

Innovative Screen Printing with Ultra Hard "HS-Dmesh"

Flexible MEMS

Production of MEMS devices using high quality screen printing

※MEMS=Micro Electro Mechanical System



The mainstream of the MEMS production was found in devices which adapted a semiconductor process to create sensors, actuators, and electronic circuits on inorganic substrates such as silicon and glass. However, in recent years, the demand for flexible MEMS to make such devices on plastic substrates has been increasing.

The True Value of the Latest Screen Printing Technology

Cutting-Edge Screen Printing with Ultra-Hard Stainless Steel Wire Mesh

A

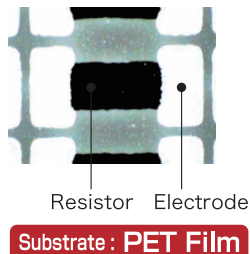
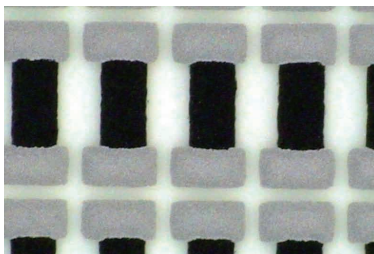
Chip Resistor Array- Test Pattern

- Achieved Consistent Printed Thickness with High Dimensional Accuracy-

Printed thickness and dimensional accuracy are improved dramatically by using Ultra-Hard HS-D mesh. The process of the "Trimming" which modifies a resistance value is well known;

"Trimming" may become unnecessary if printing quality improves.

80,000 pieces of resistor patterns of 1.0mm x 0.5mm size are printed on a 200x200mm large film with dimensional accuracy of ± 10 micron.



Substrate: PET Film

B

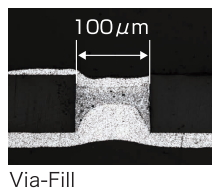
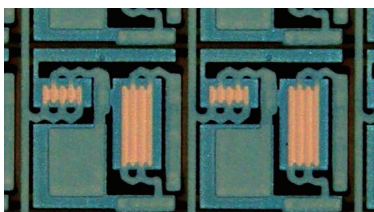
Organic Transistors-Printed Electronics

- 2.5mm pitch, "2T1C" Organic Transistor Array-

We have developed a printed devices which has pixel electrodes on the other side of an organic transistor.

Gate and S/D electrodes of 30 micron channel length are printed by HS-D650.

TOYO-CHEM Silver Paste - RAF089 with an excellent printed flatness is achieved.



Via-Fill

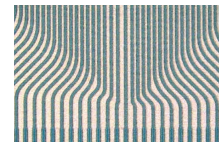
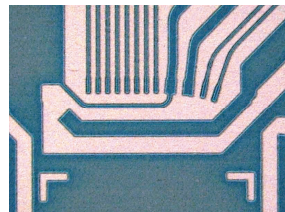
Substrate: Polyimide Film

C

UV Etching Resist Ink- PWB

- Replaces Photo Lithography Method -

We propose an advanced Screen Printing technology with high viscosity ink. Etching Resist Ink instead of laminating conventional Dry Film Resist on CCL. Ultra-Hard HS-D achieves an excellent snap-off and allows printing with high resolution and high dimensional accuracy. Currently HS-D meshes are capable of printing features down to 130 microns with HS-D500.



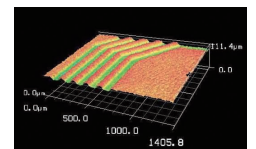
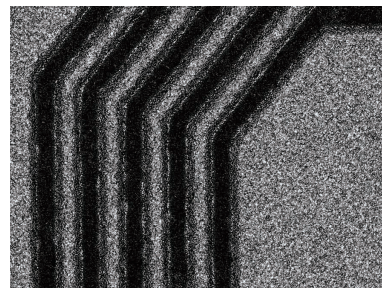
Substrate: Copper-plated Laminated Board

D

Alumina Substrate Circuit 3-layer printing

- 150um pitch electrode -

We conducted three-layer screen printing using HS-D650 and high viscosity Ag paste. The result was a print thickness of about 12um compared to just 6um in single layer printing. A flat electrode circuit was formed on the alumina substrate with the pitch of 150um. Screen printing without the use of photolithography or photosensitive allowed to reduce the substrate size, increase the performance and cost reduction.



