www.mingkun-tech.com

Semiconductor Tape R&D And Manufacturing

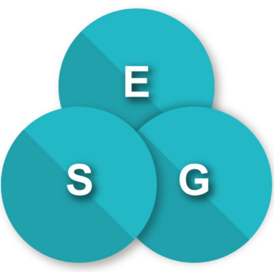
Mingkun Technologies Co., Ltd

Business Concept

Mingkun Technologies adheres to the business philosophy of "trust, professionalism and care". We are passionate about using advanced technology to provide customized products, thereby improving our operational efficiency and reducing operating costs. Since our establishment, our overall growth has been stable and our profitability has improved year by year. MKT is regarded as an important supplier and partner of the domestic semiconductor industry.

Vision

- By local manufacturing technique to replace import.
- Manufacturing design for ESG purpose.



- Environmental
- Social
- Governance

https://www.mingkun-tech.com/

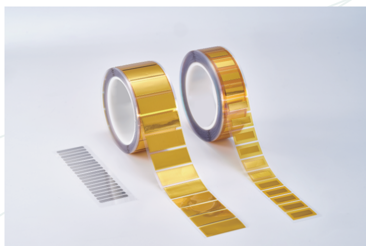
History

2007

MingKun Technologies Co., Ltd established in year 2007, and business started from semiconductor materials sales and manufacture.

2008

We became qualified supplier for heat sink of IC driver.



2010

We started offering materials for LED epitaxial wafer, supplying more selection for customers.

2011

We became qualified supplier for EMI shielding material.
At the same year, we started offering material for LCD industry, and expanded our business map to China.
We implemented (UKAS) ISO 9001 system into the company operation flow and management flow.

2017

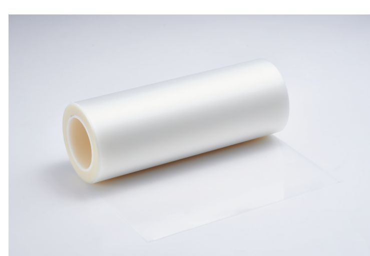
Our ISO 9001 was updated to ISO9001:2015 management system.

2018

We established RD laboratory for further study on materials and product functional testing for customized product.

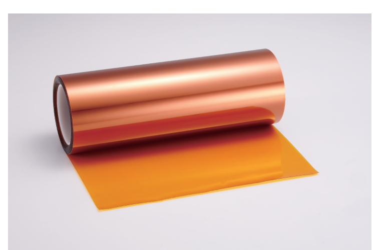
2019

We started selling abroad, and opened the overseas market by UV tape.



2021

The EMI shielding tape was updated to anti-static tape, and brought to mass production.



2022

We established factory at Central Taiwan Science Park, and set coating line as non-solvent type to meet ESG target. At the same year, we implement ISO14000 to our system.

GCL

Certificate of Registration

2023

For ESG purpose, we implement ISO50001 , ISO 14064 and ISO14067 to our system.

CERTIFICATE

OPINION

OPINION

Factory

- Coating line , with comma design.
- Coating head with clean room class 1,000
- Clean room for production line: class 10,000
- Min. coating thickness: 5um
- Oven
- UV curing device: with different wave of UV to cure the tape.
- Special curing method to meet environmental friendly target.

Lab

- Semi-automatic coating device
- Oven type adhesion strength testing device
- UV curing equipment
- Hardness testing device
- Resistance meter

Material & Process Application

Various wafers

Grinding

UV/non UV grinding tape (Max. thickness 595um)
Wafer grinding/high bump wafer

Dicing

UV dicing tape for wafer/package/glass/LED/copper

Molding

PI tape/QFN tape/EMI shielding tape/Reflow tape
Process as sputter/PVD/CVD

Heterogeneous Integration

Fan Out/WLCSP
Laser Debond material/DAF/Double side tape

Product	Application
Polyimide Tape	QFN tape .Sputter. Molding. SMT. Lamination. Spray Coating. Plating. Reflow. BSM process. PVD . CVD. ALD
UV Tape	• Dicing (Wafer/Package/LED/Glass/copper) • Back Grounding (Wafer) • Thin Wafer (Warpage Concerned) • Fan Out • Wafer BSM. bump. PCD. VCD. ALD
Laser Debond Film	• Chip bonding to carrier for Fan Out. • Wafer bonding to carrier for backside RDL • Cowos
DAF	Chip reverse. Chip bonding. Dicing
Heat Sink	• Driver IC (COF). AP Chip. Mobile. Panel

