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**TopFlex Corporation**  
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# ThinFlex H-1005RS-C Adhesiveless Copper Clad Laminate

IPC Designation IPC-4204/11

ThinFlex-H is an Adhesiveless metal clad polyimide film, furnished in the form of roll laminate with RA or ED copper on one sides. ThinFlex-H adhesiveless composites are designed for a wide variety of flexible printed circuits (FPC) applications which require advanced material performance, temperature resistance, fine pitch, and high reliability.

## 1. Product Characteristics:

- \* Excellent dimensional stability
- \* Excellent flexibility
- \* Excellent anti-flammability (Flame class UL 94V-0、UL file No.E219724)
- \* Excellent line etch ability
- \* Low moisture absorption
- \* Excellent chemical resistance
- \* Excellent thermal, mechanical and electrical properties
- \* Products can meet the environmental requirements of Topflex RoHs/Reach....

## 2. Specifications:



Product	Thickness of PI	Thickness of Cu	Type of Cu	Structure	Code of Product company
H : 2-FCCL	10: 1.0mil	05 : 1/2 oz	R : RA Cu	S: Single	Fukuda
Supply Size	W: 250/500 ± 1mm; L: 100 +2/-0m (Roll type) splice ≤ 3				

\*Other thicknesses and dimensions are available on customers' demand.



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**3. Construction:**

Copper foil
Polyimide film

IPC Designation IPC-4204/11

**4. Properties:**

Test item	Unit	H-1005RS-C	Test Method	
<b>Peel Strength</b>				
As Received	Kgf/cm	≥0.8	IPC-TM650 2.4.9	
Solder Float	Kgf/cm	≥0.8	IPC-TM650 2.4.9	
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 <sup>2</sup>	> 15	IPC-TM-650 2.4.19	
Elongation (Base Film)	%	> 10	IPC-TM-650 2.4.19	
Tensile Modulus (Base Film)	Kg/mm <sup>2</sup>	500	ASTM D882	
Initial Tear Strength (Base Film)	g	680	IPC-TM-650 2.4.16	
Propagation Tear Strength (Base Film)	g	14	IPC-TM-650 2.4.17.1	
<b>Flexural Endurance, MIT</b>				
M.D.	Cycles	≥500	JIS-C 6471, 0.8mmR, 0.5kg	
T.D.	Cycles	≥500	JIS-C 6471, 0.8mmR, 0.5kg	
<b>Electrical Properties</b>				
Surface Resistance	Ω	~10 <sup>11</sup>	IPC-TM650 2.5.17	
Volume Resistance	Ω-cm	~10 <sup>12</sup>	IPC-TM650 2.5.17	
Insulation Resistance	Ω	~10 <sup>9</sup>	IPC-TM650 2.6.3.2	
Dielectric Strength	KV/mil	6.0	ASTM-D149	
Dielectric Constant	-	3.6	IPC-TM650 2.5.5.3	
Dissipation factor	-	0.01	IPC-TM650 2.5.5.3	
<b>Physical and Thermal Properties</b>				
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	26	ThinFlex	
T <sub>g</sub>	°C	327	ThinFlex	
Solder Float	10sec at 288°C (550°F)	-	Pass	IPC-TM650 2.4.13
Moisture Absorption Test	%	1.1	IPC-TM650 2.6.2	
Chemical Resistance-single	-	Pass	IPC-TM650 2.3.2	
Thickness tolerance	um	43±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-H 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  $20 \pm 10^{\circ}\text{C}$  and  $50 \pm 20\%$  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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