EVERLIGHT

Top View LEDs

C3227TDWN3S1-GRBC0112-2T

Features

- P-LCC-4 package.
- Inner reflector and white package.
- Wide viewing angle 120º.
- White SMT package.
- Soldering methods: IR reflow soldering.
- Pb-free.
- The product itself will remain within RoHS compliant version.
- Compliance with EU REACH.
- Compliance Halogen Free .(Br<900ppm,CI<900ppm,Br+CI<1500ppm)

Description

The C3227 is a 3-channels LED driver with 8 bit PWM linear control. The C3227 uses a single communication wire to identify LED PWM signal and in total 24-bit RGB display. This is a very simple and cost effective for any LED model design.

Applications

- Amusement equipment
- Information boards
- Gaming machine

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Device Selection Guide

Type	Chip Materials	Emitted Color
R	AlGaInP	Brilliant Red
G	InGaN	Brilliant Green
B	InGaN	Brilliant Blue

Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol	Rating	Unit
Power supply voltage	VDD	6.0	V
Operating Temperature	T_{opr}	-25 ~ +60	℃
Storage Temperature	Tstg	-40 ~ +90	℃
ESD	ESD	2000	V
Soldering Temperature	T_{sol}	Reflow Soldering : 260 ℃ for 10 sec. Hand Soldering : 350 ℃ for 3 sec.	

Electro-Optical Characteristics (Ta=25℃)

Parameter	Symbol	Type	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	Iv	R	224	---	560	mcd	V_{DD}=5V
		G	710	---	1800		
		B	180	---	450		
Viewing Angle	$2\theta_{1/2}$		---	120	---	deg	
Dominant Wavelength	λd	R	617.5	---	629.5	nm	
		G	519.5	---	531.5		
		B	464.5	---	476.5		

Notes:
1. Tolerance of Luminous Intensity: ±11%
2. Tolerance of Dominant Wavelength: ±1nm

Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Output Current	IOL	---	12	---	mA	Per Chip
Supply Voltage	Vdd	4.5	5	5.5	V	---
Input leakage	I$_{leak}$	---	---	1	µA	DI=0
Input Voltage	V$_{IH}$	3	---	VDD	V	DIN, SET
	V$_{IL}$	---	---	1.0	V	DIN, SET
Dynamic Current Dissipation	IDD$_{dyn}$	---	1.0	--	mA	

Note: Please keep DI at low state while VDD=0V, otherwise, there will be leakage current from DI to VDD path in the chip, and there may happen incomplete power on reset issue while Power-on again.

Data transfer time

| T0H	0 code, high voltage time	0.30 µs	±80ns
T1H	1 code, high voltage time	0.90 µs	±80ns
T0L	0 code, low voltage time	0.90 µs	±80ns
T1L	1 code, low voltage time	0.30 µs	±80ns
RES	Low voltage time	Above 250µs	---