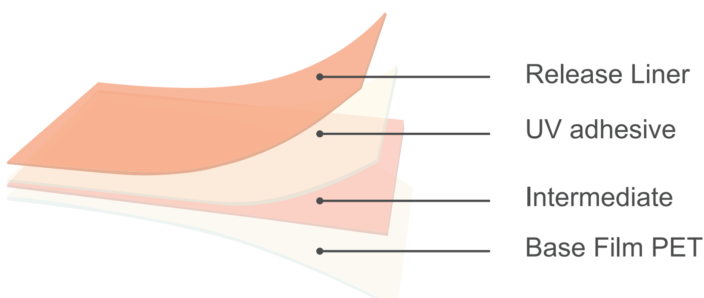
The back grinding tape can protect the wafer surface circuits and prevent damage or contamination while wafer back side grinding process.

- It can also be a well protection to suppress wafer warpage while grinding process.
- MK develop thick grinding tape, with intermediate layer as good coverage for high bump on the wafer.

Application

- Wafer Grinding & Low bump wafer & High Bump wafer
- Glass Grinding

Structure



Spec.

Item	Low bump wafer	Medium bump wafer	High bump wafer
Base Film	PET	PET	PET
Base Film Thickness	50um	75um	75um
Intermediate	100	345um	510um
Adhesive Base	Acrylic	Acrylic	Acrylic
UV Adhesive	20um	20um	10um
180°Peel AF after UV (unit : g/25 mm) on SUS	30↓	30↓	30↓
180°Peel AF before UV (unit : g/25 mm) on SUS	1,650±850	550±200	100±50
Lamination Condition	50~80 ˚C	50~80 ˚C	50~80 ˚C
UV release dosage	500~1,000mj/cm^2	500~1,000mj/cm^2	500~1,000mj/cm^2

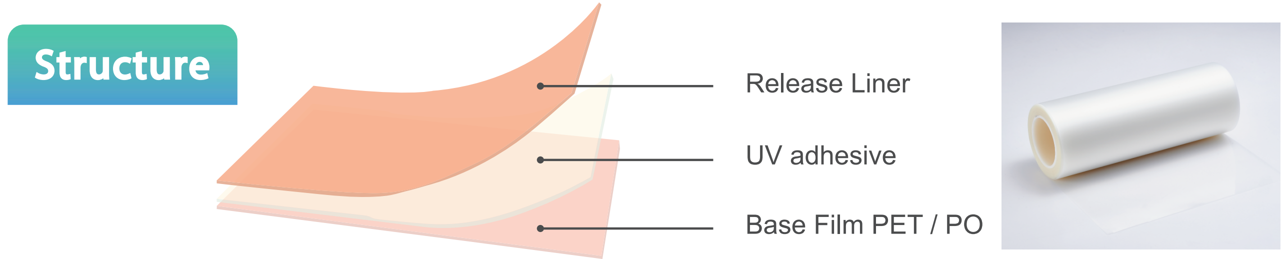
The specification can be customized.

Dicing Tape

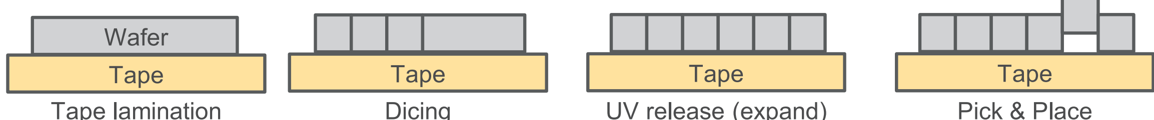
The tape is applied for dicing process, and it can fix the chip to prevent the occurrence of flying chip.

- MK has tape solution for different dicing product, such as PCB/package/Silicon wafer/glass/LED/copper.
- The base film is designed for expand process after dicing.
- General saw , laser saw.

Structure



Application



Item	Data	
Base Film (um)	PET 50 / 75 / 100um	PO 80 / 90 / 150um
Adhesive Thickness (um)	8~20um	8~20um
Adhesive Strength before UV on SUS (gf/inch)	300 ~2,000	300~1,500
Adhesive Strength after UV on SUS (gf/inch)	30 ↓	30 ↓
Liner & thickness	PET 50um	PET 50um
UV release dosage	300~1,000mj/cm^2	300~1,000mj/cm^2

Temperature resistance UV tape

Single side UV Tape

- For carrier tape purpose which is capable for working process temperature Max. 200.
- Special customized design (Ex, One side UV release & One side UV cut)

Double side UV tape

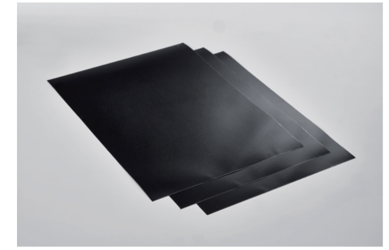
- As temporary bonding material , for substrate and product.
- It can be applied for Fan Out process.

