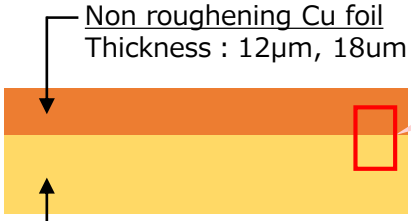
LCP based Flexible Copper Clad Laminate used for high frequency PCB

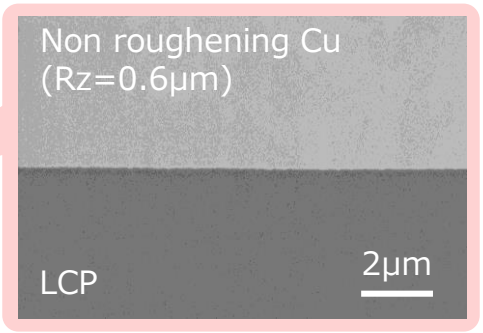
Direct laminated LCP-FCCL with low profile LCP/Cu interface for subtractive process

Under development

Material composition

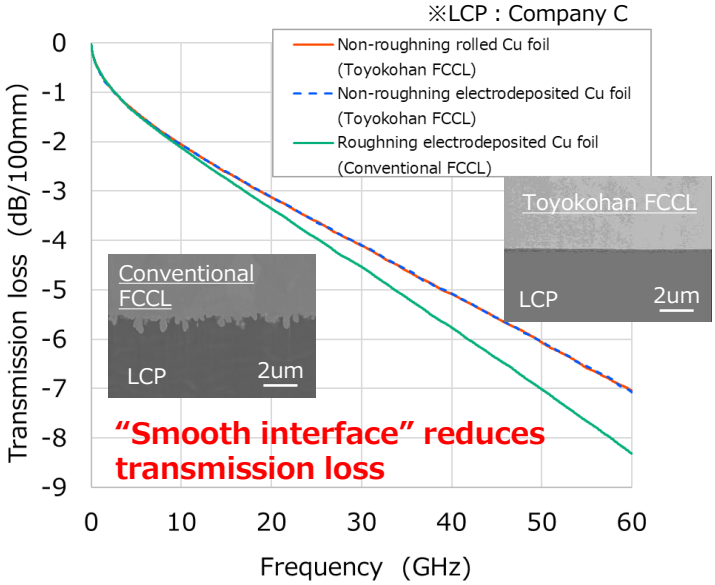
Width:Max510mm
Type : Roll, Sheet





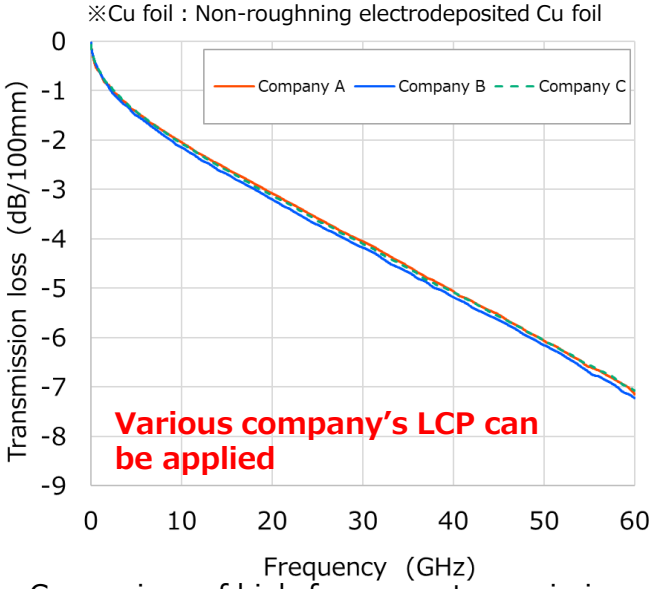
Transmission loss using 50μm LCP

※LCP : Company C



Comparison of high-frequency transmission characteristics using various copper foils

