



ThinFlex

ThinFlex Corporation

No. 8, Luke 2nd.Rd., Luzhu Dist., Kaohsiung City, 821, Taiwan, R.O.C.

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# ThinFlex-W22, W-0505ED-N4 Adhesiveless Double Sided Copper Clad Laminate (Halogen Free)

ThinFlex-W22, W-0505ED-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-0505ED-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-0505ED-N4

Product	Thickness of PI	Thickness of Cu	Cu Type	Structure	Cu Supplier
W-type FCCL	05 : 0.5 mil	05 : 1/2 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

### 4. Properties:

Copper foil

Test item	Unit	W-0505ED-N4	Test Method
<b>Peel Strength</b>			
As Received	Kgf/cm	≥ 0.6	JIS C 6471 Method B
Solder Float	Kgf/cm	≥ 0.6	JIS C 6471 Method B
After Temp. Cycling	Kgf/cm	≥ 0.6	JIS C 6471 Method B
Chemical Resistance	Kgf/cm	≥ 0.6	JIS C 6471 Method B
Tensile Strength (Base Film)	Kg/mm <sup>2</sup>	≥ 20	IPC-TM-650 2.4.19
Elongation (Base Film)	%	≥ 25	IPC-TM-650 2.4.19
Tensile Modulus (Base Film)	Kg/mm <sup>2</sup>	≥ 550	ASTM D882
Initial Tear Strength (Base Film)	g	≥ 350	IPC-TM-650 2.4.16
Propagation Tear Strength (Base Film)	g	≥ 6	IPC-TM-650 2.4.17.1
<b>Flexural Endurance, MIT</b>			
M.D.	Cycles	≥ 800	JIS-C 6471, 0.8mmR, 0.5kg
T.D.	Cycles	≥ 800	JIS-C 6471, 0.8mmR, 0.5kg
<b>Electrical Properties</b>			
Surface Resistance	Ω	≥ 1.0×10 <sup>11</sup>	IPC-TM650 2.5.17
Volume Resistance	Ω-cm	≥ 1.0×10 <sup>12</sup>	IPC-TM650 2.5.17
Insulation Resistance	Ω	≥ 1.0×10 <sup>9</sup>	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
<b>Physical and Thermal Properties</b>			
Dimensional Stability	M.D.	%	-0.1~-0.1
	T.D.	%	-0.1~-0.1
CTE	ppm/°C	24	ThinFlex
T <sub>g</sub>	°C	350	ThinFlex
Solder Float	30sec at 288°C (550°F)	-	Pass
Moisture Absorption		%	1.1
Chemical Resistance		-	Pass
Thickness tolerance		um	49±10%
UL Flame Class		-	94V-0

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



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## 5. Storage:

ThinFlex-W22, W-0505ED-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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