The specification can be customized.

Laser Debond Material

Characteristic

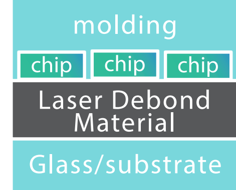
- Excellent heat/chemical resistance in process
- Excellent bonding strength to Glass/Silicon/Epoxy/Cu
- Excellent debond capability for laser 355/532/1064nm
- It can preserve under room temperature.



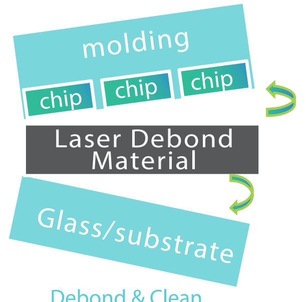
Application

- Chip bonding to carrier for Fan Out.
- Wafer bonding to carrier for backside RDL
- Cowos

Material bonding on the substrate by temp.

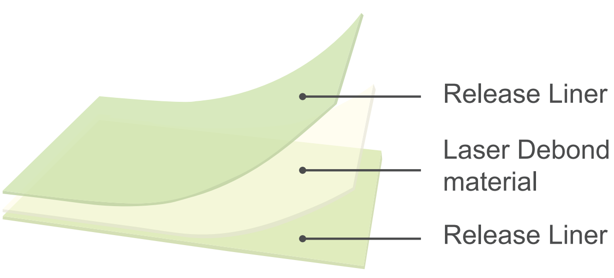


Process: die attach , molding..

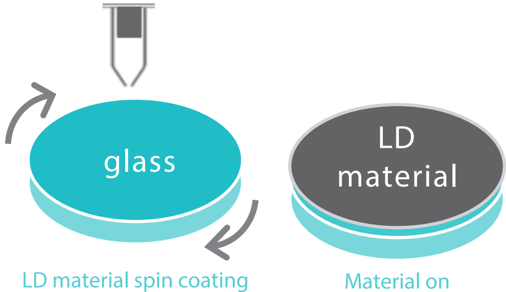


Debond & Clean

Material by Film



Material by liquid



LD material spin coating

Material on

Spec.

Item		Unit	Data
Liquid	Thickness	μm	0.5-1.5
	Viscosity	cPs	50 ~1,000
	Solid Content	%	10 ~ 50%
Film	Thickness	um	10-50
Curing condition	Thermal cure	℃ x time	150℃ x 120 mins
Chemical Resistance	Acid / Alkaline	NA	No peeling, No swelling
Tg	DMA	℃	140℃
Storage Modulus	DMA	Mpa/30º	1,900
Color		-	Black
Heat Resistance Temp.		℃ x time	270 ℃x 120 mins
CTE		(Ppm/℃)b	87

DAF Die Attach Film

DAF(die attach film) is an ultra-thin adhesive used to connect semiconductor chips to circuit boards or chips to chips in the semiconductor packaging process. It is an essential material used in manufacturing flash memories, etc. in the post-manufacturing process of semiconductors. We can offer film with thickness range as 10~50um.

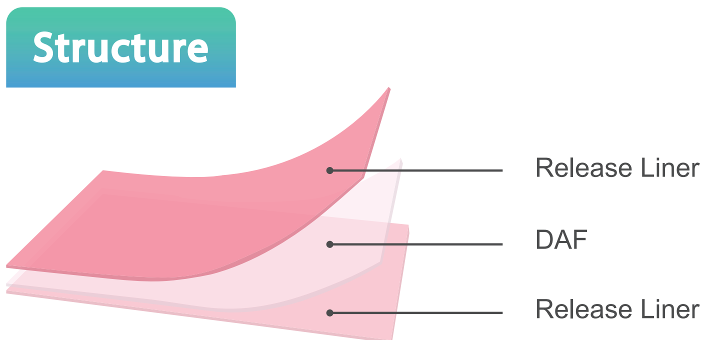
Application

Die to Die

Die to Substrates

Die to Die FOW

Structure



Spec.

