深圳东裕光大电子有限公司
广州市东裕光电科技有限公司

产品规格书
SPECIFICATION

客户名称 CUSTOMER	
产品名称 PRODUCTION	0402贴片蓝灯
产品型号 MODEL	DYWH-S110504-UBC-T5-3T
版本号 VERSION NO	A1.0

地址(Add)：深圳市光明区凤凰街道东坑社区光明大道481号乐府广场1B1609

厂址(Add)：广东省广州市番禺区石基镇海涌路 3 号 10 号厂房 2 楼

电话(Tel)：18038161512

传真(Fax)：020-39966833

网址(Net)：www.tonyuled.cn　　www.tonyuled.com

客户确认 CUSTOMER CONFIRMATION	审　核 CHECKED BY	编　制 PREPARED BY
	周毅兴	陈少龙

Copyright © 2024, TONYU All Rights Reserved.

产品描述 Descriptions

- 外观尺寸(L/W/H) ： 1.1*0.5*0.4mm
- 发光颜色(Emission color)：蓝光 / Blue light
- 胶体/ Lens: 透明平面胶体/ Transparent planar colloid

产品特性 Features

- 发光强度高，功耗低 (High Luminous Intensity ,Low Power Dissipation,)
- 可靠性好，使用寿命长 (Good Reliability and Long Life)
- 封装材料：硅胶 (Encapsulation：Silicone)
- 无铅 (Pb free)
- 符合 RoHS 要求 (This product itself will remain within RoHS compliant version)

产品应用 Applications

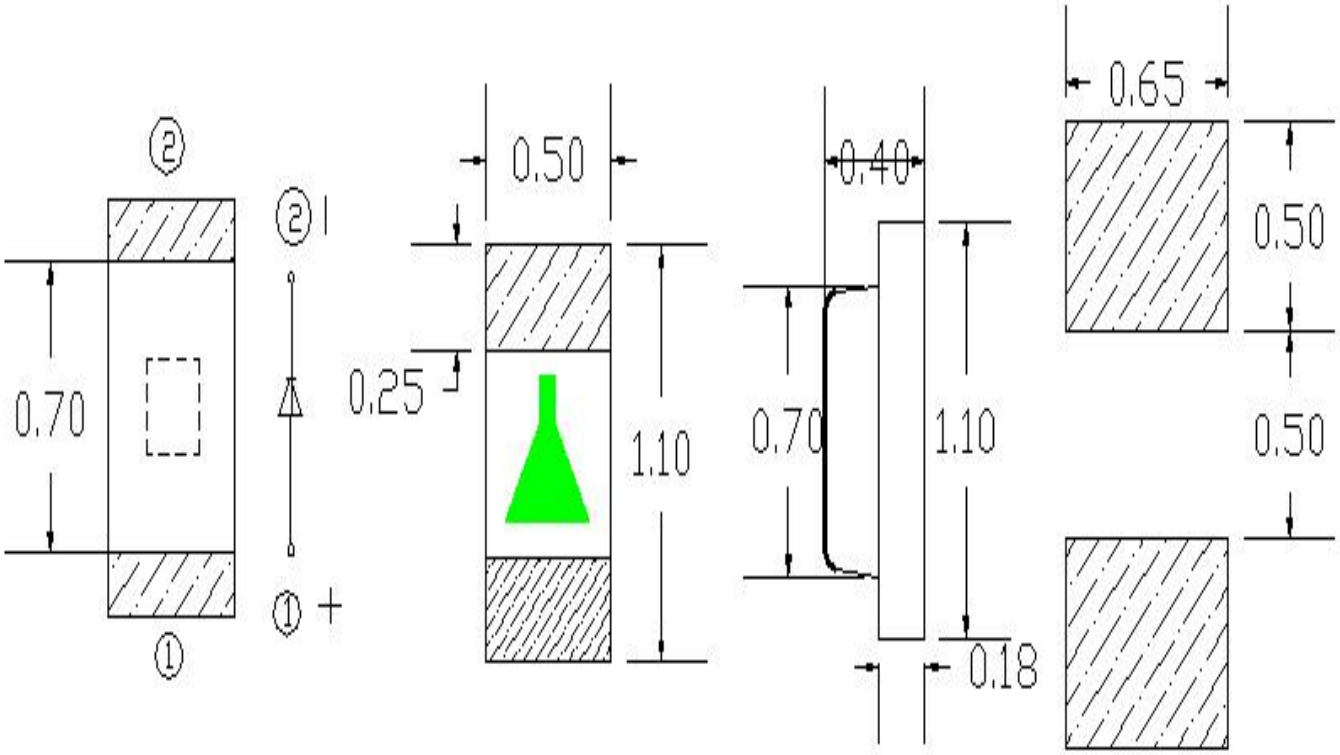
- 办公室和家庭设备的指示灯 (Indicatorand back light in office and family equipment.)
- LCD 背光源 (LCD Back Light)
- 光管应用 (Light pipe application）
- 一般应用 (General use)

