

## KIYOKAWA Plating Technology

- **Main technology**

KIYOKAWA has experiences of mass production with its technology. Much recorded information and know-how about the plating and inspection permit the stable, high quality plating.

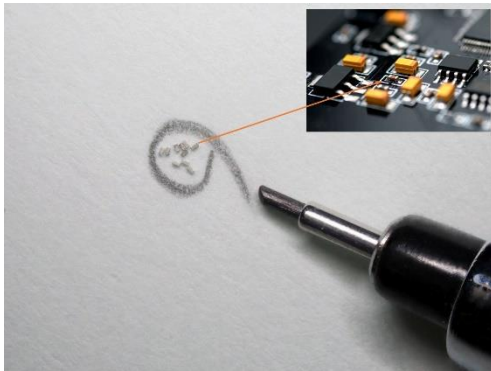
- **Under-developmental technology**

KIYOKAWA is developing the new plating technologies with the customer, or by ourselves. These mentioned examples are only a part of them. Other inquiries about the plating or surface treatment can be acceptable.

### Main technology (selected)

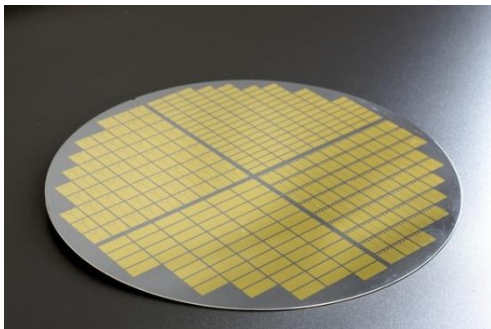
#### Barrel plating for electronic devices

Our barrel plating technology for SMD (resistor, capacitor, inductor, ...) has been developed over 45 years with downsizing of such chip devices. Variety type of plating equipment and inspection system can be accommodated to every type of devices even for vehicle grades.



#### Under-barrier metallization by electroless plating for the power devices

Electroless plating for under-barrier metallization on the semiconductor devices of Si, SiC, or GaN has become more and more important for next-generation power modules. We have conducted such plating over 20 years and its experience brings an original developed production system and stable mass production.



### Plating on the powder-form materials

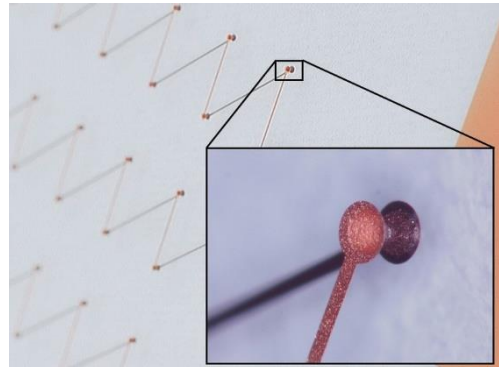
The metal plating on the micrometer-size of powder-form materials rises up its industrial value, such as conductivity, anti-corrosion, cost-down, and magnetization. The combination of the base material and the plating metal can also novel functionality, which is not realize by the single material.



### Under-developmental technology (selected)

#### Filling plating in through-silicon via (TSV) or through-glass via (TGV)

TSV or TGV can improve the high-frequency property, high-density packaging and electric power saving in the field of electronic communication. The both type of wafers with blind via and through-hole via are able to be fill plating.



#### Line / Bump plating or under-barrier electroplating on the semiconductor wafer

Micrometer-size bumping and copper line forming technology by electroplating are essential for high functionally and down-sizing of electronic devices. A trial plating or small-lot plating order are acceptable.