Item	Unit	Model 1	Model 2
Curing Condition	℃	85	110
Mounting Temperature	℃	60~90	60~90
Tg	℃	90	120
Thickness	um	10~50	10~50
Storage Modulus	Mpa/30º	-	3,000
Moisture Absorption	%	<1	<1
Contacting product	NA	Glass to Glass Glass to ABS	Glass to Glass Wafer to Glass Wafer to substrate

Heat Cure Film

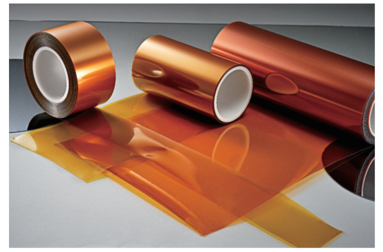
The heat curing film owns unique advantages of steady film thickness, good insulation, well adhesion, good sealing performance. It can be used as permanent bonding material for assembly process/semiconductor industry process.. so on.

The epoxy has well bonding performance for silicon wafer/package/glass/PI

The film is with well flatness.

Polyimide Tape

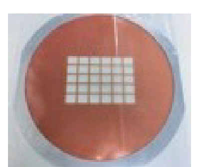
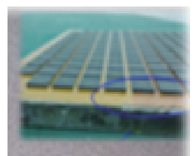
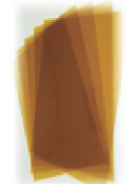
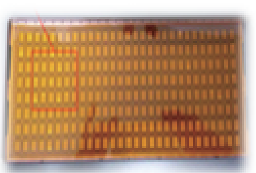
PI tape is the most commonly used insulating material and has the characteristics of insulation, heat resistance 200℃↑, voltage resistance, and resistance to dissolution.



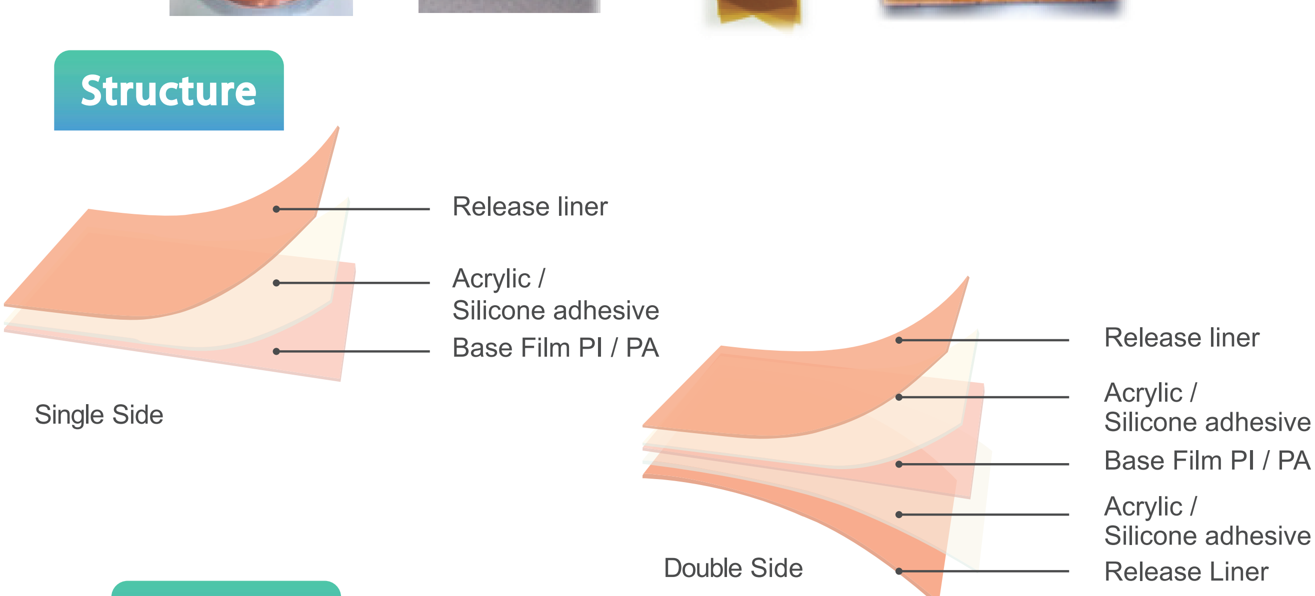
- Our adhesive designed with well stability after heat process, and with very low rising on adhesive strength.
- Antistatic treatment (ESD) on adhesive layer is option.
- Good dimensional stability.

Application

Molding / QFN tape/ EMI shielding/ Reflow / PCB anodize shielding / Wire bonding and wrapping / lithium battery / Generator Capacitor / Transformer / Sputtering.