包装方式 Packing Quantity Specification

- 编带 3 000 个/卷 (3000PCS/rolls)

Copyright © 2024, TONYU All Rights Reserved.

一、外形尺寸及建议焊盘尺寸 Package Profile & Soldering PAD Suggested



注：所有尺寸均为毫米，除非另有说明，公差为±0.1。
Notes: All dimensions are in mm, tolerance is ±0.1 unless otherwise noted.

单位 Unit	公差 Tolerance	芯片材料 Die material	发光颜色 Emission color	胶体颜色 Lens color
mm	±0.25mm	InGaN	Blue	Water planar colloid

※备注：承认书之编号和型号可用于查询，客户如有需要，请提供相应的编号和型号。
Remark：P/N & Model in samples approval sheet can be used to inquire，please provide corresponding P/N & model if customer need.

Copyright © 2024, TONYU All Rights Reserved.

二、光电参数 Electro-Optical Characteristics：

（环境温度 Ambient temperature：25℃，环境湿度 Humidity：RH60%）

项目 Item	符号 Symbol	测试条件 Test condition	最小值 Min.	典型值 Type	最大值 Max..	单位 Unit.
正向电压 Forward voltage	VF	IF=5mA	2.6	–	3.1	V
反向电压 Backward Voltage	IR	VR=5V	–	–	5	μA
发光强度 Luminous intensity	IV	IF=5mA	34	–	100	Mcd
主波长 Dominant wavelength	λd	IF=5mA	460	–	475	nm
峰值波长 Peak wavelength	λp	IF=5mA	456	–	469	nm
视 角 Viewing Angle	2 θ 1/2	IF=5mA	–	120	–	deg
光谱半波宽 Spectrum Radiation Bandwidth	Δλ	IF=5mA	–	15	–	nm

注(Notes)：*光强度公差范围(Light intensity tolerance range)：±10%

*波段公差范围(wavelength tolerance)：±1nm

*正向电压公差范围(Forward voltage tolerance)：±0.1v

Copyright © 2024, TONYU All Rights Reserved.

三、产品等级 Product Binning

1.分光亮度 Luminous intensity (IF =5mA, tolerance is ±10 %)

BIN CODE	MIN（Mcd）	Max（Mcd）
P14	34	40
P15	40	58
P16	58	70
P17	70	85
P18	85	100

2.正向电压 Forward voltage (IF=5 mA, tolerance is ±0.1 V)

BIN CODE	MIN（V）	Max（V）
VM	2.6	2.7
VN	2.7	2.8
VO	2.8	2.9
VP	2.9	3.0
VQ	3.0	3.1

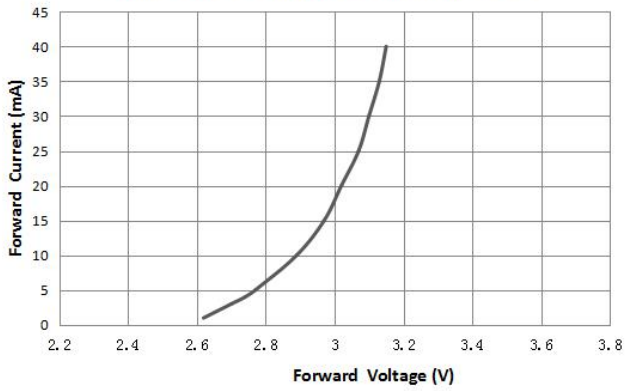
3.波长 Dominant Wavelength(tolerance is ±1nm@If=5 mA):

