NEWS RELEASE

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Mitsui Kinzoku to Increase Production of Ultra-Thin Electrodeposited Copper Foil with Carrier

Production planned of 600,000 m^2 per month of 1.0- to 5.0-micrometer ultra-thin copper foil for IC package substrates

Mitsui Mining and Smelting Co., Ltd. (Mitsui Kinzoku) has recently upgraded its production system for MicroThin™ Series ultra-thin copper carrier foil for IC package substrates to boost its production by 30% from 450,000 m^2 per month to 600,000 m^2 per month. The Company plans to increase monthly production to one million square meters if a future increase in demand warrants it.

Background to increase in MicroThin™ production, and demand developments

The Company's ultra-thin copper foil "MicroThin™ Series" is superior to existing copper foil products in terms of forming fine-pitch circuits, and is increasingly being adopted by IC package substrate manufacturers to enable the creation of increasingly miniaturized circuits. Our products are penetrating the South Korean, Taiwanese and Chinese markets, to say nothing of Japan.

High-end mobile devices such as 3G cell phones, smartphones, multimedia cell phones, portable multimedia players, and netbooks are shifting toward printed circuit boards with finer-pitch IC packages with a ball pitch (*1) of 0.3-0.4 mm. The MicroThin™ Series is expected to be applicable to a broad range of products.

To meet this strong demand, the Company began enhancing its production capacity at its Ageo Plants No. 1 and 2 in the spring of 2008. The plants will have a combined production capacity of 600,000 m^2 per month by the end of July, and we expect to begin production and shipment soon thereafter, assuming that the customer certification process is completed successfully.

For an additional increase in production, the Company plans to boost monthly production by an extra 400,000 m^2 depending on market trends. When this production increase is completed, we will be ready to produce one million square meters per month.

MicroThin™ Series

The MicroThin™ Series is ultra-thin copper foil with an 18-micrometer copper carrier foil. The thickness of the foil itself is as little as 1-5 micrometers, but the additional 18-micrometer carrier makes the foil as easy to handle as conventional copper foil.

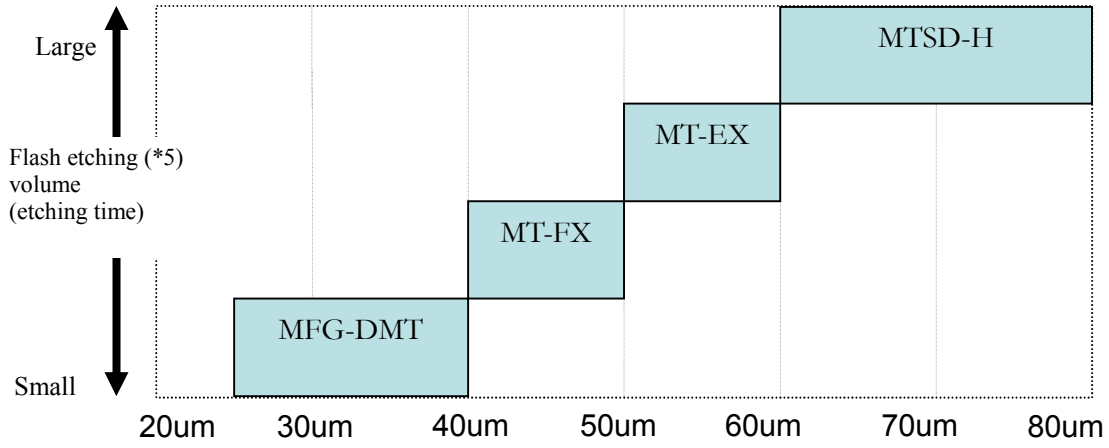
The series is composed of two product lines for products with a circuit pitch of 50 micrometers or more, which differ in roughness (*2): MTSD-H and MT-EX. Each line covers five different thicknesses of 1.0, 1.5, 2.0, 3.0 and 5.0 micrometers. The series thus supports a wide range of width up to 1,300 mm.

Development of the low-roughness MT-FX model and non-roughened (*3) Multi Foil®-G (MFG) model has been completed. Characterized by its uniformly and finely roughened surface, the MT-FX can be produced in high yields with a circuit pitch of less than 50 µm by further shortening the etching time. The MFG is a profile-free (*4) ultra-thin copper foil with an adhesive layer. The user certification process is currently in progress.

With the MicroThin™ Series, the Company is fully ready for mass production in many different combinations of thin foil and low-roughness (or non-roughened surface) options for leading-edge packages in which the pitch will be increasingly fine, as well as for currently active packages with a 50- to 80-µm pitch. The diagram below shows some typical circuit pitches to which MicroThin™ Series copper foil is applied.