Timing Wave Form：
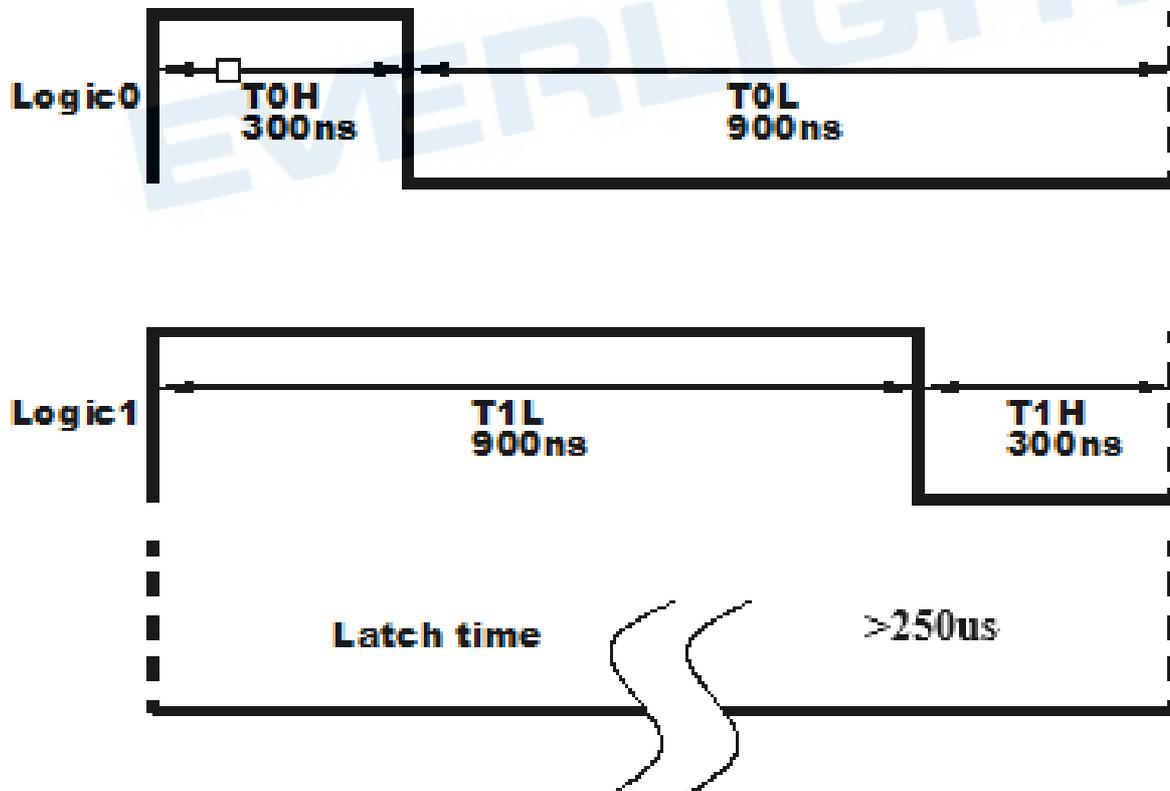
Data Communication：

Single Data in 24bit for RGB：

OUT G[7]	OUT G[6]	OUT G[5]	OUT G[4]	OUT G[3]	OUT G[2]	OUT G[1]	OUT G[0]

OUT R[7]	OUT R[6]	OUT R[5]	OUT R[4]	OUT R[3]	OUT R[2]	OUT R[1]	OUT R[0]

OUT B[7]	OUT B[6]	OUT B[5]	OUT B[4]	OUT B[3]	OUT B[2]	OUT B[1]	OUT B[0]

