



ThinFlex



**ThinFlex Corporation**

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# ThinFlex H-1003RS Adhesiveless Copper Clad Laminate (Halogen Free)

IPC Designation IPC-4204/11

ThinFlex H-1003RS is an adhesiveless metal clad polyimide film, furnished in the form of roll laminate with RA copper on one side. ThinFlex H-1003RS adhesiveless 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 (Flame class UL 94V-0; UL File No. E219724)
- \* Excellent chemical resistance
- \* Excellent thermal, mechanical, and electrical properties

## 2. Specifications:

H - 10 03 R S

<b>Product</b> H : 2-FCCL	<b>Thickness of PI</b> 10 : 1.0 mil	<b>Thickness of Cu</b> 03 : 1/3 oz	<b>Cu Type</b> R : RA	<b>Structure</b> Single-sided
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

### 4. Properties:

Polyimide film

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Test item	Unit	H-1003RS	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 <sup>2</sup>	24	IPC-TM-650 2.4.19
Elongation (Base Film)	%	27	IPC-TM-650 2.4.19
Tensile Modulus (Base Film)	Kg/mm <sup>2</sup>	510	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
Flexural Endurance, MIT			
M.D.	Cycles	≥ 500	JIS-C 6471, 0.8mmR, 0.5kg
T.D.	Cycles	≥ 500	JIS-C 6471, 0.8mmR, 0.5kg
Electrical Properties			
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
Physical and Thermal Properties			
Dimensional Stability	M.D.	%	-0.1~0.1
	T.D.	%	-0.1~0.1
CTE	ppm/°C	26	ThinFlex
T <sub>g</sub>	°C	327	ThinFlex
Solder Float	10sec at 288°C (550°F)	-	Pass
Moisture Absorption Test	%	1.1	IPC-TM650 2.6.2
Chemical Resistance-single	-	Pass	IPC-TM650 2.3.2
Thickness tolerance	um	37±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-1003RS 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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