

承認書

SPECIFICATION FOR APPROVAL

● 客戶名称	
● Customer	
● 客戶品號	
● Customer Part No.	
● 产品品號	HC-S3227DARGBWS-F1
● Brightek Part No.	
● 产品規格描述	3227 雾状四脚 IC 款幻彩
● Specification	
● 製錶人	王清
● Prepared By	
● 審 核	李东平
● Checkedy	
● 客 戶 回 簽	
● Customer	
● 送样日期:	
● Deliver date:	

說明：一、謹致執事者：茲提供敝公司產品之有關詳細規格及圖面資料，敬請給予辦理測試認定手續。同時敬請 送返一份附有貴公司簽認之測試認定後之樣品認定書。

We are sending you our specification and drawings for your approval. Please return to us one copy "For Approval" with your approved signatures.

二、客戶意見欄 Customer' S Proposal

☐ Approve 承認 (請於認可欄中簽名)

☐ Disagree 不同意

Reason 原因:

光宇集团 中高端光电元件定制企业，20 多年封装经验，品质稳定，值得信赖，体现光的价值。

光宇集团国际（香港）有限公司

GTU Group International (HK) Co., Limited

广东光宇半导体科技有限公司

工厂地址：东莞市寮步镇松湖智谷 A2 栋 3 楼

东莞市弘呈光电有限公司

DongGuan Hong cheng Optoelectronics Co., Ltd.

工厂地址：广东省东莞市樟木头镇莞樟路樟木头段 15 号 15 栋 2108 号

ADD: Room 2108, No. 1 building, Wanhui Garden, East Guanzhang Road, Zhangmutou, Dongguan, Guangdong, China

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业务联系人：李顺阳 13925714318 (微信同号) 销售总监 企业邮箱: sales@led-hc.com



