



**Shin-Etsu Film**

**Packaging Film**

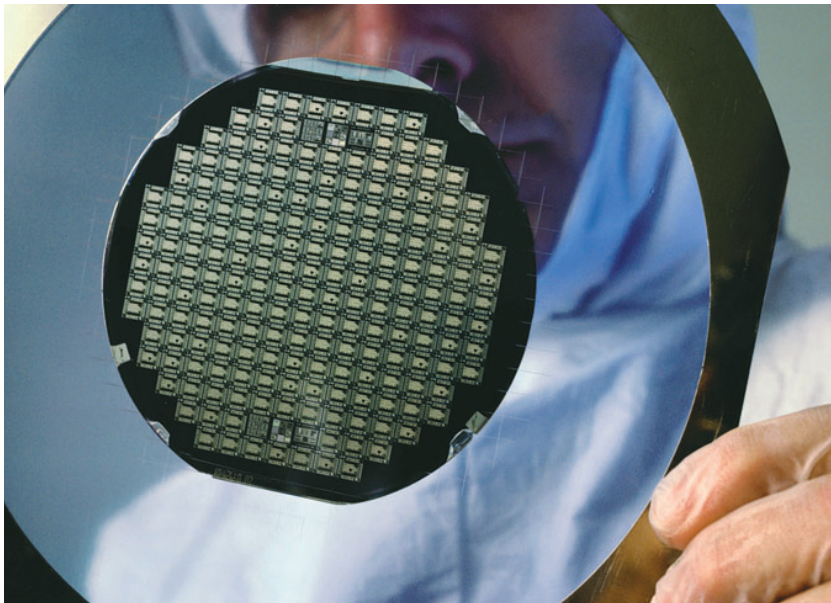
**Laminate Bags for Silicon Wafer Case Packaging**



## Packaging Film

# Laminate Bags for Silicon Wafer Case Packaging

The purity of silicon wafers used for ICs and other devices is 99.999999999% or higher, and control of surface cleanliness has reached the submicron level. The utmost care is required to prevent contamination when wafers are brought out of the strictly controlled environment of the clean room. Wafer cases (boxes) are used for wafer storage and transport. The atmosphere within the box must be isolated from the outside air to prevent contamination from debris, moisture and active gases. Our laminate bags for silicon wafer cases are laminated bags that meet these requirements. They are manufactured with the same meticulous cleanliness control as are the wafers themselves. Our lineup includes clear laminate, aluminum laminate and clear barrier laminate products.



■ Features

- 1. Our laminate bags feature a multiple laminated structure of films of different materials. This structure forms an outstanding gas barrier.
- 2. To prevent contamination of the packaged units, we carefully selected polyethylene (PE) for the innermost polyethylene layer of our laminated bags.
- 3. The inspection and primary packaging of our laminate bags are performed in Class 10,000 clean conditions. (Our laminate bags are available in primary packages of 50-bag or 100-bag bundles, and are vacuum-sealed using a special inner bag.)
- 4. The shape of bag is Gusset type.  
Three side seal flat type is also available.
- 5. Lamination process can be chosen from either Extrusion or Dry (Adhesive).

■ Composition for 300mm wafer

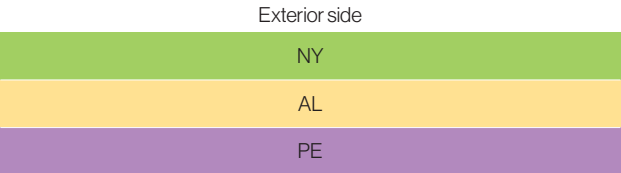
A: Clear laminate



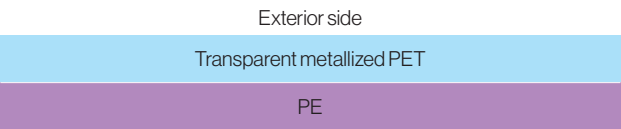
Legend

- NY : Nylon Film
- PE : Polyethylene Film
- AL : Aluminum foil Film
- PET : Polyethylene terephthalate Film

B: Aluminum laminate



C: Clear barrier laminate



■ General properties (Laminate bags for 300mm wafer)

Item		Unit	A: Clear laminate	B: Aluminum laminate	C: Clear Barrier laminate	Measurement method
Tensile strength	MD	N/15 mm	108.0	125.4	95.8	JIS K 7127
	CMD		91.2	147.2	91.8	
Tensile elongation	MD	%	153.5	112.5	112.4	JIS K 7127
	CMD		146.5	106.5	115.4	
Puncture strength	Face	N	13.2	23.1	15.2	JIS Z 1707
	Back		15.2	27.5	17.6	
Heat Seal strength	Bag Bottom Side	N/15mm	56.0	86.5	41.6	JIS Z 1707
Oxygen permeability*2		cm <sup>3</sup> /m <sup>2</sup> •day•atm	57.3	0.0	0.1	JIS K 7126B
Moisture permeability*3		g/m <sup>2</sup> •day	7.3	0.0	0.1	JIS K 7129

\*1 Grab width: 50 mm; tensile speed: 200 mm/min

\*2 Detection limit: 0.01 cm<sup>3</sup>/m<sup>2</sup>•24 hr•atm

\*3 Detection limit: 0.12 g/m<sup>2</sup>•24 hr

(The above values are measured values, not guaranteed values.)

■ Heat seal characteristics

Unit: N/15mm

Temperature (°C)	90	100	110	120	130	140	150	160	180
Clear laminate (A)	0	0.05	0.2	3.9	58.8	59.8	60.8	59.8	57.8
Aluminum laminate (B)	0.04	1.0	9.8	40.2	41.2	41.7	42.1	42.6	44.1

Seal conditions: pressure=98 kPa, time=1 sec

(The above values are measured values, not guaranteed values.)

## ■ Product classes

### ● Clear laminates

Size	Width (mm)	Height (mm)	Length (mm)	Thickness (μm)	Remarks
4" (inch) φ	140	120	360	75	
5" φ	165	140	400	75	
6" φ	210	170	470	75	
6" φ	195	160	440	75	
8" φ	280	260	600	75	
8" φ	285	265	600	75	diagonal sealed
300mm φ	430	360	850	85	diagonal sealed

Dimensions, thickness and structure may change without any notice.

### ● Aluminum laminates

Size	Width (mm)	Height (mm)	Length (mm)	Thickness (μm)	Remarks
4" (inch) φ	145	125	360	112	
5" φ	175	155	405	112	
6" φ	210	185	470	112	
6" φ	200	170	430	112	
8" φ	280	270	615	112	
8" φ	285	275	615	112	diagonal sealed
300mm φ	440	370	880	108	diagonal sealed

Dimensions, thickness and structure may change without any notice.

### ● Clear barrier laminates

Size	Width (mm)	Height (mm)	Length (mm)	Thickness (μm)	Remarks
300mm φ	430	360	850	75	

Dimensions, thickness and structure may change without any notice.

## ■ Storage and Handling Precautions

- Store out of direct sunlight in a cool place with low humidity.
- Avoid contact with solvents or oils as they may deteriorate the properties of the materials.

## ■ Remarks

Various kinds of laminate film for wide variety of application will be available if requested.

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**Contact Shin-Etsu Film for information about our laminate bags  
for silicon wafer case packaging.**

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