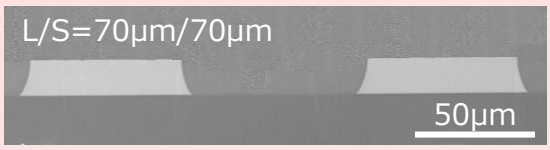
※Cu foil : Non-roughning electrodeposited Cu foil



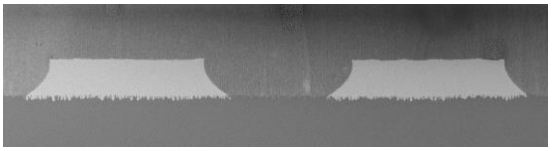
Comparison of high-frequency transmission characteristics using various company's LCP

Wiring shape

Good wiring shape



Using non roughening Cu foil
(Toyokohan FCCL)



Using roughening Cu foil
(Conventional FCCL)

General properties

Item	Test conditions	Non roughness Cu foil FCCL
Peel strength	Cu thickness : 18μm At R.T	＞0.6 N/mm
dielectric constant	SPDR method, 20GHz	3.3
dissipation factor		0.002
Solder heat resistance	288℃,10sec	Pass
Bending resistance	R=0.38/135°/4.9N	＞300 times
Dimensional stability	After Et,After heating	＜±0.1%
Chemical resistance	HCl、NaOH、IPA	pass

The above data presents typical values that are not guaranteed.

【Contact】 Toyokohan Co., Ltd. Marketing Dept.
TEL:+81-833-44-2544, E-mail:tk-marketing@tkworks.jp

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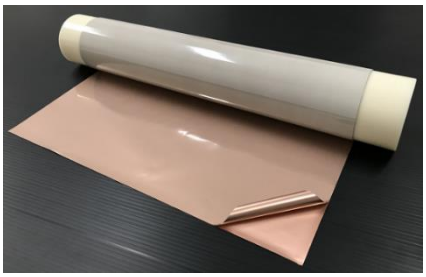
Flexible Copper Clad Laminate used for fine pitch wiring

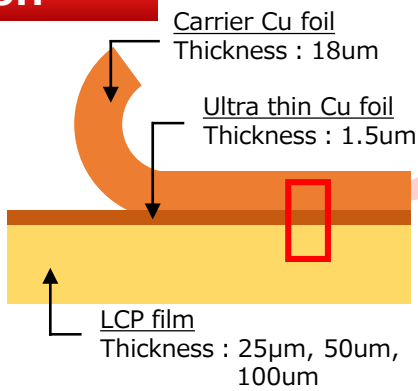
Under development

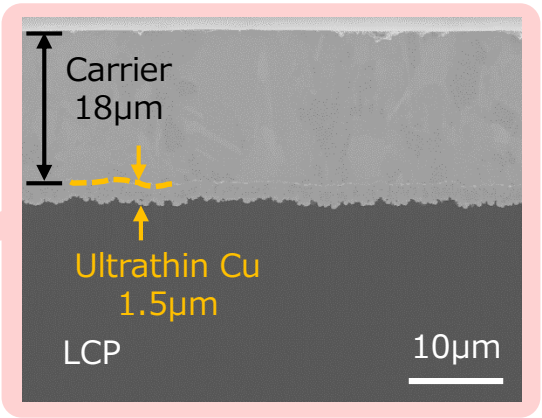
Direct laminated material, ultrathin copper foil with carrier on LCP, also possible to form fine pitch wiring using MSAP