ISO 14001
环境管理
体系认证



ISO 9001
环境管理
体系认证



版本/版次	修改日期	修改内容

Features

3.2mm × 2.7mm SMT LED, 1.0mm thickness

Low power consumption

Wide view angle

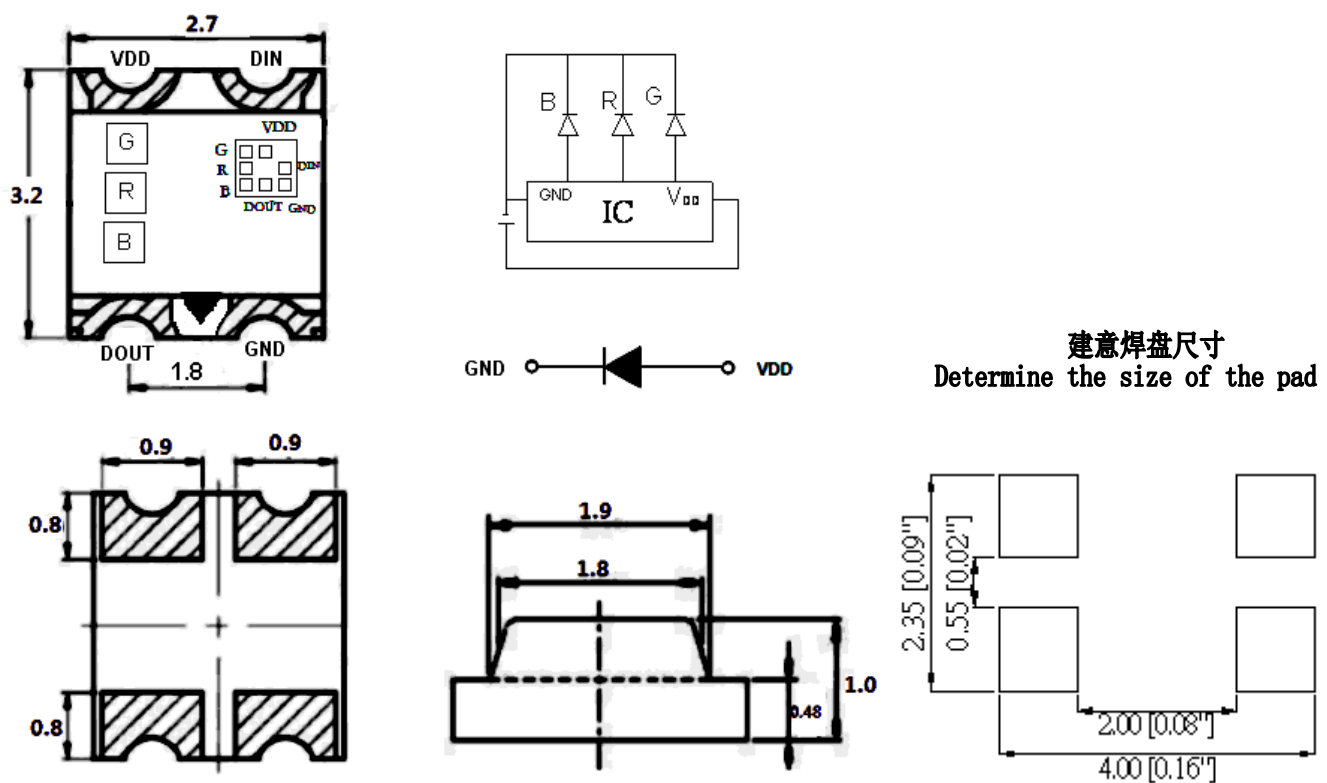
RoHS Compliant

Applications

Ideal for back light and indicator

Various colors and lens types available

Package outlines



Part No.	Emitted color	Dice	Lens color
HC-S3227DARGBWS-F1	Red	AlGaInP	White Diffused
	Green	InGaN/GaN	
	Blue	InGaN/GaN	

Notes:

1. All dimensions are in millimeters (inches);
2. Tolerances are $\pm 0.1\text{mm}$ (0.004inch) unless otherwise noted.

Absolute maximum ratings (TA=25℃)

参数	符号	最大额定值			单位
		R	G	B	
功耗	P _d	62	76	76	Mw
最大脉冲电流	I _{FP}	70	70	70	mA
正向直流工作电流	I _F	25			mA
反向电压	V _R	5			V
工作环境温度	T _{opr}	-40℃~85℃			
储存环境温度	T _{stg}	-40℃~85℃			
焊接温度	T _{sol}	回流焊: 260℃×8s 手动焊接: 300℃×3s			

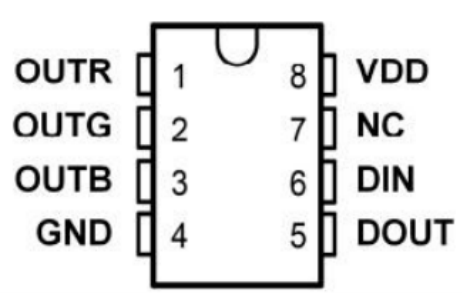
备注: I_{FP} 条件: 脉宽 ≤1ms , 周期 ≤1/10

Electro-optical characteristics (TA=25℃)

参数	符号/颜色		Min	Typ.	Max	单位	条件
光强	I _v	Red	50	100	--	mcd	IF=12MA
		Green	200	400	--		
		Blue	50	100	--		
正向电压	V _{DD}	Red	1.8	--	2.3	V	
		Green	2.8	--	3.2		
		Blue	2.8	--	3.2		
主波长	λ _d	Red	620	--	635	nm	
		Green	515	--	530		
		Blue	460	--	475		
发光角度	2θ _{1/2}	/	--	120	--	deg	

IC相关技术参数

1.PAD定义说明:

编号	名称	功能说明	示意图
1	GND	接地端口	
2	DOUT	级联信号输出端口	
3	OUTR	恒流驱动端口	
4	OUTG	恒流驱动端口	
5	OUTB	恒流驱动端口	
6	VDD	电源端口	
7	DIN	信号输入端口	

