Elephantech

P-Flex® PI

Single-sided Polyimide FPC

Features of the Polyimide FPC P-Flex®

The Polyimide-base P-Flex® (hereinafter P-Flex® PI) is an FPC (Flexible Printed Circuit) where our very own Pure Additive method(*1) is adapted to polyimides.

The PET based P-Flex® (hereinafter P-Flex® PET) we had developed and sold until now had issues with its range of use limited by the low heat resistance of PET (roughly 150˚C) and having to use low temperature solder for mounting.

This P-Flex® PI uses polyimides with high heat resistance (roughly 300˚C) as its base material, allowing it to overcome the shortcomings of P-Flex® PET and improving heat resistance and flame retardancy. Regarding the mounting of parts, the ability to use normal solder has not only expanded the applications

(* 1) Technology to layer copper plating only on silver nanoink

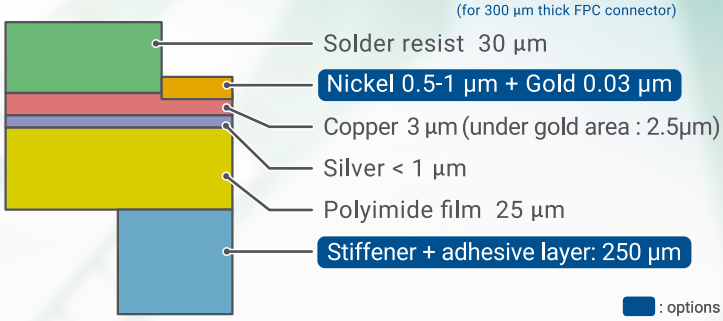
Layer structure of P-Flex® PI

Standard layer composition

Total theoretical thickness: 58 µm

Layer composition including options

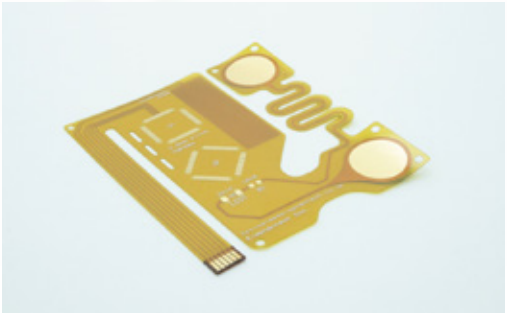
(for 300 µm thick FPC connector)



Total theoretical thickness: 308 µm

(The thickness from the conductor surface to the stiffener is 281 µm.)

Single-sided Polyimide FPC



Applications

Wiring replacement, FFC replacement, sensor module FPC, touch sensors, antennas such as Bluetooth

Industries

consumer electronics,
toys,
industrial machinery

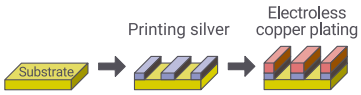
About P-Flex®

About Elephantech's manufacturing method (Pure Additive™ processing)

This manufacturing method consists of inkjet-printing silver nano-ink onto the substrate before electroless copper plating is applied to form the circuit. By reducing the amount of metal, liquid waste and man-hours, we can lessen manufacturing costs and shorten the lead time.

(* Patent No. 6300213 acquired)

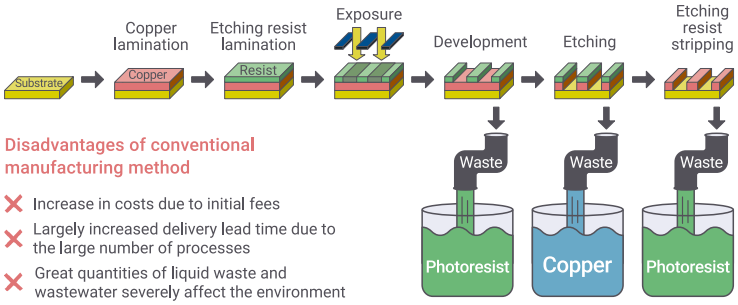
Elephantech's manufacturing method (Pure Additive™ processing)



Advantages of Elephantech's manufacturing method

- ✓ Forming the circuit only where needed allows for a reduction in manufacturing cost and environmental footprint.
- ✓ A simple manufacturing process allowing for a shorter lead time.

Conventional manufacturing method (subtractive method)



Disadvantages of conventional manufacturing method

- ✗ Increase in costs due to initial fees
- ✗ Largely increased delivery lead time due to the large number of processes
- ✗ Great quantities of liquid waste and wastewater severely affect the environment

P-Flex® manufacturing specifications

Substrate	Transparent heat-resistant PET film: 50 µm thick, 125 µm thick PI (Polyimide) film: 25 µm thick
Line width / interval	200/200 µm min., 200/150 µm min. (option)
Outline-pattern interval	0.3 mm min.
Operating temperature	Between -20°C and +105°C
Copper foil thickness	3 µm, (Need more than 3µm? Please contact us)
Panel size	180 × 270 mm max.
Wiring layer	Single-sided
Soldermask application	UV inkjet printing (clear)
Legend printing	UV inkjet printing (white)
Surface treatment	Oxidation prevention treatment, Electroless nickel gold plating (option)
Outline trimming / Hole processing	Laser cutting
SMT process	Subject to negotiation
Stiffeners alignment	Wide range of compatibility
Inspection	Optical inspection + opens/shorts test

Company Overview

Elephantech

Contact QR code

Elephantech Inc. (Formerly AgIC Inc.*)

*Changed corporate name on September 4, 2017

Establishment	January 2014
Address	4-3-8 Hatchobori, Chuo-ku, Tokyo 104-0032, Japan
Capital	JPY 310 million
Representative	Shinya Shimizu, CEO
Business description	Development of printed electronics manufacturing technology and provision of related services
URL	https://www.elephantech.co.jp/en/
Contact	https://www.elephantech.co.jp/en/about/#contact