5V Application circuit：

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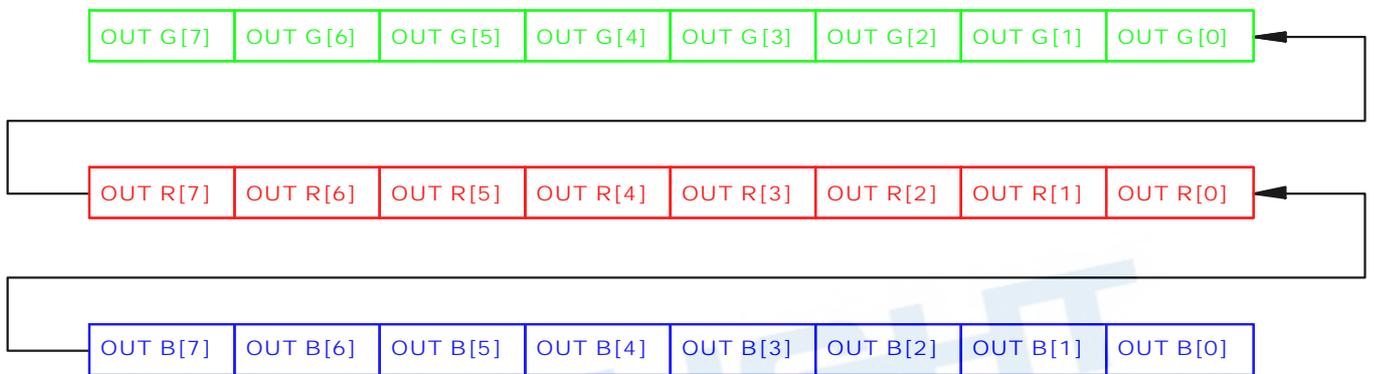
EVERLIGHT
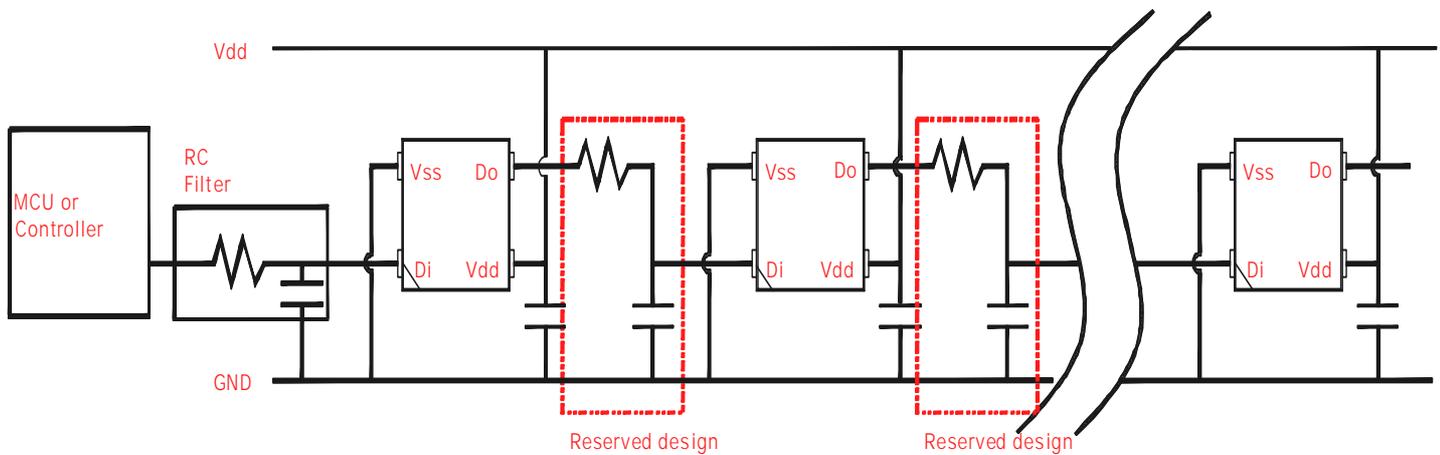
