

SUBSTRATE / CIRCUIT BOARD

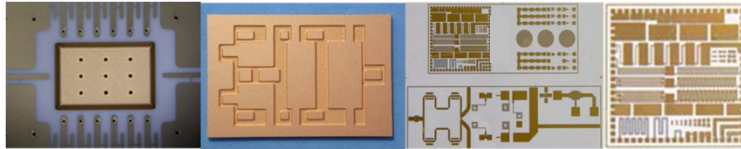
We offer substrates deposited with a variety of film pattern such as ceramic (alumina), metal and glass by using Thin film and Thick film technology. Our products are supplied to a wide variety of fields such as communication devices and industrial instruments including satellites, base stations, sensors and consumer devices.

Thin film circuit substrate (PVD method)

Circuits are formed in PVD method using vacuum film forming and plating technology.

Base material	Ceramic (Alumina), Glass, ALN, etc.
Vacuum film	Cr, Ti, Pd, Cu, Au, TaN, etc.
Plating	Au, Cu, Ni, etc.
Film thickness / line width	Total thickness 1um~5um · Line/Space \geq 30/30um

We have produced highly precise and most reliable substrate/circuit board on various materials and can meet any additional requirement you may have such as thin film resistors or protective films.



Features of MIC (Microwave Integrated Circuit) / HIC (Hybrid Integrated Circuit) substrate

1. Most reliable substrate
Capable of providing highly precise substrate mounted in satellites and high speed / large capacity communication devices.
2. Manufacturing system
With sound assurance system in place, we are capable of consistently manufacturing highly reliable products with short delivery time.
3. Material processed
Not only ceramic base we are able to make circuits / structure with various materials.

Thick film circuit substrate (Print method)

Circuits are formed in print method using thick film paste.

Main process	Screen print, Baking, Appearance inspection, Electrical test
Base material	Ceramic (Alumina), Glass, PI, PEN, PET, Sheet metal etc.
Paste	Glass, Ag, Au, Pt, PI, Solder resist, Carbon, etc.
Film thickness / line width	0.2um~100um · Line/Space \geq 100/120um

For boards comprised of various materials, we print circuits employing a minute printing method with thick film paste. Multilayer boards are also available.

Surface-mount print substrate



(1) Metal substrate (2) ITO substrate



(3) Film substrate (4) Ceramic substrate

- (1) Metal Substrate: Form insulation film on metal substrate and do Ag printing
- (2) ITO (Indium Tin Oxide) substrate: After patterning transparent conductive film (ITO film), carry out Ag printing
- (3) Film substrate: Ag printing with low-temperature baking for curved surface antenna and curved illumination
- (4) Ceramic substrate: Substrates to cope with high heat dissipation as in power IC and LED

Cylindrical side wiring substrate



- Substrate: Quartz, glass, alumina, metal
- Metal: Ag, Au, Glass protective film
- Manufacturing method: Screen transfer processing and baking
- Film thickness: Rectangular pillar ~20um Columnar (Round) pillar ~50um
- Pattern size: L/S \geq 200/200 (um)

We can pattern on cylindrical tubes instead of flat materials.