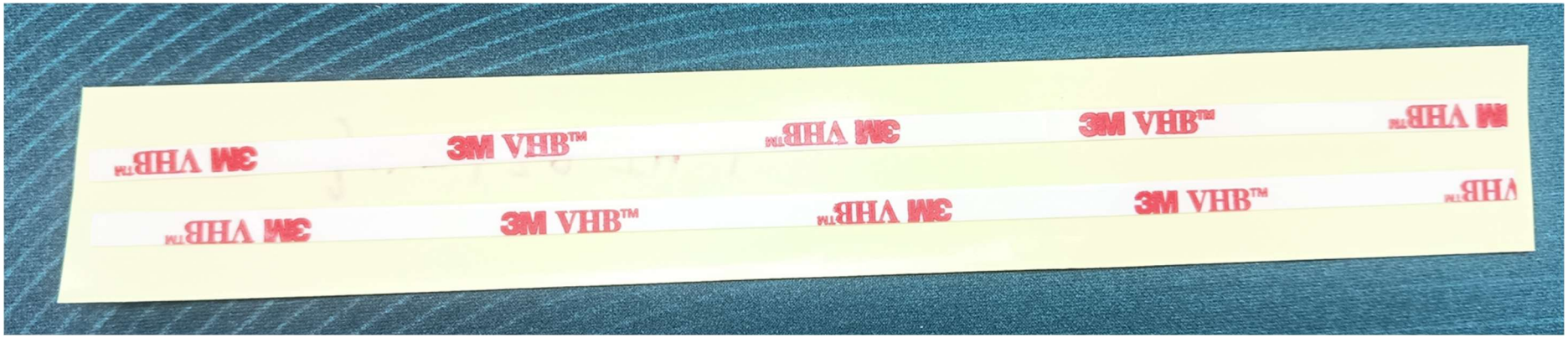


設計驗證工程課
2026 -09- 22
發行

向實貿易股份有限公司
6F-2,No.659 Jung Jeng Road.,Shin Juang Dist.,New Taipei City,Taiwan 242 R.O.C
TEL :(02)2908-8682 FAX :(02)2908-8603

承認書

設計驗證工程課
2026 -09- 22
發行

品名　3M 4905
3MD634TH060 (M3448)

姓名	職稱	電話
何家榮	品保	02-29088682
供應商簽名	日期	傳真
	2026/8/21	02-2908-8603

材 料 承 認 書

材料名稱:	3M 4905	日期:	2026/8/21
圖　　號:	3MD634TH060	供應廠商:	向實貿易股份有限公司

檢驗規範:
(使用單位:長度=mm,時間=sec,溫度=^{o}C)

編號	檢驗項目	檢驗內容	允收標準或公差範圍	備註
1	外觀	刮傷、髒汙、破損、殘膠	不允許	
2	標示	品名	3M 4905	
3	尺寸	規格	224.4mm×5mm	
		長　224.4mm	224.4mm±1mm (223.4mm~225.4mm)	
		寬　5mm	5mm±0.5mm (4.5mm~5.5mm)	
		高　0.5mm	±20 %	
4	效期	有效日期的確認:Lot NO 往後推1年效期	1年	

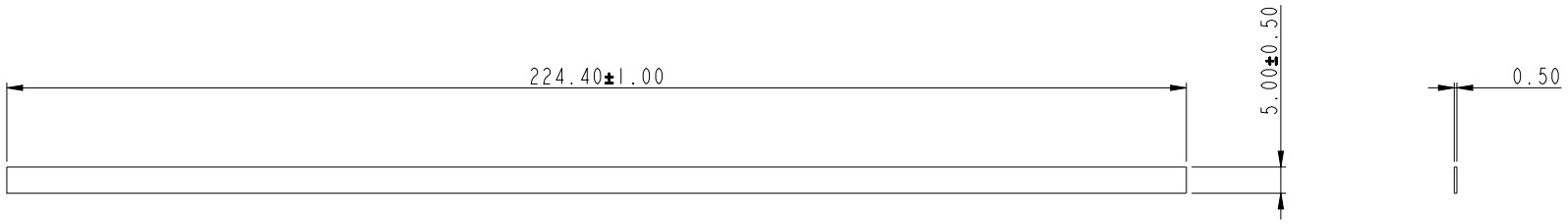
其他:

