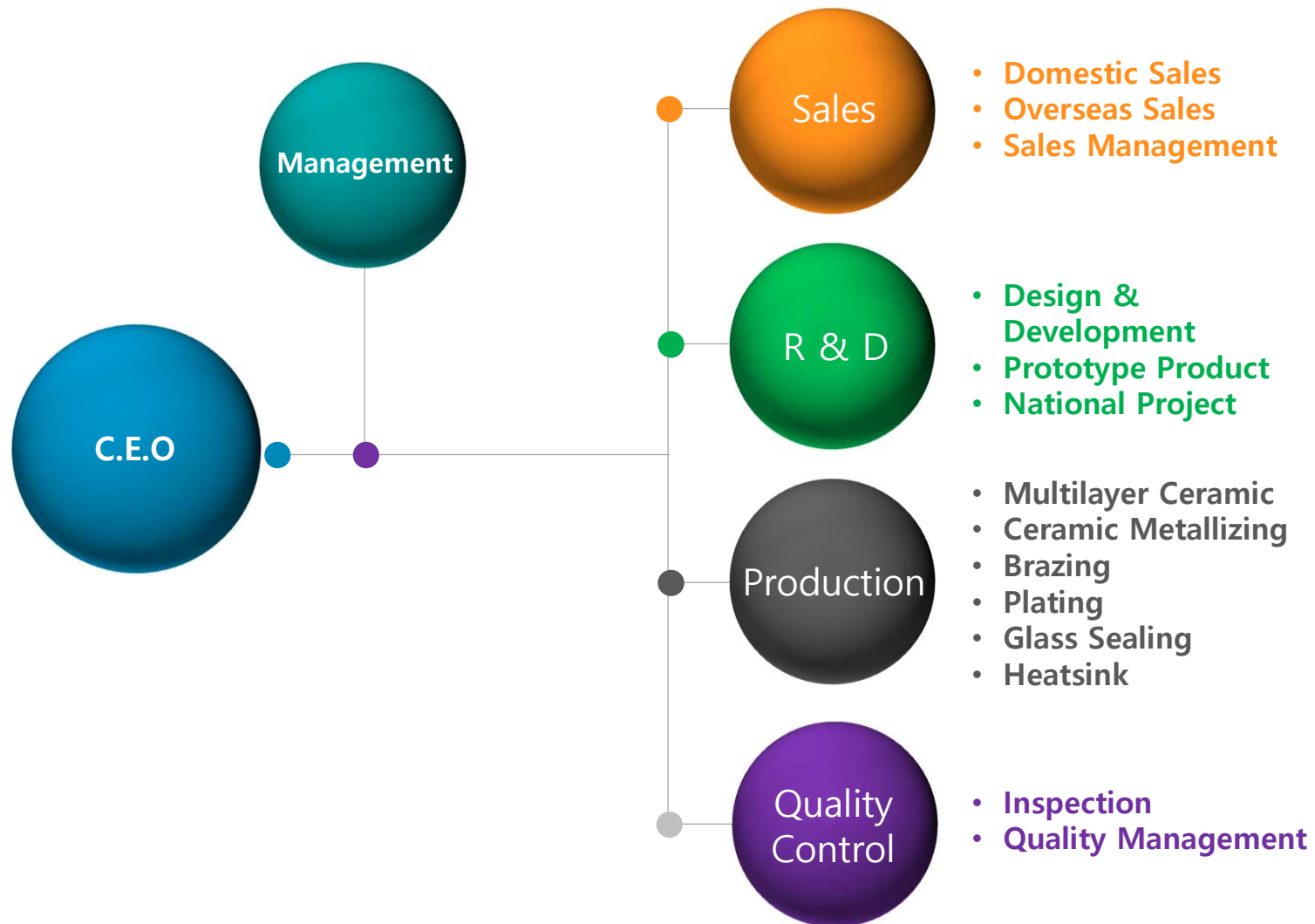
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04. Certification & Award

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ISO 9001:2008



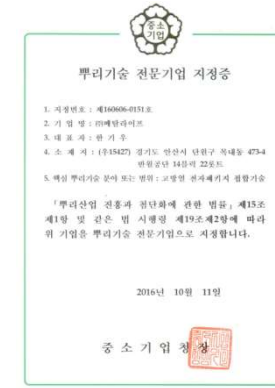
IATF16949



Promising Company



Certificate of R&D



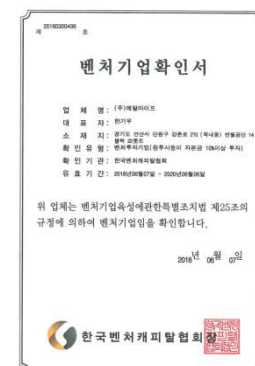
Specialized root technology



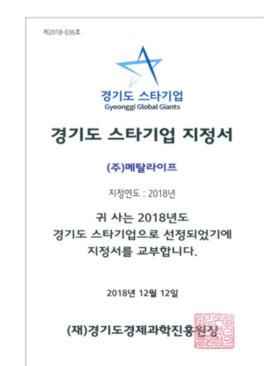
Inno-Biz



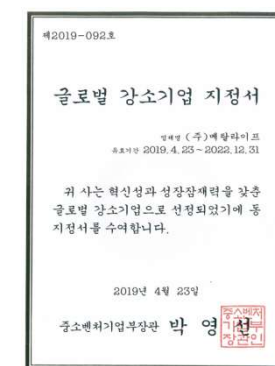
Specialized company for part&material



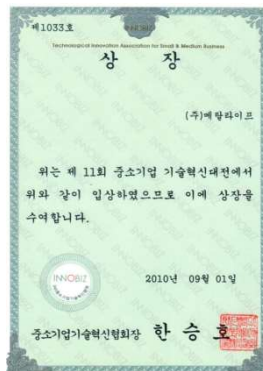
Certificate of Venture



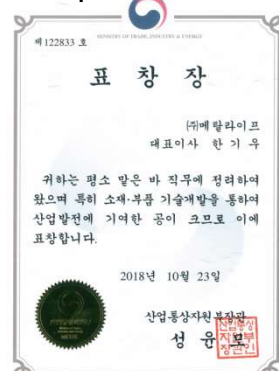
Star company



Global competitive company



Outstanding Innovation Company



National merit for part & Material



Patent no. 10-1535438



Patent no. 10-1612346



Patent no. 10-1890396

05. Facility

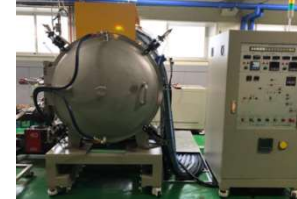
Package Assembly



Ceramic (Single / Multi layer)



