

品质承认书 Quality specification

客户 Customer:		
供应商: 广东东溢新材料科技有限公司		
Supplier: GUANGDONG DONGYI HIGH-TECH MATERIAL SCIENCE&TECHNOLOGY CO., LTD.		
产品类型 Product type: 无卤环氧有胶黑色补强板 Black PI Base Epoxy Halogen Free stiffener		
材料品名 Material name: DTIB 黑色补强板系列		
编号 No: T64 版本 Ver: A4		
制作日期 Date of production: 2024/04/11		
客户确认 Customer:		
采购 Purchase:	品质 Quality:	工程 Engineering:
职务 Position:	职务 Position:	职务 Position:
备注 Note: (盖章 Seal)		
广东东溢新材料科技有限公司 GUANGDONG DONGYI HIGH-TECH MATERIAL SCIENCE&TECHNOLOGY CO., LTD.		
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产品名称 Product name

序号 No	东溢型号 DY models	PI 厚度 (mil)	胶厚 (um)	包装 Packing
1	DTIB125NB1 (A)	1	25	250mm*200m
2	DTIB225NB1 (A)	2	25	250mm*100m
3	DTIB325NB1	3	25	250mm*100m
4	DTIB325NB1 (B)	3	25	250mm*100m
5	DTIB330NB1 (B)	3	25	250mm*100m
6	DTIB425NB1	4	25	250mm*100m
7	DTIB425NB1 (B)	4	25	250mm*100m
8	DTIB525NB1	5	25	250mm*100m
9	DTIB525NB1 (B)	5	25	250mm*100m
10	DTIB625NB1	6	25	250mm*50m
11	DTIB625NB1 (B)	6	25	250mm*50m
12	DTIB725NB1	7	25	250mm*50m
13	DTIB725NB1 (B)	7	25	250mm*50m
14	DTIB725NB1 (C)	7	25	250mm*50m
15	DTIB825NB1	8	25	250mm*50m
16	DTIB825NB1 (B)	8	25	250mm*50m
17	DTIB825NB1 (C)	8	25	250mm*50m
18	DTIB925NB1	9	25	250mm*50m
19	DTIB925NB1 (B)	9	25	250mm*50m

●产品特性 Product Features

- 优秀的耐热性能 Outstanding thermal resistance
- 优异的平坦性 Excellent flatness
- 优良的耐化学性 Good chemical resistance
- 优异的电性能 Excellent electrical performance and insulation performance
- 无卤无锑，符合 ROHS 环保指令 Halogen & antimony free, ROHS compliant