申請人:鍾惠芳 _____

向實貿易股份有限公司

版次:2

REV.	DATE	DESCRIPTION	BY	APVD
A	2025-07-18	PRODUCTION RELEASE	Laslie	Ferris



設計驗證工程課
2026 -09- 22
發行
鈺鑫科技開發股份有限公司

NOTE:
1.Material: 3M VHB 4905, t=0.5
2.RoHS Compliant.
3.DIVA QC Inspection Document NO.: QWI-024 (Spacer/Other)

RANGE OF DIMENSION	TOLERANCE CLASS DESIGNATION			
		V		
	fine	medium	coarse	Rubber/Sponge/Mylar/Gasket
0.5 UP TO 3	±0.05	±0.1	±0.2	±0.2
OVER 3~6	±0.05	±0.1	±0.3	±0.2
OVER 6~30	±0.1	±0.2	±0.5	±0.25
OVER 30~120	±0.15	±0.3	±0.8	±0.3
OVER 120~400	±0.2	±0.5	±1.2	±0.5
OVER 400~1000	±0.3	±0.8	±2.0	±0.8
ANGLE ±1° (±1.75/100)				

THIRD ANGLE PROJECTION

UNITS: mm	SCALE: 1/1	SHEET: 1 OF 1	MODEL NO.: Lotus 10.1
MATERIAL:	Note	TREATMENT:	
DSGD by	Laslie	2025-07-17	PART NAME: DOUBLE SIDE TAPE-PL
CHK by	Ferris	2025-07-18	DIVA P/N: 3MD634TH060
APVD by	Laslie	2025-07-18	Qisda NO.: NA
APVD NO.: (M3448)	3D FILE NAME: 1011_033_TAPE_PANEL_L		DIVA Laboratories ,Ltd.



3M Science. Applied to Life.™

Technical Data Sheet

3M™ VHB™ Tape - Specialty Tape 4905

V-6 | English-US

Last Revision Date: October, 2025

Supersedes: September, 2024

Additional Info

Regulatory Info/SDS

Product Description

3M™ VHB™ Tape 4905 is a 0.020 inch (0.5 mm) thick clear double coated solid acrylic tape with PE film liner. The general purpose acrylic adhesive on both sides bonds to a broad range of high surface energy substrates including metals, glass and easier to bond paints and plastics. The clear tape is good for bonding transparent or translucent materials or for applications where colorless is a benefit. 3M™ VHB™ Tape 4905 is part of the 4910 tape family. Each product in this family has a general purpose clear acrylic adhesive but varies in thickness.

Product Features

- Fast and easy-to-use permanent bonding method provides high strength and long-term durability
- Virtually invisible fastening keeps surfaces smooth
- Can replace mechanical fasteners (rivets, welds, screws) or liquid adhesives for transparent applications
- Clear, 0.020 in (0.5 mm), general purpose adhesive and clear acrylic core
- Eliminate drilling, grinding, refinishing, screwing, welding and associated clean-up
- Creates a permanent seal against water, moisture and more
- Pressure sensitive adhesive bonds on contact to provide immediate handling strength
- Allows the use of thinner, lighter weight and dissimilar materials

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		Clear
Adhesive Type		General Purpose Acrylic
Total Tape Thickness	ASTM D3652	0.5 mm (20 mil) (0.02 in)
Thickness Tolerance		±15 %
Density	ASTM D3574	960 kg/m³ (60 lb/ft³)

Attribute Name	Value
Liner	PE Film
Primary Liner Color	Red (printed)
Liner Thickness	0.13 mm (0.005 in)

Typical Performance Characteristics

Temperature: 23 °C (73 °F)
Dwell Time: 72 h

Attribute Name	Test Method	Substrate	Backing	Value
90° Peel Adhesion	ASTM D3330	Stainless Steel	5 mil Aluminum Foil	21 N/cm (12 lb/in) [1]
Normal Tensile	ASTM D897	Aluminum		690 kPa (100 lb/in²) [2]
Overlap Shear Strength	ASTM D1002, ISO 4587	Stainless Steel		480 kPa (70 lb/in²) [3]

[1] 300 mm/min (12 in/min)
[2] 6.45 cm² (1 in²), Jaw Speed 51 mm/min (2 in/min)
[3] 6.45 cm² (1 in²), Jaw Speed 12.7 mm/min (0.5 in/min)

Static Shear

Substrate: Stainless Steel
Test Method: ASTM D3654

Temperature	Value
23 °C (73 °F)	1,000 g [1]
66 °C (150 °F)	500 g [1]
93 °C (200 °F)	500 g [1]

[1] Tested at various temperatures and gram loadings. 3.23 cm² (0.5 in²). Will hold listed weight for 10,000 minutes (approximately 7 day).