Heatsink material



Plating



Inspection



06. Product

< Package for RF Power T/R >

✓ Heat Sink

Heat Sink	Thermal Conductivity(W/m · K)
W-Cu	170 ~ 220
Mo-Cu	170 ~ 250
CMC	200 ~ 250
CPC(141/111/212/300)	200 ~ 320
Super-CMC	320
Al-Diamond	500

✓ Ceramic

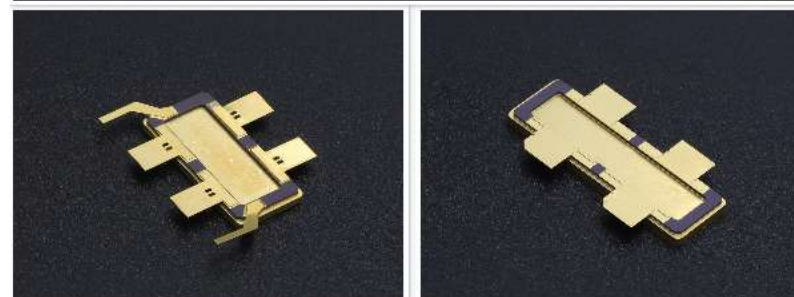
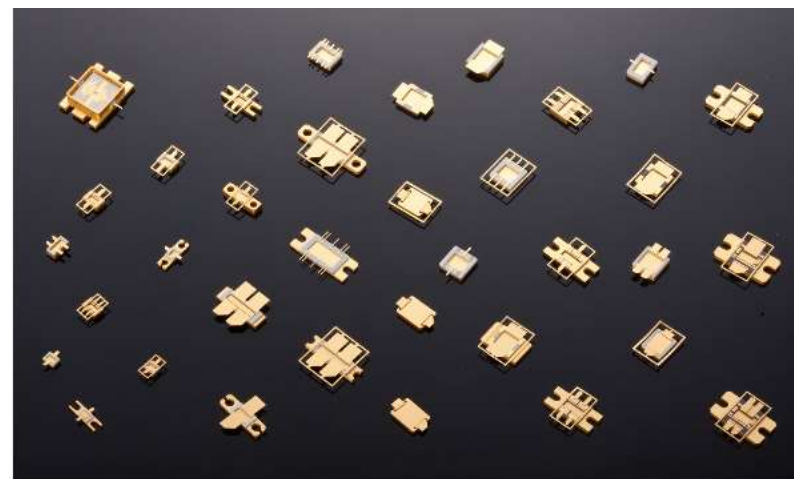
Alumina Content	90 ~ 96%
Dielectric Constant(@1MHz)	9 Min
CTE($10^{-6}/^{\circ}\text{C}$)	7~8 ppm/K
Thermal Conductivity(W/m · K)	15 Min
Conductor(Pattern) Material	W, Mo-Mn

✓ Lead Frame

Material	KOVAR or Alloy 42
Thickness(mm)	0.1 ~ 0.25

✓ Finish(Plating)

Ni	Electroplated sulphamate Nickel : 2 ~ 7 μm
Au	Electro/Electro-less Plating, 0.1~5.0 μm
Application	Wire Bondable, Au-Sn /Au-Ge/Au-Si Solderable



06. Product

<Package for Optical Communication >

✓ **Application**

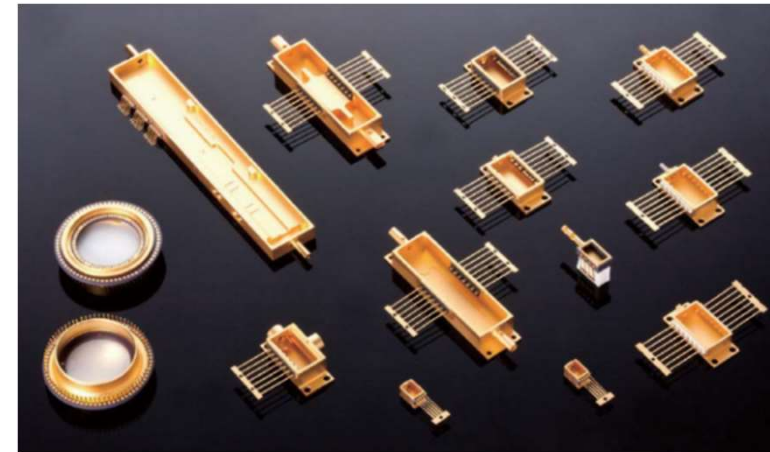
WDM Modules, Modulators, Attenuators, Pump Lasers, Switches, Amplifiers, LD/PD Module and etc.

✓ **Housing material**

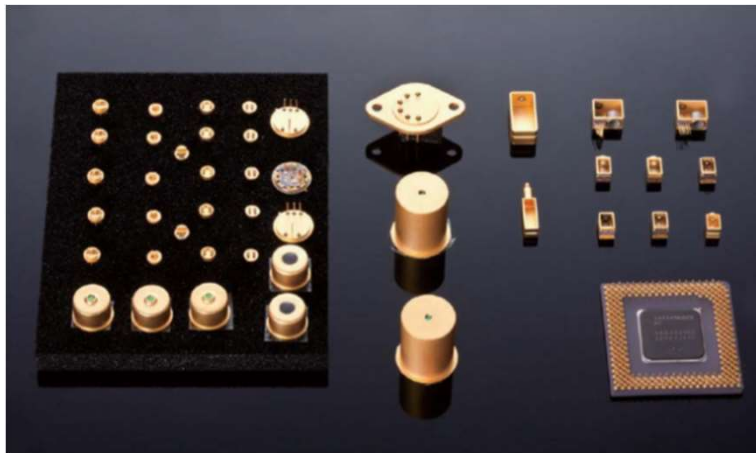
KOVAR, Invar, Alloy-42, Aluminum, St, St(SUS), SPCC

✓ **Base material**

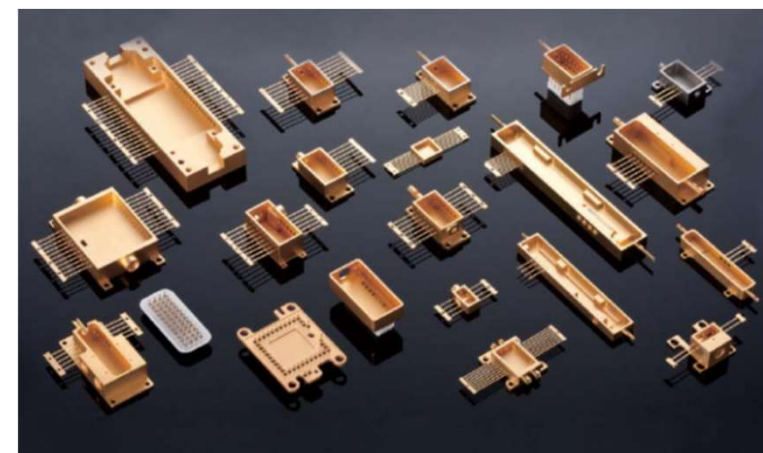
W-Cu, Mo-Cu, Cu, CMC/CPC, St, St(SUS), SPCC



