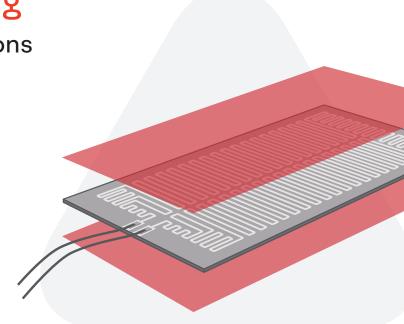
Flexible heater film bonding and gap filling

Automotive Electronics Solutions

Printed flexible heater films are an established solution for defrosting exterior mirrors. They're now being adopted for use with advanced driver-assistance system (ADAS) cameras and sensors, along with various applications in vehicle interiors to facilitate efficient heating.

Avery Dennison offers a variety of tape solutions that can handle the challenging requirements of heater film bonding.

- High-performance acrylic adhesives that withstand high temperatures and difficult automotive environments
- · Adhesives compatible with heater film conductive inks
- Transfer tapes for thin profiles and double-coated foam tapes for filling gaps between rigid components



Heater Film Bonding Tape Product Portfolio

Application	Product	Adhesive Type	Construction	Thickness without liner (mils)	Thickness without liner (µm)	Core Series™ Portfolio*
Flexible Heater Film Bonding and Gap Filling	HPA™ 1902	High Performance Acrylic	Transfer Tape	2.4	59	•
	FT 1123	General Purpose Acrylic	Transfer Tape	3.3	81	•
	FBA 1118 GL	Low VOC Acrylic	Transfer Tape	2.5	61	•
	FM 2465 WPET	High Performance Acrylic	Double Coated PE Foam	37.0	903	
	FM 2454	High Shear Acrylic	Double Coated PE Foam	35.2	859	•
	AFB™ 22080B	Acrylic Foam Bond	Double Coated Acrylic Foam	31.5	769	

^{*} The Core Series™ Portfolio is designed to make it easy for converters to quickly identify a product recommendation for their customers.



Automotive Electronics Solutions

Avery Dennison Automotive Electronics solutions address engineering challenges and meet OEM specifications related to vehicle electronics systems.

Electrification and electronics are key trends in automotive design

Drivers are demanding greater automotive safety, convenience and entertainment. These demands have prompted the emergence of vehicle electronic applications such as advanced driver-assistance systems (ADAS), driver information features, telematics services and infotainment hubs.

OEMs and tier suppliers are thus challenged to create electronics systems that are easy to assemble, lightweight and durable. These systems also need to perform flawlessly throughout a vehicle's life and across a wide range of environmental conditions.

Avery Dennison Automotive Electronics Tapes Portfolio

The Avery Dennison Automotive Electronics portfolio addresses some of the challenges related to assembly, durability and sensing accuracy for many applications.

Our solutions can help OEMs and tier suppliers:



Optimize Design and Assembly

Tapes can replace mechanical fastening methods with adhesive tapes offering a thinner profile, lighter weight, repositionability and instant bond.



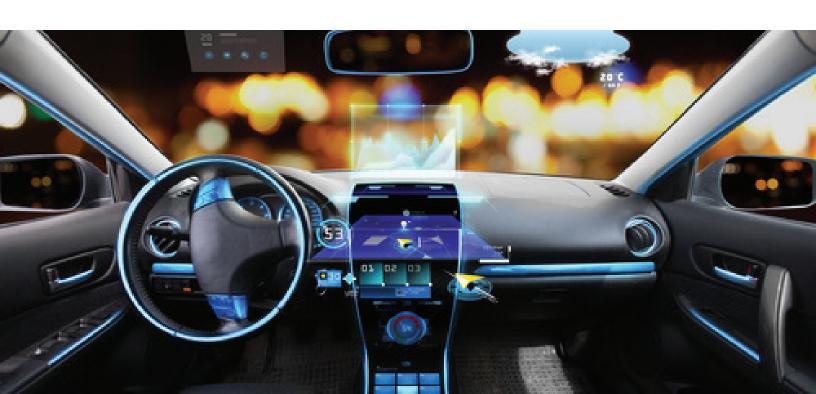
Improve Durability

Tapes can seal and fill gaps for ingress protection, reduce vibrations and noise, and provide clearer vision.



Manage Vision and Sensing Challenges

Tapes can reduce glare, manage light and bond heater films to reduce ice build-up on sensitive electronics.



