ABLEBOND® 84-1LMISR4

ELECTRICALLY CONDUCTIVE DIE ATTACH ADHESIVE
导电粘晶胶

DESCRIPTION

Ablebond® 84-1LMISR4 electrically conductive die attach adhesive has been formulated for use in high throughput, automatic die attach equipment. The rheology of Ablebond 84-1LMISR4 adhesive allows minimum adhesive dispense and die put down dwell times, without tailing or stringing problems. The unique combination of adhesive properties makes Ablebond 84-1LMISR4 adhesive one of the most widely used die attach materials in the semiconductor industry.

FEATURES

- Excellent dispensability with minimal tailing and stringing
- Box oven cure

产品概述

Ablebond® 84-1LMISR4 导电粘晶胶非常适用在高产率、自动粘晶设备上。Ablebond® 84-1LMISR4导电粘晶胶的流变特性使得它可以进行最小剂量的点胶，以及最小的粘晶停留时间，并且没有拖尾或拉丝问题。因此，Ablebond® 84-1LMISR4独特的粘接性能使得它成为半导体工业中最为常用的粘晶材料之一。

特性

- 优良的点胶性能，具有最小的拖尾或拉丝现象
- 箱式烘箱中固化

UNCURED PROPERTIES 固化前的性质		TEST DESCRIPTION 测试方法描述	TEST METHOD 测试方法
Filler Type/填料类型	Silver		
Viscosity/粘度 @	8,000 cps	Brookfield CP51 @ 5rpm	ATM-0018
Thixotropic Index/触变指数	5.6	Visc @ 0.5/Visc @ 5rpm	ATM-0089
Work Life/工作时间 @25℃	18 hours	Physical work life by % filler	ATM-0067
Storage Life @-40℃	1 year		ATM-0068
CURE PROCESS DATA 固化条件		**TEST DESCRIPTION 测试方法描述**	**TEST METHOD 测试方法**
Recommended Cure Condition/推荐固化条件	1 hour @ 175℃		
Alternate Cure Condtion [1]/可选固化条件	3-5℃/min ramp to 175℃+1 hour @ 175℃		
[1]The ramp cure was oberserved to yield reduced voiding and increased strength. 渐进升温可以减少气泡产生，以及增加强度。			
Weight loss on cure /固化后的热失重	5.3%	10×10 mm Si die on glass slide	ATM-0031
PHYSIOCHEMICAL PROPERTIES-PSOT CURE 固化后的物理化学性质		**TEST DESCRIPTION 测试方法描述**	**TEST METHOD 测试方法**
Ionics/离子 Chloride Sodium Potassium	5 ppm 3 ppm 1ppm	Teflon flask 5 gm sample/20-40 mesh 50 gm DI water 100℃ for 24 hours	ATM-0007
Water Extract Conductivity 导电率	13 µ mhos/cm		ATM-0044
pH/酸碱度	6		ATM-0002
Weight Loss/热失重 @300℃	0.35%	Thermogravimetric Analysis 热解重量分析法	ATM-0073

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Ablestik a National Starch & Chemical Company ICI

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PHYSIOCHEMICAL PROPERTIES-PSOT CURE 固化后的物理化学性质		TEST DESCRIPTION 测试方法描述	TEST METHOD 测试方法
Glass Transition Temperature 玻璃化转变温度	120℃	TMA Penetration mode/TMA 传透法	ATM-0058
Coefficient of Thermal Expansion/热膨胀系数 Below Tg Above Tg	 40ppm/℃ 150ppm/℃	TMA expansion mode	ATM-0055
Dynamic Tensile Modulus 动态拉伸模量 @-65℃ @25℃ @150℃ @250℃	 4400 MPa (640 Kpsi) 3900 MPa (570 Kpsi) 2000 Mpa (290 Kpsi) 300 Mpa (44 Kpsi)	Dynamic Mechanical Thermal Analysis using <0.5 mm thick sample 动态力学分析法，使用厚度小于 0.5mm 的样品。	ATM-0112
Moisture Absorption 吸湿率 @ Saturation	0.6%	Dynamic Vapor Sorption after 85℃ /85%RH exposure	ATM-0093