BIN CODE	MIN（nm）	Max（nm）
B4	460	463
B5	463	466
B6	466	469
B7	469	472
B8	472	475

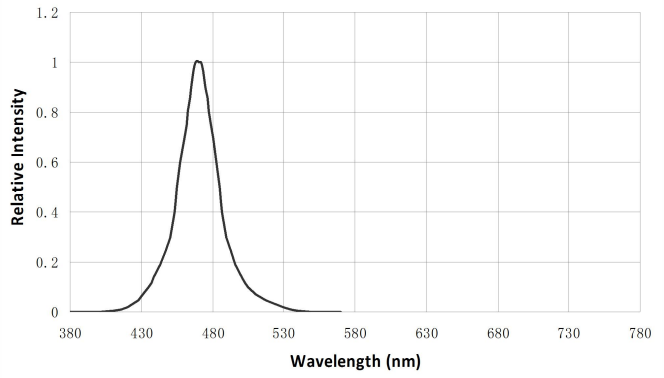
Copyright © 2024, TONYU All Rights Reserved.

四、典型光电特性曲线图 Typical photoelectricity characteristic curve chart：

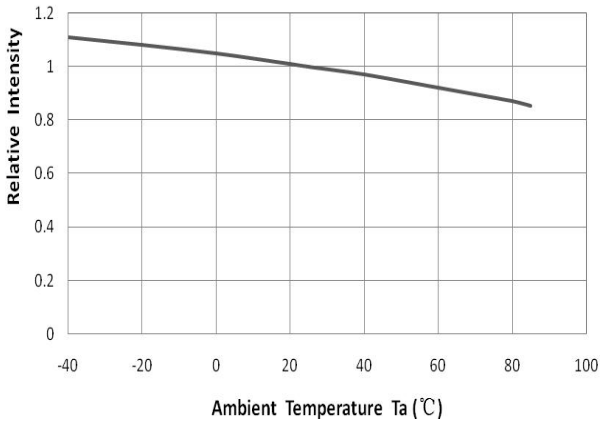
伏安特性曲线
Forward Current VS. Forward Voltag (Ta=25℃)



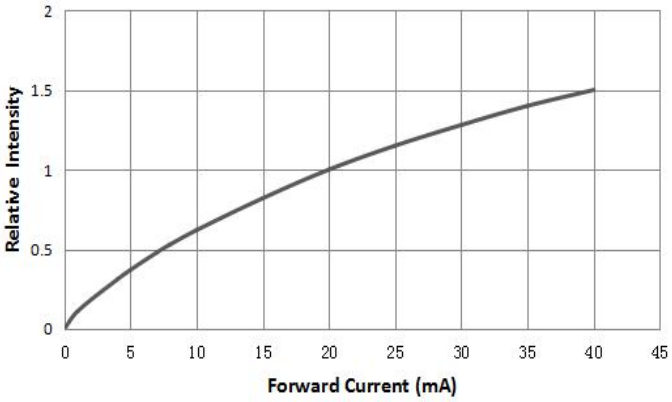
光谱分布特性曲线
Spectrum Distribution (Ta=25℃)



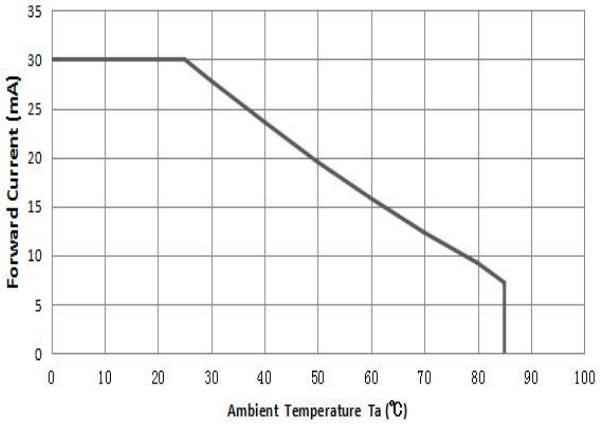
相对光强与环境温度特性曲线
Relative Intensity VS. Ambient Temperature (Ta=25℃)