Avery Dennison Automotive Electronics Tapes Product Portfolio

Application					-1.1	T1 1	
FM 2465 WPET	Application	Product	Adhesiye Tupe	Construction	Thickness	Thickness without	Core Series™
FM 2465 WPET	Application	riodaet	Adriesive 19pe	Construction			
Automotive Sensor FM 2164 High Shear Acrylic Double Coated PE Foam 55.2 8.59 •	Sensor Mounting	FM 2465 WPET	High Performance Acrulic	Double Coated PE Foam	37.0		
FM 2116 General Purpose Acrylic Double Coated PE Foam 68.0 1659		FM 2454		Double Coated PE Foam	35.2	859	•
Sensor FM 2132 General Purpose Acrylic Double Coated PE Foam 3.6.0 878 . Mounting and Sealing AFB™ 22100B Acrylic Foam Bond Double Coated Acrylic Foam 31.5 769 AFB™ 22110B Acrylic Foam Bond Double Coated Acrylic Foam 43.3 1067 FM 2132 High Performance Low VOC Acrylic Double Coated Acrylic 43.3 1067 Automotive Electronics Foam Gasket Bonding FT 1140X High Performance Low VOC Acrylic Transfer Tape 5.0 122 • FD 3527 General Purpose Acrylic Transfer Tape 5.2 127 • FD 4818 GL Low VOC Acrylic Double Coated PET 4.6 112 • FBA 8218 GL Low VOC Acrylic Double Coated Tissue 5.8 142 • FBA 8218 GL Low VOC Acrylic Transfer Tape 2.5 61 • Glare Reduction for ADAS FT BNW 1079A Modified Acrylic Single Coated Flock 36.8 874 • FT BNW 1079A Modified Acrylic Single Coated F		FM 2116		Double Coated PE Foam	68.0	1659	•
Mounting and Sealing AFB™ 221080			· · · · · · · · · · · · · · · · · · ·		36.0	878	•
Arbs		AFB™ 22080B	· · · · ·	•	31.5	769	
Automotive FT 1149X		AFB™ 22110B	Acrylic Foam Bond	· ·	43.3	1057	
Automotive FT 1149X		FT 8270	<u> </u>	Double Coated Tissue	7.0	171	•
Figure F		FT 1149X		Transfer Tape	5.0	122	•
Bonding FT 8327 General Purpose Rubber / High Shear Rubber / High Shear Acrylic Double Coated PET 4.6 112 • FBA 8218 GL Low VOC Acrylic Double Coated Tissue 5.8 142 • FT 1118 GL Low VOC Acrylic Transfer Tape 2.5 61 • Glare FT 0900X High Performance Low VOC Acrylic Single Coated Flock 35.8 874 • Reduction for ADAS Cameras FT BNW 1079A Modified Acrylic Single Coated Felt 43.4 1059 PTFE Vent Bonding FT 9350 Silicone Double Coated PET 6.0 146 PTFE Vent Bonding FT 9302 SF Silicone / General Purpose Acrylic Double Coated PET 5.7 139 • Flexible FT 1149X High Performance Low VOC Acrylic Transfer Tape 5.0 122 • Flexible Detection Sensor FT 1143 Pure Acrylic Transfer Tape 3.1 76 • PEdettoin FT 1143 Pure Acrylic Transfer Tape 4.9 120 • </td <td></td> <td>FT 1126</td> <td>General Purpose Acrylic</td> <td>Transfer Tape</td> <td>5.2</td> <td>127</td> <td>•</td>		FT 1126	General Purpose Acrylic	Transfer Tape	5.2	127	•
FT 1118 GL		FT 8327		Double Coated PET	4.6	112	•
Glare Reduction for ADAS Cameras FT 0900X High Performance Low VOC Acrylic Single Coated Flock 35.8 874 • PTE Work Bonding FT BNW 1079A Modified Acrylic Single Coated Felt 43.4 1059 PTEF Vent Bonding FT 9350 Silicone Double Coated PET 6.0 146 Flexible Detection Sensor FT 1149X High Performance Low VOC Acrylic Transfer Tape 5.0 122 • Flexible Detection Sensor Bonding FT 1143 Pure Acrylic Transfer Tape 3.1 76 Sensor Bonding 550 122 • Flexible Detection Sensor Bonding FT 1143 Pure Acrylic Transfer Tape 3.1 76 Sensor Bonding 561 • 122 • • • • 122 •		FBA 8218 GL	Low VOC Acrylic	Double Coated Tissue	5.8	142	•
Production for ADAS FT BNW 1079A Modified Acrylic Single Coated Felt 43.4 1059		FT 1118 GL	Low VOC Acrylic	Transfer Tape	2.5	61	•
Cameras FT BNW 1079A Modified Acrylic Single Coated Felt 43.4 1059 PTEF Vent Bonding FT 9350 Silicone Double Coated PET 6.0 146 FT 9302 SF Silicone / General Purpose Acrylic Double Coated PET 5.7 139 • FE xible FT 1143X High Performance Low VOC Acrylic Transfer Tape 5.0 122 • Potetection FBA 1118 GL Low VOC Acrylic Transfer Tape 3.1 76 FBA 2454 High Performance Acrylic Transfer Tape 4.9 120 • FM 2454 High Performance Acrylic Double Coated PE Foam 35.2 859 • FM 2465 WPET High Performance Acrylic Double Coated PE Foam 19.7 481 Mirror and Display FM 2405L High Shear Acrylic Double Coated PE Foam 19.7 481 Mirror and Display AFB™ 221080B Acrylic Foam Bond Double Coated Acrylic Foam 35.1	Reduction for ADAS	FT 0900X		Single Coated Flock	35.8	874	•