MECHANICAL PROPERTIES-POST CURE 固化后的机械性能	TEST DESCRIPTION 测试方法描述	TEST METHOD 测试方法
Die Shear Strength/芯片的剪切强度 @25℃ 19kg$_f$/die	2×2 mm (80×80 mil) Si die	ATM-005218
Die Shear Strength vs. Temperature 芯片的剪切强度 与 温度的关系 @ 25℃ / @200℃ / @250℃ 21 kg/die / 2.9 kg/die / 1.7 kg/die 11 kg/die / 2.6 kg/die / 1.4 kg/die 27 kg/die / 2.4 kg/die / 2.0 kg/die	3×3 mm (120×120 mil) Si die Substrate Ag/Cu leadframe Bare Cu leadframe Pd/Ni/Cu leadframe	ATM-0052
Die Shear Strength after 85℃/85% RH Exposure for 168 hours/经过 1 小时 85℃/85%条件的湿气试验后的剪切移除强度 @ 25℃ / @200℃ 12 kg/die / 1.8 kg/die 10 kg/die / 2.5 kg/die 27 kg/die / 1.8 kg/die	3×3 mm (120×120 mil) Si die Substrate Ag/Cu leadframe Bare Cu leadframe Pd/Ni/Cu leadframe	ATM-0052
Chip Warpage/芯片弯曲 @ 25℃ vs. Chip size Chip Size / Warpage 7.6×7.6 mm (300×300 mil) / 19μm 10.2×10.2 mm (400×400 mil) / 32μm 12.7×12.7 mm (500×500 mil) / 51μm	0.38 mm (15 mil) thick Si die on 0.2 mm thick Ag/Cu leadframe	ATM-0059
Chip Warpage vs. Post Cure Thermal Process[2] 芯片弯曲度与后固化热处理的关系 Post Cure /后固化 Bake/后烘 @175℃) / + Wirebond/打线 (1 min.@250℃) / +Post Mold (4 hrs.) 20 μm / 29 μm / 28μm 22 μm / 30 μm / 28 μm	7.6×7.6×0.38 mm Si die (300×300×15 mil) on 0.2 mm (8 mil) thick LF Substrate Ag/Cu leadframe Bare Cu leadframe	ATM-0059

[2] Date generated using alternate ramp cure condition.

The figures shown above are typical values only. If you need to write a specification, please request our current Standard Release Specification (SRS).

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APPLICATIN GUIDELINES

Shipment

This Ablestik product is packed and shipped in dry ice at -80℃. Inside every dry ice shipment of Ablestik's products is a small packet containing the ABLECUBE. This is a small blue cube which retains its shape at -40℃. If the ABLECUBE is exposed to temperatures higher than -40℃, the cube will melt.

Please check the state of the ABLECUBE to ensure the integrity of the shipment. If the ABLECUBE has melted upon Receiving Inspection, place the entire shipment in a -40℃ freezer and contact your Ablestik Customer Service or Sales Representative.

Unpacking

Transfer the syringes from the dry ice to a -40℃ freezer without ANY delays. Freezethaw voids will form in the syringes if the syringes are repeatedly thawed and refrozen.

Storage

This Ablestik product should be stored at -40℃. If stored at these conditions, Ablebond 84-1LMISR4 adhesive may be usable for up to one (1) year. Alternate storage conditions may be used as follows:

Storage Temperature	Syringes	Jars
0℃ to +5℃	8 days	1 month *
-15℃ to -10℃	2 months	6 months*

* Jar rolling required

The shelf life of the material is only valid when the material has been stored at the correct storage condition. Incorrect storage conditions will degrade the performance of the material in both handling (e.g. dispensing) and final cured properties.

使用说明

运输

在包装和运输过程中，该产品放在-80℃的干冰中。在所有干冰运输Ablestik 产品的小包装内都装有ABLECUBE。ABLECUBE 是一种蓝色的立方体，可以在-40℃以下保持形状不变。当温度高于-40℃时，ABLECUBE 将会融化变形。

请及时检查 ABLECUBE 的状态，以确保运输的可靠性。如果检查发现 ABLECUBE 已经融化，请将所有的产品放在-40℃冰箱中，并与Ablestik 客户服务或销售代表联系。

拆封

从干冰中将针筒取出，并立即放入-40℃的冰箱中。如果针筒被重复回温、二次冷冻，产品会发生冷冻回温气泡。

贮藏

该产品应该在-40℃以下贮藏。在上述的贮藏条件下，Ablebond 84-1LMISR4 可以贮藏 1 年。如果改变贮藏条件，其贮藏期限如下所示：

贮藏温度	针筒	大口瓶
0℃至+5℃	8 天	1 个月*
-15℃至-10℃	2个月	6 个月*

* Jar rolling required

在所要求的贮藏条件下可以保证产品的贮藏期限。不恰当的贮藏条件会造成产品加工性能（如：点胶性或者印刷性能）以及固化后的使用性能的降低。

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Thawing
Allow the container to reach room temperature before use. After removing from the freezer, set the syringes vertically for thawing. Refer to Syringe Thaw Time chart below for the thaw time recommendation.