Ceramic Brazed Type



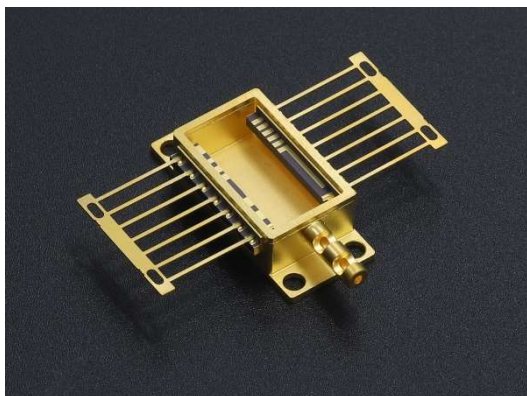
TO Stem /TO Cap/ TOSA-ROSA



Glass Sealed Type

06. Product

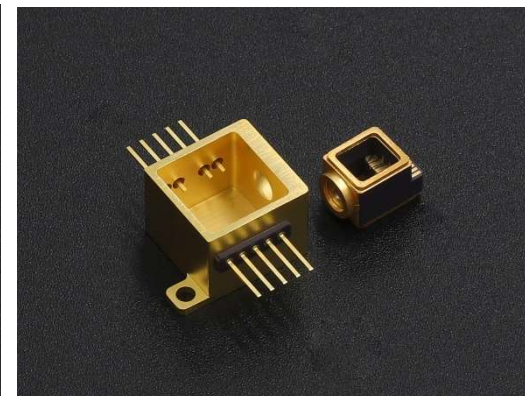
<Package for Optical Communication Module>



BTF PKG



TO 220



Mini Flat PKG



Mini DIL PKG



WSS BOX



10G/25G/100G PKG

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06. Product

<Package for Laser Module>

✓ Application

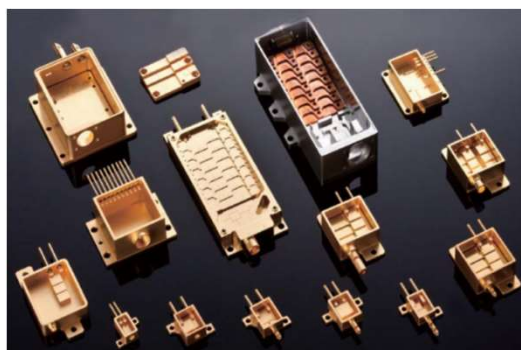
Defense, Fiber laser solution, DPSS solution, Material processing, Medical, Display & Entertainment and etc.

✓ Hosing material

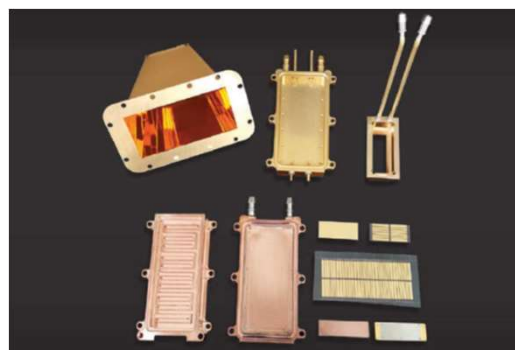
KOVAR, Cu, ST, ST304, SPCC

✓ Base material

W-Cu, Mo-Cu, Cu, CMC/CPC, St, St(SUS), SPCC



PKGs for industrial Laser Module



PKG's for Medical Laser Module



C-Mount



Micro Channel



TO PKG



HHL PKG

06. Product

<Laser Module>

✓ Industrial Application

- Material processing, DPSS solution, Fiber laser solution, Sensors, Research etc.

✓ Single bars

- Sensors
- Illumination
- Power 40~ 200W

✓ Horizontal/Vertical stack bars

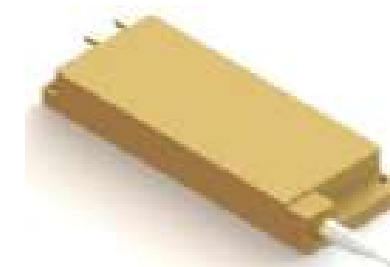
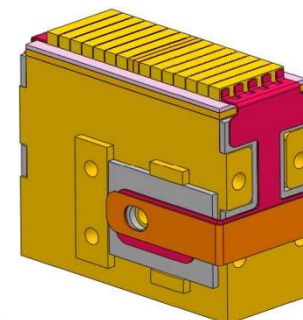
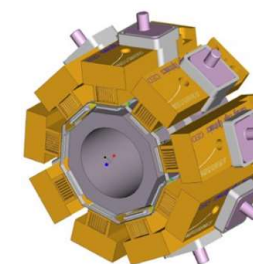
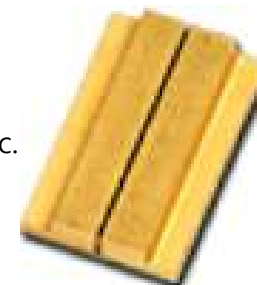
- DPSSL Pumping
- Brazing, Soldering, Welding
- 100W ~ 2kW

✓ G stack bars (Radial)

- DPSSL Pumping,
- Gain module
- 300W ~ 5kW

✓ Fiber coupled LDs

- Fiber laser pumping
- DPSSL end pumping
- 30W ~ 250W



06. Product

<Laser Module>

✓ Medical Application

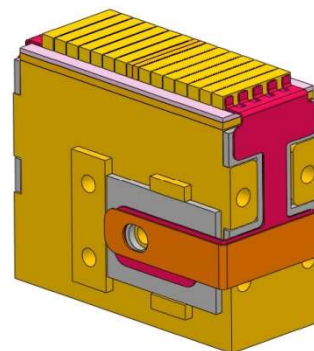
Medical, Aesthetic, Surgical, Dental, etc

- Hair removal
- Fat reduction
- Skin rejuvenation
- Wrinkle
- Acne
- Pain reduction.