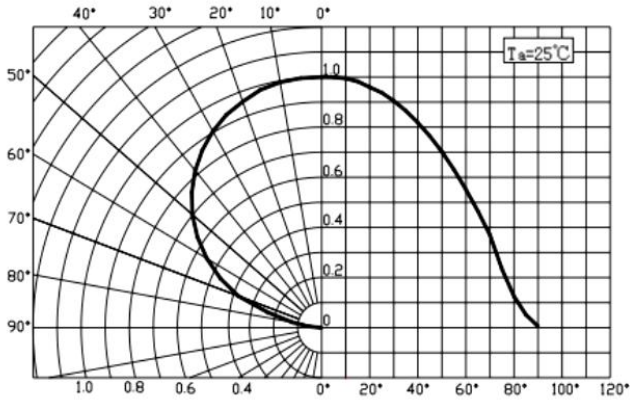
相对光强与电流特性曲线
Relative Intensity VS. Forward Current (Ta=25℃)



最大正向电流与环境温度特性曲线
Maximum Forward Current VS. Ambient temperature



辐射特性曲线
Diagram characteristics of radiation



Copyright © 2024, TONYU All Rights Reserved.

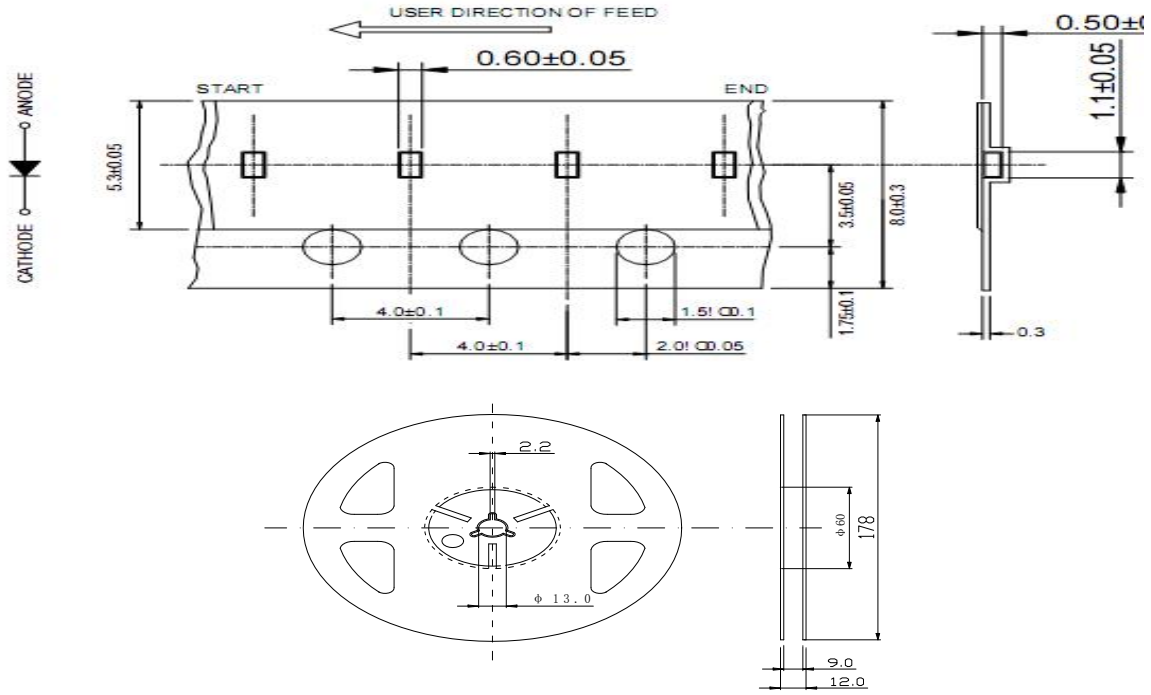
五、极限参数 Absolute Maximum Rating：

（环境温度 Ambient temperature：25℃，环境湿度 Humidity：RH60%）

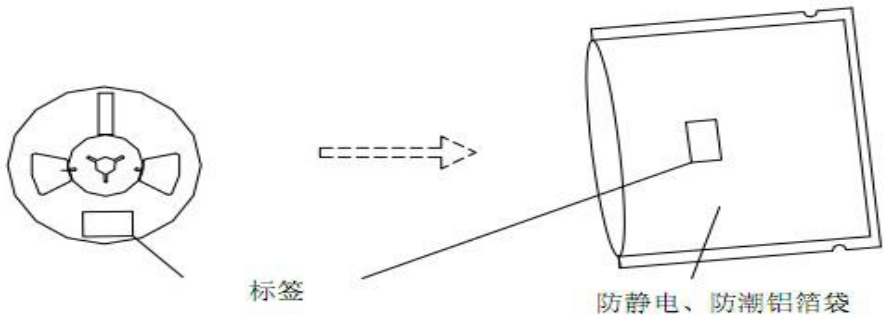
项目 Item	符号 Symbol	数值 Value	单位 Unit	备注 Remark
正向电流 Forward Current	IF	30	mA	---
正向峰值电流 Peck forward current	IFp	60	mA	F=1KHZ,占空比(duty cycle)1/10
反向耐压 Reverse Voltage	VR	5	V	---
耗散功率 Power Dissipation	Pd	100	mW	---
工作环境温度 Operation temperature	Tamb	-40 至+85	℃	---
贮藏温度 Storage temperature	Tstg	-40 至+85	℃	---
热阻 (结到焊点) Thermal resistance	RthJ-S	30	℃/W	
结温 Junction Temperature	Tj	125	℃	
抗静电能力 Antistatic ability	ESD	>1000	V	
焊接温度 Soldering temperature	Tsol	300	℃	回流焊 Reflow soldering : 260°C ， 5s max.
Notes*1: IFP Conditions-Pulse Width≤100μs and Duty≤1%				

Copyright © 2024, TONYU All Rights Reserved.

六、包装载带与圆盘尺寸 Package carrier and disk dimensions



标签及标识/ Label Explanation：



注：所有尺寸均为毫米，除非另有说明，公差为±0.1。

Notes: All dimensions are in mm, tolerance is ±0.1 unless otherwise noted.

Copyright © 2024, TONYU All Rights Reserved.

七、可靠性实验项目 Reliability Test Project

描述 Description	项目 Item	测试标准 Test Criterion	测试条件 Test Condition	测试时间 Test Time	数量 Qty.	失效数量 Fail Qty.
寿命测试 Life Test	常温寿命测试 Life test (room temperature)	JIS7021:B4	Ta=25℃±5℃，IF=5mA	1000Hrs	22	0