DO NOT open the container before contents reach ambient temperature. Any moisture that collects on the thawed container should be removed prior to opening the container.
DO NOT re-freeze. Once thawed to room temperature, the adhesive should not be refrozen.

Adhesive Application
Thawed adhesive should be immediately placed on dispense equipment for use. If the adhesive is transferred to a final dispensing reservoir, care must be exercised to avoid entrapment of contaminants and/or air into the adhesive. Adhesive must be completely used within the 18-hour period. Silver-resin separation may occur if the adhesive is left out at ambient beyond the recommended work life.
Apply enough adhesive to achieve a 25-50 μ m (1-2 mil) wet bondline thickness, dispensed with approximately 25%-50% filleting on all sides of the die. Alternate dispense amounts may be used depending on the application requirements. Star or cross-shaped dispense patterns will yield fewer bondline voids than the matrix style of the dispense pattern.
Contact the Ablestik Technical Service Department for detailed recommendations on adhesive application, including dispensing.

回温
本产品在使用之前，先将其回温至室温。在冰箱中取出后，将针筒垂直地放置进行回温。请参照下面的针筒回温流程以了解推荐的回温时间。

在产品回温至室温之前，不要将容器打开。任何在回温过程中凝集在容器上的水汽都必须在打开容器之前清除掉。

严禁二次回温。一旦回温至室温，该产品不能进行再次冷冻。

产品操作说明
回温后的胶必须立即放在点胶设备上加以使用。如果需要把胶转移到后期点胶器里面，要小心操作，切忌在转移过程中带入杂质或空气。回温后的胶必须在18小时 内全部使用完。超出工作时间后，放置在室温下的胶会发生银粒子与树脂的分离。

滴加足够的胶，使之形成25-50 μ m(1-2 mil)的湿胶层厚度，并且芯片四周的胶层倒角高度近似为25%-50%。可以根据使用要求来调整点胶量。星型或十字型图案的点胶方式比矩阵型的点胶方式的胶层气泡少。

请联系Ablestik的技术服务部门咨询包括点胶操作在内的产品使用说明书。

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Cure

Ablebond 84-1LMISR4 adhesive should be cured in conventional box oven per the recommended cure condition. Refer to the Cure Process Data section of the Technical Data Sheet for the recommended cure cycles.

For the recommended cure cycle, the oven should be pre-heated to 175℃ before introducing the lead frame magazines.

AVAILABILITY

Ablebond® adhesives are packaged in syringes or jars per customer specification. Available package sizes range from 1cc to 30cc and 1 ounce to 1 pound. For details, refer to the Ablestik Standard Package Data Set, or contact your Customer Service Representative.

固化

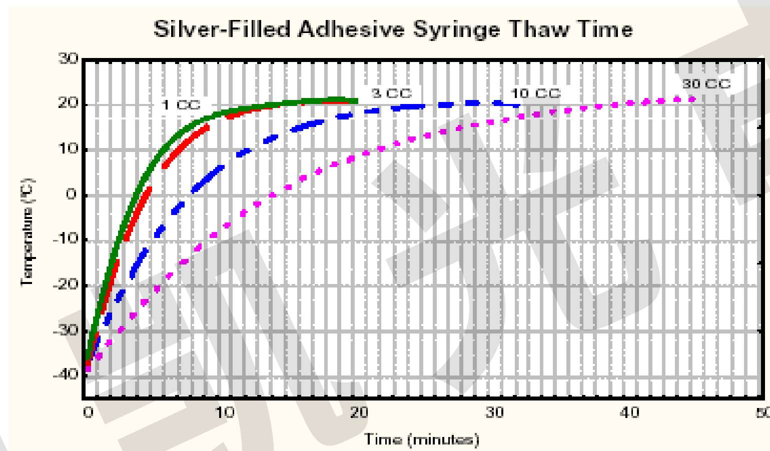
Ablebond 84-1LMISR4 应该在每一个推荐的条件下使其在传统烘箱中固化。请参考技术数据表中的固化制程了解推荐的循环固化过程。

对于所推荐的循环固化股过程，应该在将框架放入之前将烘箱加热到175℃。

包装规格

按照客户的要求，ABLEBOND®系列的胶可以装在针筒中，或者大口瓶中。包装规格可以从 1cc到 30cc不等，以及 1 英镑重的包装。详细情况可以参考Ablestik标准包装数据或者与当地客户服务代表联系。

恒凯光电



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