Attribute Name	Test Method	Test Condition	Substrate	Value
Minimum Application Temperature				10 °C (50 °F)
Short Term Temperature Resistance				149 °C (300 °F) [1]
Long Term Temperature Resistance	ASTM D3654	500 g	Stainless Steel	93 °C (200 °F) [2]

[1] No change in room temperature dynamic shear properties following 4 hour conditioning at indicated temperature with 100 g/static load. (Represents minutes, hour in a process type temperature exposure).

[2] Maximum temperature where tape supports indicated load per 6.5cm² (1 in²) in static shear for 10,000 minutes.

Converting

In addition to standard and custom roll sizes available from 3M through the distribution network, 3M™ VHB™ Tapes are also available in limitless shapes and sizes through the 3M Converter network. For additional information, contact 3M Converter Markets at 1-800-223-7427 or on the web at www.3M.com/converter.

Handling/Application Information

Surface Preparation

Clean: Most substrates should be cleaned with a 70/30 mixture of (IPA*)/Water prior to applying 3M™ VHB™ Tape.

Exceptions that may require additional surface preparation include:
• Heavy Oils: A degreaser or solvent-based cleaner may be required to remove heavy oil or grease from a surface and should be followed by cleaning with IPA/water.
• Abrasion: Abrading a surface, followed by cleaning with IPA/water, can remove heavy dirt or oxidation and can increase surface area to improve adhesion.
• Adhesion Promoters: Priming a surface can significantly improve initial and ultimate adhesion to many materials such as plastics and paints.
• Porous surfaces: Most porous and fibered materials such as wood, particleboard, concrete, etc. need to be sealed to provide a unified surface.
• Unique Materials: Special surface preparation may be needed for glass and glass-like materials, copper and copper containing metals, and plastics or rubber that contain components that migrate (e.g. plasticizers).

Refer to 3M Technical Bulletin “Surface Preparation for 3M™ VHB™ Tape Applications” for additional details and suggestions. (70-0704-8701-5)
*__Note__: Please consult with your local Air Quality District to ensure compliance. When using solvents, be sure to follow the manufacturer’s precautions and directions for use.