✓ G stack bars & Fiber coupled LDs

- 30W ~ 3 kW



✓ Military Application

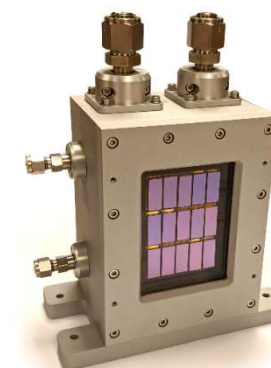
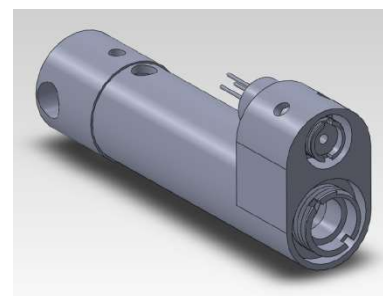
- Directed energy
- Advanced targeting system
- Countermeasure
- Illumination & Pointing
- Detecting system

✓ G stack modules(Super power)

✓ Fiber Coupled LDs

✓ Free space beam LDs

- 30W ~ 100kW, 1MW(Pulsed)

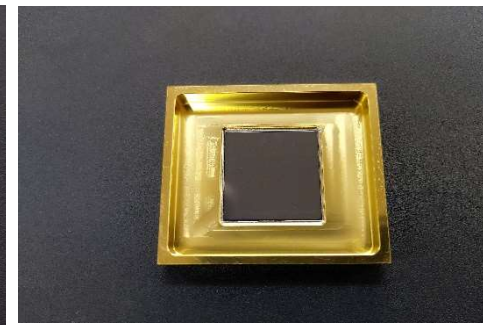
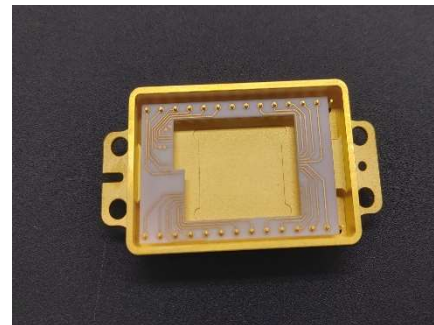
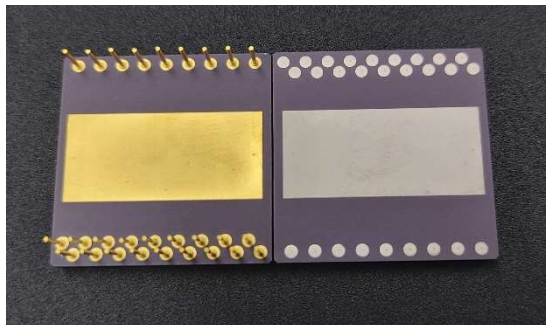
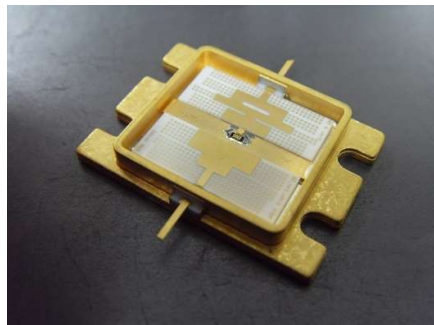
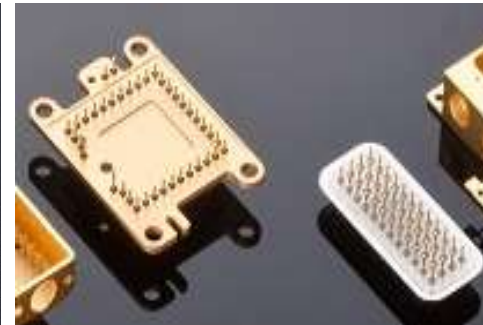


06. Product

<Package for Military>

✓ Application

Ceramic PKG for IR Detector, High Frequency RF PKG, PKG for Thermal Camera and etc.



Infrared Detector

High Frequency RF PKG

Glass Sealed PKGs for Military

06. Product

<Industrial Brazed Product>

✓ **Application**

X-ray tube, Feed thru, High power connector, Housing for SCR etc.



X-ray tube and feed thru



Housing for SCR

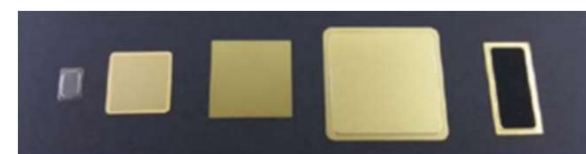
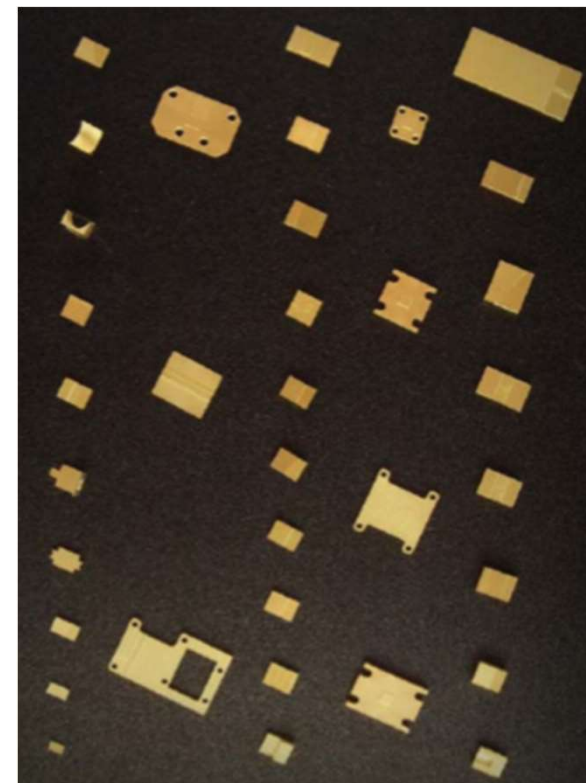


Ceramic reflector

06. Product

<Sub-Components>

- Utilizing heatsink materials as like
WCu/MoCu/CPC/CMC/Super-CMC/C-Cu
- ✓ **Application**
Substrate, Heatsink, Carrier, Optical bench, Jumper, Flange
- ✓ **Substrate**
 - A variety of substrate for BTF PKG are available with low cost
 - Heat thermal conductivity material can be used
(W-Cu / Mo-Cu / Cu-Mo-Cu clad / Cu etc.)
- ✓ **Heat Sink & Carrier**
 - High thermal conductivity: $170 \sim 350 \text{ W/m} \cdot \text{K}$
 - W(Mo)- 10 ~ 25%Cu / CMC /CPC/ S-CMC/ Cu/ DBC
 - Precise machining
 - Controlled C.T.E
 - Ni / Au /Pd/Au-Sn Plating to meet MIL-STD
 - Flatness : under $20\mu\text{m}$
- ✓ **Lid/Weld flange/Pipe. Etc.**
 - Lid or Getter Lid
 - KOVAR Ferrule
 - Precise manufacture process
 - Reliable Finishing(Soft Au)
 - Low C.T.E

