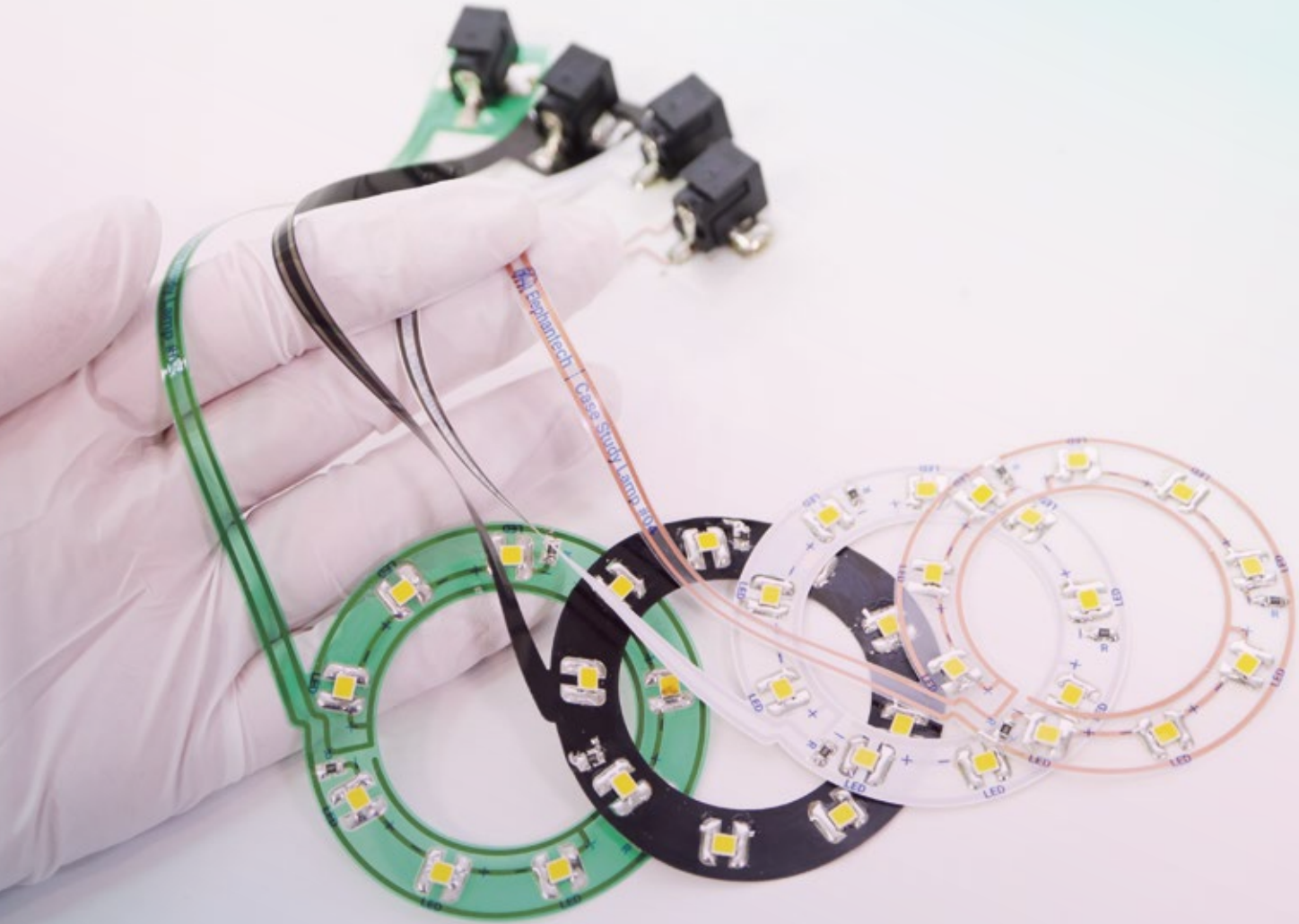




# P-Flex™ PET

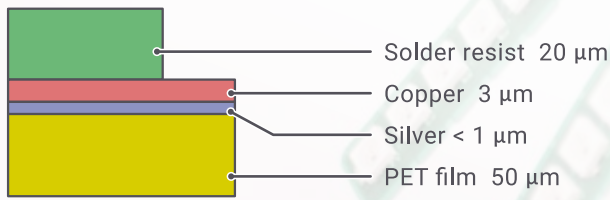
## Standard single-sided FPC



### Main Characteristics of P-Flex™ PET

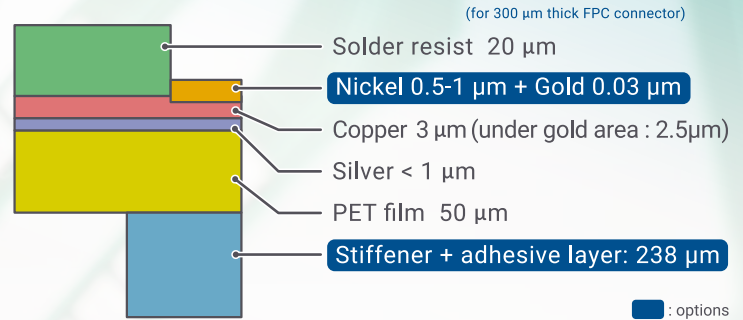
It is inexpensive to mass produce compared to polyimide base materials, and it is suitable for environments with high or extreme humidity due to it being resistive to absorbing moisture. Also, parts other than the pattern or components can have a transparent appearance when transparent resist is used.

## Standard layer composition



Total theoretical thickness: 73 μm

## Layer composition including options



Total theoretical thickness: 311 μm  
(The thickness from the conductor surface to the stiffener is 291 μm.)

## Standard single-sided FPC



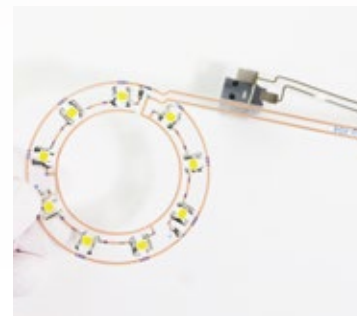
### Applications

Replacement of wiring, of FFC, and of common flex PCB

### Industries

Consumer electronics, printers, toys, industrial machinery

## Transparent FPC\* \*The wiring is not transparent.



### Applications

LEDs, touch sensors

### Industries

Lightings, design-oriented electronic goods

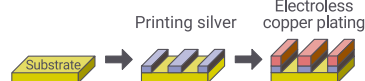
## About P-Flex™

### 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)

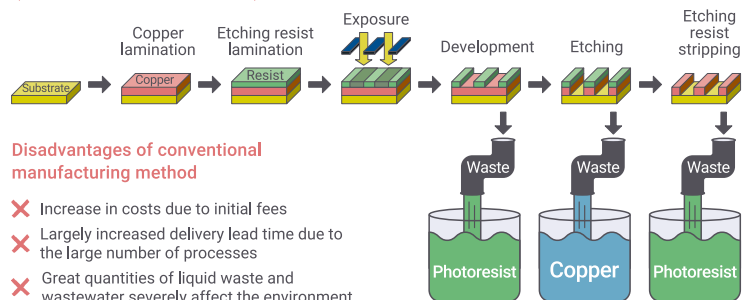
### Elephantech's manufacturing method (Pure Additive™ processing)



#### 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	Standard : 0.5 mm min. High : 0.3 mm min.
Temperature during continuous use	Between -20°C and +105°C
Copper foil thickness	3 μm / 6 μm (option)
Panel size	180 × 270 mm max.
Wiring layer	Single-sided
Soldermask application	UV inkjet printing (green)
Legend printing	Black UV inkjet (we plan on switching to a white color from May 2019)
Surface treatment	Oxidation prevention treatment, Electroless nickel gold plating (option)
Outline trimming / Hole processing	Laser cutting
SMT process	Subject to negotiation
Stiffeners alignment	Available (Connector part thickness alignment, mount part stiffener)
Inspection	Optical inspection + opens/shorts test

## Company Overview



# Elephantech

## 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 381,050,000
Representative	Shinya Shimizu, CEO
Business description	Development of printed electronics manufacturing technology and provision of related services
URL	<a href="https://www.elephantech.co.jp/en/">https://www.elephantech.co.jp/en/</a>
Email	<a href="mailto:hello_en@elephantech.co.jp">hello_en@elephantech.co.jp</a>