Bonding FT 9302 SF Silicone / General Purpose Acrylic Double Coated PET 5.7 139 • Flexible Detection Sensor Bonding FT 1143 Pure Acrylic Transfer Tape 5.0 122 • Electronic Mirror and Display Mounting FM 2454 High Performance Acrylic Plants Transfer Tape 3.1 76 Electronic Mirror and Display Mounting FM 2405L High Shear Acrylic Plants Double Coated PE Foam 35.2 859 • AFB™ 22110B Acrylic Foam Bond Double Coated PE Foam 37.0 903 • Seat and Steering AFB™ 22110B Acrylic Foam Bond Double Coated PE Foam 35.1 856 Wheel Heater Bonding FT 2150 Low VOC, Pure Acrylic Transfer Tape 3.1 76 Seat and Steering FT 1143 Pure Acrylic Foam Bond Double Coated Acrylic Foam 43.3 1057 Seat and Steering FT 1143 Pure Acrylic Foam Bond Transfer Tape 3.1 76 Seat and Steering FT 2150 Low VOC, Acrylic Transfer Tape 2.3 56 Wheel Heater Bonding		FT BNW 1079A	Modified Acrylic	Single Coated Felt	43.4	1059	
Bonding FT 9302 SF Silicone / General Purpose Acrylic Double Coated PET 5.7 139 • Flexible Detection Sensor Bonding FT 1149X High Performance Low VOC Acrylic Transfer Tape 3.1 76 FBA 1118 GL Low VOC Acrylic Transfer Tape 2.5 61 • Bonding FBA 1118 GL Low VOC Acrylic Transfer Tape 2.5 61 • FBA 2454 High Performance Acrylic Double Coated PE Foam 35.2 859 • FM 2454 High Performance Acrylic Double Coated PE Foam 37.0 903 • Electronic FM 2456 WPET High Shear Acrylic Double Coated PE Foam 37.0 903 • Electronic FM 2405L High Shear Acrylic Double Coated PE Foam 37.0 903 • Electronic FM 2454C High Shear Acrylic Double Coated Acrylic 31.5 769 • Mounting AFB™ 22080B Acrylic Foam Bond Double Coated Acrylic Foam 31.5 769 •	DTEE Vent	FT 9350	Silicone	Double Coated PET	6.0	146	
FI 149X Acrylic Transfer Tape 5.0 122 125 1		FT 9302 SF		Double Coated PET	5.7	139	•
Sensor Bonding FH 1145 Pure Acrylic Iransfer Tape 5.1 76 FBA 1118 GL Low VOC Acrylic Transfer Tape 2.5 61 • HPA™ 1905 High Performance Acrylic Double Coated PE Foam 35.2 859 • FM 2454 High Shear Acrylic Double Coated PE Foam 37.0 903 903 Electronic FM 2405L High Shear Acrylic Double Coated PE Foam 19.7 481 481 Mirror and Display Mounting FM 2454C High Shear Acrylic Double Coated PE Foam 35.1 856 856 Mounting AFB™ 22080B Acrylic Foam Bond Double Coated Acrylic Foam 31.5 769 769 Seat and Steering FT 1143 Pure Acrylic Transfer Tape 3.1 76 769 Steering FT 2150 Low VOC, Pure Acrylic Transfer Tape 2.3 56 Wheel Heater Bonding FBA 1118 GL Low VOC Acrylic Transfer Tape 2.5 61 • Wire Harness Securement and FT 0		FT 1149X		Transfer Tape	5.0	122	•
Bonding FBA 1118 GL Low VOC Acrylic Transfer Tape 2.5 61 • HPA™ 1905 High Performance Acrylic Transfer Tape 4.9 120 • FM 2454 High Shear Acrylic Double Coated PE Foam 35.2 859 • FM 2465 WPET High Shear Acrylic Double Coated PE Foam 37.0 903 Electronic FM 2405L High Shear Acrylic Double Coated PE Foam 19.7 481 Mirror and FM 2454C High Shear Acrylic Double Coated Acrylic Foam 35.1 856 Display Mounting AFB™ 22080B Acrylic Foam Bond Double Coated Acrylic Foam 31.5 769 AFB™ 22110B Acrylic Foam Bond Double Coated Acrylic Foam 43.3 1057 Seat and Steering FT 1143 Pure Acrylic Transfer Tape 3.1 76 Steering FT 2150 Low VOC, Pure Acrylic Transfer Tape 2.5 61 • Wheel Heater Bonding FT 666 Rubber Transfer Tape + Scrim 9.5 232		FT 1143	Pure Acrylic	Transfer Tape	3.1	76	
HPA™ 1905 High Performance Acrylic Transfer Tape 4.9 120 • Electronic FM 2454 High Shear Acrylic Double Coated PE Foam 35.2 859 • Electronic FM 2465 WPET High Performance Acrylic Double Coated PE Foam 37.0 903 Electronic FM 2405L High Shear Acrylic Double Coated PE Foam 19.7 481 Mirror and FM 2454C High Shear Acrylic Double Coated PE Foam 35.1 856 Sisplay Mounting AFB™ 22080B Acrylic Foam Bond Double Coated Acrylic Foam 31.5 769 AFB™ 22110B Acrylic Foam Bond Double Coated Acrylic Foam 43.3 1057 Seat and Steering FT 1143 Pure Acrylic Transfer Tape 3.1 76 Steering FT 2150 Low VOC, Pure Acrylic Transfer Tape 2.3 56 Wheel Heater Bonding FT 666 Rubber Transfer Tape + Scrim 9.5 232 Wire Harness Securement and FT 0900X		FBA 1118 GL	Low VOC Acrylic	Transfer Tape	2.5	61	•
