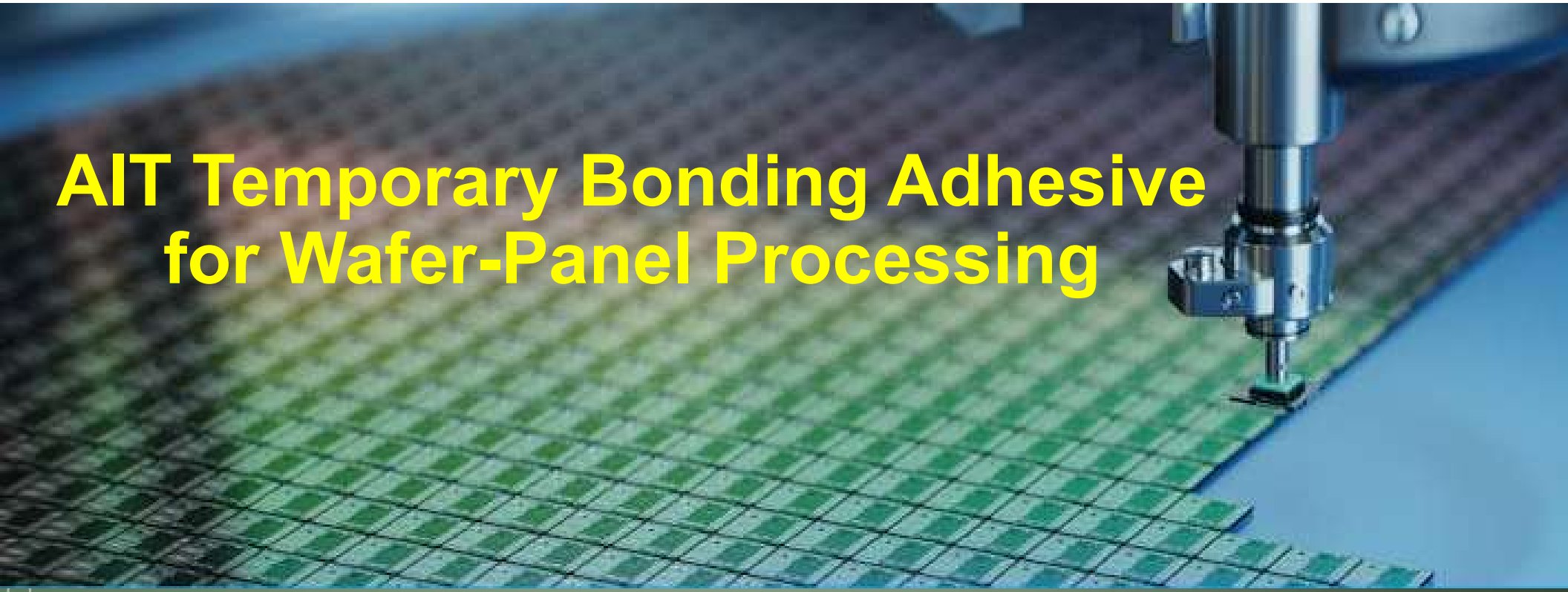
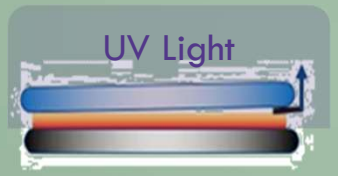
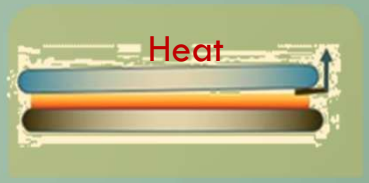


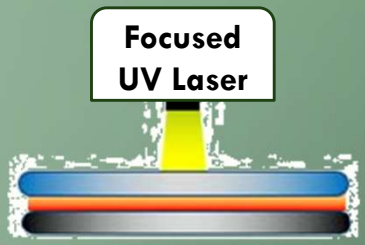
AIT Temporary Bonding Adhesive for Wafer-Panel Processing

1. World's First Film Temporary Bonding Debonding Adhesive
2. Proven Laser Ablation TBDB Adhesive for 400+ºC Processing
3. Heat-Sliding and Peel Release Clean TBDB for 380+ºC Processing
4. UV and/or Heat Foaming Release TBDB to 265ºC Processing

AIT Temporary Bonding Adhesives for Wafer-Panel Processing







Debonding Mechanism	Thermal Slide	UV Release	Thermal Release	Laser Ablation Release
AIT TBDB Wafer Processing Adhesive Special Advantages	WPA-TS-380; WPA-TS-350	WPA-UVR-270	WPA-HFR-265-180F	WPA-LD-400; and WPA-LD-350
	3-500µm adhesive thickness	PSA for ease of RDL-chip attaches at ambient	PSA for ease of RDL-chip attaches at ambient	Spin-coating liquid to 3µm Film Melt-bonding @80ºC
	Instant melt-bonding	5-500µm adhesive thickness	Low interfacial stress	3-500µm adhesive thickness for continuous processing >350ºC
	Transparent and stress-free	Low interfacial stress	Extended operation to >265ºC without residual	Fast debonding with <0.5W @308nm
	Processing to >350ºC	Extended operation to >265ºC without residual	Silcon can be used as carrier wafer	Fast cleaning in pieces with non-toxic solvent
	Instant melt-slide debonding	Simple flash UV curing and debonding	Rapid curing-debonding at >180ºC without residual	Low temperature or insitu curing to form strong bonding for precison chip alignment
	Rapid complete residual clean with AIT Stripper Solution	Unparalleled through put without cleaning after debonding	Unparalleled through put without cleaning after debonding	Non-outgassing with low interfacial stresses