Material composition



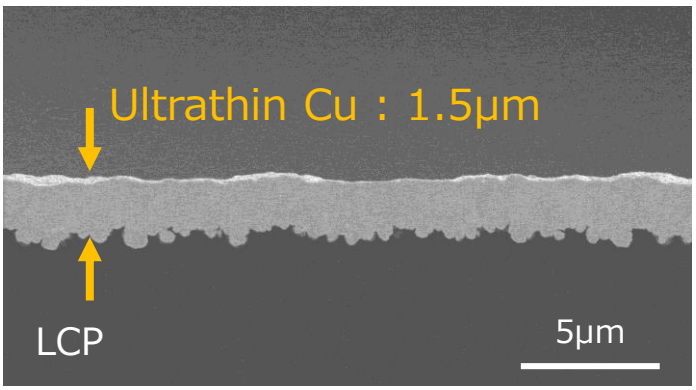
Width:Max510mm
Type : Roll, Sheet



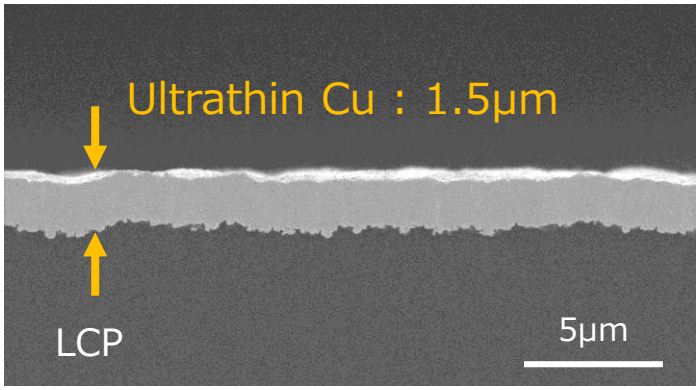


The carrier copper foil can be easily and evenly peeled off

Achieved lamination of ultra thin copper layer with low profile

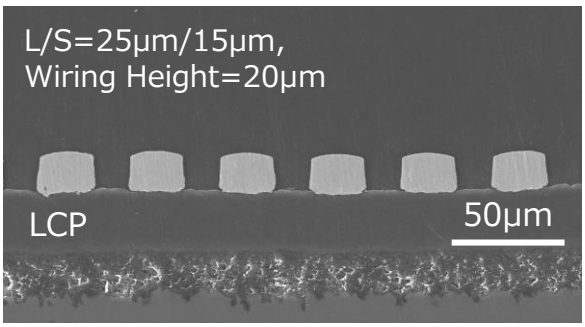


Conventional profile Cu foil Rz : 1.3μm



Low profile Cu foil Rz : 0.9μm

Fine pitch wiring using MSAP



General properties

Item	Test conditions	Non roughness Cu foil FCCL
Peel strength	Cu thickness : 18μm At R.T	1.0 N/mm
Carrier peel strength	At R.T	0.03N/mm
dielectric constant	SPDR method, 20GHz	3.3
dissipation factor		0.002
Solder heat resistance	288℃,10sec	Pass
Bending resistance	R=0.38/135°/4.9N	＞300 times
Dimensional stability	After Cu plating, After Et,After heating	＜±0.1%
Chemical resistance	HCl、NaOH、IPA	pass

The above data presents typical values that are not guaranteed.

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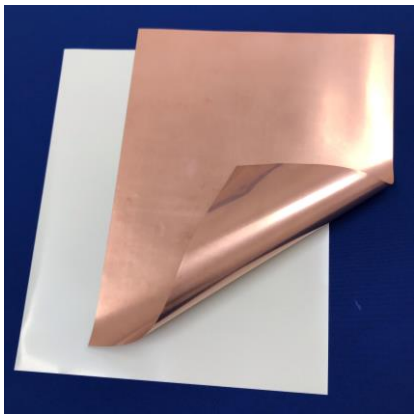
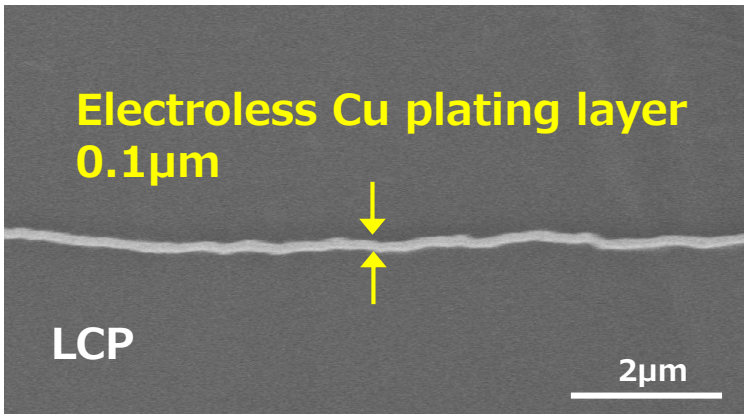
Flexible Copper Plated Material for very fine pitch wiring