Electronic FM 2405L High Performance Acrylic Double Coated PE Foam 37.0 903 FM 2405L High Shear Acrylic Double Coated PE Foam 19.7 481 Mirror and Display Mounting Mounting FM 22080B Acrylic Foam Bond Double Coated Acrylic Foam Bond Foam 35.1 856 AFB™ 22080B Acrylic Foam Bond Double Coated Acrylic Foam Some Foam 10.5 769 AFB™ 22110B Acrylic Foam Bond Double Coated Acrylic Foam Some Foam 10.5 769 Seat and FT 1143 Pure Acrylic Transfer Tape 3.1 76 FT 2150 Low VOC, Pure Acrylic Transfer Tape 2.3 56 Wheel Heater Bonding FT 666 Rubber Transfer Tape 2.5 61 • Wire Harness Securement and FT BNW 1079A Modified Acrylic Single Coated Felt 43.4 1059		HPA™ 1905	High Performance Acrylic	Transfer Tape	4.9	120	•
Electronic Mirror and Display MountingFM 2405L FM 2454C AFB™ 22080BHigh Shear Acrylic High Shear Acrylic Double Coated PE Foam Double Coated Acrylic Foam35.1 31.5 Foam856 31.5AFB™ 22080BAcrylic Foam BondDouble Coated Acrylic 	Mirror and Display	FM 2454	High Shear Acrylic	Double Coated PE Foam	35.2	859	•
Mirror and Display MountingFM 2454CHigh Shear AcrylicDouble Coated PE Foam35.1856AFB™ 22080BAcrylic Foam BondDouble Coated Acrylic Foam31.5769AFB™ 22110BAcrylic Foam BondDouble Coated Acrylic Foam43.31057Seat and SteeringFT 1143Pure AcrylicTransfer Tape3.176SteeringFT 2150Low VOC, Pure AcrylicTransfer Tape2.356Wheel Heater BondingFBA 1118 GLLow VOC AcrylicTransfer Tape2.561•BondingFT 666RubberTransfer Tape + Scrim9.5232Wire Harness Securement andFT 0900XHigh Performance Low VOC AcrylicSingle Coated Flock35.8874•AcrylicSingle Coated Felt43.41059		FM 2465 WPET	High Performance Acrylic	Double Coated PE Foam	37.0	903	
Display Mounting AFB™ 22080B Acrylic Foam Bond Double Coated Acrylic Foam 31.5 769 Seat and Steering FT 1143 Pure Acrylic Transfer Tape 3.1 76 Wheel Heater Bonding FBA 1118 GL Low VOC, Pure Acrylic Transfer Tape 2.3 56 Wire Harness Securement and FT 0900X High Performance Low VOC Acrylic Transfer Tape + Scrim 9.5 232 FT BNW 1079A Modified Acrylic Single Coated Felt 43.4 1059		FM 2405L			19.7	481	
Mounting AFB™ 22080B Acrylic Foam Bond Double Coated Acrylic Foam 31.5 769 AFB™ 22110B Acrylic Foam Bond Double Coated Acrylic Foam 43.3 1057 Seat and Steering FT 1143 Pure Acrylic Transfer Tape 3.1 76 Wheel Heater Bonding FBA 1118 GL Low VOC, Pure Acrylic Transfer Tape 2.3 56 Wire Harness Securement and FT 0900X High Performance Low VOC Acrylic Transfer Tape + Scrim 9.5 232 Wire Harness Securement and FT BNW 1079A Modified Acrylic Single Coated Flock 35.8 874 •		FM 2454C	High Shear Acrylic		35.1	856	
Seat and Steering		AFB™ 22080B	Acrylic Foam Bond		31.5	769	
Seat and Steering FT 2150 Low VOC, Pure Acrylic Transfer Tape 2.3 56 Wheel Heater Bonding FBA 1118 GL Low VOC Acrylic Transfer Tape 2.5 61 • Bonding FT 666 Rubber Transfer Tape + Scrim 9.5 232 Wire Harness Securement and FT 0900X High Performance Low VOC Acrylic Single Coated Flock 35.8 874 • FT BNW 1079A Modified Acrylic Single Coated Felt 43.4 1059		AFB™ 22110B	Acrylic Foam Bond	Foam	43.3	1057	
Steering FT 2150 Low VOC, Pure Acrylic Transfer Tape 2.3 56 Wheel Heater Bonding FBA 1118 GL Low VOC Acrylic Transfer Tape 2.5 61 • Wire Harness Securement and FT 0900X High Performance Low VOC Acrylic Single Coated Flock 35.8 874 • FT BNW 1079A Modified Acrylic Single Coated Felt 43.4 1059	Steering Wheel Heater			Transfer Tape	3.1	76	
Bonding FT 666 Rubber Transfer Tape + Scrim 9.5 232 Wire Harness Securement and FT 0900X High Performance Low VOC Acrylic Single Coated Flock 35.8 874 • FT BNW 1079A Modified Acrylic Single Coated Felt 43.4 1059					2.3	56	
Wire Harness Securement and FT BNW 1079A Modified Acrylic Single Coated Felt 43.4 1059				· · · · · · · · · · · · · · · · · · ·	2.5	61	•
Securement and FT BNW 1079A Modified Acrylic Single Coated Felt 43.4 1059		FT 666		Transfer Tape + Scrim	9.5	232	
	Securement	FT 0900X	Acrylic	Single Coated Flock	35.8	874	•
Protection Library 0.747					43.4	1059	
HPA'" US16 High Performance Single Coated PE1 8.0 195		HPA™ 0316	High Performance	Single Coated PET	8.0	195	