Typical Electro-Optical Characteristics Curves
Typical Curve of Spectral Distribution
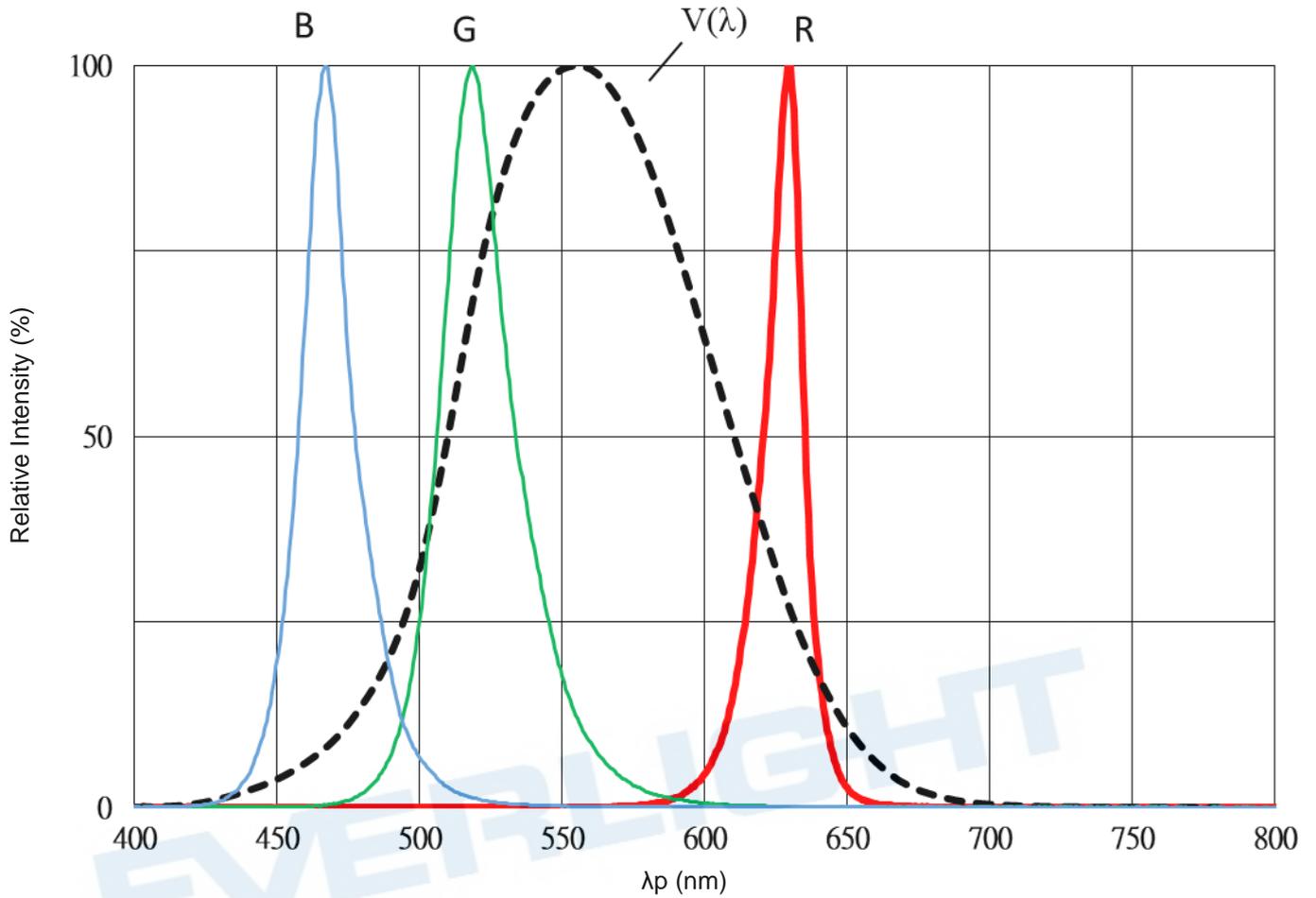
Note: V(λ)=Standard eye response curve;

