

## ● Topics

### *Gravure Offset Printing Technology for Superfine- pitch Printed Circuit*

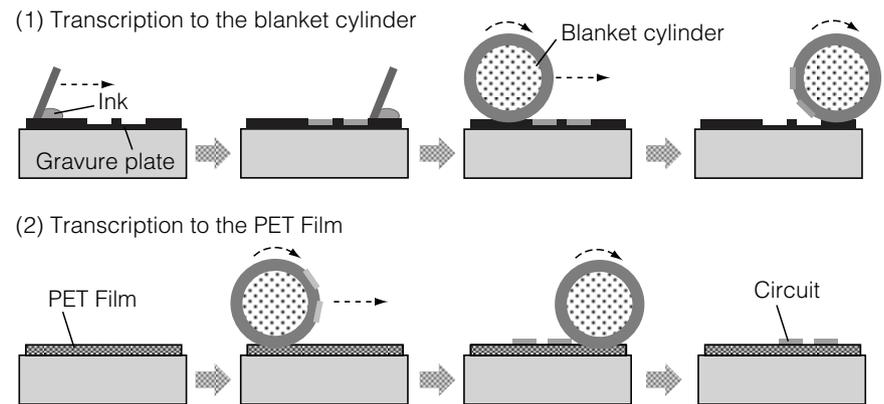
Fujikura manufactures and sells membrane switches, made by printing circuits on a polyester film using a conductive ink. These switches are widely used in human machine interface (HMI) devices including notebook PC keyboards and sheet keys of digital home appliances.

In manufacturing membrane circuit boards, a circuit pattern has conventionally been formed by a screen printing method. We have developed a circuit forming method using gravure offset printing as a new way to meet the current request for fine circuits. Forming fine-pitch circuits, which could not be achieved by screen printing, became possible using gravure offset printing.

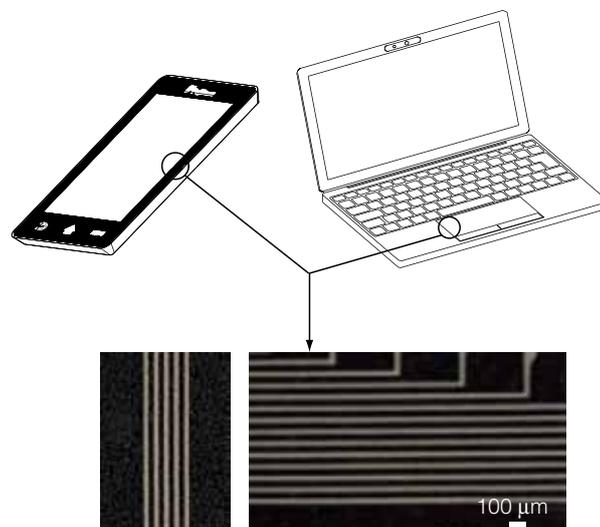
Example applications of this technology include bezel wiring of capacitive touch sensors, which have rapidly been growing in demand in recent years (Fig.2.). The use of fine-pitch circuits produced by gravure offset printing enables us to meet the requests for narrower bezel wiring of capacitive touch sensors.

Furthermore, a super-fine mesh (Fig.3.) consisting of fine lines can be used as a transparent conductive electrode. This mesh formed by gravure offset printing is expected to be used in large-size touch panel screens, since the mesh has resistance less than half that of indium tin oxide (ITO) currently used as a transparent conductor.

In addition, the mesh is also expected to be attached to curved surfaces of products by taking advantage of its high bending strength.



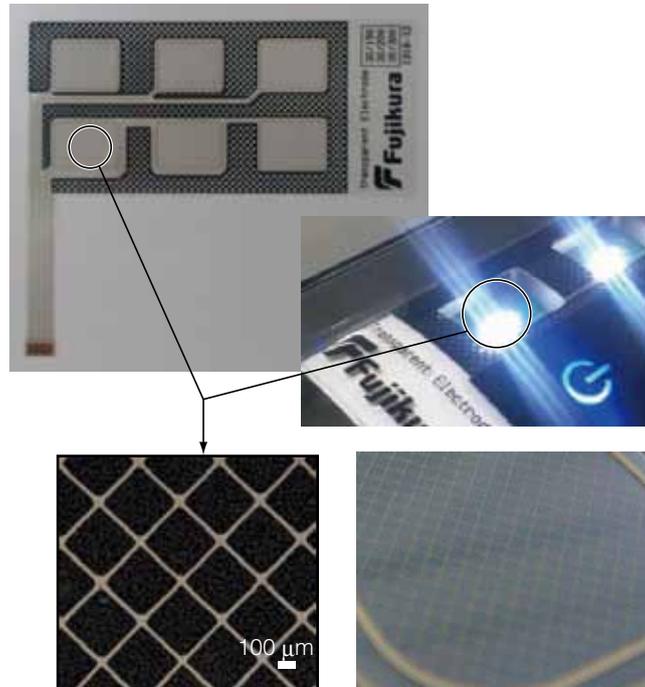
**Fig. 1. Gravure offset printing.**



**Fig. 2. Fine circuit for touch sensor bezel.**

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**Fig. 3. Transparent electrode of fine mesh.**

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