AIT TBDB Adhesive Part#	**WPA-LD-400F** (Transparent Film)	**WPA-LD-350F** (Transparent Film)	**WPA-TS-380F** (Translucent Film)	**WPA-TS-350F** (Transparent Film)
Max. Processing Temperature	**400+ºC**	**350+ºC**	**380+ºC**	**350+ºC**
Debonding Mechanism	**Laser Ablation @308nm/0.4J**	**Laser Ablation @308nm/0.4J**	**Heat-Sliding @>220ºC; Laser Ablation Capable**	**Heat-Sliding @>150ºC; Peel Release Capable**
Adhesive Deposition and Application Method	Direct Vacuum Assisted Compression Lamination @>120ºC Between Carrier and Device Wafers	Direct Vacuum Assisted Compression Lamination @>120ºC Between Carrier and Device Wafers	Direct Vacuum Assisted Compression Lamination @>190ºC Between Carrier and Device Wafers	Direct Vacuum Assisted Compression Lamination @>150ºC Between Carrier and Device Wafers
Thermal Compression Bonding (Cu-Cu)	High, extreme dimensional stability in all thicknesses	High, extreme dimensional stability in all thicknesses	High, good dimensional stability in low thickness	High, good dimensional stability in low thickness
Carrier and Device Wafer Bonding	10-20 psi, >120ºC, Vacuum Assisted	10-20 psi, >120ºC, Vacuum Assisted	10-20 psi, >200ºC, Vacuum Assisted	10-20 psi, >150ºC, Vacuum Assisted
Bond Strength (Shear Mode)	>500 psi and maintain strong adhesion up to 400ºC	>500 psi and maintain strong adhesion up to 350ºC	>500 psi to 180ºC; and thermal dimensional stability to >380ºC	>500 psi to 100ºC; and thermal dimensional stability to >350ºC
Transparency for Front and Backside Alignment	Void Free Colorless Transparency Enabling Precision Alignment	Void Free Colorless Transparency Enabling Precision Alignment	Void Free, Translucent, Becoming Transparent @>150ºC Enabling Precision Alignment	Void Free, Transparent Enabling Precision Alignment
Outgassing and Thermal Stability	Thermal Stability and Non-Outgassing up to 400ºC; Compatible with Vacuum Metalliztion-Passivation Deposition	Thermal Stability and Non-Outgassing up to 350ºC; Compatible with Vacuum Metalliztion-Passivation Deposition	Thermal Stability and Non-Outgassing up to >380ºC; Compatible with Vacuum Metalliztion-Passivation Deposition	Thermal Stability and Non-Outgassing up to >350ºC; Compatible with Vacuum Metalliztion-Passivation Deposition
Grinding Compatibility	No Limitation; Shear Strength>500 psi to >200ºC	No Limitation; Shear Strength>500 psi to >200ºC	No Limitation; Shear Strength>500 psi to 150ºC	No Limitation; Shear Strength>500 psi to 150ºC
CMP & Chemical Etching-Lithography, Plating Compatibility	No Limitation	No Limitation	No Limitation	No Limitation
Spin-Coating Availability	***WPA-LD-400L***	***WPA-LD-350L***	***WPA-TS 380L***	***WPA-TS 350L***
Melt-Bonding Adhesive Thickness Availability	5, 10, 25, 50, 100-500 µm, Full Wafer-Panel Surface Feature Compatibility	5, 10, 25, 50, 100-500 µm, Full Wafer-Panel Surface Feature Compatibility	5, 10, 25, 50, 100-500 µm, Full Wafer-Panel Surface Feature Compatibility	5, 10, 25, 50, 100-500 µm, Full Wafer-Panel Surface Feature Compatibility
Carrier Compatibility	Glass	Glass	Glass, Silicon and Others	Glass, Silicon and Others
Ease of Cleaning for Carrier Reusability	Soaking with AIT Stripper at ambient in <30 min. for complete film removal	Soaking with AIT Stripper at ambient in <30 min. for complete film removal	Soaking with AIT Stripper at ambient in <30 min. for complete film removal	Peel releasable with zero residual after heat-sliding debonding.
Throughput	Highest Possible: (1) Fast laser ablasion debonding; (2) Rapid soaking cleaning with film residual; (3) Direct heat-lamination with TBDB film between carrier and device wafer	Highest Possible: (1) Fast laser ablasion debonding; (2) Rapid soaking cleaning with film residual; (3) Direct heat-lamination with TBDB film between carrier and device wafer	High: (1) Ease heat sliding debonding; (2) Rapid soaking cleaning with film residual; (3) Direct heat-lamination with TBDB film between carrier and device wafer	High: (1) Ease heat sliding debonding; (2) Peel releasable without residual; (3) Direct heat-lamination with TBDB film between carrier and device wafer

AI Technology, Inc.

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