Diagram Characteristics of Radiation

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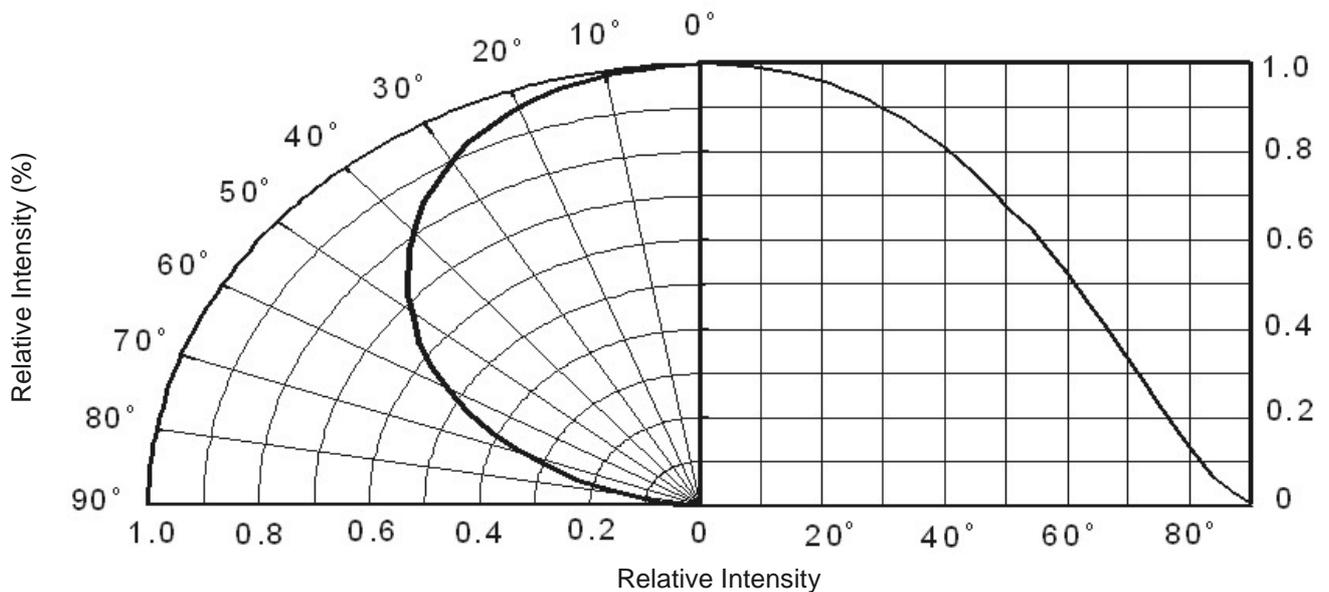
Package Dimension
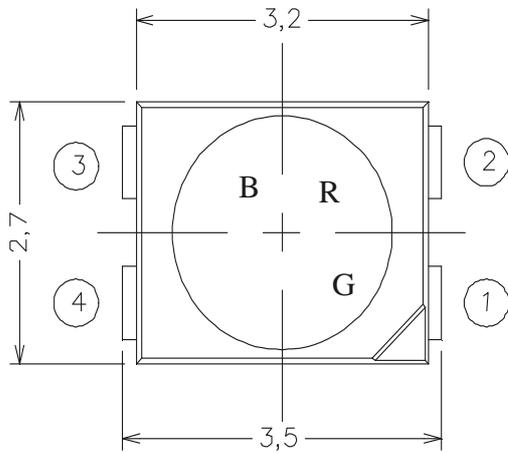
1. DI
2. VDD
3. DO
4. VSS
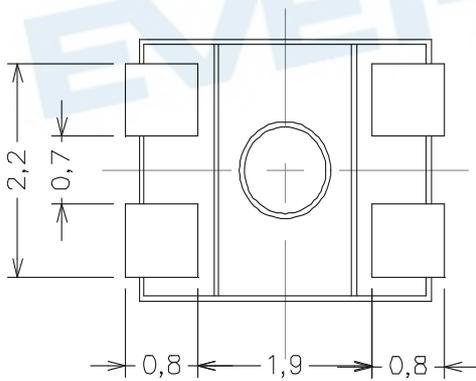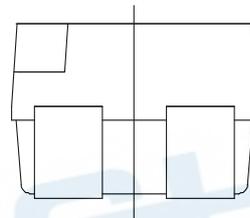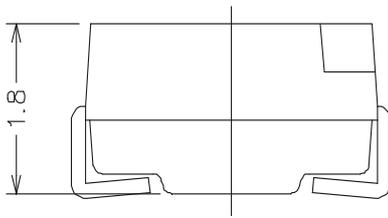
Bot. view
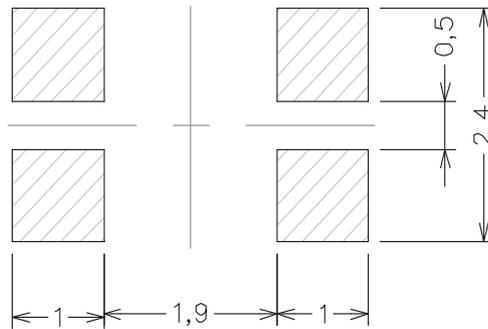
Soldering patterns