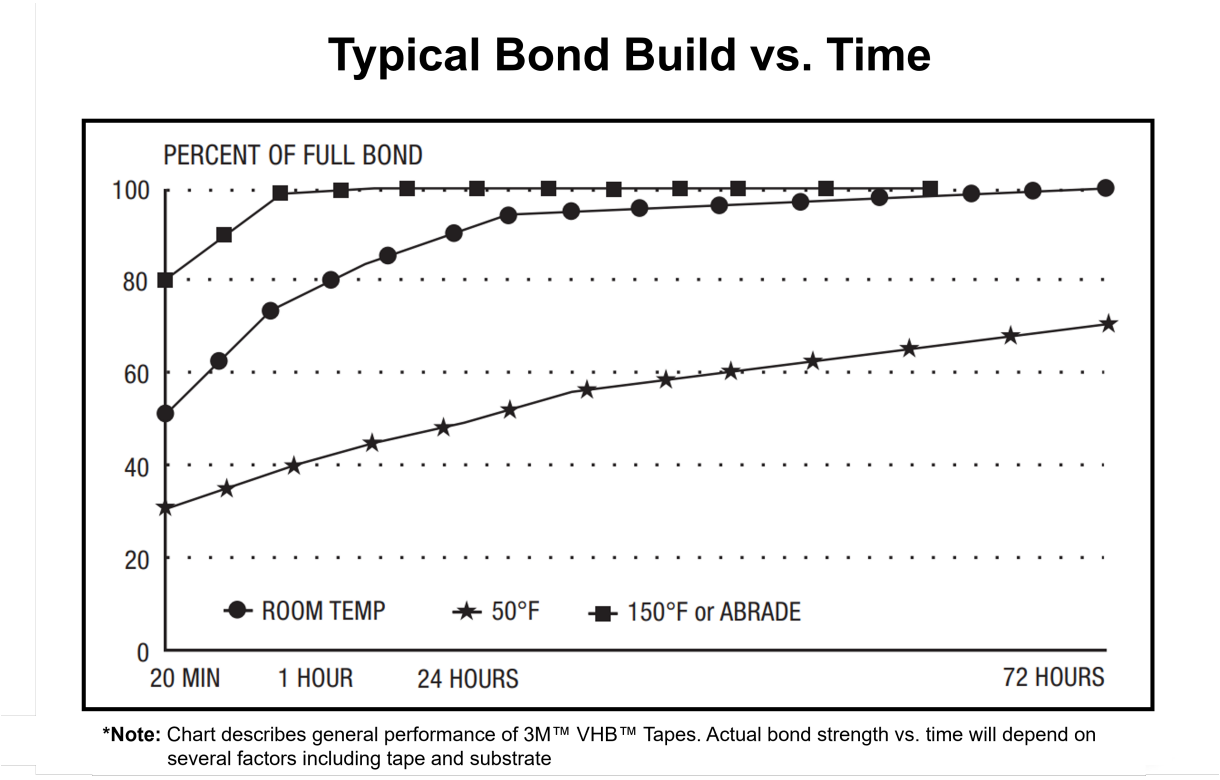
Application Techniques

Initial and Final Pressure Application:
Bond strength is dependent upon the amount of adhesive-to-surface contact developed. Firm application pressure develops better adhesive contact and helps improve bond strength. Typically, good surface contact can be attained by applying enough pressure to ensure that the tape experiences approximately 100 kPa (15 psi) of pressure. Either roller or platen pressure can be used. When bonding two rigid parts, additional final pressure is often required to ensure that the bond line experiences 100 kPa (15 psi).

Tape Application Temperature:
The ideal tape application temperature range for 3M™ VHB™ Tapes is generally 21°C to 38°C (70°F to 100°F). Pressure sensitive adhesives use viscous flow to achieve substrate contact area. The minimum suggested application temperature for most 3M™ VHB™ Tapes is 10°C to 15°C (50°F to 60°F)

***Note:** Initial tape application to surfaces at temperatures below these suggested minimums is not suggested because the adhesive becomes too firm to adhere readily. Ideally, all substrates and tape should be conditioned above the minimum application temperature in covered, weatherproof conditions until it is verified the substrates are at or above the minimum temperature. Once properly applied, low temperature holding is generally satisfactory.

Bond Build Rate:
After application, the bond strength will gradually increase as the adhesive flows onto to the surface (also referred to as "wet out"). The bond build rate will depend on both tape and substrate, but generally, at room temperature, approximately 50% of ultimate bond strength will be achieved after 20 minutes, 90% after 24 hours, and 100% after 72 hours. Adhesive flow is faster at higher temperatures and slower at lower temperatures. Ultimate bond strength can be accelerated (and in some cases bond strength can be increased) by exposure to elevated temperature (e.g. 66°C [150°F] for 1 hour). This can provide better adhesive wet out onto the substrates. Abrasion (~180 grit), or the use of primers/adhesion promoters can also increase both bond strength as well as the bond build rate.



***Note:** Chart describes general performance of 3M™ VHB™ Tapes. Actual bond strength vs. time will depend on several factors including tape and substrate

Design Considerations

Adhesion:
Adhesion to the substrate is critical to achieving high bond strength. Adhesives must flow onto the substrate surfaces in order to achieve intimate contact area and allow the molecular force of attraction to develop. The degree of flow of the adhesive on the substrate is largely determined by the surface energy of the substrate.

Tape Usage:
Use the right amount of VHB™ Tape to handle the expected stresses. Because 3M™ VHB™ Tapes are viscoelastic by nature, their strength and stiffness is a function of the rate at which they are stressed. They behave stronger when experiencing a higher rate of stress load (dynamic stresses) and will tend to show creep behavior with stress loads that

act over a long period of time (static stresses). As a general rule, for static loads, approximately four square inches of tape should be used for each pound (57 cm² of tape per kg) of weight to be supported in order to prevent excessive creep. For dynamic loads a useful design factor is 12 lb/in2 (85 kPa) for most dynamic stresses in general applications.

Tape Thickness:
Achieving good contact is also important. The necessary thickness of tape depends on the rigidity of substrates as well as their flatness and/or irregularity. While 3M™ VHB™ Tape will conform to a certain amount of irregularity, they will not flow to fill large gaps between the materials. When bonding rigid materials with normal flatness, consider use of tapes with thickness of 45 mils (1.1 mm) or greater. As substrate flexibility increases, thinner tapes may be considered.