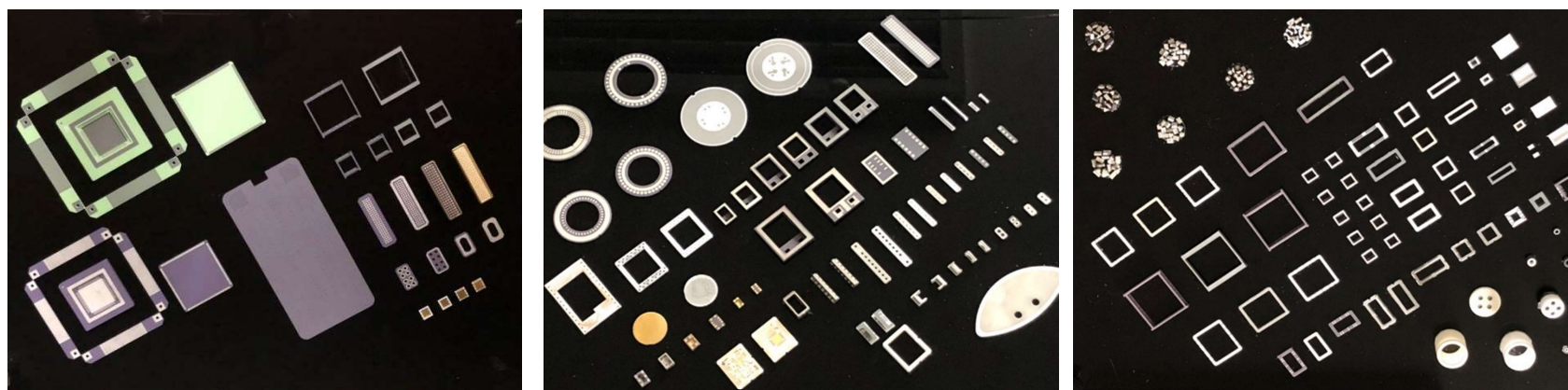


06. Product

<Single / Multi layer Ceramic>

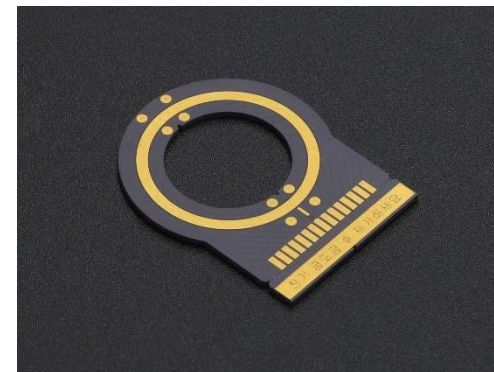
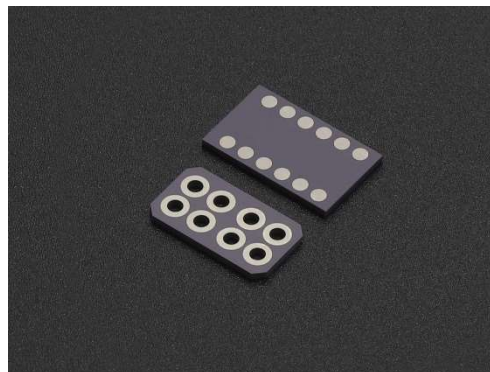
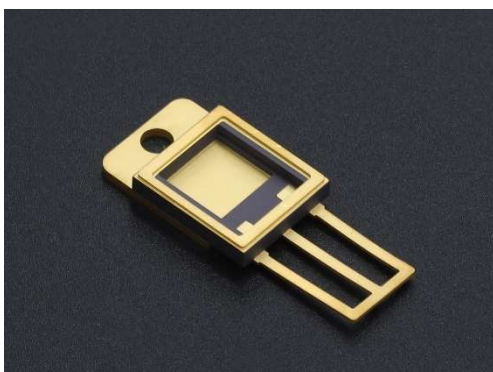
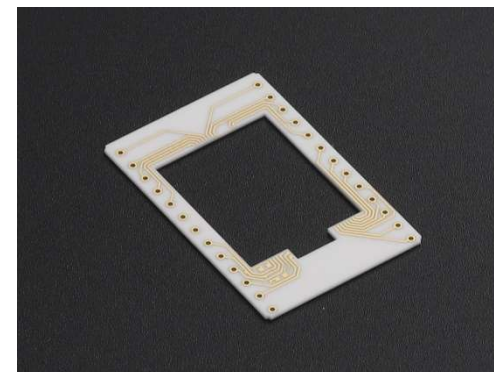
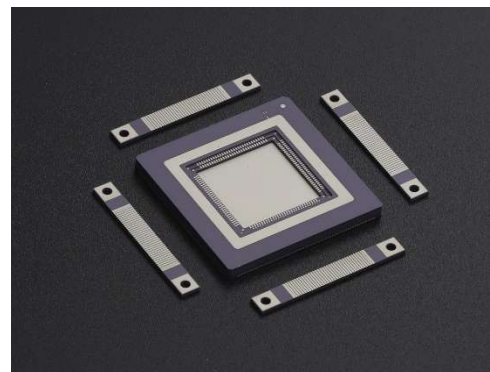
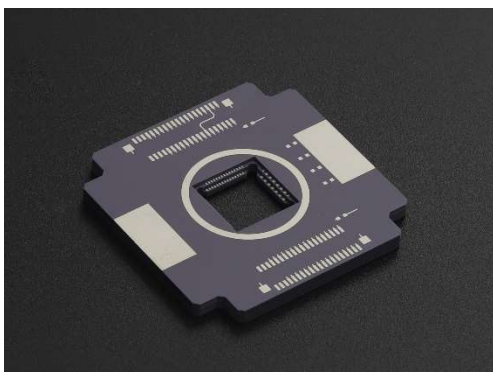
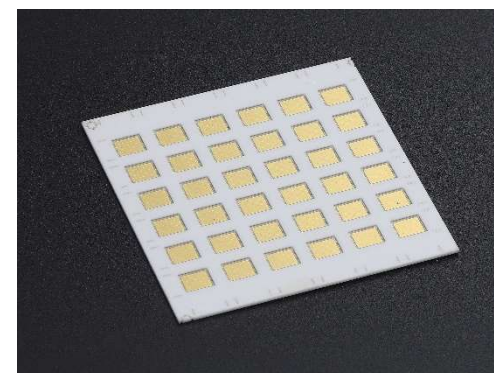
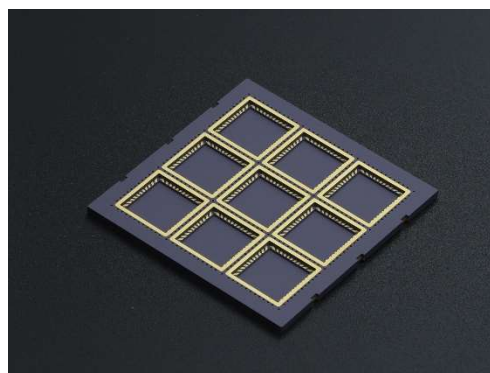
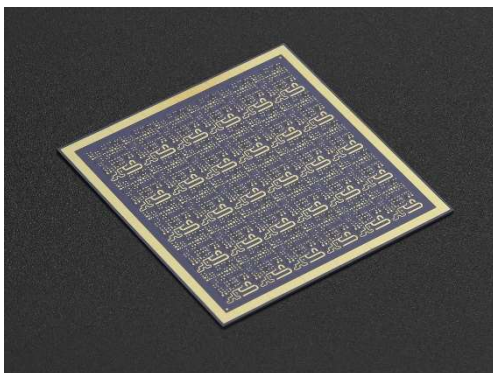
✓ Application