PIN Configuration

NO.	Symbol	Function description
1	DI	Control data signal input
2	VDD	Power supply control circuit
3	DO	Control data signal output
4	VSS	Ground

Note: Tolerances unless mentioned ±0.1mm. Unit = mm

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Moisture Resistant Packing Materials

・CPN: Customer's Product Number
・P/N: Product Number
・QTY: Packing Quantity
・CAT: Luminous Intensity Rank
・HUE: Dominant Wavelength Rank
・REF: Forward Voltage Rank
・LOT No: Lot Number

```
RoHS  Pb  EVERLIGHT          5
CPN: XXXXXXXXXXXXXXXXXXX
||||||||||||||||||||||||||
XXXXXXXXX-XXXXXXXXX-XXXXXXXXX-XXXXXXXXX-XXXXX
P/N: XXXXXXXXXX
||||||||||||||||||
XXXXXXXXX-XXXXXXXXX-XXXXXXXXX-XXXXXXXXX-XXXXX
LOT NO:Y150716XXX-XXXXXXXXX-XXXXXXXXX
||||||||||||||||||||
QTY:0123456789   HUE:XXXXXXXXX
|||||||||||||         ||||||||||||||
CAT:XXXXXXXXXX   REF:XXXXXXXXXX
||||||||||||||       ||||||||||||||
REFERENCE: BTPYYMMDDXXXXX
|||||||||||||||||
MSL-X          MADE IN XXXXXX
```

Reel Dimensions
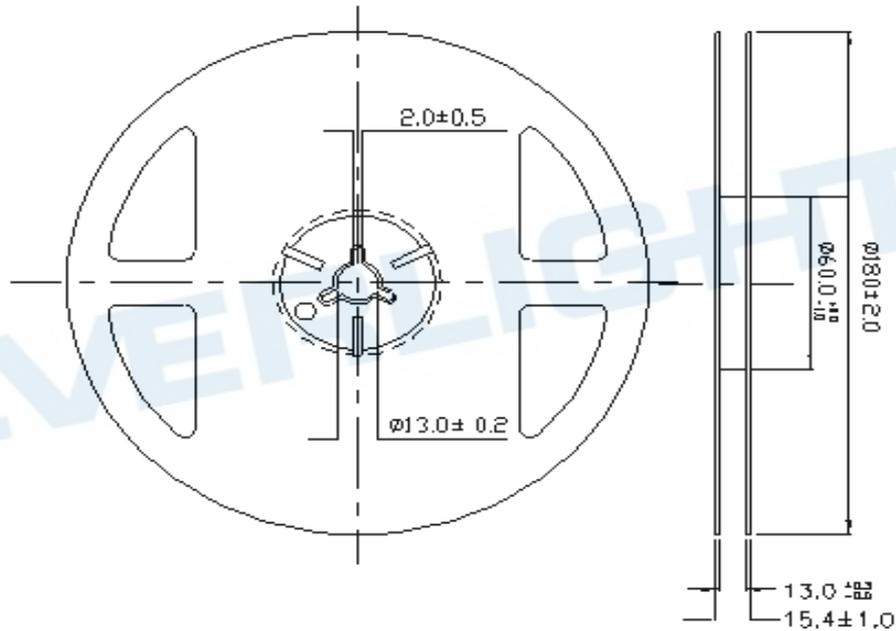
Carrier Tape Dimensions: Loaded Quantity 2000 pcs Per Reel