●产品结构 Product Structure

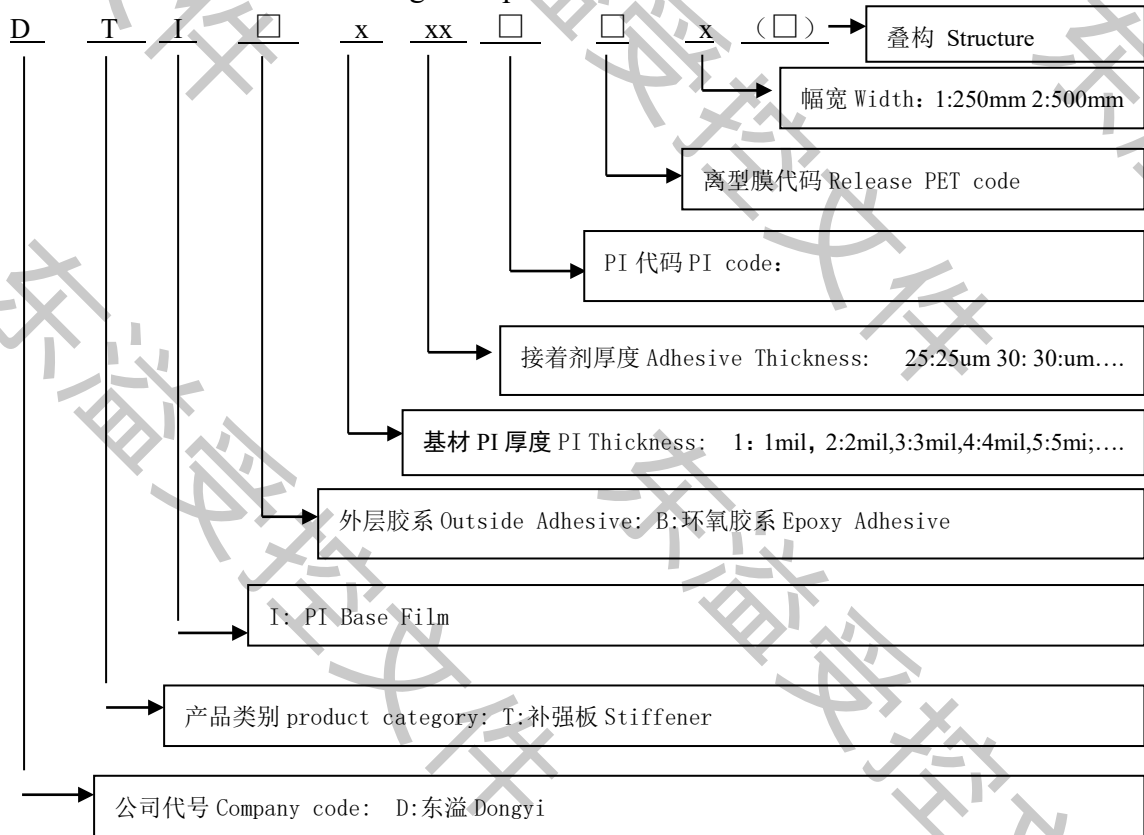


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● 编码原则 Product coding principle

品名示意图如下 The diagram as follows:

注: □: 表示英文字母 English alphabet ; x: 阿拉伯数字 Arabic numeral.



● 物性指标 General Properties

序号 Item	性能项目 Test Item	单位 Unit	测试条件 Test Condition	标准 Standard	测试方法 Test Method
1	厚度 Thickness	um	厚度 ≤ 100um	± 5um	东溢规范 Dongyi Method
			厚度 > 100um	± 10%	
2	幅宽 Width	mm	A	标准值 +2/-0mm	东溢规范 Dongyi Method
3	剥离强度 Peel Strength	kgf/cm	A	≥ 1.0	IPC-TM-650-2.4.9
4	焊锡耐热性 Solder Resistance	---	288°C/10S	无分层、起泡 No delamination, sparkling	IPC-TM-650-2.4.13
5	溢胶量 Resin Flow	mm	180°C/10s /100kgf/90s	0.05~0.30	IPC-TM-650-2.3.17.1
6	翘曲 Curl	cm	A	≤ 5	IPC-TM-650-2.3.17.1

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7	表面电阻 Surface Resistance	Ω	C-96/23/65	$\cong 10^{10}$	IPC-TM-650-2.5.17
8	体积电阻 Volume Resistance	$\Omega.cm$	C-96/23/65	$\cong 10^{12}$	IPC-TM-650-2.5.17
9	介电常数 Dielectric Constant	---	C-24/23/50 (10MHz)	$\cong 4.0$	IPC-TM-650-2.5.5.3
10	消耗因素 Dissipation Factor	---	C-24/23/50 (10MHz)	$\cong 0.04$	IPC-TM-650-2.5.5.3

注 Note : A 代表常态 “A” Means normal.

● 外观管控 Appearance requirement

异常类型 Exception classes	异常大小 Abnormal size	允许个数 Allowed value (250*400mm)
杂质 Impurity	0.1~0.5mm	$\cong 8$ 个 dots
垫伤 Pad injury	0.5~1mm	$\cong 1$ 个 dots
气泡 Bubble	$\cong 1mm$	不允许 Not allowed
接头 Joint		$\cong 3$ 个

注 Note: 产品边缘 3mm 以内异常, 不作管控要求 From the product within 3 mm of the edge of exception, don't do control requirements.

● 储存 Storage

1. 环氧有胶补强板: 温度 $< 10^{\circ}C$ 、湿度 $< 70\%RH$ 、真空包装、无腐蚀性气体的室内, 制造日期后保存 3 个月。Temperature $< 10^{\circ}C$, humidity $< 70\% RH$, airproof vacuumed packaging, no corrosive gas chamber for 3 months.

2. 产品开封后, 常温储存, 温度 $15\sim 30^{\circ}C$ 、湿度 $40\sim 70\% RH$, 储存周期 7 天。After the product is opened, storage at room temperature, Temperature $15\sim 30^{\circ}C$, humidity $40\sim 70\% RH$, Storage time for 7 days (储存周期是指产品从开封到压合固化前整个过程。Storage cycle refers to the whole process of the product from unpacking to pressing and curing).

● 包装 Packing

1. 每一卷成品用 PVC 卷取。每批出货的每个规格提供一份品质检验报告。Each volume of finished PVC tube winding.