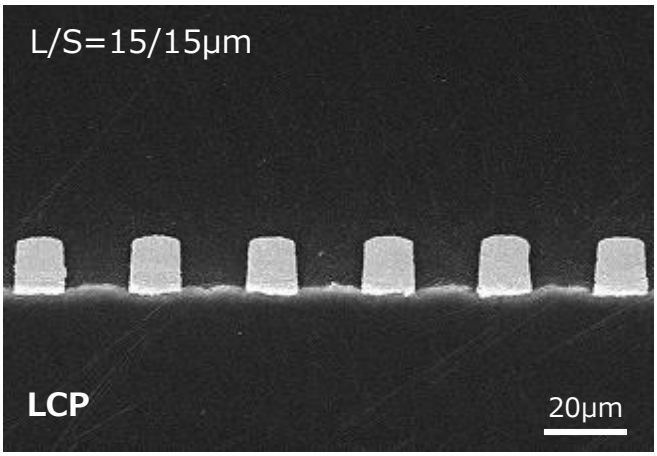
Under development

Very thin Copper plated material, on LCP with low profile interface, also possible to form very fine pitch wiring using SAP

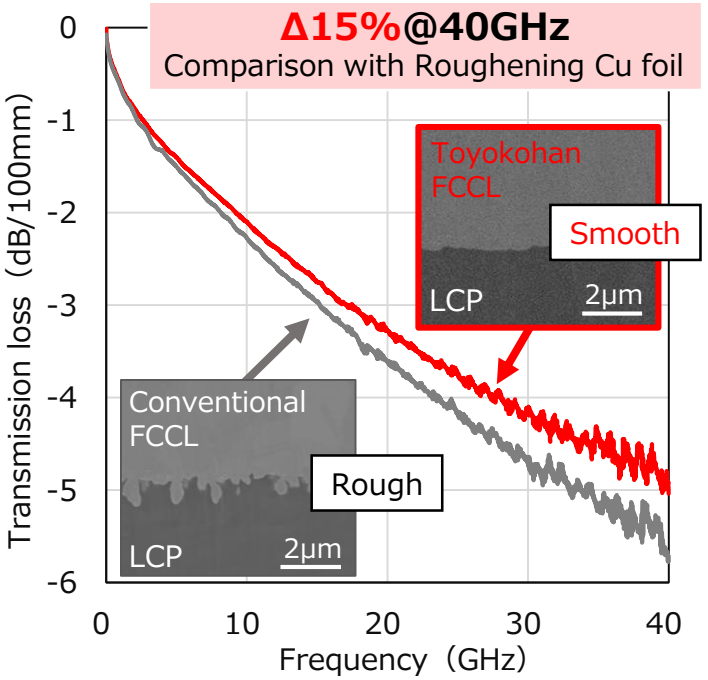




Fine pitch wiring using SAP



Transmission loss using 50μm LCP



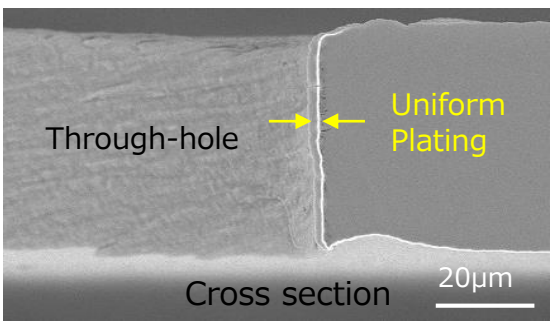
General properties

Item	Test conditions	Cu Plating FCCL
Peel strength	Cu thickness : 18μm At R.T	0.7 N/mm
	After 150℃,168hr	0.7 N/mm
dielectric constant	Fabry-perot method 28GHz	3.3
dissipation factor		0.002
Solder heat resistance	260℃,5sec	pass

The above data presents typical values that are not guaranteed.

Process saving

Plating on pre-pored film



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