

LPI Halogen Free Laminates of Polyimide Copper

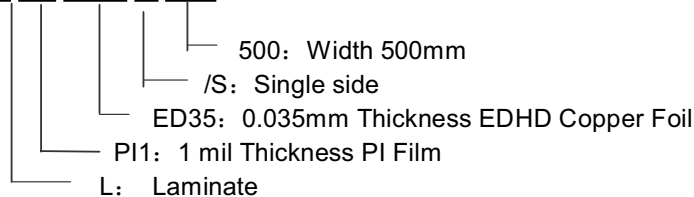
1. Description & Designation:

LPI product consists of PI film clad copper by coating adhesive. It includes various types according to different copper and PI film utilized to meet the specific needs of customers.

Materials		Thickness	Supplier
Base film	Polyimide film	0.5, 1.0 and 2.0 mils (0.0125, 0.025, 0.050mm) etc.	Kaneka, Dupont
Copper foil	EDHD Copper	1/3, 1/2, 1.0 and 2.0 Oz/SF (0.012, 0.018, 0.035, 0.070mm) etc.	Mitsui, Fukuda
	RA Copper	1/3, 1/2, 1.0 and 2.0 Oz/SF (0.012, 0.018, 0.035, 0.070mm) etc.	Nikko, Olin
Adhesive	Modified epoxy adhesive	Transparent, 0.5 0.7 mils (0.0125 0.017mm) etc.	USA, Japan
Laminate structure		Single side (S) , Double sides (D)	

- The ED copper is the type of EDHD and is classified by the treatment surface color: ED as coffee, EDPM as pink; The RA copper is classified by the treatment surface color: RA as pink, RAB as black
- Some special types appointed by customers can also be produced besides the common types of PI and copper listed in the above form.
- LPI product is identified by the following method:

L P11 ED35 /S 500



2. Features & Applications:

LPI products are widely used in the data communication, avionics, aerospace, defense, personal computer and automotive fields. It possesses following features:

- Meet the RoHS requirement & halogen free, and pass SGS certificate.
- High bond strength, excellent electrical properties and good dimensional stability.
- Excellent solderability, good chemical resistant to process chemicals and solvents.
- UL certification is in applying.

3. Package

- Standard roll: 50+0.25 square meters or 500+2.0square feet per roll, maximum 2 splices and minimum 20m distance during two splices.
- Standard width: 500mm or 24 inches width except the customer's special instruction within the maximum width 24 inches.
- Inner diameter core: 6 inches (152mm) or 3inches (76mm), packed in carton and outside wrapped with PE film.

4. Storage:

- Storage time: 12 months since production date; please use after inspection again passed for the materials over the storage time.
- Recommended storage condition: temperature 68 86? (about room Temp. and cool no needed), maximum relative humidity 75%.
- Excessive exposure to heat and moisture may cause copper oxidation.

**LPI Halogen Free Laminates of Polyimide Copper
Data Sheet of Performance**

Property To Be Tested	Test Method	Typical Product Value LPI1ED35/S	Typical Product Value LPI0.5RAB18/S
Peel strength, minimum, lb./in. width As received After sold float	IPC TM 650 2.4.9 Method B Method D	9.0 9.0	5.6 5.6
Tensile strength, minimum lb./in. ²	IPC TM 650 2.4.19	24,000	20,000
Elongation, minimum percent	IPC TM 650 2.4.19	40	40
Flexural endurance, minimum cycles	IPC TM 650 2.4.3	In 2000 Out 1500	N/A
Creasing endurance, minimum cycles	JIS C5016 1994 8.7	MD: ≥90 TD: ≥90	MD: ≥280 TD: ≥280
Adhesive Appearance	By eye	Transparent	Transparent
Adhesive Thickness	Q000463	0.017mm	0.013mm
Dimensional stability, maximum, percentage,	IPC TM 650 2.2.4 Method B Method C	+/- 0.20 +/- 0.20	+/- 0.15 +/- 0.15
Solder float	IPC TM 650 2.4.13 Method A Method B	550? 30seconds Pass 610? 30seconds Pass	550? 30seconds Pass 610? 30seconds Pass
Flammability	IPC TM 650 2.3.8.1	N/A	N/A
Chemical resistance, percentage	IPC TM 650 2.3.2	80	80
Dielectric constant, maximum (at 1 MHz)	IPC TM 650 2.5.5.3	3.50	3.50
Dissipation factor, maximum (at 1 MHz)	IPC TM 650 2.5.5.3	0.015	0.015
Volume resistivity, minimum, megohm cm	IPC TM 650 2.5.17	10 ⁷	10 ⁷
Surface resistance, minimum, megohms	IPC TM 650 2.5.17	10 ⁵	10 ⁵
Dielectric strength, minimum, volts/mil	ASTM D 149	3500	3500
Insulation resistance, minimum, megohms, at ambient	IPC TM 650 2.6.3.2	10 ⁵	10 ⁵
Moisture and insulation resistance, minimum, megohms	IPC TM 650 2.6.3.2	10 ⁴	10 ⁴
Moisture absorption, maximum, percent	IPC TM 650 2.6.2	4.0	4.0

Mark: (1) Above data sheet are base on the typical products values. The final data for specific products supplied, please check the testing report attached with the shipment. These data are only for user's reference. The user should determine the suitability of JJFlex LPI materials for each application.

(2) N/A: Not applicable.