^{*} The Core Series™ Portfolio is designed to make it easy for converters to quickly identify a product recommendation for their customers.

Go beyond bonding with Avery Dennison: Expansive product selection, plus customization and testing capabilities

The Avery Dennison Automotive Electronics portfolio offers multi-functional solutions that draw from our expansive portfolio of pressure-sensitive tapes and adhesives. We have a long track record in the automotive segment and are relied upon by OEMs and tier suppliers across the industry. Our products meet OEM specifications for a wide range of applications.

Beyond bonding means we also welcome the opportunity to collaborate with automotive OEMs and tier suppliers to develop custom tape solutions. You'll enjoy access to testing facilities and pressure-sensitive adhesive experts who understand the challenges engineers face. We can work together to produce one-of-a-kind products that give you the advantage you seek.

Collaboration

- Global reach
- New product development for developing custom solutions for applications
- Business development and specification support for emerging applications
- · Application engineering and technical support

Testing

- ISO 17025 certified laboratory
- Online tool offering easy access to our database of OEM certifications
- · Industry-standard testing and custom application testing
- Traditional pressure-sensitive adhesive bulk property testing (peel, tack and shear)
- Environmental conditioning (temperature, humidity, UV, chemical and more)
- Flame performance and dielectric strength testing at the tape and composite level





All Avery Dennison statements, technical information and recommendations are based on tests believed to be reliable but do not constitute a guarantee or warranty. All Avery Dennison products are sold with the understanding that the purchaser has independently determined the suitability of such products for its purposes. All Avery Dennison products are sold subject to Avery Dennison's general terms and conditions of sale found at tapes. averydennison.com/na/en/home/terms-and-conditions.html.