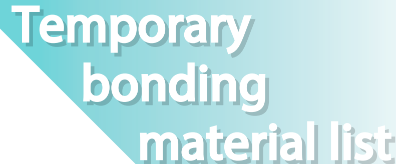
Structure



Spec.

Item	Data	
Base Film Thickness (um)	PI 25um / 50um / 75um / 100um / 125um PA film 50um	
Adhesive type & Thickness (um)	Acrylic 8~100um	Silicone 8~100um
Adhesive Strength on SUS (gf/inch)	5~2,000	5~1,000
Heat Resistance Temp. (℃)	10~200	-20~260
Liner & thickness (um)	PET 50um	PET 50um

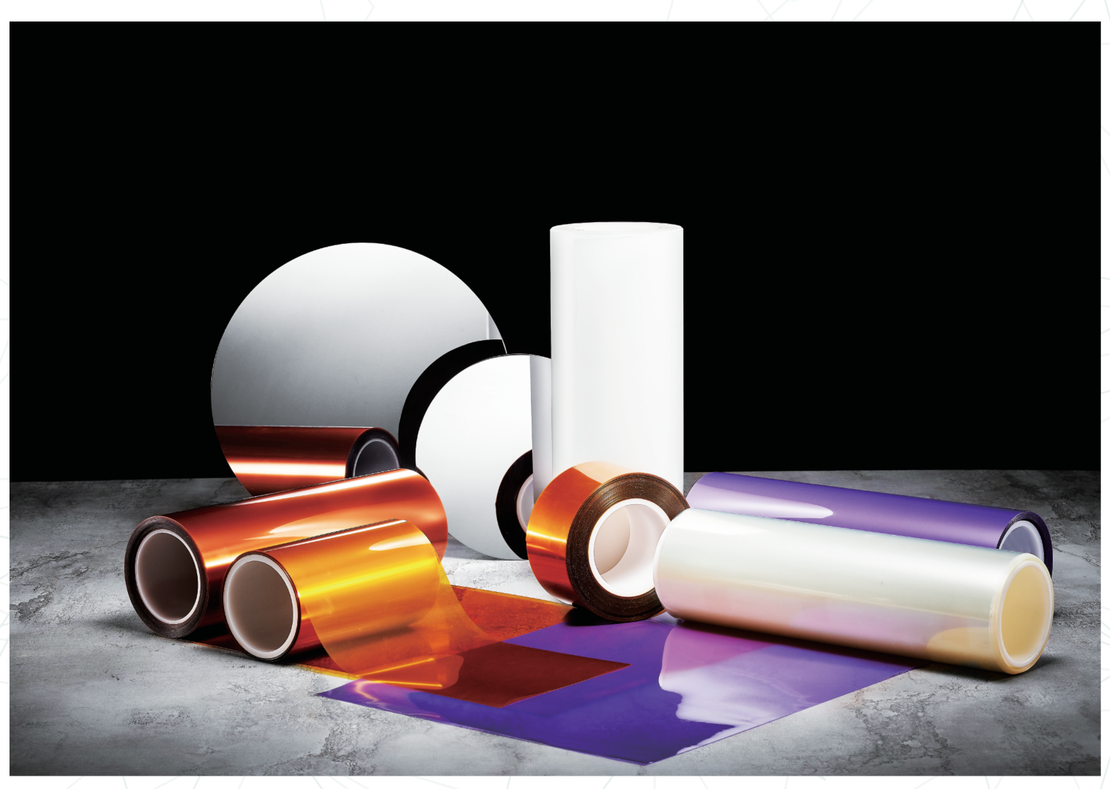
The specification can be customized.



Temporary bonding material list

For Heterogeneous Integration process

Tape	Double side PI tape	Double side UV tape	Laser Debond Material
Heat resistance	Max. 260℃	Max. 180℃	Max. 270℃
Chemical resistance	Excellent	Good	Best
Limit for product	As there is no adhesive release function, thin product is not recommend.	One side of product/substrate need to be crystal (ex, glass)	NA
Adhesive strength release equipment	Detaping machine	UV release equipment	Laser release machine
Remark	after heat process, adhesive strength will rise up.	The product can be easily removed from the tape after UV release.	There will be cleaning process after debon

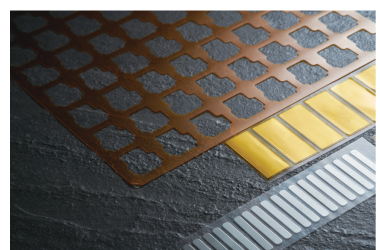


Material Punch & Lamination Foundry

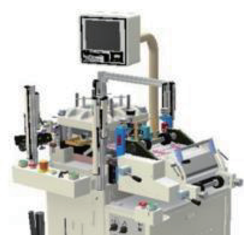
To match the customized dimension, the product can be applied for extra process as punching, laminating, and slitting to extend variety usage.

