DATASHEET

CSP0603AN105-WP333601240100-3T(MI)

Received
□ MASS PRODUCTION
■ PRELIMINARY
□ CUSTOMER DESIGN
DEVICE NO. : DHE-0029943
PAGE : 14

Revised record

REV.	DESCRIPTION	RELEASE DATE
1	New spec.	Apr.19.2024

CSP0603AN105-WP333601240100-3T(MI)

PRELIMINARY

Features

- Dimension: 0.6*0.3*0.18 mm LED
- Direct attach-Flip Chip type
- Wide viewing angle.
- Suitable for vapor-phase reflow, Infrared reflow and wave solder processes
- Computable with automatic placement equipment.
- Available on tape and reel (8mm Tape).
- 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)
- Precondition: Bases on JEDEC J-STD 020D Level 3

Descriptions

- The 0603 CSP LED is much smaller than general components, thus enable smaller board size, higher packing density, reduced storage space and finally smaller equipment to be obtained.

Applications

- Status indicator, keypad, keyboard, and industrial equipment.
- Light pipe application.
- General use002E

Device Selection Guide

Chip Materials	Emitted Color
InGaN	White

Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
Forward Current	I_F	100	mA
Peak Forward Current (Duty 1/10 @1KHz)	I_{FP}	200	mA
Power Dissipation	P_d	400	mW
Junction Temperature	T_j	135/150	℃
Operating Temperature	T_{opr}	-40 ~ +85	℃
Storage Temperature	T_{stg}	-40 ~ +90	℃
ESD	ESD_{HBM}	1000	V
Soldering Temperature	T_{sol}	Reflow Soldering : 260 ℃ for 10 sec. Hand Soldering : 350 ℃ for 3 sec.	

Notes:

1. The Chin series LEDs are not designed for reverse bias used.
2. View angle measurement tolerance±5°
3. Avoid operating Chin series LEDs at maximum operating temperature exceed 1 hour.
4. Operate LED component at maximum rating conditions continuously will cause possible permanent damage and de-rating parameters. Exercise multiple maximum rating parameters simultaneously should not be allowed. When maximum rating parameters are applied over a long period will result potential reliability issue.

Electro-Optical Characteristics (Ts=25℃)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Flux(1)	Iv	14	18	26	lm	I_F=100mA(5)
Forward Voltage(2)(3)	V_F	3.2	3.4	3.6	V	
Color Temperature	CCT	---	5000	---	K	
Color Rendering Index	CRI	80	---	---		
Viewing Angle	$2\theta_{1/2}$	-----	150	-----	deg	

Forward Voltage Binning

Bin	Symbol	Min.	Typ.	Max.	Unit	Condition
3236	V_F	3.2	----	3.6	V	I_F=100mA

Luminous Flux Binning

Bin	Symbol	Min.	Typ.	Max.	Unit	Condition
1228	Iv	14	----	26	lm	I_F=100mA

Notes:

1. Luminous Flux, illuminance measurement tolerance：±10%
2. Forward voltage measurement tolerance：±0.1V
3. Electric and optical data is tested at 25 ms pulse condition.
4. Temperature of solder pad：25℃
5. The condition IF =100mA are only for reference.

