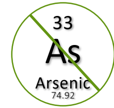
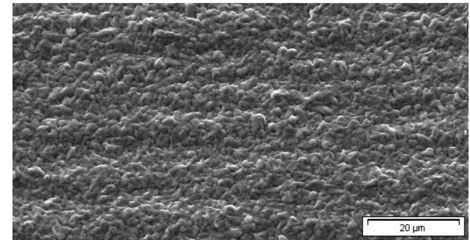
# DOUBLETHIN™ - CORELESS

**ULTRATHIN CARRIER SUPPORTED COPPER FOIL DESIGNED FOR CORELESS PROCESS.**




## TYPICAL SUBSTRATES

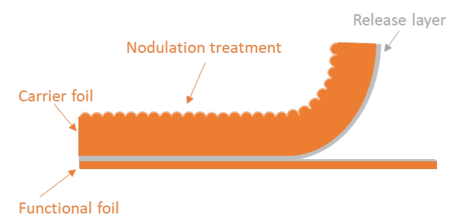
High Tg epoxy resin systems as sacrificial core.



Untreated Functional Foil

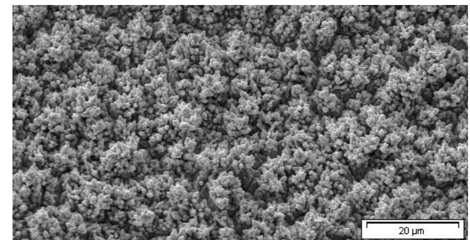
## TYPICAL PROCESSES

Coreless / ETS ("Embedding Trace Substrate") process used in IC Substrates and HDI/SLP ("Substrate Like PCB").




## TYPICAL APPLICATIONS

Mobile communication devices (like smartphones and tablets) and laptops.



Carrier Foil Treated Side

## *TYPICAL AVERAGE PROPERTIES**

| DOUBLETHIN™-CORELESS | | | | | | |
|---|---|---|---|---|---|---|
| **MEASURED PARAMETERS** | | **UNITS** | **PRODUCT GAUGE** | | | |
| **Nominal Thickness** | | **µm** | **1,5** | **2** | **3** | **5** |
| Functional Foil Area Weight | | g/m² | 14 ± 2 | 16 ± 3 | 25 ± 3 | 41 ± 4 |
| Carrier Foil Thickness | | µm | 12 or 18 | | 18 or 35 | |
| | | oz. | 3/8 or 1/2 | | 1/2 or 1 | |
| Functional Foil Untreated Side Roughness (Rz) | JIS | µm | ≤ 1.0 | | | |
| | ISO | µm | ≤ 1.3 | | | |
| Preferred Lamination Temperature | | °C (°F) | ≤ 240 °C (464 °F) | | | |
| Carrier Release Bond after multiple lamination and wet process cycles | | - | Easy manual peeling | | | |
| Carrier Foil Treated Side Roughness (Rz) | JIS | µm | 3.3 – 6.7 | | 4.1 - 8.4 | |
| | ISO | | 4 - 8 | | 5 - 10 | |
| Peel Strength of Carrier Foil Treated Side on halogen free high Tg FR-4 | | N/mm (Lb/in) | ≥ 0.8 (≥ 4.6) | | | |

**ALTERNATIVE**

For MSAP process please consult DOUBLETHIN N-TZA, DOUBLETHIN ANP, DOUBLETHIN NN and DOUBLETHIN NF datasheets.

* 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.