● *Topics*

Super-Fine Pitch Printed Circuit

Circuits on membrane switches are formed by using the screen printing method.

The method, however, has limitations in printing fine-line circuits because of the thread diameter of the screen mesh.

Accordingly, we have developed a gravure offset printing method instead of the screen printing method (Fig.1).

Actual printed patterns are grooved on the surface of a gravure plate.

Paste is filled in the grooves with a doctor blade and picked up onto the surface of a silicone sheet laminated on a blanket roll and then transferred to a substrate during the rotation of the roll.

Gravure offset printing can print fine patterns and has an advantage over other printing methods, because gravure plates do not have meshes on the opening area.

We have successfully formed the silver circuits of 10 μm width using our machine shown in Fig.1. The appearance of the fine circuit printed with a mixture of silver oxide/organic silver paste is shown in Fig.2.

It is not possible to form the fine circuits shown in Fig.2 by the screen printing method.

This printing method has been developed in collaboration with Fujikura Kasei for special pastes and Fujikura Rubber for the silicone blanket.

The gravure offset printing machine for mass production will be installed in Aomori Fujikura Kanaya this year, and the production of LGF with very small diffusion dots is planned to be launched in the fourth quarter of this year.

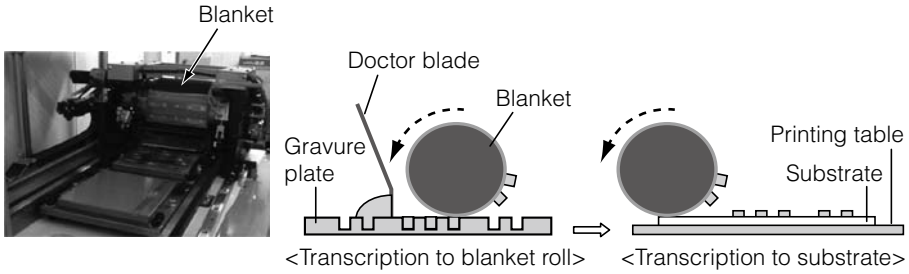

Fig.1. Compact gravure printing machine and principle of its technology.

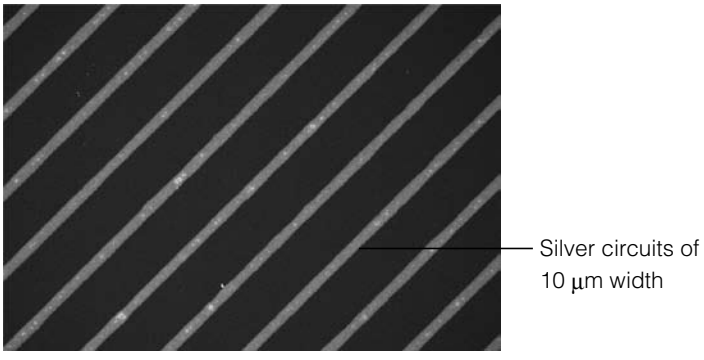

Fig.2. Fine-line circuits of 10 μm width formed by gravure offset printing.

[Information]
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