Ceramic Feed-thru for Package
Window frame and Lid for PKG)
Power element Package
Sensor
MEMS, SMD Package
Hybrid IC with mixed Power circuits



06. Product

<Single / Multi layer Ceramic>



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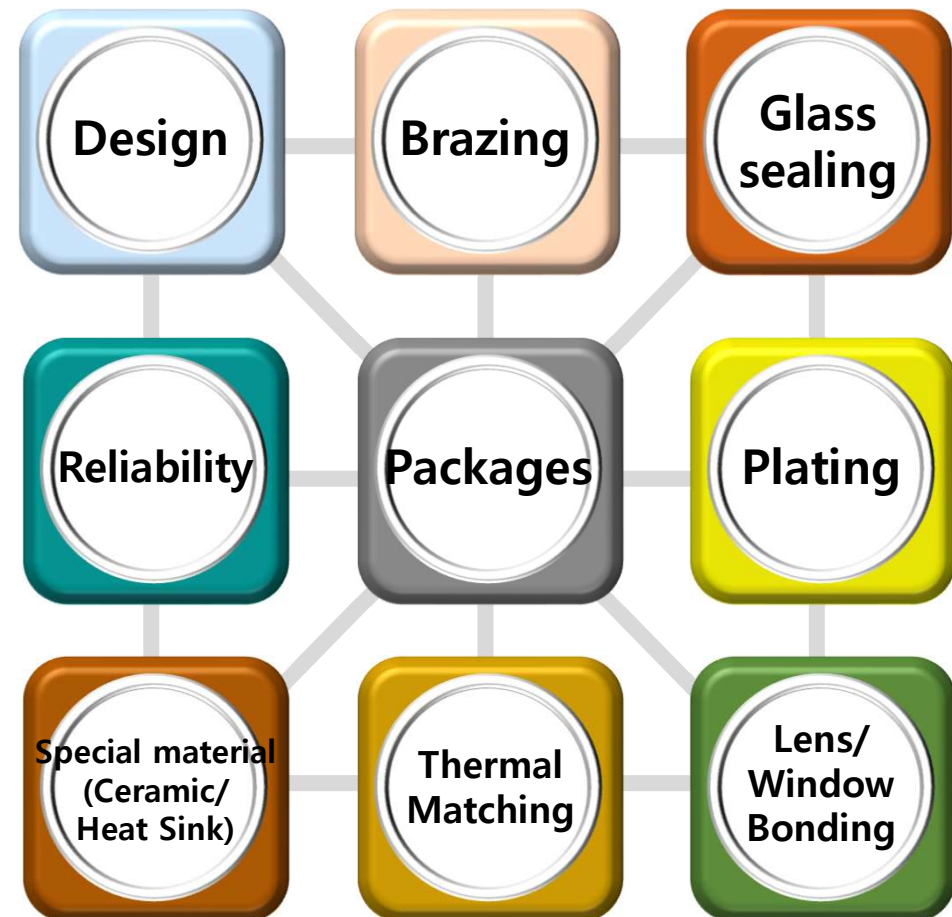
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07. Key Technology

<Technology>

- Design : Package and Jig Design technology
- Assembly Techniques : Brazing, Glass sealing, High temperature technology
- Thermal machining technology
- Heat Sink technology
- Window or Lens attaching technology
- Precision machining for special materials (WCu/CM(P)C/KOVAR/Ceramic)
- Plating : Ni, Pd, Au, AuSn
- Reliability : MIL-883E
- Ceramic Metallizing technology
- Multi layer ceramic technology



07. Key Technology

<Technology export to Russia>

RFMTL

www.rf-materials.com

Technology
Training

Process
Technology

Assembly
Technology

Plating
Technology

Technology Transfer

US \$ 1,000,000

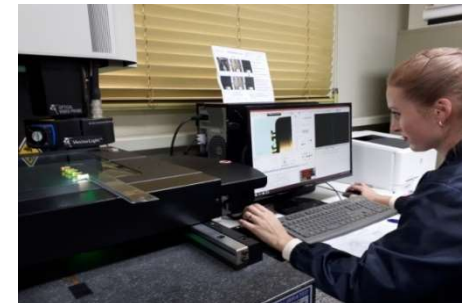
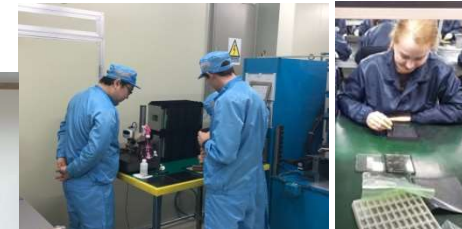
Facility Export

