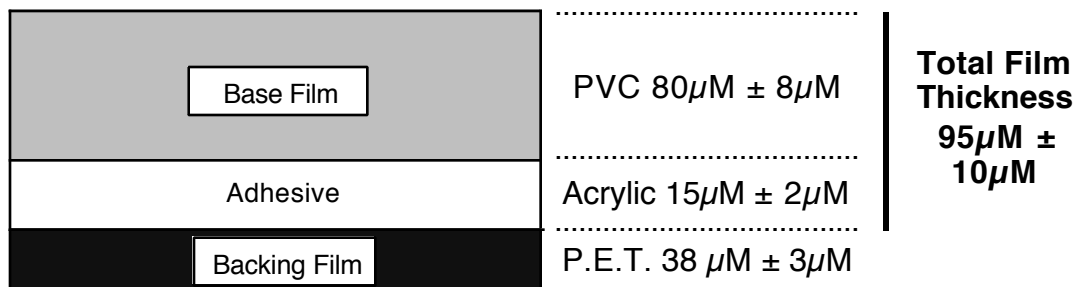


Ultron Systems, Inc. Ultraviolet Film P/N: 1020R

Application:

Ultraviolet adhesive film for direct lamination to the wafer backside. Ideal for thin wafer backgrinding or dicing. The base film is of PVC with an Acrylic adhesive containing Photoactive component. When exposed to UV energy, the adhesive properties decrease significantly, resulting in easy removal of the film with virtually **NO stress** being applied to the wafer. With traditional films, the leading edge of the wafer is subject to high stress during the removal process (in certain cases, the leading edge can be seen to physically bend upwards); with UV film (after exposure) this does not occur. Suitable for standard backgrinding processes where the low adhesion after exposure ensures minimal residue after removal. UV film also has excellent properties for dicing applications: the very high initial adhesion ensures **no wafer/die “slippage”** during the dicing process, reducing “chipping” problems. Ideal for die with small scribe channels. Film is supplied in 100-meter rolls with a P.E.T. backing liner to ensure the adhesive remains dust-free.

Film Construction:



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Specifications:

Color **Clear**
Backing Film **P.E.T. (Polyethylene Terephthalate)**

Adhesion

(@300mm/min speed)

<u>Test Material</u>	<u>30min</u>	<u>1hr</u>	<u>2hr</u>	<u>4hr</u>	<u>8hr</u>	<u>16hr</u>	<u>24hr</u>	<u>48hr</u>	<u>72hr</u>	<u>1wk</u>
Si (Before UV)	320	310	305	286	248	246	247	269	299	260
Si (After UV)	15	13	12	14	12	12	12	12	12	10
SS (Before UV)	375	380	380	362	315	310	308	305	385	352
SS (After UV)	20	16	16	16	13	13	14	15	15	13

		<u>Vertical</u>	<u>Horizontal</u>
Elongation (@300mm/min speed)	Before UV	240%	300%
	After UV	260%	300%
Tensile Strength (@300mm/min speed)	Before UV	3.0kgf/cm²	2.5kgf/cm²
	After UV	3.0kgf/cm²	2.5kgf/cm²
Unwinding Force		25gmf/25mm	

* The above specifications are tested values. They are not absolute, guaranteed results. All specifications tested under JIS-Z-0237.

Ultron Systems, Inc.
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Contaminant Testing

Element	Result	Limit of Detection
Aluminum (Al)	Not Detected	1.0 PPM
Barium (Ba)	Not Detected	1.0 PPM
Chromium (Cr)	Not Detected	0.1 PPM
Iron (Fe)	Not Detected	0.1 PPM
Zinc (Zn)	Not Detected	0.1 PPM
Copper (Cu)	Not Detected	0.1 PPM
Calcium (Ca)	Not Detected	0.1 PPM
Magnesium (Mg)	Not Detected	0.1 PPM
Potassium (K)	Not Detected	0.1 PPM
Sodium (Na)	Not Detected	0.1 PPM
Chlorine (Cl)	Not Detected	2.0 PPM

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ADHESIVE PROPERTIES

The characteristic feature of UV film is a significant reduction of adhesion after exposure to Ultraviolet light (250 - 450 nm). Typical adhesion reduction ranges between 85% and 95%. Please note the following changes to the film's adhesive properties in different conditions:

1. The adhesive strength will decrease if the film is mounted on the wafer in cooler temperatures. It may be difficult to mount, and air bubbles and wrinkles may occur. It is recommended that the film be mounted at a temperature between 20 - 60°C, and should not exceed 75°C.
2. If a higher temperature is required to mount the film, it is advised that sample wafers first be tested at the required temperatures.
3. If the wafer is left in an area of high temperature after the film is mounted, adhesive may remain on the back of the wafer.