Substrate: Alumina Ceramic

The True Value of the Latest Screen Printing Technology

Micro-Precision Pattern Printing with the World's Finest Stainless Steel Wire Mesh

E

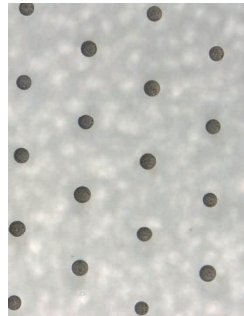
LCD light guide plate (panel)

- 60um - The smallest diameter ever is possible-

Large size backlight LCD presently has a number of 300um dots which are screen printed on an acrylic board as thin as a few millimeters.



In the coming years, the thickness of a light guide panel will be as thin as 0.4mm and the dots on the surface also have to be as small as around 60um in diameter.



Such fine screen printing of 60um can be achieved with our ultrafine screen mesh MS640.

Substrate: **Acrylic**

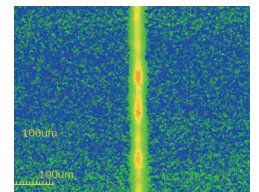
G

Solar Cell Finger Printing

-line width from 50um to 40um-

The structure of finger electrode on crystal Si solar cell plays the important role to increase the line conductivity and efficiency of solar cells.

Line width is going to go from 50 to 40 micron at a narrow pitch. MS500 or 640 is our recommendation.



Substrate: **Si Wafer**

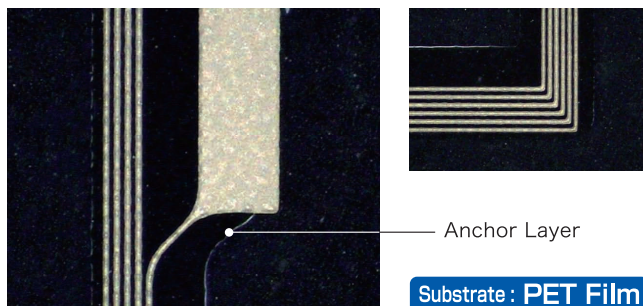
F

Touch Panel- 40 micron pitch electrode printing

- With Combination Anchor Printing-

We attempted to screen print the finest 'touch panel extracting electrode formation' by using MS-D900 mesh (prototype) with 12 micron diameter wire.

The groundwork, an anchor layer, was printed with MS-640 C21 (emulsion thickness at 1um after drying). Electrode width printed at 40um pitch (23/17 micron).



Substrate: **PET Film**

H

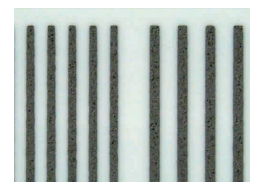
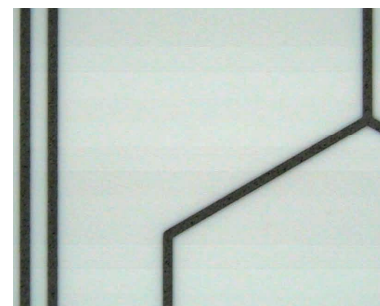
CNT Ink for Screen Printing

- Our proposal to Functional Material Manufacturer -

Function and printability must be compatible for functional material ink.

High Visco-Elastic Ink is suitable for Screen Printing.

We confirmed that line widths of less than 175 micron are possible with High Visco-Elastic CNT Ink. which is improved for Screen Printing.