2. 每一卷成品用纸箱包装, 避免在运输上碰撞。产品采用防潮、干燥、密封包装, 成卷装入纸箱。Each volume of finished carton packaging, in the transport collision avoidance. Products using moisture proof, dry, sealed packaging,

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rolls into cartons.

3. 包箱标签 Package box label

 广东东溢新材料科技有限公司 GUANGDONG DONGYI HIGH-TECH MATERIAL SCIENCE&TECHNOLOGY CO., LTD.	
补强板	
订单号 Order:	
型号 Type:	
宽度 Width: mm	
长度 Length: m	
面积 Area: m ²	
接头 Splice: m	
批号 Lot. NO:	
生产日期 Production date:	
保质期至 Shelf life:	
储存环境 Storage :	

无卤标签 Halogen free label:

环保标签 Green label:

合格标签 Inspection tag:



月份标签 Month label:

一月 Jan.	二月 Feb.	三月 Mar.	四月 Apr.	五月 May.	六月 June.	七月 July.	八月 Aug.	九月 Sept.	十月 Oct.	十一月 Nov.	十二月 Dec.
1	2	3	4	5	6	7	8	9	1	11	1

● 装运 Shipment

每批提供一份质量检验报告，如下表（报告格式仅供参考）：Each shipment of each specification provides a quality inspection report. The following table (Report format for reference only):

此规格书为东溢公司机密文件且涉及专利保护事宜，未经东溢公司书面签章确认同意严禁转载转发，此规格书中所有条款内容最终解释权归东溢公司所有，特此声明！ Hereby declared that this technical datasheet is a confidential document of Dongyi and involves patent protection matters, reproduction and forwarding without the written permission of Dongyi Company is strictly prohibited, the final interpretation and conditions in this technical datasheet belongs to Dongyi.



广东东溢新材料科技有限公司

GUANGDONG DONGYI HIGH-TECH MATERIAL SCIENCE&TECHNOLOGY CO., LTD.

有胶补强板出厂检验报告

编号: JL-Q-02-004-12

日期 (Date):

客户 (customer):

品名 (Material spec)

批号 (Lot No.)

补强板厚度 (Stiffener thickness) Unit: μm

接着剂厚度 (Adhesive thickness) Unit: μm

保存期限 (Shelf life)

$<10^{\circ}\text{C}$, $<70\%RH$ 保存3个月
(Below 10°C , $70\%RH$ for 3 months)

检验项目 (Test item)	检验方法 (Test method)	品质标准 (Quality Spec)	测试结果 (Test Result)
总厚度 (Total thickness)	东溢规范 (Unit: μm)	厚度 $\leq 100\mu\text{m}$, ± 5 厚度 $> 100\mu\text{m}$, ± 10	
幅宽 (Width)	东溢规范 (Unit: mm)	+2/-0	
剥离强度 (Peel Strength)	IPC-TM-650 2.4.9 (Unit: kgf/cm)	≥ 0.7	
卷曲 (Curl)	TD	IPC-TM-650 2.4.22 (Unit: cm)	≤ 5
	MD		
焊锡耐热性 (Solder Float Resistance) $288^{\circ}\text{C}/10\text{sec}$	IPC-TM-650 2.4.13	无分层起泡 (No Blistering or Delamination)	
产品判定结果			

备注:

- 以上测试数据仅供参考 (Above test data for reference only).
- 上述产品不含 [RoHS] 所规定的禁用物质 (The chemical materials prohibited in RoHS don't exist in above products).
- 如产品被放置在低温下储存环境 (尤其是冬季) 建议客户在使用前将产品静置回暖直至产品温度回升至室温 ($20-30^{\circ}\text{C}$) 后方可使用, 以确保最佳产品使用特性, 同时也应避免放置在阳光直接照射及高温环境下。
The product should not be directly exposed to sunlight or stored at high temperature. The optimum operating temperature is between 20°C and 30°C .
- 在有胶补强板贴合前, 如接触界面做表面清洁, 亦须保证接触界面干燥及不残留溶剂 (如酸碱、油污等)。
Before use, ensure that the contact surface is dry and there are no residual solvents (such as acid, alkali, oil pollution, etc.).
- 压合后的产品建议使用干层架烘烤, 如无干层架建议叠层张数不超过 20PNL, 以避免叠层太多而影响产品。
When heated, no more than 20 circuit boards are stacked.