电气参数

极限参数（若无特别说明， $T_a = 25^{\circ}\text{C}$ ）

符号	参数	范围	单位
VDD	芯片工作电压	-0.4~+5.4	V
V_i	逻辑输入电压	-0.4~VDD+0.4	V
B_{VOUT}	OUT R/G/B 端口耐压	16	V
T_j	工作结温	-40~+150	$^{\circ}\text{C}$
T_{STG}	储存温度	-55~+150	$^{\circ}\text{C}$
V_{ESD}	HBM ESD	> 2	KV

通讯方式:

芯片设计为单线归零码通讯方式。芯片上电复位以后，接收 DIN 的数据，足 24 bit 后，DOUT 端口开始转发数据，输出到下一个芯片。在转发之前 DOUT=0 电位。芯片 OUTR、OUTG、OUTB 三个端口可输出相应 24 bit 数据的不同占空比的信号。如果 DIN 端输入信号为 RESET 信号，芯片将接收到的数据送显示，芯片将在该信号结束后重新接收新的数据，在接收完开始的 24bit 数据后，通过 DOUT 口转发数据，芯片在没有接收到 RESET 码前，OUTR、OUTG、OUTB 管脚原输出亮度保持不变，当接收到不小于 $80\mu\text{s}$ 低电平 RESET 码后，芯片将刚才接收到的 24 bit 亮度数据输出到 OUTR、OUTG、OUTB 引脚上。

本芯片采用自动整形转发技术，因此级联个数不受信号传送的限制，但受刷屏速度影响。

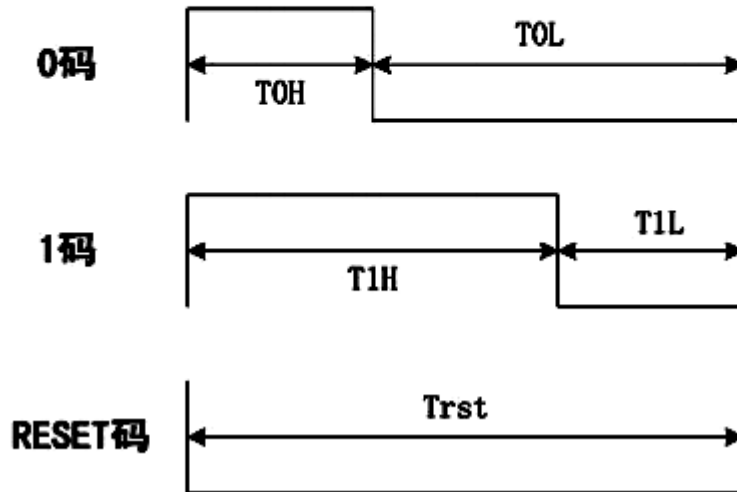
如设计一个 512 级联，它的刷屏时间为 $512 \times 0.4 \times 2 = 0.4096\text{ms}$ 不会有任何闪烁的现象。

编码如下:

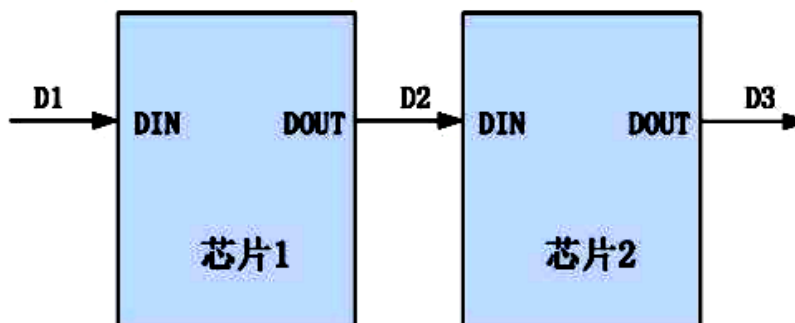
T0H: 300ns T0L: 600ns

T1H: 600ns T1L: 300ns (容错 20%)

