

TW-YE

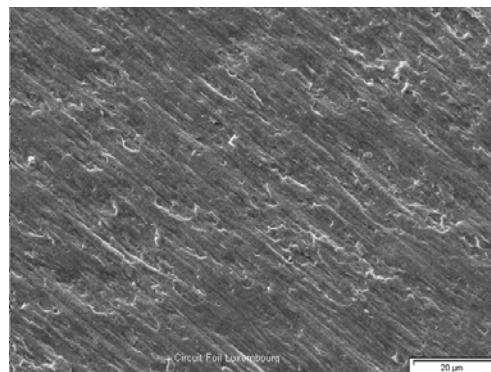
Technical Characteristics

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

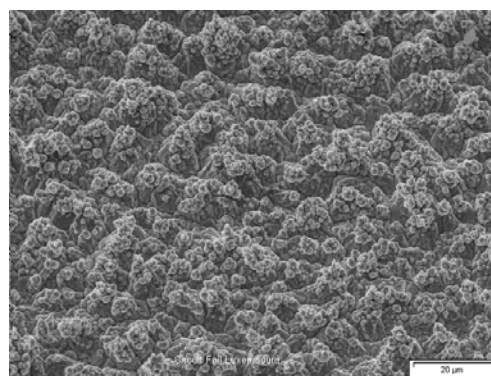
With the inorganic **YE** protection on the shiny surface, the foil shows superior resistance to oxidation in warm and humid environments.

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 GPO's, CEM3, FR-3, FR-4, and FR-5.



Shiny side



Treated matte side

Typical average properties

TW-YE									
Table 1									
MEASURED PARAMETERS	UNITS	PRODUCT GAUGE						IPC	
Nominal Thickness	µm oz.	9 1/4	12 3/8	18 1/2	25 3/4	35 1	70 2	Specification IPC-4562	Test Method IPC-TM-650
Area Weight (± 5 %)	oz/ft ²	0.26	0.35	0.50	0.72	0.95	1.90	(a)1.2.5, table 1-1 (b)3.4.4 (c)4.6.3	2.2.12
	g/m ²	79	108	154	220	290	580		
	g/254 in ²	12.9	17.7	25.2	36.1	47.5	95.0		
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	4 - 6 157 - 236	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		> 10	> 15	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	> 1.0 > 5.7	> 1.1 > 6.3	> 1.3 > 7.5	> 1.5 > 8.6	> 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

TW-YE**Table 2**

MEASURED PARAMETERS	UNITS	PRODUCT GAUGE				IPC	
		105 3	140 4	175 5	210 6	Specification IPC-4562	Test Method IPC-TM-650
Nominal Thickness	μm oz.						
Area Weight ($\pm 5\%$)	oz/ft ²	2.88	3.93	4.92	5.90	(a)1.2.5, table 1-1	2.2.12
	g/m ²	880	1200	1500	1800	(b)3.4.4	
	g/254 in ²	144	197	246	295	(c)4.6.3	
Untreated Side Roughness (Ra)	μm $\mu\text{.inch}$	0.20 - 0.40 8 - 16				3.5.6	2.2.17
Treated Side Roughness (Rz)	μm $\mu\text{.inch}$	< 15 < 590	< 16 < 630	< 17 < 670	< 18 < 709	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	%	> 20				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	> 2.7 > 15				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

The higher foil thicknesses (table 2) are typically used for high current applications on a broad range of substrates allowing the fabrication of rigid, composite and conventional multi-layers.

In conjunction with proprietary substrates, applications requiring up to 50 A and/or up to 600 V like in industrial electronics or automotive controllers are fulfilled with an excellent reliability.

Reduced matte side profiles allow obtaining good results with usual etching modules.

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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