环境测试 Ambience Test	高温存储 High temperature store	JIS7021:B10 MIL-STD-202:210A MIL-STD-750:2031	Ta=85℃±5℃	1000Hrs	22	0
	低温存储 Low temperature store	JIS7021:B12	Ta= -35℃±5℃	1000Hrs	22	0
	高温高湿测试 High temperature/ humidity test	JIS7021:B11 MIL-STD-202:103D	Ta=85℃±5℃ RH=85%	1000Hrs	22	0
	冷热冲击测试 Cold / Heat strike test	JIS7021:B4 MIL-STD-202:107D MIL-STD-750:1026	30min -10℃±5℃←→100℃±5℃ 5min 5min	50Cycles	22	0
	冷热循环测试 Cold and heat cycle test	JIS7021:A3 MIL-STD-202:107D MIL-STD-705:105E	5min 5min 5min -35℃～25℃～85℃～-35℃ 30min 5min 30min 5min	50Cycles	22	0

八、失效判定标准 Criteria For Judging Damage

Test Items 项目	Symbol 符号	Test Condition 测试条件	Judging For Damage 判定标准	
			Min. 最小	Max. 最大
Forward Voltage 正向电压	VF	IF=5mA	--	U.L*x1.1
Reverse Current 反向电流	IR	VR = 5V	--	U.L*x2.0
Luminous Intensity 光强	Mcd	IF=5mA	L.L*x0.7	--

U.L: Upper standard level 规格Max
L.L: Lower standard level 规格Min

Copyright © 2024, TONYU All Rights Reserved.

九、注意事项 Note

1、焊接 Welding

（1）SMD LED 灌封胶较软，外力易损坏发光面及塑料壳，焊接时要轻拿轻放。

SMD LED is soft and easy to damage the luminous surface and plastic shell by external force It should be handled lightly when welding.

（2）建议使用易洗型的助焊剂，依照回流曲线条件回流焊接，回流次数最多两次，确保 LED 发光面干净，异物会影响发光颜色。

It is recommended to use soldering flux with tin wash type, reflow soldering according to the condition of reflux curve, reflow twice at most, ensure the LED luminous surface is clean, foreign matter will affect the luminous color.