Trst > 80us



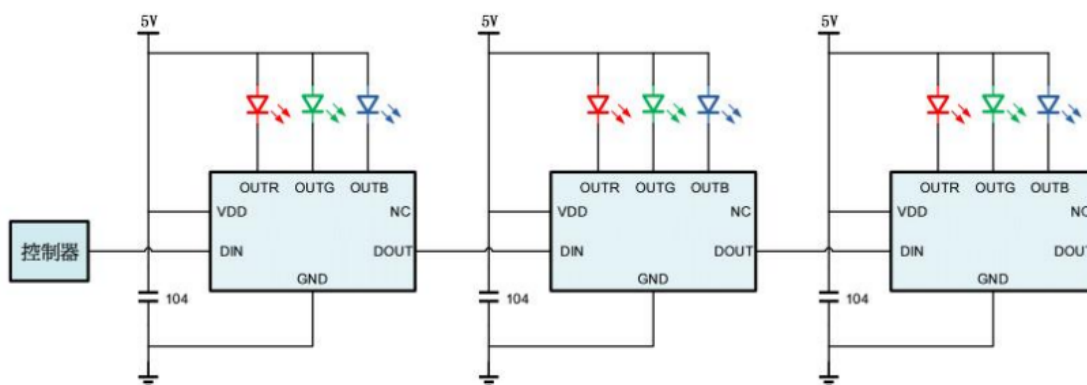
级连方法:



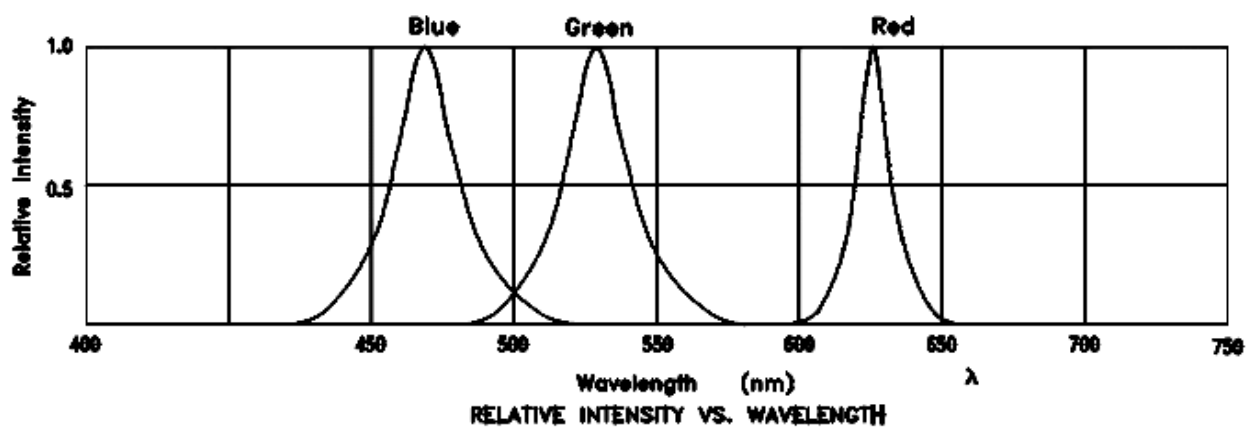
单芯片 24BIT 数据发送顺序: 高位先发, 即 R7 先发送

R7	R6	R5	R4	R3	R2	R1	R0	G7	G6	G5	G4	G3	G2	G1	G0	B7	B6	B5	B4	B3	B2	B1	B0
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应用电路:



Optical characteristic curves



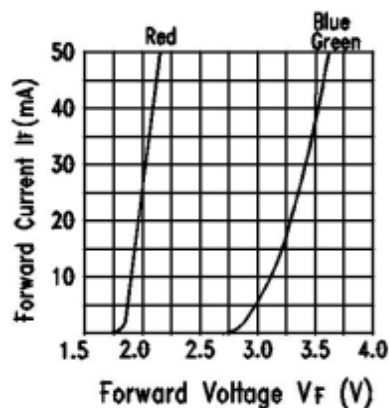


Fig.2 Forward Current vs. Forward Voltage

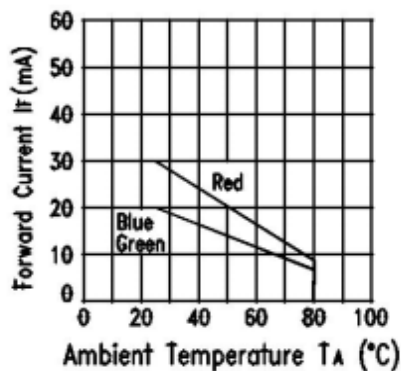


Fig.3 Forward Current Derating Curve

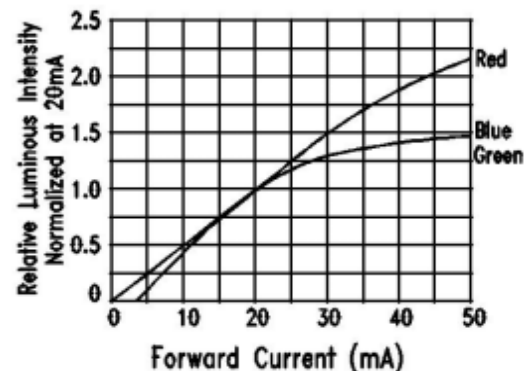


Fig.4 Relative Luminous Intensity vs. Forward Current

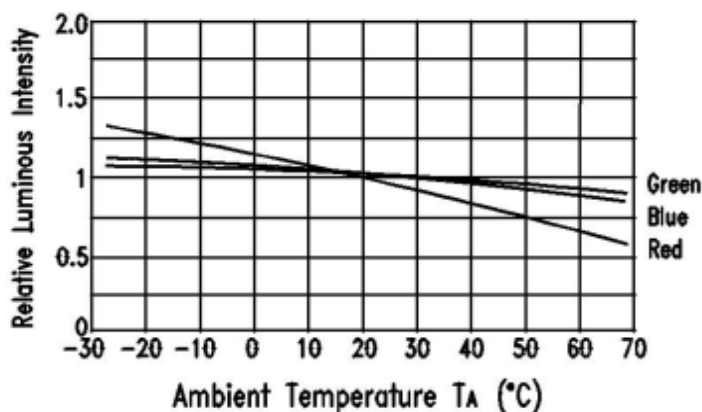


Fig.5 Luminous Intensity vs. Ambient Temperature

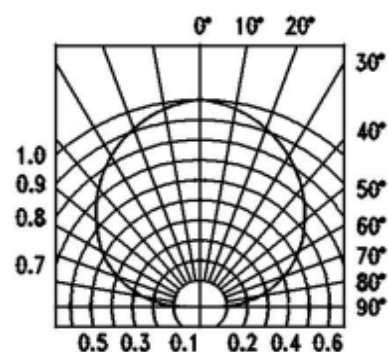


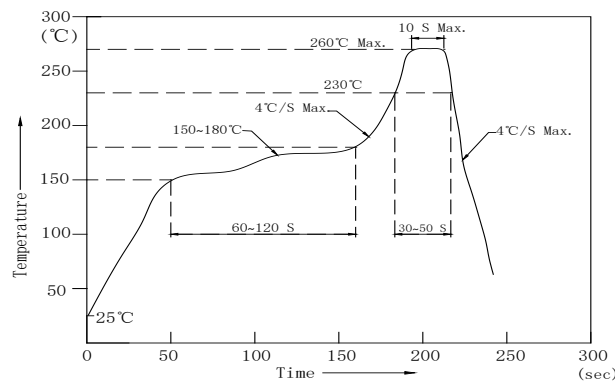
Fig.6 Spatial Distribution

Test items and results of reliability

Type	Test Item	Test Conditions	Note	Number of Damaged
Environmental Sequence	Temperature Cycle	-20℃ 30min ↑ ↓ 80℃ 30min	100 cycle	0/22
	Thermal Shock	-20℃ 15min ↑ ↓ 80℃ 15min	100 cycle	0/22
	High Humidity Heat Cycle	30℃ ⇄ 65℃ 90%RH 24hrs/1cycle	10 cycle	0/22
	High Temperature Storage	Ta=80℃	1000 hrs	0/22
	Humidity Heat Storage	Ta=60℃ RH=90%	1000 hrs	0/22
	Low Temperature Storage	Ta=-30℃	1000 hrs	0/22
Operation Sequence	Life Test	Ta=25℃ IF=20mA	1000 hrs	0/22
	High Humidity Heat Life Test	60℃ RH=90% IF=10mA	500 hrs	0/22
	Low Temperature Life Test	Ta=-20℃ IF=20mA	1000 hrs	0/22

Reflow Profile

■ Reflow Temp/Time



Notes:

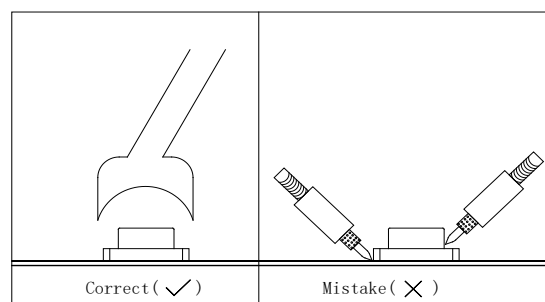
- 1.We recommend the reflow temperature 245°C(±5°C).the maximum soldering temperature should be limited to 260°C.
- 2.Don't cause stress to the epoxy resin while it is exposed to high temperature.
- 3.Number of reflow process shall be 1 times or less.

