

ThinFlex Corporation

No. 8, Luke 2nd.Rd., Luzhu Dist, Kaohsiung City, 821, Taiwan, R.O.C.
(Kaohsiung Science Park)
Tel: +886-7-6955236 Fax: +886-7-6955539
http://www.thinflex.com.tw
e-mail: service@thinflex.com.tw

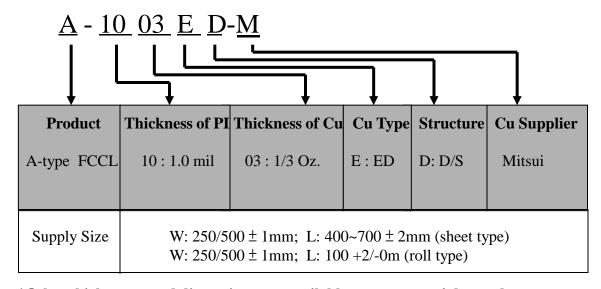
ThinFlex-A, A-1003ED-M Adhesiveless Double Sided Copper Clad Laminate (Halogen Free)

ThinFlex-A, A-1003ED-M is an adhesiveless double-sided (D/S) copper clad laminate, using UBE TPI film and laminated with ED copper foil on both sides. ThinFlex-A, A-1003ED-M 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 (Flame class UL 94VTM-0; UL File No. E219724)
- * Excellent chemical resistance
- * Excellent thermal, mechanical, and electrical properties

2. Specifications:



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

Technical Data Sheet: 201401



ThinFlex Corporation

No. 8, Luke 2nd.Rd., Luzhu Dist, Kaohsiung City, 821, Taiwan, R.O.C.
(Kaohsiung Science Park)
Tel: +886-7-6955236 Fax: +886-7-6955539
http://www.thinflex.com.tw
e-mail: service@thinflex.com.tw

3. Construction:

Copper foil

4. Properties:

Polyimide film
Copper foil

Test item		Unit	A-1003ED-N	1 Test Method
Peel Strength				
As Received		Kgf/cm	≧1.0	IPC-TM650 2.4.9
Solder Float		Kgf/cm	≥1.0	IPC-TM650 2.4.9
After Temp. Cycling		Kgf/cm	≧1.0	IPC-TM650 2.4.9
Chemical Resistance		Kgf/cm	≧1.0	IPC-TM650 2.3.2
Tensile Strength (Base Film)		Kg/mm ²	≥28	IPC-TM-650 2.4.19
Elongation (Base Film)		%	≧50	IPC-TM-650 2.4.19
Tensile Modulus (Base Film)		Kg/mm ²	≥550	ASTM D882
Initial Tear Strength (Base Film)		g	≥800	IPC-TM-650 2.4.16
Propagation Tear Strength (Base Film)		g	≧10	IPC-TM-650 2.4.17.1
Flexural Endurance, MIT				
M.D.		Cycles	\ge 300	JIS-C 6471, 0.8mmR, 0.5kg
T.D.		Cycles	\ge 300	JIS-C 6471, 0.8mmR, 0.5kg
Electrical Properties		_		
Surface Resistance		Ω	~1011	IPC-TM650 2.5.17
Volume Resistance		Ω-cm	~1012	IPC-TM650 2.5.17
Insulation Resistance		Ω	~109	IPC-TM650 2.6.3.2
Dielectric Strength		kV/mil	6.9	ASTM-D149
Dielectric Constant		-	3.3	IPC-TM650 2.5.5.3
Dissipation factor		-	0.002	IPC-TM650 2.5.5.3
Physical and Thermal Prop	perties			
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	19.3	ThinFlex
T_g		$^{\circ}\!\mathbb{C}$	350	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	49 <u>±</u> 10%	ThinFlex
UL Flame Class		-	94VTM-0	UL

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

Technical Data Sheet: 201401



ThinFlex Corporation

No. 8, Luke 2nd.Rd., Luzhu Dist, Kaohsiung City, 821, Taiwan, R.O.C.
(Kaohsiung Science Park)
Tel: +886-7-6955236 Fax: +886-7-6955539
http://www.thinflex.com.tw
e-mail: service@thinflex.com.tw

5. Storage:

ThinFlex-A, A-1003ED-M 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.

ThinFlex Corporation

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

Tel: +886-7-6955236 Fax: +886-7-6955539

http://www.thinflex.com.tw e-mail: service@thinflex.com.tw

Technical Data Sheet: 201401