

Halogen Free Resin Coated Copper Foil

ECOFOIL LF[®]

This Halogen Free Resin Coated Copper Foil is designed for sequential build-up manufacture of microvia boards for environmentally friendly “green PCBs”. The high TG epoxy resin system provides a perfect and regular insulation thickness after lamination. Its resin’s ideal flow behaviour provides excellent hole filling and microvia quality.

Lead-free solders currently being used and developed for printed circuit assembly require higher processing temperatures that can degrade the base material commonly used in printed circuits, resulting in decreased long-term reliability.

This epoxy Novolac Resin Coated Copper Foil has been specially designed to withstand such higher temperatures.

The foil can be laminated in a conventional vacuum or any ADARA™ press and doesn’t require necessarily pin lamination. The resin system is easily laser-ablated. Combined with the use of copper carrier supported ultra thin Doublethin® foils, optimum protection of the functional 5µm layer is achieved, resulting in excellent yield figures.

Copper Foil types:

- Very Low profile foil with HTE characteristics
- Low profile foil HTE characteristics
- Ultra-thin foils with a copper carrier

Copper Foil Thickness:

- Carrier supported (either 1oz or 2oz copper carrier): 3/35µm 5/35µm 5/70µm 9/70µm
- Unsupported copper foils: 12µm 18µm 35µm

Resin Coating in B-stage:

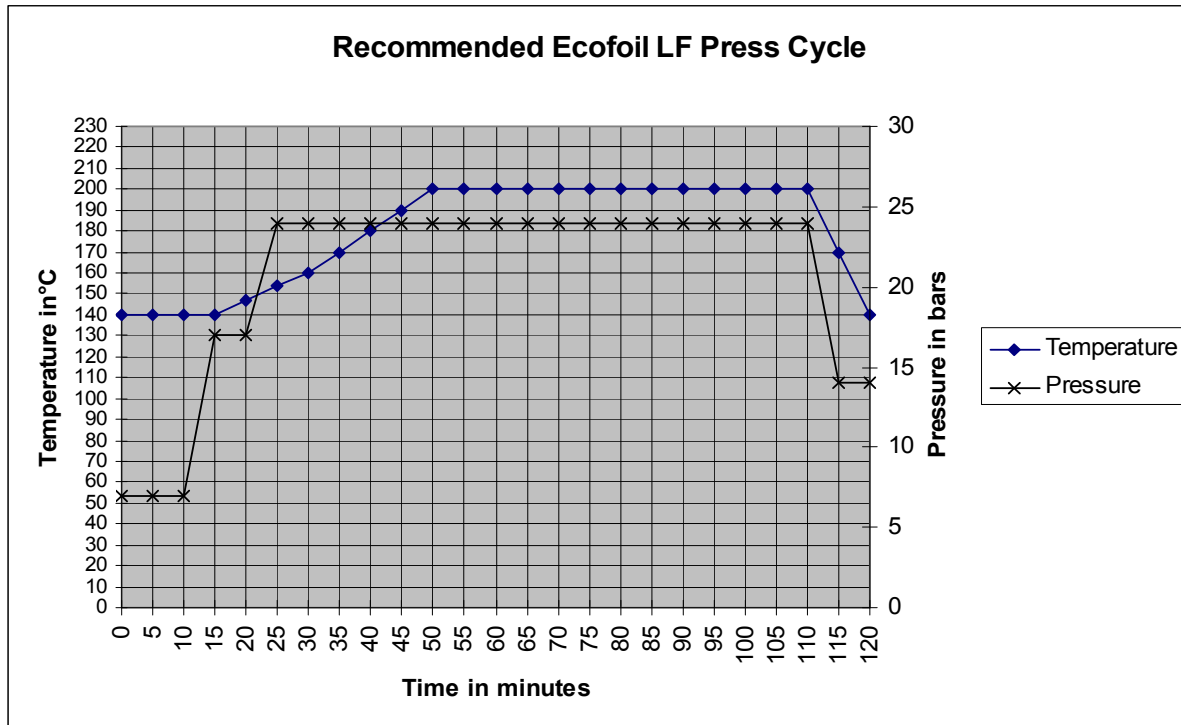
65µm 75µm other thickness on request

Typical average properties:

Parameter	Units	Value	Remark
Dielectric Constant ϵ_r at 1GHz/10GHz	-	3.5/3.42	
Dissipation Factor $\tan \delta$ at 1GHz/10GHz	-	0.02/0.025	
Glass Transition Temperature TG	°C	> 160	By DMA shear
Copper Peel Strength 1/2Oz Cu on FR4	N/mm	> 1.0	
Time to delamination at 260°C	min	> 60	By TMA
Time to delamination at 288°C	min	> 20	By TMA
Surface Resistance	Ω		pending
Volume Resistance	M. Ω xcm		pending
Coefficient of Thermal Expansion (z-axis)	ppm/K	52	From RT to Tg
	ppm/K	170	Above Tg
Flammability acc. UL-94	class	V0	E239919
Time to decomposition (10% weight loss in N ²)	°C	355	By TGA

Recommended Press Cycle:

Use a conventional vacuum press: vacuum at once



Typical Temperature Profile:

Heating from 140°C to 200°C in 35 minutes:
2°C/minute
Hold for 60 minutes
Cool down under pressure

Typical Pressure Profile:

20 to 25 bar for 85 minutes
Keep pressure during cooling

Recommended Storage Conditions:

Temperature: max. 15°C
Rel. humidity: 45 ± 5 % rel.
Shelf life: max. 90 days

Availability:

Ecofoil LF® is available in rolls with uncoated edges for ADARA™ press technology or in sheets with or without punched registration holes.