



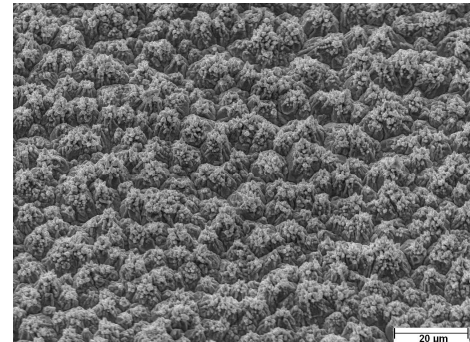
TZA-FX

Technical Characteristics

TZA-FX style of foil is a matte-side treated zinc free and arsenic free electro-deposited copper foil, characterized by enhanced high temperature elongation properties [IPC-Grade 3] and thermally stable microstructure.

The foil exhibits excellent adhesion to a broad range of flexible substrates for 3-layer FCCL. After thermal stress, this product is showing best bond retention.

If 3-layer FCCL's with dicy-cured epoxy adhesives are used, we recommend our copper foil with TWLS treatment.



Treated matte side

Typical average properties*

| TZA-FX | | | | | | | | |
|---|-----|--------------------------------|---------------------------------|----------------------|------------------------|-----------------------|----------------------------|---------------------------|
| 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 | | oz/ft ² | 0.35 | 0.50 | 0.93 | 1.89 | (a)1.2.5, table 1-1 | 2.2.12 |
| | | g/m ² | 106 | 152 | 283 | 577 | (b)3.4.4 | |
| | | g/254 in ² | 17.4 | 24.9 | 46.4 | 94.6 | (c)4.6.3 | |
| Untreated Side Roughness (Ra) | | | 0.20 - 0.40 (8 - 16) | | | | 3.5.6 | 2.2.17 |
| Treated Side Roughness (Rz) | ISO | μm (μ.inch) | 4 - 7 (157 - 276) | 5 - 8 (197 - 315) | 6 - 11 (236 - 433) | 8 - 13 (315 - 512) | 3.4.5 | |
| | JIS | | 3 - 5.8 (118 - 228) | 4 - 7 (157 - 276) | 5 - 9.3 (197 - 366) | 7 - 11 (276 - 433) | - | |
| Tensile Strength Transverse at RT | | MPa (k.Lb/in ²) | ≥ 276 (≥ 40) | | | | 3.5.1 | 2.4.18 |
| Tensile Strength Transverse at 180 °C | | | ≥ 138 (≥ 20) | | | | | |
| Elongation Transverse at RT | | % | ≥ 2 | ≥ 6 | | ≥ 9 | 3.5.3 | |
| Elongation Transverse at 180 °C | | | ≥ 2 | ≥ 3 | | | | |
| Peel Strength (RT) FR4 halogen free ⁽¹⁾ | | N/mm (Lb/in) | ≥ 1.0 (≥ 5.7) | | ≥ 1.2 (≥ 6.8) | ≥ 1.3 (≥ 7.4) | 3.5.4 | 2.4.8 |
| High Temp. Tarnish Resistance | | - | 60 min @ 180 °C in air: pass | | | | - | |
| Solderability | | - | Complies with IPC specification | | | | 3.6.3 | 2.4.12 |

⁽¹⁾ Laminate construction with thickness ≥ 0.5 mm

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* 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.