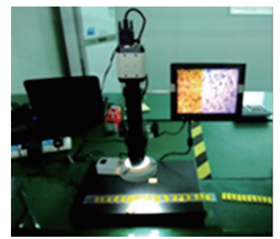
For product accuracy controls, the high- multiplier projectors are used as verification.

- Punched PI tape has been widely used as temporary bonding mask for heat process.
- Punched tape can be arranged as sheet or roll to adapt with different kinds of laminator.

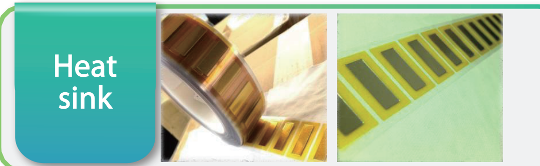


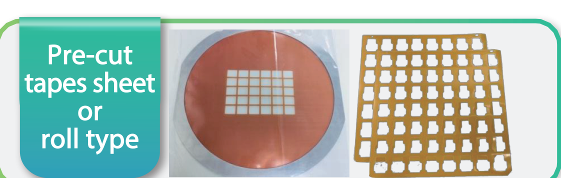
Equipment

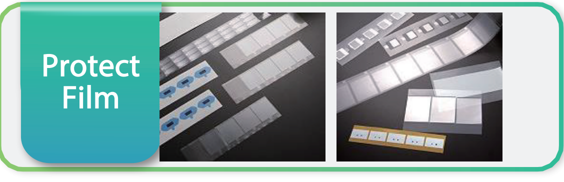




Actual Performance







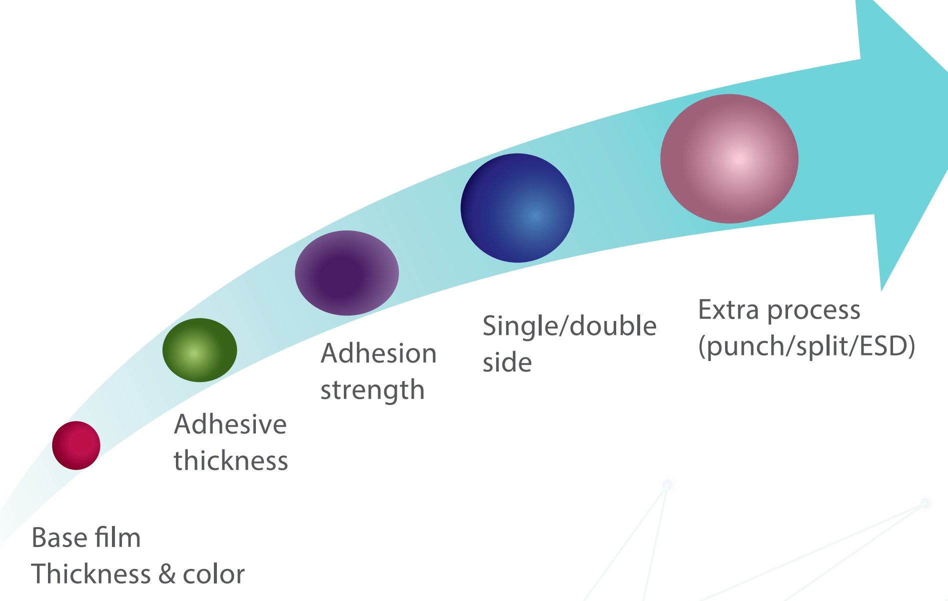
How to get your designed punching material

2D drawing and material checking

We can draw for you as well.

Samples demo and production.

Customized Map



Product	Adhesive thickness	Base Film	Extra Process	Adhesion Strength
PI Tape	8um~100um	PI 25um~125um	Punch/ split/ESD	5g~2,000g
UV Tape	*8um~80um	PO 80um/150um PET 25um~100um		300g~2,000g

Heterogeneous Integration	Thickness	Type
DAF	10um~50um	Film
Laser Debond material	10um~50um / 0.5~1.5	Film/Liquid

Our Customers

SPIL

www.mingkun-tech.com

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Factory

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