■Soldering iron

Basic spec is $\leq 5\text{sec}$ when 320°C(±20°C). If temperature is higher, time should be shorter(+10°C → -1sec).Power dissipation of iron should be smaller than 20W, and temperatures should be controllable .Surface temperature of the device should be under 350°C.

■Rework

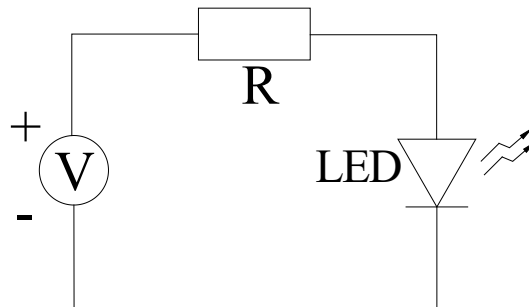
- 1.Customer must finish rework within 5 sec under 340°C.
- 2.The head of iron can not touch copper foil
- 3.Twin-head type is preferred.



- Avoid rubbing or scraping the resin by any object, during high temperature, for example reflow solder etc.

Test circuit and handling precautions

■ Test circuit



■ Handling precautions

1. Over-current-proof

Customer must apply resistors for protection; otherwise slight voltage shift will cause big current change (Burn out will happen).

2. Storage

2.1 It is recommended to store the products in the following conditions:

Humidity: 60% R.H. Max.

Temperature : 5°C~30°C (41°F~86°F)

2.2 Shelf life in sealed bag: 12 month at <5°C~30°C and <30% R.H. after

the package is Opened, the products should be used within a week or they should be keeping to stored at ≤ 20 R.H. with zip-lock sealed.

3. Baking

It is recommended to baking before soldering when the pack is unsealed after 72hrs. The Conditions are as followings:

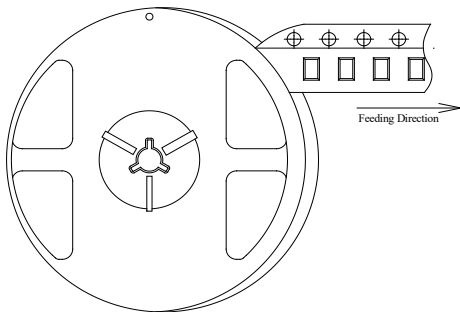
3.1 $60 \pm 3^\circ\text{C}$ x(12~24hrs) and <5%RH, taped reel type