Substrate: **PET Film**

The World Finest Stainless Steel Wire Mesh

Cutting-Edge Electronics made possible with the Finest Metal Mesh products

Corporate Profile

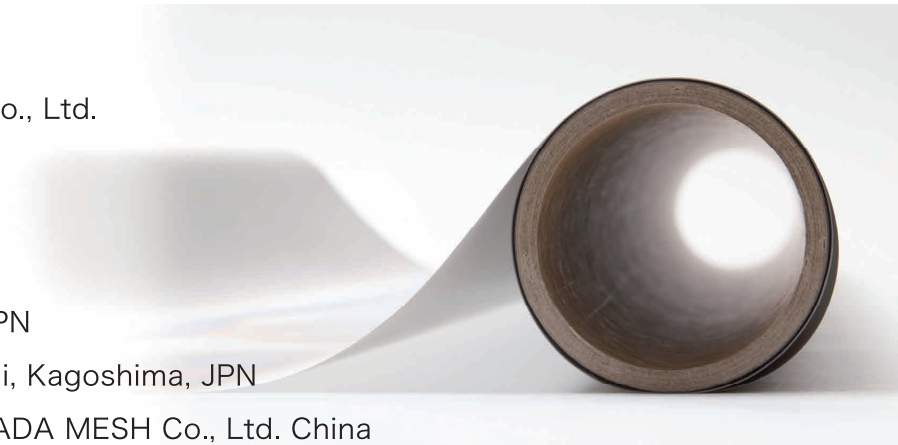
Corporate Name : ASADA MESH Co., Ltd.

Establishment : 1940

Employees : 257

Address :

- Head Office : Matsubara Osaka, JPN
- Kagoshima Plant : Satsuma-Sendai, Kagoshima, JPN
- Subsidiary Company : Suzhou ASADA MESH Co., Ltd. China

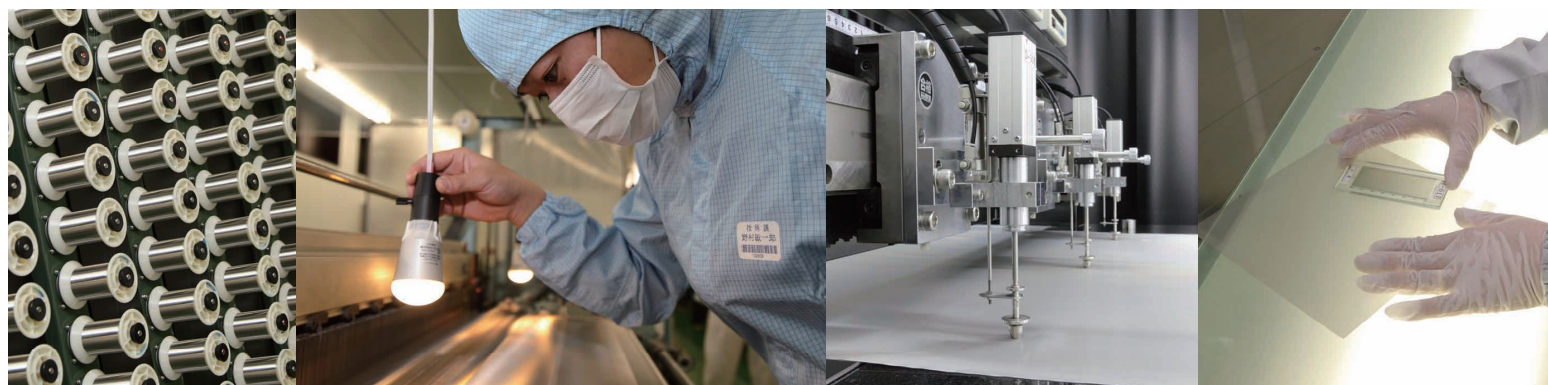


Business Outline

Manufacturer of various types of woven wire cloth for Screen Printing, Sieving and Filtration.

History of Facts

Mr. Asada was originally a mercer of Kawachi cotton before entering into the Stainless Steel Wire Mesh manufacturing. He was in the Wire Mesh manufacturing industry for over 70 years, ASADA MESH has long contributed to Screen Printing Technology development, realizing High Definition, High Strength and consistent wire meshes.



Factory Tours

Our factories accept guided tours to introduce our clients to Fine Metal Manufacturing Processes and Mask Manufacturing.