US \$ 500,000

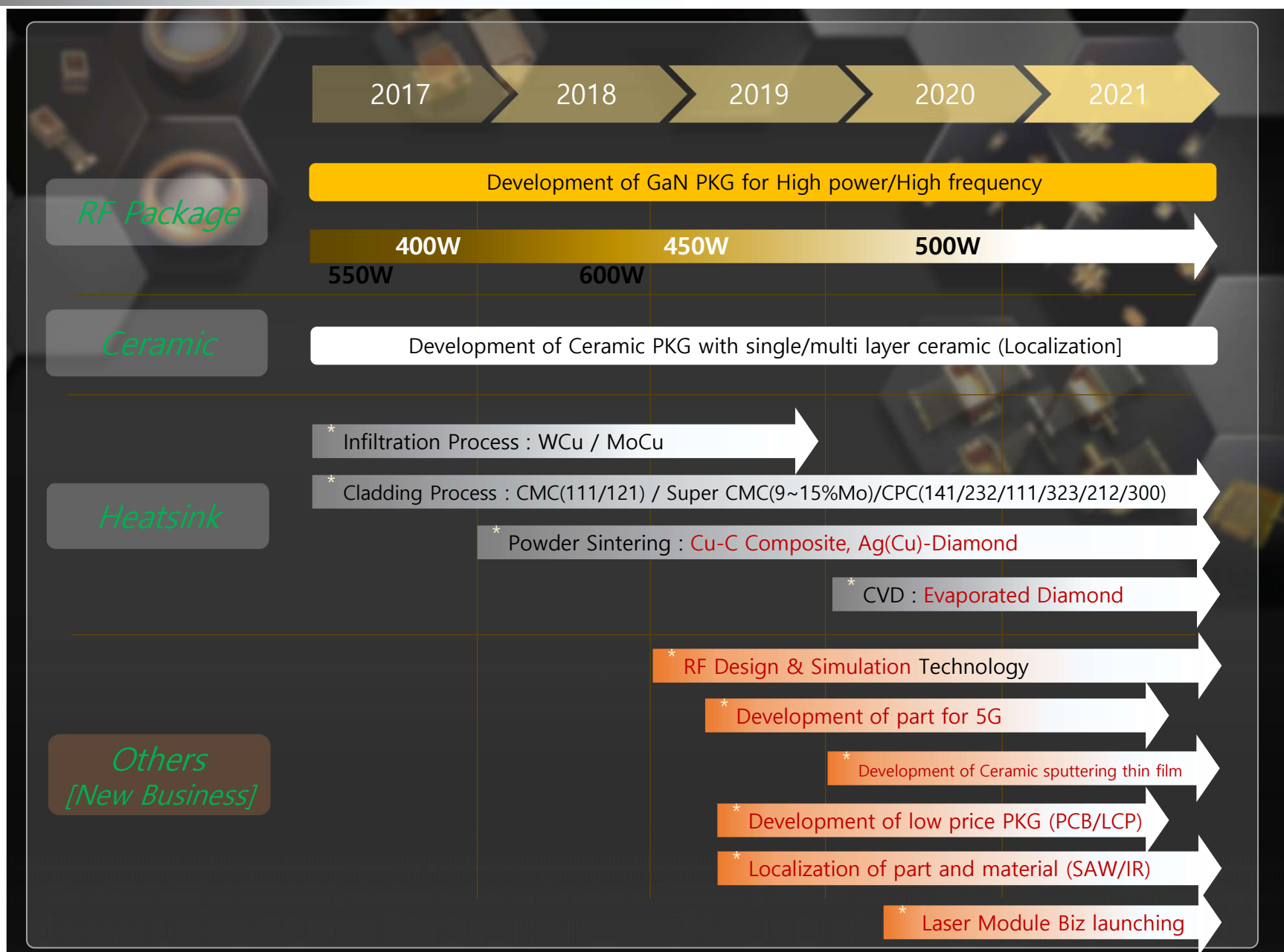


ТЕСТПРИБОР

JSC TESTPRIBOR, RUSSIA



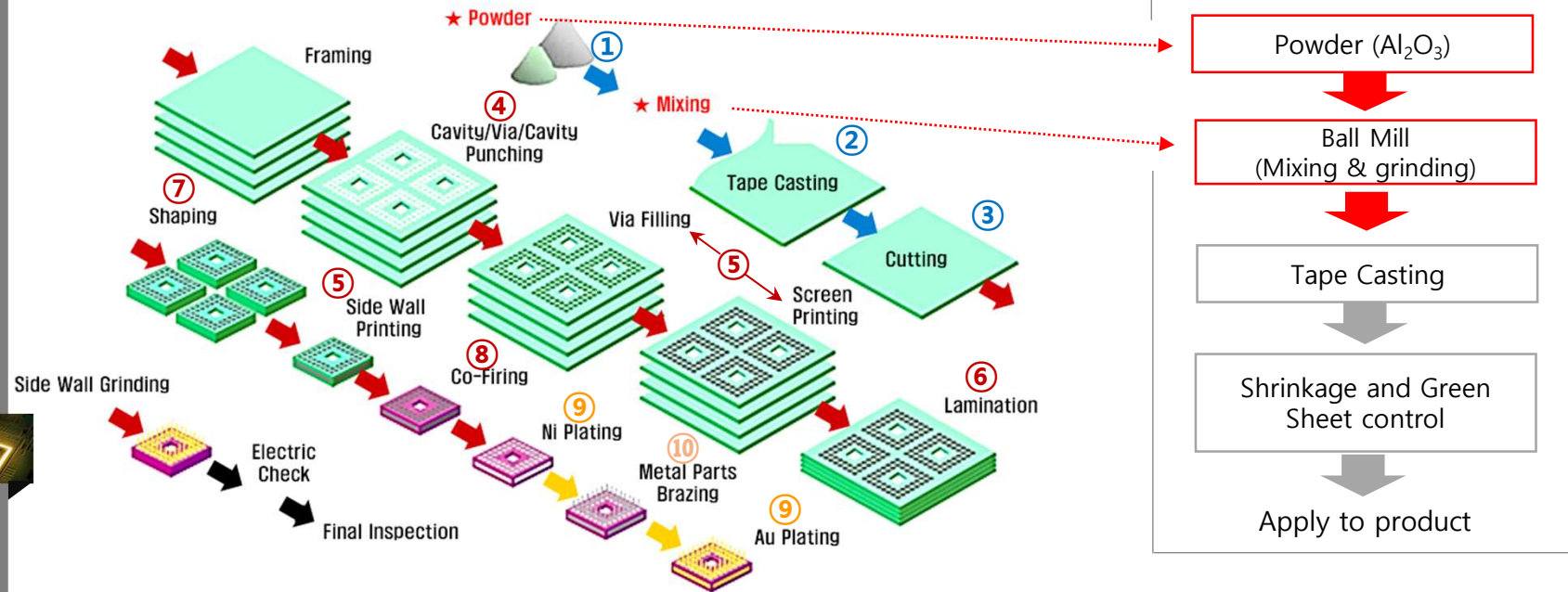
08. Roadmap



9. Multi Layer Ceramic Line

Multi Layer Ceramic

(Ceramic Green Sheet)



9. Multi Layer Ceramic Line

Expanded transfer of multi layer ceramic line for new business



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10. Overseas Customer

Optical Communication



LUMENTUM



SUPERLUM



TWM
TECHNOLOGY



NEO
PHOTONICS



SANMINA



THORLABS



PICOMETRIX



OCLARO



FINISAR

RF Power T/R



CREE



INFINEON



MACOM



INTEGRA



TRANSCOM



EXODUS

Laser Module



TRUMPF



DILAS



ACHRAY



NANOPLUS



NISSEI



INTENSE



COHERENT



LASER
COMPONENTS



LASERLINE



EXALOS



EAGLE
YARD

Military & Defense



ASELSAN



RAFAEL



SCD

10. Domestic Customer

Optical Communication



RF Power T/R



Laser Module



Military & Defense



Others (Automobile, Power)