Examples of circuit pitches to which MicroThin™ Series is applied

Examples of application of MicroThin™ Series in MSAP (pattern plating method)



Paving the way for finer pitches while ensuring reliable adhesion to the substrate, the MicroThin™ Series earns high marks from the cutting-edge IC package market as a strategic solution for pattern pitch reduction.

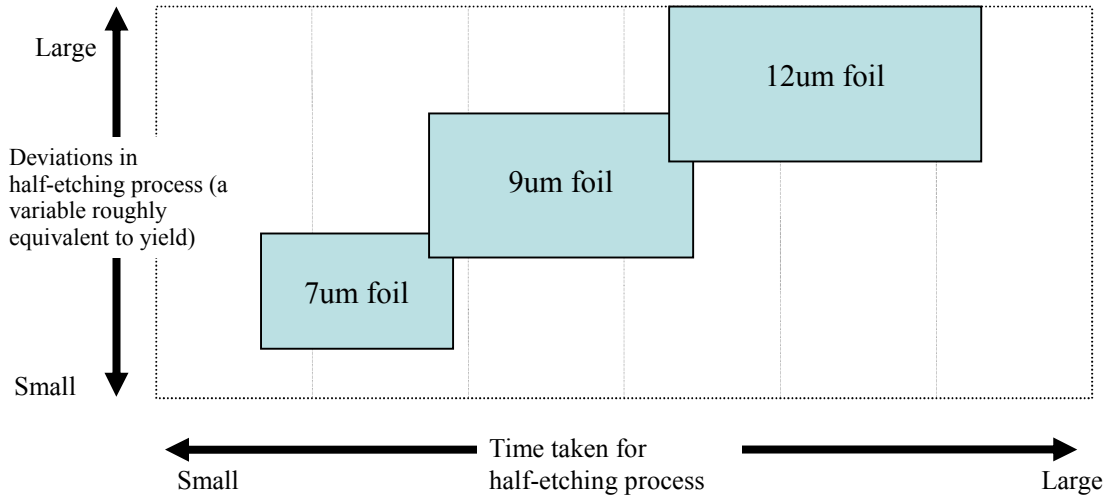
Thin copper foil without carrier

Among the models of electrodeposited copper foil without carrier currently used for the production of IC packages, VLP (*6) foil is well received for its excellence in etching properties and in ease of handling. The minimum thickness of the VLP foil is currently 9 μm. The Company has recently prepared itself to produce 7 μm electrodeposited copper foil in large quantities; specifically 50,000 m^2 per month, and has commenced delivering samples. The Company's product portfolio resultantly covers a wide range of thicknesses, ranging from 1-5 micrometers in the MicroThin™ Series and from 7-35 micrometers in electrodeposited copper foil without carrier.

The half-etching process (*7) is essential for forming fine pattern circuits by the subtractive process. The thinness of 7μm electrodeposited copper foil compared with conventional 9μm or 12μm foil allows a reduction in etching time. As a result, not only can the costs of etching be reduced, but the degree of deviation in etching depth, and therefore the yield, can also be improved.

The chart below shows the impact of differences that the thickness of electrodeposited copper foil effects deviation in half-etching process and necessary time for processing.

Relation between copper foil thickness and deviations in the half-etching process (subtractive method)



Future developments

To support the rapid expansion of high-performance IC package substrate products, the Company, as one of the industry's leading manufacturers of copper foil, will continue to develop thin electrodeposited copper foil and ultra-thin copper carrier foil in the MicroThin™ Series. To respond swiftly to diverse market needs, the Company is working to expand its array of state-of-the-art copper foil products, which will give us an unrivalled production capacity and help us to meet customers' expectations.

*1: Ball pitch

A space between pads on which solder balls are placed as contacts for connecting a IC package substrates

*2: Roughness

As used here, roughness refers to surface roughness; the lower this value, the easier to etch and the more suited to pitch reduction

*3: Non-roughened

State in which the copper foil undergoes no roughening process

*4: Profile-free

State in which the roughness level is extremely low

For example, copper foil with its smooth surface unroughened is described as profile-free.

*5: Flash etching

Etching for removing the seed layer in the semi-additive process (SAP)

In the modified SAP in which the MicroThin™ Series is used like a seed layer, it is replaced by the process of etching the MicroThin™ Series excluding the part where pattern plating was applied. The process is called flash etching or strobe etching because of the short etching time and small etching volume.

*6: VLP

This stands for very low profile. The low roughness suggested by the name is beneficial for forming fine circuits. VLP foil is high in tensile strength, ensuring easy handling for foils with a thickness of 9 μm or less.

*7: Half-etching

Half-etching is a technology for etching copper foil to a depth of half the thickness of the foil. For example, in the case of 12μm foil, the etching depth would be 6μm. Half-etching is conducted by etching the entire surface of the copper foil prior to the circuit-forming process for the purpose of achieving a higher degree of precision in circuit-forming.