Progressive direction
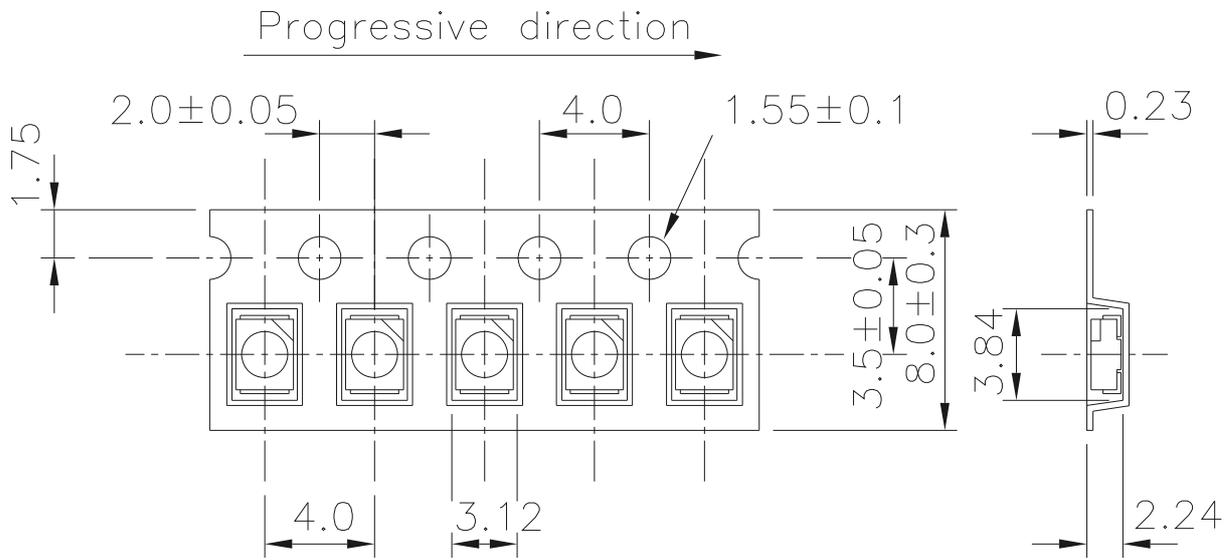
Note: Tolerances unless mentioned ±0.1mm. Unit = mm

Moisture Resistant Packing Process

Label   Aluminum moisture-proof bag   Desiccant   Label
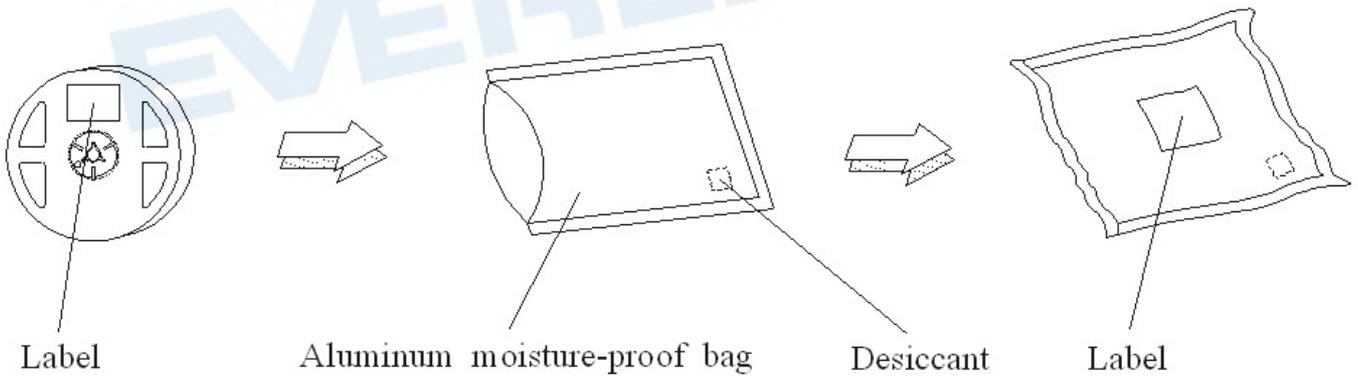
Note: Tolerances unless mentioned ±0.1mm. Unit = mm

Precautions for Use

1. Over-current-proof

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

Above255°C
30sec.Max.

3°C/sec.Max.

260°C Max.
10sec. Max.

6°C/sec.Max.

Above 217°C
60~150sec.

