



LINTEC Corporation *Linking your dreams*

PRODUCT NOVELTY

Anti-ESD Dicing Tape

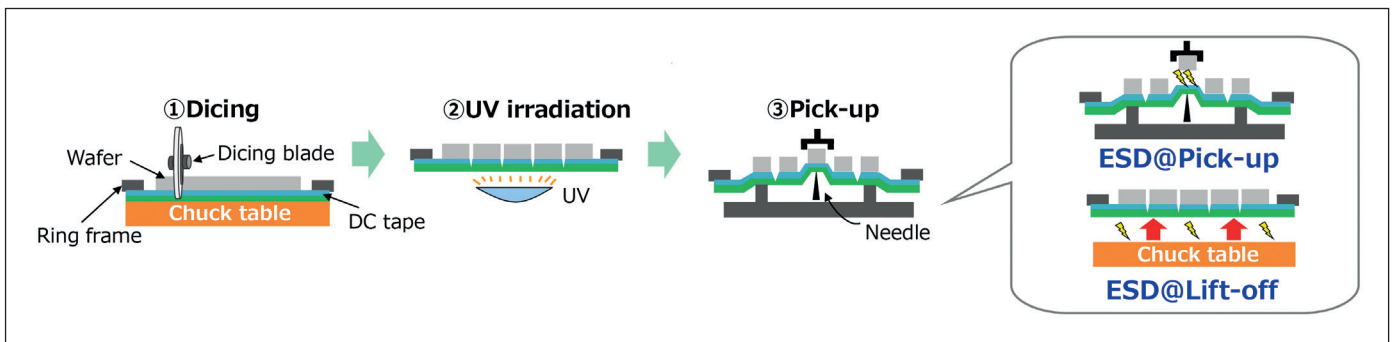
PRODUCT NOVELTY

Electrostatic discharge (ESD) is a critical issue in semiconductor manufacturing. Many semiconductor chips are extremely sensitive and can be permanently damaged or rendered unusable by even the smallest electrostatic discharge.

Certain device types are particularly vulnerable to ESD. These include RF (radio frequency) and compound semiconductor devices such as GaAs devices and SAW/BAW filters, image sensors and optical devices like CMOS image sensors, CCD sensors, and laser diodes, as well as display driver ICs including LCD and OLED drivers.

To address this challenge, **LINTEC has developed Anti-ESD dicing tapes that effectively prevent electrostatic discharge during wafer processing. Preventing circuit damage caused by ESD and avoiding particle adhesion due to static electricity are essential for maintaining high product quality.**

Static electricity can be generated during several steps of the dicing process, especially when the wafer attached to the tape is lifted or during the die pick-up process. Anti-static dicing tapes are therefore required to safely dissipate electrical charges and protect sensitive devices. Their purpose is to improve manufacturing yield and ensure the long-term reliability of static-sensitive chips.



Applied to the backside of the wafer, the Anti-ESD dicing tape provides a controlled and reliable path for the discharge of electrical charges. At the same time, it protects the wafer and the delicate semiconductor dies mounted on it, ensuring safe processing without causing damage.

ADVANTAGES

- **Reliable ESD Protection:** Prevents electrostatic discharge that could damage highly sensitive semiconductor chips.
- **Protection for Sensitive Devices:** Ideal for ESD-sensitive components such as RF and compound semiconductor devices, image sensors, optical devices, and display driver ICs.
- **Improved Manufacturing Yield:** Reduces chip damage during processing, helping to increase overall production yield.
- **Stable and Reliable Dicing Process:** Safely dissipates static electricity generated during wafer lifting and die pick-up in the dicing process.
- **Reduced Particle Contamination:** Minimizes particle adhesion caused by static electricity, helping to maintain clean wafer surfaces.

ANTI ESD TAPES FOR Si, SiC, GaN WAFER DICING

UV curable dicing tape							Non-UV dicing tape	
		D-820	D-821HSD	D-830J	D-850T(S)	D-879H	G-89	G-83H
Thickness (μm)		110	85	155	170	85	90	85
Appearance		Blue	Transparent	Gray	Gray	Gray	Gray	Gray
Structure	Base film (μm)	PVC / 100	PVC / 80	PO / 140	PO / 140	PO / 80	PO / 80	PO / 80
	Adhesive (μm)	Acrylic / 10	Acrylic / 5	Acrylic / 15	Acrylic / 30	Acrylic / 5	Acrylic / 10	Acrylic / 5
Adhesive*1 (mN/25mm)	Before UV	910	2400	10500	16000	6000	5200	640
	After UV*2	380	320	650	900	50		
Surface Resistance (Ω/□) *3	Before UV	9.7 × 10 ¹¹	5.1 × 10 ¹²	2.5 × 10 ⁹	1.4 × 10 ¹⁰	5.8 × 10 ⁸	7.8 × 10 ¹⁰	9.2 × 10 ¹⁰
	After UV*2	1.5 × 10 ¹²	8.9 × 10 ¹²	1.8 × 10 ¹²	1.5 × 10 ¹²	1.2 × 10 ¹²		
Charged voltage in above process (V) *4	Before UV	20	40	171	350	100	900	610
	After UV*2	30	50	855	1290	1000		
Remark		For Blade Dicing	For Stealth Dicing (TM)	For small chips	For small chips	For thin wafers + inline capability	For small chips	For use as transfer tape

(1) Peeling speed: 300 mm/min, Peeling angle: 180° Adherend: Si mirror wafer
(2) UV irradiation conditions: UV ray intensity 230 mW/cm² , UV lay dosage 190 mJ/cm² Wave length of ultraviolet should be around 365 nm.
(3) ADVANTEST DIGITAL ELECTROMETER R8252, applied voltage = 100V
(4) SHISHIDO ELECTROSTATIC, LTD, STATIC HONESTMETER Charging voltage = 10 kV

ANTI ESD DICING TAPES FOR PACKAGE DICING

		D-841	D-825W	D-847W	D-896W
Thickness (μm)		150	160	160	220
Appearance		Opaque	Opaque	Opaque	Gray
Structure	Base film (μm)	PO / 140	PO / 140	PO / 140	PO / 200
	Adhesive (μm)	Acrylic / 10	Acrylic / 20	Acrylic / 20	Acrylic / 20
Adhesive*1 (mN/25mm)	Before UV	25000	13700	17590	10800
	After UV*2	50	130	90	160
Surface Resistance (Ω/□) *3	Before UV	3.9×10^{11}	5.0×10^{10}	3.6×10^{10}	1.7×10^{10}
	After UV*2	3.9×10^{12}	3.4×10^{11}	2.2×10^{11}	1.1×10^{12}
Charged voltage in above process (V) *4	Before UV	960	350	540	420
	After UV*2	1260	750	900	1700
Remark		For standard PKG	For green compound PKG	For metal layers	Thick basefilm

(1) Peeling speed: 300 mm/min, Peeling angle: 180° Adherend: Si mirror wafer
 (2) UV irradiation conditions: UV ray intensity 230 mW/cm², UV lay dosage 190 mJ/cm² Wave length of ultraviolet should be around 365 nm.
 (3) ADVANTEST DIGITAL ELECTROMETER R8252, applied voltage = 100V
 (4) SHISHIDO ELECTROSTATIC, LTD, STATIC HONESTMETER Charging voltage = 10 kV

Contact us.
We look forward to
meeting you!



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