UV EXPOSURE

The following suggestions are recommended when exposing the UV film:

1. Expose the film from the base film side (not the adhesive side).
2. Not enough exposure of UV light may result in die pick-up failure.
3. Do not expose only a section of the UV film in use; rather, expose the entire surface.
4. For best results, restrict UV exposure in an air-free atmosphere. UV exposure in a nitrogen atmosphere is very effective.

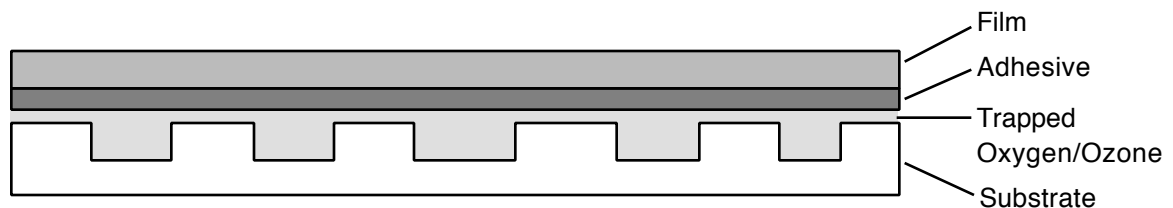
Ultron Systems, Inc. Ultraviolet Film P/N: 1020R

Tape Application/Removal

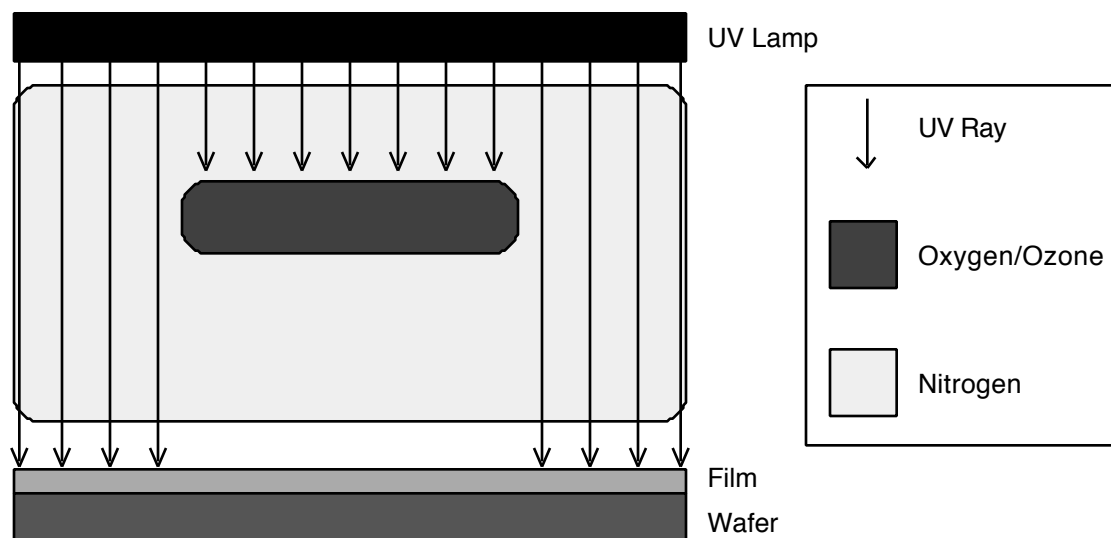
A Nitrogen purge at point of application and removal is highly recommended. The Nitrogen should form a blanket between the film and lamp.

Purpose: Oxygen (O_2) is ionized by deep UV light, generating ozone (O_3). Ozone acts as a filter to the UV light, blocking penetration to the film. A possible result of this can

- a. *Tape application:* Any Oxygen trapped between the wafer and adhesive may create microscopic bubbles of ozone when exposed, resulting in adhesive residues. This is especially important if devices have high aspect ratio trenches.



- b. *Tape Removal:* Oxygen/Ozone present between the UV lamp and the wafer is ionized and prevents penetration to the adhesive.



Use of Nitrogen

For testing purposes, spraying with a Nitrogen gun is acceptable. However, use of a continuous Nitrogen-purged closed box with UV lamp is recommended.

**Ultron Systems, Inc.
Ultraviolet Film
P/N: 1020R**

STORAGE

Ultron Systems, Inc. Ultraviolet Film P/N: 1020R has a guaranteed shelf life of 6 months from the date of manufacture providing the following storage conditions are met:

1. Film must be stored away from direct sunlight or any other forms of UV radiation.
2. Film must be stored at ambient temperature not to exceed 25°C.
3. Film must be kept away from any sources of high temperature.
4. Film rolls must be stacked vertically to prevent deformation. Film should not be stacked higher than four rolls.
5. When storing film that is mounted on a wafer frame and/or wafer, keep away from any forms of UV radiation to prevent a change in the adhesive properties of the film.