Pre-heating

150~200°C
60~120sec.
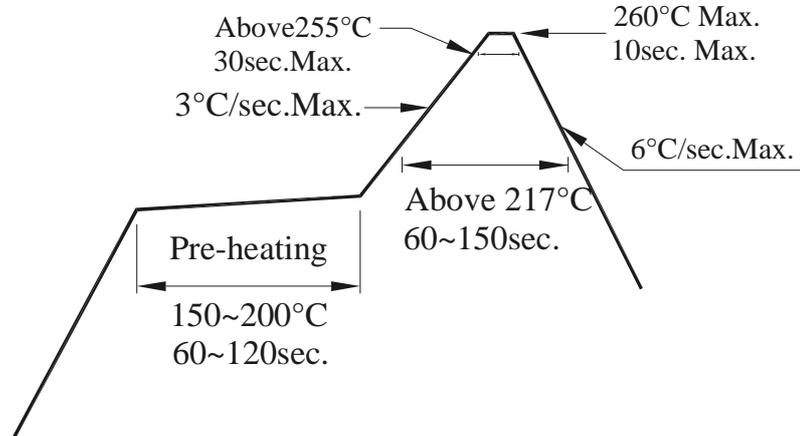
2. Storage

   2.1 Do not open moisture proof bag before the products are ready to use.

   2.2 Before opening the package: The LEDs should be kept at 30℃ or less and 90%RH or less.

   2.3 If the moisture absorbent material (silica gel) has faded away or the LEDs have exceeded the storage time, baking treatment should be performed using the following conditions.
   Baking treatment : 60±5℃ for 24 hours.

   2.4 It is recommended to solder the LED as soon as possible after unpacking the aluminum envelop, But in case that the LED have to be left unused after unpacking envelop again is requested.
   The LED should be soldering within 24 hours after opening the package.
   If baking is required, A baking treatment should be performed as follows:
   60℃±5℃ for more than 24 hours.

3. Soldering Condition

   3.1 Pb-free solder temperature profile

   3.2 Reflow soldering should not be done more than two times.

   3.3 When soldering, do not put stress on the LEDs during heating.

   3.4 After soldering, do not warp the circuit board.

4. Soldering Iron

   Each terminal is to go to the tip of soldering iron temperature less than 350℃ for 3 seconds within once in less than the soldering iron capacity 25W. Leave two seconds and more intervals, and do soldering of each terminal. Be careful because the damage of the product is often started at the time of the hand solder.

5. Repairing

   Repair should not be done after the LEDs have been soldered. When repairing is unavoidable, a double-head soldering iron should be used (as below figure). It should be confirmed beforehand whether the characteristics of the LEDs will or will not be damaged by repairing.

○   X

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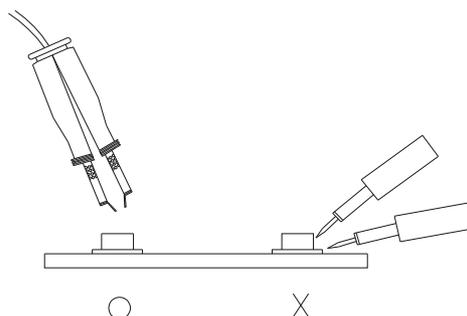
Application Restrictions

High reliability applications such as military/aerospace, automotive safety/security systems, and medical equipment may require different product. If you have any concerns, please contact Everlight before using this product in your application. This specification guarantees the quality and performance of the product as an individual component. Do not use this product beyond the specification described in this document.

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1. EVERLIGHT reserves the right(s) on the adjustment of product material mix for the specification.

2. The product meets EVERLIGHT published specification for a period of twelve (12) months from date of shipment.

3. The graphs shown in this datasheet are representing typical data only and do not show guaranteed values.

4. When using this product, please observe the absolute maximum ratings and the instructions for using outlined in these specification sheets. EVERLIGHT assumes no responsibility for any damage resulting from the use of the product which does not comply with the absolute maximum ratings and the instructions included in these specification sheets.

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