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审核 (APPROVED BY):

检验员 (CHECKED BY):

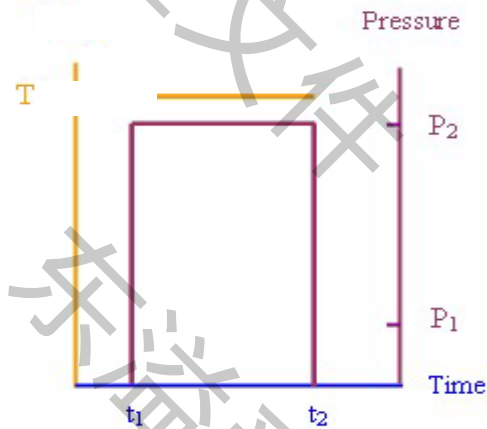
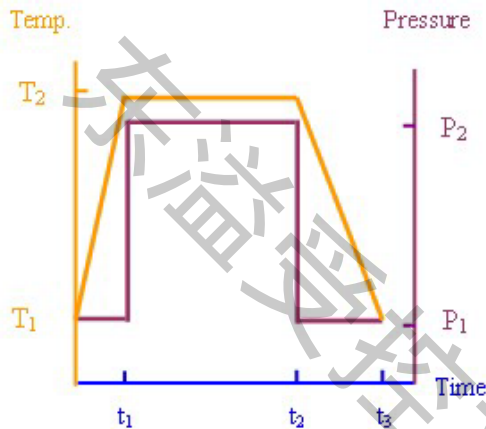
● 建议压制工艺 Recommendations for pressing process

A、传统压合方式 *Traditional Lamination*

B、快速压合方式 *Fast Lamination*

温度 Temp 压力 Pressure

温度 Temp 压力 Pressure



传压工艺 Traditional pressing:

第一段： 温度 Temp T1 40°C~160-170°C

Stage I 压力 Pressure p1 10~20kgf/cm²

时间 Time t1 30~50min

第二段： 温度 Temp T2 160~170°C

Stage II 压力 Pressure p2 25~40kgf/cm²

时间 Time t1~t2 40~80 min

第三段： 温度 Temp T2~T1

Stage III 压力 Pressure p1 10~20kgf/cm²

时间 Time t2~t3 30~60 min

快压工艺 The quick pressing:

第一段： 温度 Temp: 180±5°C

Stage I 压力 Pressure: 0Kgf/cm²

时间 Time: 5~20 Sec

第二段： 温度 Temp: 180±5°C

Stage II 压力 Pressure: 100~120Kgf/cm²

时间 Time: 120~200Sec

固化 Curing Process:

温度 Temp: 160~170°C;

时间 Time: 60~120min.

注 Note: 以上建议压合参数，鉴于各厂家机台及生产工艺差异，故仅供参考。Customers can according to their own technology, equipment conditions and performance requirements, through the test to determine the appropriate operating conditions.

● 使用注意事项 Matters needing attention

1. 如产品被放置在低于 10 度以下储存环境，建议客户在使用前将产品静置 4 小时以上回暖直至产品温度回升至室温温度（20--30℃）后方才使用、以确保最佳产品使用特性，同时也应避免放置在阳光直接照射及高温环境下。if product was placed in under Temperature 10℃ for storage, the product should be placed in the room temperature 20~30℃ more than 4 hours before using, in order to make the product temperature up to 20~30℃, to ensure the best product features. At the same time should also avoid placing it in direct sunlight and high temperature environment.
2. 在有胶补强板贴合前，如接触界面做表面清洁，亦须保证接触界面干燥及不残留溶剂（如酸碱、油污等）。With adhesive stiffener before laminating, such as the contact interface to do surface cleaning, also need to ensure that the contact interface is dry and not residual solvents (such as acid and alkali, oil, etc.).
3. 压合后的产品建议使用千层架烘烤，如无千层架建议叠层张数不超过 20PNL，以避免叠层太多而影响产品固化效果。Pressing products recommend the use of multi-layer frame, such as no proposal for multi-layer frame lamination number no more than 20 PNL, to avoid the laminated too much and influence product curing effect.
4. 此规格书中表述的所有测试数据以及建议之工艺条件和参数仅供参考，产品使用方需要按照自身实际生产设备及产品要求等因素自行确认最优生产工艺及作业参数。特此声明！

Hereby declared that all test data and recommended process conditions and operating parameters presented in this technical datasheet are for informational purposes only. Product users need to confirm the optimal production process and operating parameters according to their actual production equipment and product requirements.

● 常规物性测试方法 Properties Test Method

剥离强度检验方法 Peel Test Method

1、范围 The range:

本检验方法适用东溢公司有胶补强产品剥离强度之量测。The test method for stiffener measurement of peel strength.