Thermal Expansion/Contraction:
3M™ VHB™ Tapes perform well in applications where two bonded surfaces may expand and contract at different rates. Assuming good adhesion to both substrates, VHB™ Tape can typically tolerate differential movement in the shear plane up to 3 times (300%) of their thickness.

Bond Flexibility:
While an advantage for many applications where allowing differential movement is a benefit, the tape bonds are typically more flexible than alternative fastening methods. Suitable design modifications or periodic use of rigid fasteners/adhesives may be necessary if additional stiffness is required.

Industry Specifications

UL 746C (File QOQW2.MH17478)

UL 879 (File UYMR2.E464624)

UL 879 (File UYMR8.E464624)

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)
Maximum Available Width	1219 mm (48 in)
Minimum Available Width	6.4 mm (0.25 in)
Normal Slitting Tolerance	±0.79 mm (±1/32 in)
Standard Roll Length	32.9 m (36 yd) [1]

[1] Longer roll lengths are available for most 3M™ VHB™ Tapes. Exact length will depend on caliper and width.

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.

Information

Technical Information: The technical information, guidance, and other statements contained in this document or otherwise provided by 3M are based upon records, tests, or experience that 3M believes to be reliable, but the accuracy, completeness, and representative nature of such information is not guaranteed. Such information is intended for people with knowledge and technical skills sufficient to assess and apply their own informed judgment to the information. No license under any 3M or third party intellectual property rights is granted or implied with this information.

Product Selection and Use: Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. As a result, customer is solely responsible for evaluating the product and determining whether it is appropriate and suitable for customer's application, including conducting a workplace hazard assessment and reviewing all applicable regulations and standards (e.g., OSHA, ANSI, etc.). Failure to properly evaluate, select, and use a 3M product and appropriate safety products, or to meet all applicable safety regulations, may result in injury, sickness, death, and/or harm to property.

Warranty, Limited Remedy, and Disclaimer: 3M warrants for 24 months from the date of 3M manufacture that 3M™ VHB™ Tape will be free of defects in material and manufacture. 3M MAKES NO OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED

WARRANTY OR CONDITION OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR ARISING OUT OF A COURSE OF DEALING, CUSTOM, OR USAGE OF TRADE. This warranty does not cover damage resulting from the use or inability to use 3M™ VHB™ Tape due to misuse, workmanship in application, or application or storage not in accordance with 3M recommended procedures (except to the extent 3M approves and issues a specific application warranty, for which the customer must apply, receive 3M approval, and meet all applicable warranty and process requirements, the additional details, terms, and conditions of which are available from 3M). If a 3M product does not conform to this warranty, then the sole and exclusive remedy is, at 3M's option, replacement of the 3M product or refund of the purchase price.

Limitation of Liability: Except for the limited remedy stated above, and except to the extent prohibited by law, 3M will not be liable for any loss or damage arising from or related to the 3M product, whether direct, indirect, special, incidental, or consequential (including, but not limited to, lost profits or business opportunity), regardless of the legal or equitable theory asserted, including, but not limited to, warranty, contract, negligence, or strict liability.

Disclaimer: 3M industrial and occupational products are intended, labeled, and packaged for sale to trained industrial and occupational customers for workplace use. Unless specifically stated otherwise on the applicable product packaging or literature, these products are not intended, labeled, or packaged for sale to or use by consumers (e.g., for home, personal, primary or secondary school, recreational/sporting, or other uses not described in the applicable product packaging or literature), and must be selected and used in compliance with applicable health and safety regulations and standards (e.g., U.S. OSHA, ANSI), as well as all product literature, user instructions, warnings, and limitations, and the user must take any action required under any recall, field action or other product use notice. Misuse of 3M industrial and occupational products may result in injury, sickness, or death. For help with product selection and use, consult your on-site safety professional, industrial hygienist, or other subject matter expert. For additional product information, visit www.3M.com.

ISO Statement

This product was manufactured under a 3M quality system registered to ISO 9001 standards.

3M™ Industrial Adhesives and Tapes Division
3M Center, St. Paul, MN 55144-1000
3M.com/iatd

3M and VHB are trademarks of 3M Company.
©3M 2025 (10/25)