

ThinFlex Corporation

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ThinFlex-W22, W-1002ED-N4 Adhesiveless Double Sided Copper Clad Laminate

(Halogen Free)

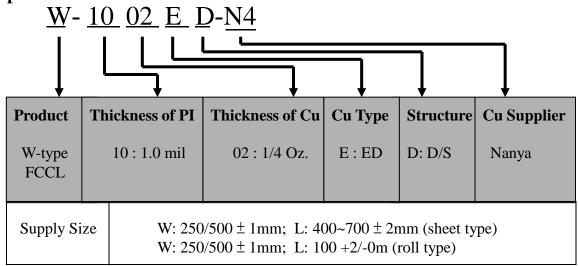
IPC Designation IPC-4204/11

ThinFlex-W22, W-1002ED-N4 is an adhesiveless double-sided (D/S) copper clad laminate, using ThinFlex TPI film and laminated with ED copper foil on both sides. ThinFlex-W22, W-1002ED-N4 adhesiveless D/S composites are designed for a wide variety of flexible circuit applications which require advanced material performance, temperature resistance, fine pitch, and high reliability.

1. Product Characteristics:

- * Excellent dimensional stability
- * Excellent flexibility
- * Finer line etching capability
- * Low moisture absorption
- * Excellent flammability
- * Excellent chemical resistance
- * Excellent thermal, mechanical, and electrical properties

2. Specifications:



^{*}Other thicknesses and dimensions are available on customers' demand.

Technical Data Sheet: 201401





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3. Construction:

Copper foil Polyimide film Copper foil

4. Properties:

IPC Designation IPC-4204/11 **Test item** W-1002ED-N4 Unit **Test Method** Peel Strength As Received Kgf/cm ≥ 0.6 IPC-TM650 2.4.9 B Solder Float Kgf/cm ≥0.6 IPC-TM650 2.4.13 B ≥ 0.6 IPC-TM650 2.4.9 After Temp. Cycling Kgf/cm IPC-TM650 2.3.2 ≥0.6 Chemical Resistance Kgf/cm Kg/mm² IPC-TM-650 2.4.19 ≥ 24 Tensile Strength (Base Film) % IPC-TM-650 2.4.19 Elongation (Base Film) ≥ 25 Tensile Modulus (Base Film) Kg/mm² ≥ 600 ASTM D882 Initial Tear Strength (Base Film) ≥360 IPC-TM-650 2.4.16 g Propagation Tear Strength (Base Film) g ≥8 IPC-TM-650 2.4.17.1 Flexural Endurance, MIT M.D. Cycles JIS-C 6471, 0.8mmR, 0.5kg ≥800 T.D. Cycles JIS-C 6471, 0.8mmR, 0.5kg ≥800 **Electrical Properties** Surface Resistance Ω $\geq 1.0 \times 10^{11}$ IPC-TM650 2.5.17 Ω-cm IPC-TM650 2.5.17 \geq 1.0×10¹² Volume Resistance 0 $\geq 1.0 \times 10^9$ IPC-TM650 2.6.3.2 Insulation Resistance Dielectric Strength kV/mil 5.5 ASTM-D149 Dielectric Constant 3.3 IPC-TM650 2.5.5.3 0.01 IPC-TM650 2.5.5.3 Dissipation factor Physical and Thermal Properties % $-0.1 \sim -0.1$ IPC-TM650 2.2.4C M.D. **Dimensional Stability** T.D. IPC-TM650 2.2.4C % -0.1~-0.1 CTE ppm/°C 24 ThinFlex 350 ThinFlex $^{\circ}$ C T_q Solder Float 30sec at 288°C (550°F) **Pass** IPC-TM650 2.4.13 Moisture Absorption Test IPC-TM650 2.6.2 % 1.1 Chemical Resistance-IPC-TM650 2.3.2 Pass single **ThinFlex** um 49±10% Thickness tolerance **UL Flame Class** 94V-0 UL

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^{*} Above data are typical values, and are not guaranteed values.





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5. Storage:

ThinFlex-W22, W-1002ED-N4 will meet its shelf-life for at least 12 months after arrival at the user's factory when stored in the original packaging at temperatures of below 25°C and below 70% humidity. The products do not need refrigeration and should not be frozen.

Note: The information and data contained in this technical literature is believed to be accurate and is offered in good faith for the benefit of the user. The user should make his own tests to verify the suitability of this product for any application before its use. All data are typical values only and subject to change without notice.

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