11. Overseas Sales Agent

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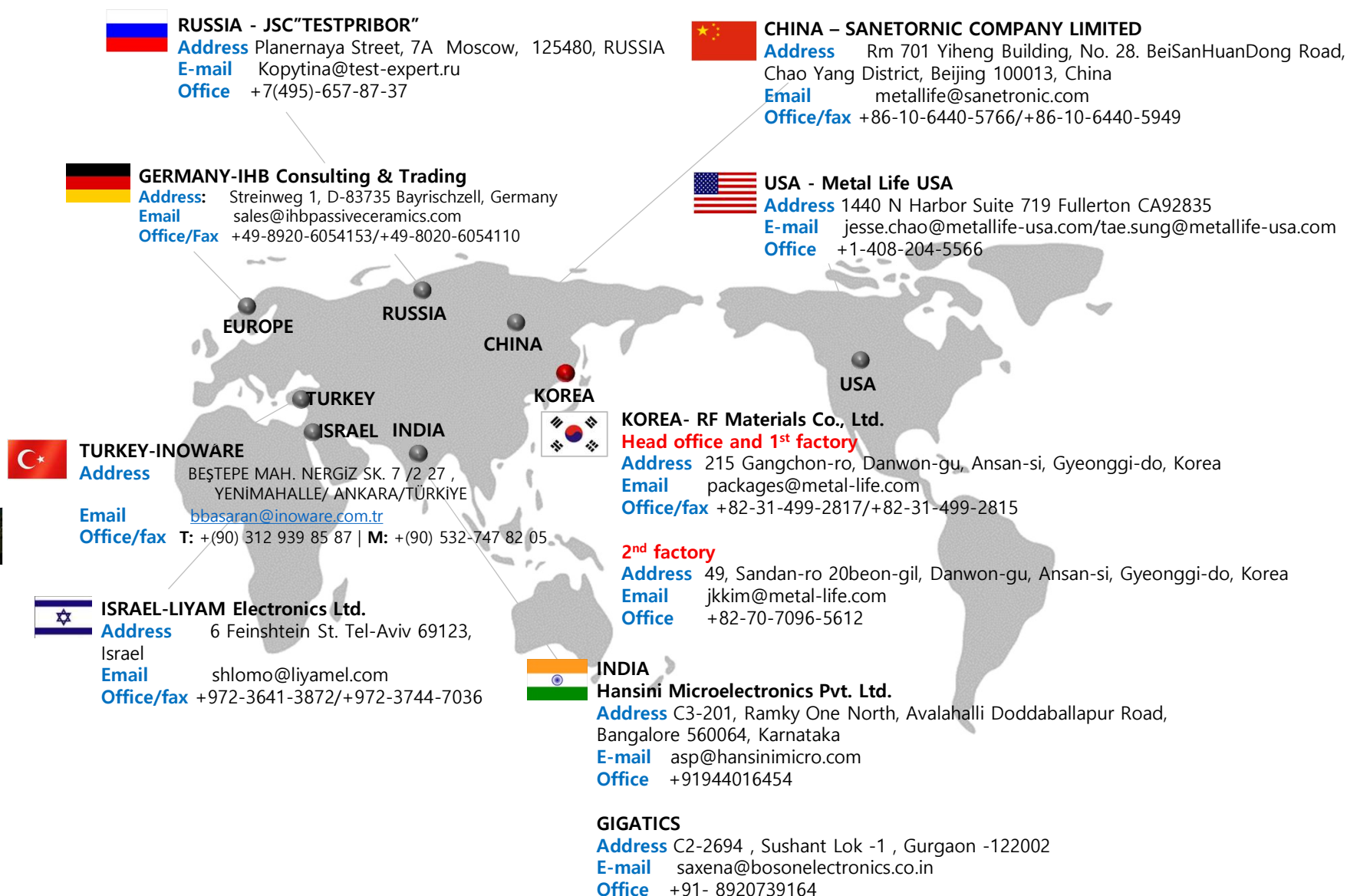
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Email metallife@sanetronic.com
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E-mail jesse.chao@metallife-usa.com/tae.sung@metallife-usa.com
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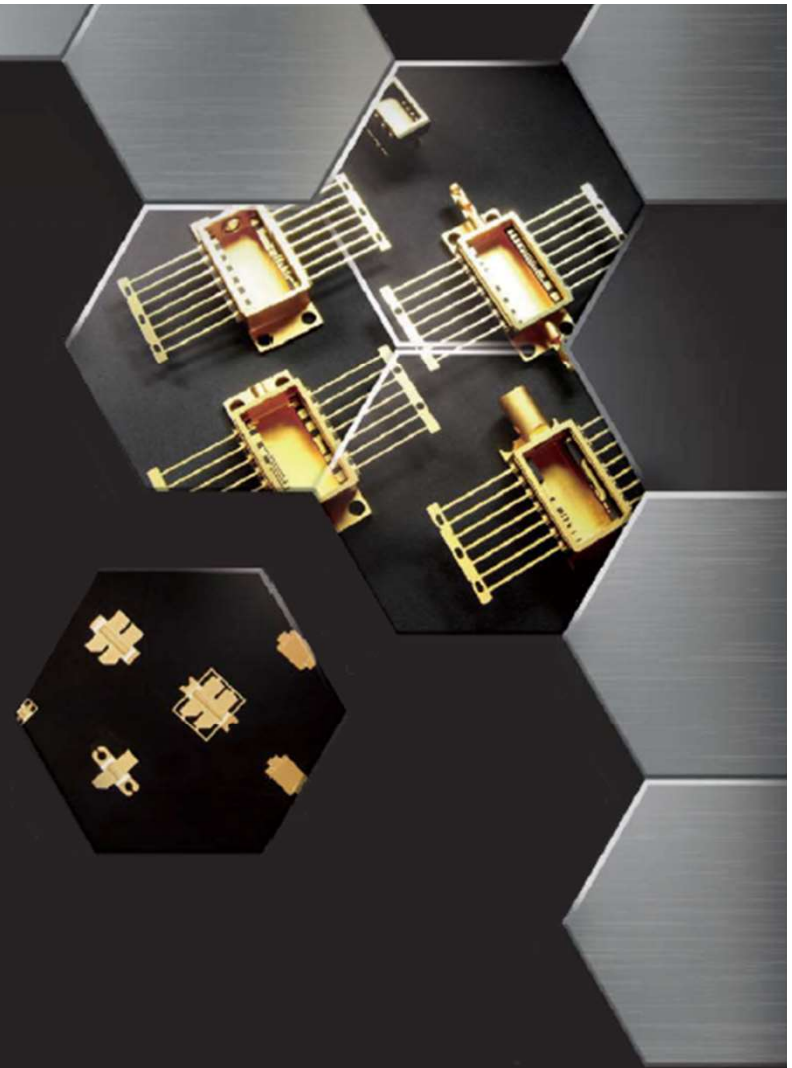
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