（3）烙铁（最高 30W）尖端温度不超过 300℃；焊接时间不超过 3 秒；焊接位置至少离胶体 3 毫米。

The tip temperature of soldering iron don't exceed 300℃; soldering time don't exceed 3s and soldering position must be 3mm out of led colloid.

（4）焊接过程中，严禁在高温情况下碰触胶体；焊接后禁止对胶体施加外力，禁止弯折 PCB，避免元件受到撞击。

During the soldering process, do not touch the lens at high temperature，After soldering, any mechanical force on the lens or any excessive vibration shall not be accepted to apply, also the circuit board shall not be bent as well.

（5）请不要将不同 BIN 级的 LED 使用于同一个产品上，否则可能会导致产品的严重色差。

Please do not use different BIN LED on the same product, otherwise it may cause serious color difference.

2、防静电措施 ESD countermeasure

静电及高压会对 LED 造成损坏，特别是芯片材质为 InGaN 的产品对静电防护要求更加严格，要求在使用和检验产品时戴防静电手腕带或防静电手套，焊接工具及设备外壳需可靠接地，焊接条件遵循此份规格书中的条件。

Static electricity and high volt can damage LED，The production whose Die material is InGaN must strictly required to prevent ESD，Must put on static glove and static fillet，Soldering tool and the cover of device must connect the ground，soldering condition follows the related stating of production specification manual.

3、过电流保护 Protecting countermeasure when over current

为避免由于电压的变化引起大电流冲击而造成产品损坏，需要加入保护电阻。

Need add the protecting resistor in circuit in order to avoid damaging led due to big current and voltage fluctuation.

4、清洗 Cleaning

当用化学用品清洗胶体时必须特别小心，因为有些化学品对胶体表面有损伤并引起褪色如三氯乙烯、丙酮等。可用乙醇擦拭、浸渍，时间在常温下不超过 3 分钟。

Be careful of some chemical results in the LED colloid fades and damage when using chemical clean the LED，such as chloroethylene, acetone etc。 Can use ethanol to wash or soak LED but the time don't exceed 3 minutes.

Copyright © 2024, TONYU All Rights Reserved.

5、灌封 Enbedment

（1）挥发性物质会渗透到 LED 内部，在通电产生光子及热的条件下，会导致 LED 变色，进而造成严重光衰，严禁使用任何对 LED 器件的性能或者可靠性有害的物质或材料，针对特定的用途和使用环境，建议对所有的物质和材料进行相容性的测试。在贴装 LED 时候，不要使用能产生有机挥发性气体的粘结剂。

Volatile substances to leach into the LED inside, photons in electricity and heat conditions, will lead to the LED color, thus causing serious droop, it is forbidden to use any of the LED device performance or reliability of harmful substances or materials, for a specific purpose and use of the environment, advice on all the material and the material compatibility test.When attaching LED, do not use adhesive that can produce volatile organic gas.

（2）使用正常灌封胶时, 建议先以少量试验，常温点亮 168 小时，确定没有问题再作业。

It is recommended to light up for 168 hours at room temperature for a small amount of test before using normal filling and sealing glue.

6、存储时间 Storage time

（1）在温度 5℃～35℃，湿度 RH60%条件下，产品可保存一年。超过保存期的产品需重新检测后方能使用。

LED can be stored for a year under the condition: the temperature of 5℃～35℃ and humidity of RH60%，These production must be re-inspected and tested before use if their storage time exceed a year.

（2）如果打开的产品在 5℃～35℃，RH60%的空气条件下放置超过一周，则需要将产品在 65℃±5℃的环境中放置 24 小时以上，并尽量在十五天内使用。

If LED is exposed in air for a week under the condition: the temperature of 5℃～35℃，humidity of RH60%，must place the LED in the ambience of 65℃±5℃ for 24 hours and use it in 15 days for best.

7、其他 Others

（1）依规格要求，本公司保留调整产品材料组合的权利。

TONYU reserves the rights on the adjustment of product material mix for the specification.

（2）如果超出规格书以外而进行使用时，出任何问题我们都将不承担责任 。

We will not be responsible for any problem if it is used beyond the specification.

（3）在使用产品之前，应与我们交流，了解更详细的规格要求。

Before using the product, you should communicate with us for more detailed specifications.

Copyright © 2024, TONYU All Rights Reserved.