



ThinFlex

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ThinFlex Corporation

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ThinFlex-W22, W-2010ED-N4 Adhesiveless Double Sided Copper Clad Laminate (Halogen Free)

ThinFlex-W22, W-2010ED-N4 is an adhesiveless double-sided (D/S) copper clad laminate, using ThinFlex TPI film and laminated with ED copper foil on both sides. The W-2010ED-N4 adhesiveless D/S composites are designed for a wide variety of flexible circuit applications which require advanced material performance and high reliability.

1. Product Characteristics:

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

2. Specifications:

W- 20 10 E D-N4

Product	Thickness of PI	Thickness of Cu	Cu Type	Structure	Cu Supplier
W-type FCCL	20 : 2.0 mil	10 : 1 Oz.	E :ED	D: D/S	Nanya
Product Size	W: 250/500 ± 1mm; L: 400~700 ± 2mm (sheet type) W: 250/500 ± 1mm; L: 100 +2/-0m (roll type)				

* Other product size is also available on customer's demand.



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3. Construction:

Copper foil
Polyimide film
Copper foil

4. Properties:

Test item	Unit	W-2010ED-N4	Test Method	
Peel Strength				
As Received	Kgf/cm	≥ 0.8	IPC-TM650 2.4.9 B	
Solder Float	Kgf/cm	≥ 0.8	IPC-TM650 2.4.13 B	
After Temp. Cycling	Kgf/cm	≥ 0.8	IPC-TM650 2.4.9	
Chemical Resistance	Kgf/cm	≥ 0.8	IPC-TM650 2.3.2	
Tensile Strength (Base Film)	Kg/mm ²	≥ 25	IPC-TM-650 2.4.19	
Elongation (Base Film)	%	≥ 25	IPC-TM-650 2.4.19	
Tensile Modulus (Base Film)	Kg/mm ²	≥ 600	ASTM D882	
Initial Tear Strength (Base Film)	g	≥ 800	IPC-TM-650 2.4.16	
Propagation Tear Strength (Base Film)	g	≥ 15	IPC-TM-650 2.4.17.1	
Flexural Endurance, MIT				
M.D.	Cycles	NA	JIS-C 6471, 0.8mmR, 0.5kg	
T.D.	Cycles	NA	JIS-C 6471, 0.8mmR, 0.5kg	
Electrical Properties				
Surface Resistance	Ω	≥ 1.0×10 ¹¹	IPC-TM650 2.5.17	
Volume Resistance	Ω-cm	≥ 1.0×10 ¹²	IPC-TM650 2.5.17	
Insulation Resistance	Ω	≥ 1.0×10 ⁹	IPC-TM650 2.6.3.2	
Dielectric Strength	kV/mil	5.5	ASTM-D149	
Dielectric Constant (1GHz)	-	3.3	IPC-TM650 2.5.5.3	
Dissipation factor (1GHz)	-	0.01	IPC-TM650 2.5.5.3	
Physical and Thermal Properties				
Dimensional Stability	M.D.	%	-0.1~-0.1	IPC-TM650 2.2.4C
	T.D.	%	-0.1~-0.1	IPC-TM650 2.2.4C
CTE	ppm/°C	24	ThinFlex	
T _g	°C	350	ThinFlex	
Solder Float	30sec at 288°C (550°F)	-	Pass	IPC-TM650 2.4.13
Moisture Absorption	%	1.1	IPC-TM650 2.6.2	
Chemical Resistance	-	Pass	IPC-TM650 2.3.2	
Thickness tolerance	um	120±10%	ThinFlex	
UL Flame Class	-	94V-0	UL	

* Above data are typical values, and are not guaranteed values.



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5. Storage:

ThinFlex-W22, W-2010ED-N4 will meet its shelf-life for at least 12 months after arrival at purchaser's factory with original package, stored at temperature of 25°C or less and relative humidity of 70% or less. The product is no need to be kept in the refrigeration.

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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