2、检测仪器 Testing instruments:

剥离强度测试仪。Peel strength testing instruments.

3、样品制作 The sample:

- a) 将补强板裁切成10cm长, 0.3-0.5cm宽试片, 有胶一面与DSIF1201单面基材(ED铜)铜箔基板的PI面贴合。The stiffener is cut into 10cm long and 0.3-0.5cm wide, and the adhesive side is bonded to the PI surface of the DSIF1201 (ED copper).
- b) 快压: 温度180℃、压力120kgf/cm²、预热时间10sec、压着时间120sec。Quick pressure: temperature 180℃, pressure 120 kgf/cm², Time10 s, 120 s;
- c) 熟化: 160℃×60min。Cure: 160 °C x 60 min.

4、样品测试 The sample test:

a) 取熟化过后之样片, 烧开使得补强板与铜箔的PI面分开然后用手撕开约3cm。Take samples after curing, cutting 1 cm width to boil make PI is separated from copper foil.

b) 把覆铜面用双面胶固定在测试仪的滚轮上, 用夹具夹住补强板的一端, 与滚轮垂直, 然后匀速上升, 每隔1秒, 按打印机一次, 共打印出15~30个数据即可, 取打印数据的平均值作为此条样品的剥离强度值。The samples FCCL surface with double-sided adhesive fixed on the roller tester, fixture for clipping the copper foil at one end, and vertical roller, and then rising at a constant speed, every 1 second, print 1 data, print out together 15 ~ 30 data, take the print data as the average of the peel strength value of this sample.

c) 注意事项: 剥离机上升速度: 50mm/min, 剥离距离: 10~20mm; 样品与滚轮垂直。Note: machine rise: 50 mm/min, stripping distance: 10 ~ 20 mm; Pull copper foil, samples and vertical roller.

5、公式计算 Formula to calculate:

$$\text{剥离强度 Peel strength} = \frac{\text{拉力 Tensile force (kgf)}}{\text{宽度 The width (cm)}}$$

注: 以上测试方法参考 IPC-TM-650, Method 2.4.9; Note: The above specification reference IPC - TM - 650, Method 2.4.9.

焊锡耐热性检验方法 Solder Resistance Test Method

1. 范围 The range:

本检验方法适用于东溢公司补强板产品焊锡耐热性之量测。The test

method for stiffener measurement of solder resistance.

2. 检测设备 Testing instruments:

锡炉。Wave solder

3. 样品制作 The sample:

a) 将样片切成 10cm×10cm 大小，与大小一致的 DSIF1201 单面基材（ED 铜）PI 面贴合。The stiffener is cut into 10cm×10cm, and the adhesive side is bonded to the PI surface of the DSIF1201 (ED copper).

b) 将样品平放在铜箔PI面上放入100℃过塑机过一遍。The sample placed into 100 °C in PI surface of copper foil presses over.

c) 快压：温度 180±5℃、压力 120kgf/cm²(表压)、预热 10s、成型 120s；
熟化：160 °C × 60min；Quick pressure: temperature 180°C, pressure 120 kgf/cm², Time 10 s, 120 s; Cure: 160 °C x 60 min.

d) 将熟化完成的样品裁剪成剪取 5±1cm × 5±1cm 立即进行浸锡测试；如无法立刻测试的，先将样品密封放置于干燥器中，在进行焊锡耐热性测试前，先将试样放入空气循环烘箱，用 135±10℃ 温度烘 1 小时，样品取出后立即进行测试以免因受潮影响测试误判。Will complete the samples of the slaking tailoring shearing 5±1 cm x 5 ±1 cm immersion tin test immediately; As can't test at once, the first sample of the seal is placed in the dryer, before solder heat resistance test, the sample into the first air circulation drying oven, with 135 plus or minus 10 °C temperature bake for 1 hour, to take out the sample immediately after testing in order to avoid because of be affected with damp be affected with damp impact test miscalculation.

4. 样品测试 The sample test:

用镊子夹住样品浸入恒温焊锡液中，焊锡液温度 288±5℃，每个样品浸锡 10S，然后拿出观察其表面是否有分层或起泡。Using tweezers samples immersed in a constant temperature liquid solder, solder liquid temperature 288±5℃, each sample dipping 10S, then take out to observe the surface whether delamination or blistering.

注：以上参考 IPC-TM-650, Method 2.4.13。 Note: The above specification reference IPC - TM - 650, Method 2.4.13.