



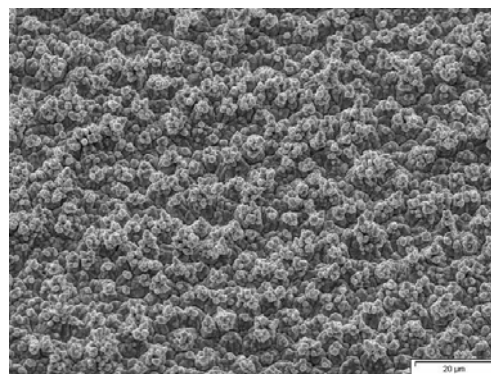
TRA

Technical Characteristics

TRA style of foil is an improved single side Zinc free treated electro-deposited copper foil, characterized by enhanced high temperature elongation properties [IPC-Grade 3] and thermally stable microstructure.

Excellent adhesion to a broad range of substrates allows it to be used for the fabrication of laminates for rigid, composite and conventional multi-layer / mass lamination applications.

Typical substrates include halogen free and phenolic cured resin systems.



Typical average properties

TRA							
MEASURED PARAMETERS	UNITS	PRODUCT GAUGE				IPC	
Nominal Thickness	μm oz.	12 3/8	18 1/2	35 1	70 2	Specification IPC-4562A	Test Method IPC-TM-650
Area Weight (± 5 %)	oz/ft ²	0.35	0.50	0.95	1.90	(a)1.2.5, table 1-1	2.2.12
	g/m ²	108	154	290	580	(b)3.4.4	
	g/254 in ²	17.7	25.2	47.5	95.0	(c)4.6.3	
Untreated Side Roughness (Ra)	μm (μ.inch)	0.20 - 0.40 (8 - 16)				3.5.6	2.2.17
Treated Side Roughness (Rz)	μm μ.inch	5 - 7 197 - 276	6 - 8 236 - 315	7 - 10 276 - 394	9 - 12 354 - 472	3.4.5	2.2.17
Tensile Strength Transverse at RT	MPa (k.Lb/in ²)	> 276 (> 40)				3.5.1	2.4.18
Tensile Strength Transverse at 180 °C	MPa (k.Lb/in ²)	> 138 (> 20)				3.5.1	2.4.18
Elongation Transverse at RT	%	> 3	> 6	> 8	> 12	3.5.3	2.4.18
Elongation Transverse at 180 °C	%	> 3				3.5.3	2.4.18
Peel Strength (RT) FR4 ^{1/1}	N/mm (Lb/in)	> 1.1 (> 6.3)	> 1.3 (> 7.5)	> 1.7 (> 10)	> 2.1 (> 12)	3.5.4	2.4.8
High Temp. Tarnish Resistance	-	120 min @ 180 °C in air: pass					
Solderability	-	Complies with IPC specification				3.6.3	2.4.12

^{1/1}Laminate construction with thickness >= 0.5 mm

Notes

- Products can be supplied in both roll and sheeted formats. Roll product is available in widths of 150 mm (~ 5.9") to 1360 mm (~ 53.5").
- Product is supplied on sturdy cardboard cores with an ID of ~ 80 mm (3 1/8"). Alternative core sizes and materials are available on request.
- Please visit our website (www.circuitfoil.com) for regular updates.

All of this Technical Information has been determined with due care and thoroughness. However, because the conditions of use and process and application technologies employed can substantially vary, the provided data and figures can only serve as non binding guidelines. They do not constitute a guarantee that the purchased item will possess certain attributes. For this reason, no liability whatsoever can be assumed for them. The buyer is obliged to check the suitability of all supplied products.

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