



Technical Data Sheet

3M™ VHB™ Tape 5981-020

Product Description

3M™ VHB™ Tapes 5981-020 is an integrated bonding solution for electronic device manufacturers who value robust impact-resistant bonding performance but desire improved ease of use over typical foam bonding tape constructions and liquid adhesives. The 5981 series 3M™ VHB™ Tapes feature a thin film carrier in combination with two layers of a high-performance modified acrylic foam adhesive. This layered construction enables improved handling and proven capability to convert into narrow bond lines while preserving adhesion, impact resistance, anti-lifting, push-out, waterproofing and improved reworkability performance.

Product Features

- Narrow bond line converting capability to 0.5 mm
- Good reworkability/removal characteristics
- High bond strength
- Thin foam pressure sensitive adhesive (PSA) on both sides of a thin carrier film
- Good impact resistance and conformability

Technical Information Note

The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

Typical Physical Properties

| Attribute Name | Test Method | Value |
|----------------------|-------------|---------------------------------------------------------------|
| Color | | Black |
| Adhesive Type | | Modified Acrylic |
| Density | ASTM D3574 | 965 kg/m ³ (60.2 lb/ft ³) ¹ |
| Total Tape Thickness | ASTM D3652 | 0.20 mm (8 mil) |
| Liner | | Clear polyester on both sides |
| Primary Liner Color | | Clear |
| Liner Thickness | | 0.05 mm (0.002 in) |
| Thickness Tolerance | | ±15 % |

¹ Foam with adhesive

Typical Performance Characteristics

180° Peel Adhesion

Temperature: 22 °C (72 °F)

Dwell Time: 72 h

Test Method: ASTM D3330

| Substrate | Value |
|--------------------|-----------------------------------|
| Acrylic (PMMA) | 130 N/cm (120 oz/in) ¹ |
| Glass | 145 N/cm (130 oz/in) ¹ |
| Polycarbonate (PC) | 155 N/cm (140 oz/in) ¹ |
| Stainless Steel | 140 N/cm (125 oz/in) ¹ |

¹ 12 in/min (300 mm/min)

Static Shear

Substrate: Stainless Steel
Dwell Time: 72 h
Backing: 2 mil Aluminum Foil
Test Method: ASTM D3654

| Temperature | Test Condition | Value |
|----------------|----------------|--------------------------|
| 22 °C (72 °F) | 1000g | >10,000 min ¹ |
| 70 °C (158 °F) | 500g | >10,000 min ¹ |

¹ 1 in x 1 in sample area, test terminated after 10,000 minutes

| Attribute Name | Dwell Time | Temperature | Value |
|----------------------|------------|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Anti-Lift Testing | 24 h | 70 °C (158 °F) | 0 mm ¹ |
| IPX Water Resistance | | | IPX8 Waterproof Characteristics: 1 mm Wide Tape Bonding Polycarbonate to Stainless Steel. No leaks after 30 minute duration at 30 m H ₂ O depth simulation (42.7 psi) |

¹ Flat substrates w/forced curvature: anodized aluminum to polycarbonate

| Attribute Name | Value |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Note | The following technical information and data should be considered representative or typical only and should not be used for specification purposes. Final product specifications and testing methods will be outlined in the product's Certificate of Analysis (COA) that is shipped with the product. |

Handling/Application Information

Application Examples

- Lens and back cover bonding
- LCM attachment
- Touch panel bonding
- Bezel bonding

Application Techniques

For maximum bond strength the substrate surfaces should be thoroughly cleaned with a 50:50 mixture of isopropyl alcohol and water. Consult manufacturer's directions for use and precautions when using cleaning solvents and adhesion promoters. Ideal tape application is accomplished when temperature is between 21° and 38°C (70° and 100°F) and the bond is allowed to dwell 72 hours. Initial tape application to surfaces at temperatures below 10°C (50°F) is not recommended.

Storage and Shelf Life

Store in original cartons at 4-38°C (40-100°F) and 0-95% relative humidity. Optimum storage conditions are 22°C (72°F) and 50% relative humidity. When stored under proper conditions, product retains its performance and properties for 24 months from date of manufacture.

Available Sizes

| Attribute Name | Value |
|---------------------------|--------------------|
| Core Size (ID) | 76.2 mm (3 in) |
| Normal Slitting Tolerance | ±0.8 mm (±1/32 in) |
| Standard Roll Length | 66 m (72.2 yd) |
| Standard Width | 560 mm (22 in) |

Automotive Disclaimer

Select Automotive Applications:

This product is an industrial product and has not been designed or tested for use in certain automotive applications, such as automotive electric powertrain battery or high voltage applications, which may require the product to be manufactured in a IATF certified facility, meet a Ppk of 1.33 for all properties, undergo an automotive production part approval process (PPAP), or fully adhere to automotive design or quality system requirements (e.g., IATF 16949 or VDA 6.3). Customer assumes all responsibility and risk if customer chooses to use this product in these applications.

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ISO Statement

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