3.2 $100 \pm 3^\circ\text{C}$ x(45min~1hr), bulk type

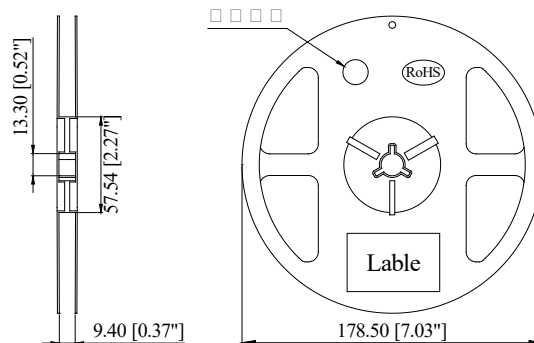
3.3 $130 \pm 3^\circ\text{C}$ x(15~30min), bulk type

3227 Series SMD Chip LED Lamps Packaging Specifications

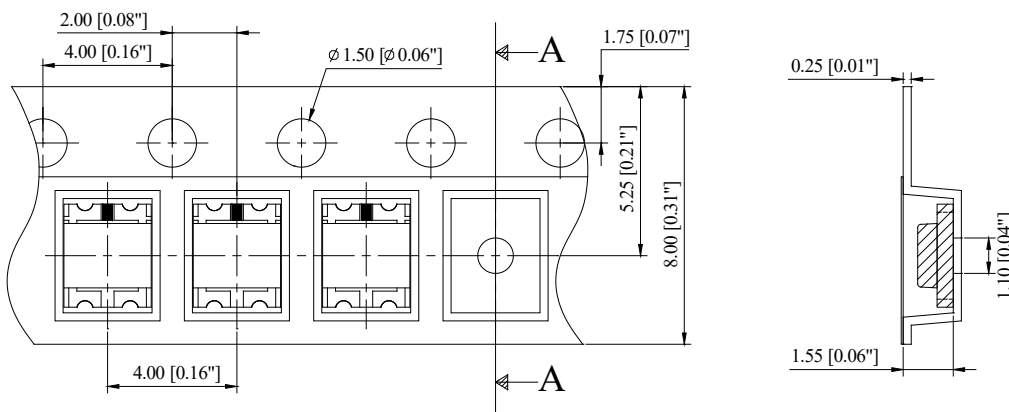
● Feeding Direction



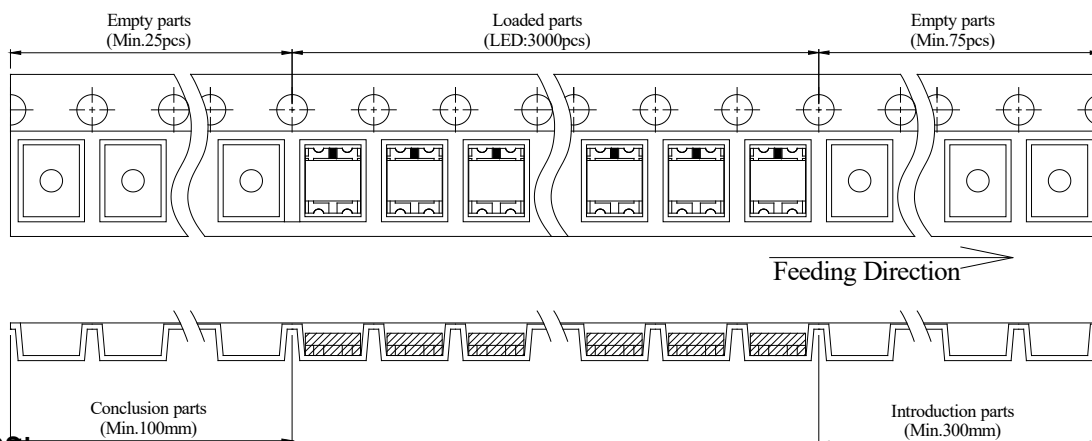
● Dimensions of Reel (Unit:



● Dimensions of Tape (Unit: mm)



● Arrangement of Tape

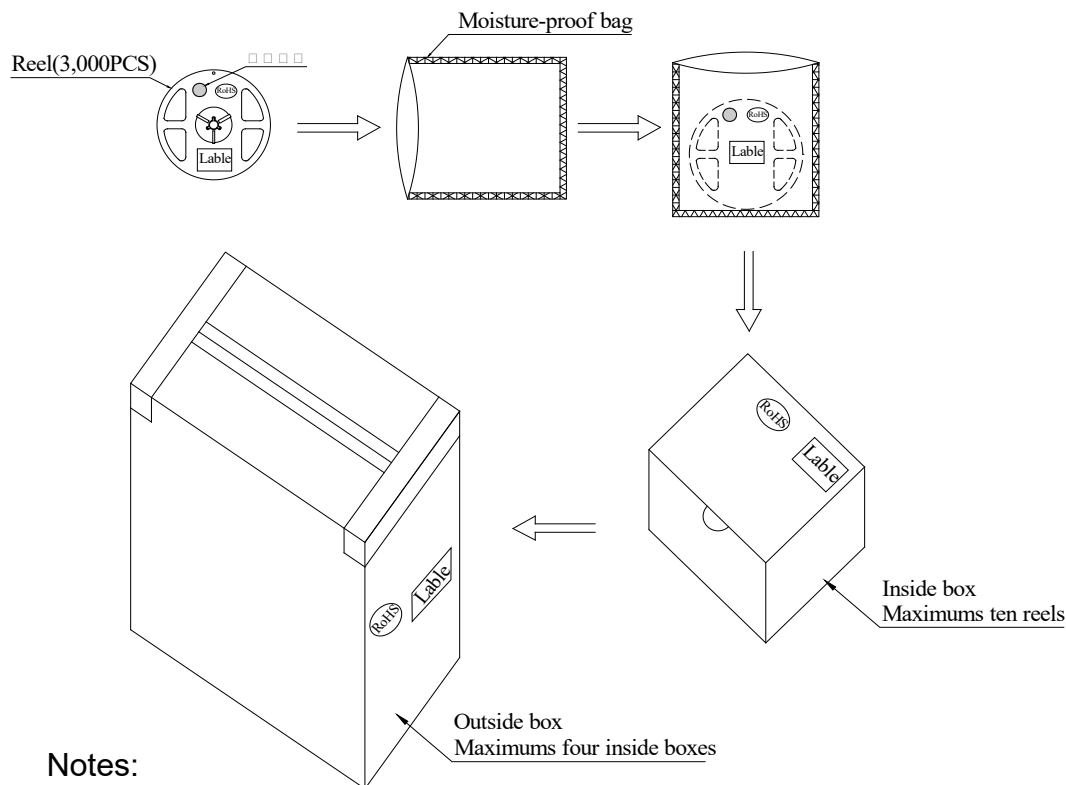


Notes:

1. Empty component pockets are sealed with top cover tape;
2. The maximum number of missing lamps is two;
3. The cathode is oriented towards the tape sprocket hole in accordance with ANSI/EIA RS-481 specifications.
4. 3,000 pcs/Reel.

3227 Series SMD Chip LED Lamps Packaging Specifications

● Packaging specifications



Reeled products (numbers of products are 3,000pcs) packed in a seal off moisture-proof bag along with a desiccant one by one, ten moisture-proof bag of maximums (total maximum number of products are 30,000pcs) packed in an inside box (about size: 240x 220x 120mm) and four inside boxes of maximums are put in the outside box (about size: 460mm x 246mm x 250mm) Together with buffer material, and it is packed. (Part No., Lot No., quantity should appear on the label on the moisture-proof bag, part No. and quantity should appear on the label on the cardboard box.) The number of the loading steps of outside box (cardboard box) has it to three steps.