White Bin Structure

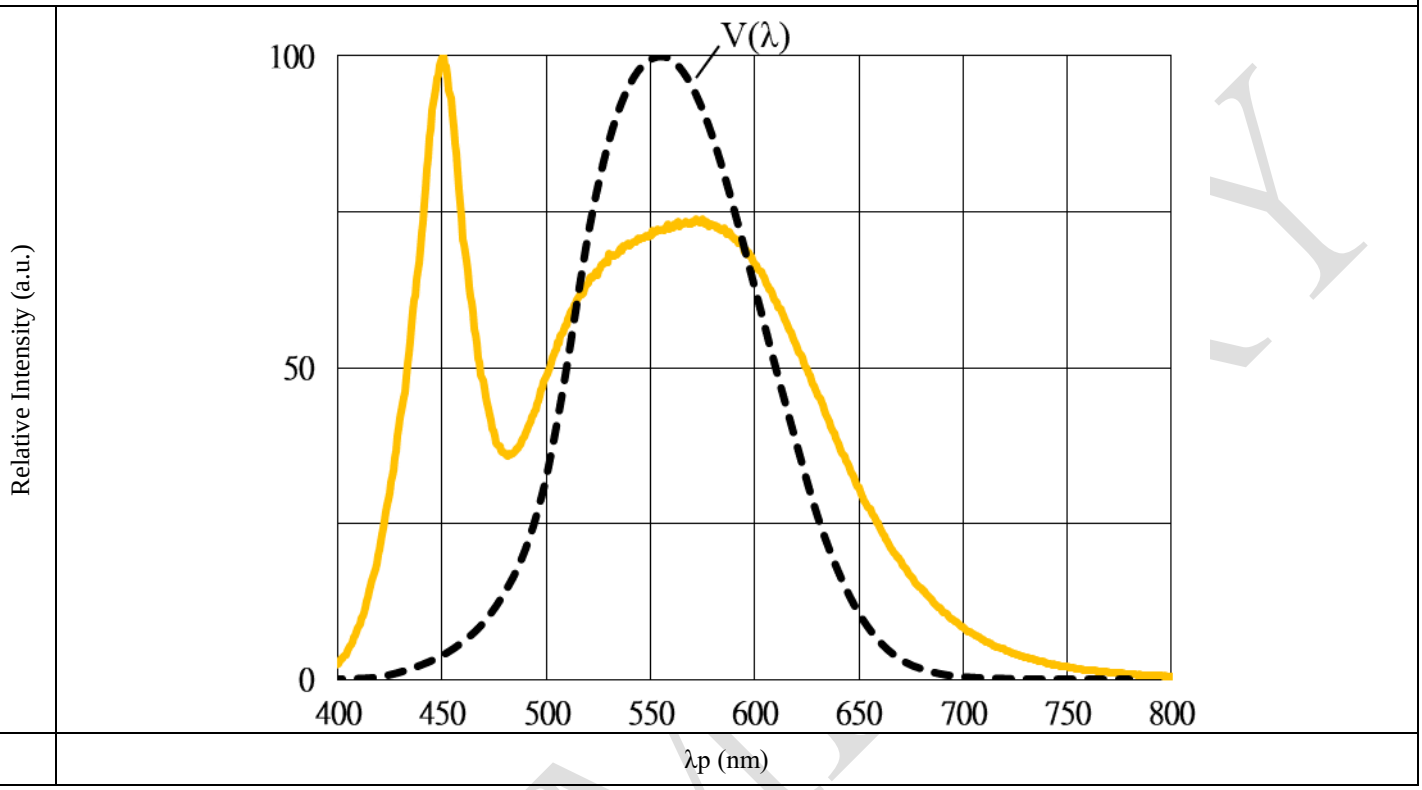
TBD

Notes:

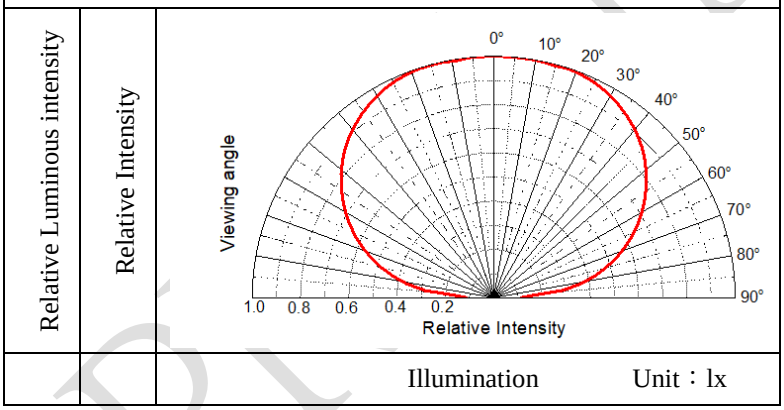
1. Color coordinates measurement allowance：±0.01
2. Color bins are defined at I_F=100mA operation.

Typical Electro-Optical Characteristics Curves

Relative Spectral Distribution , I_F=100mA, $T_{solder\ pad}$=25℃



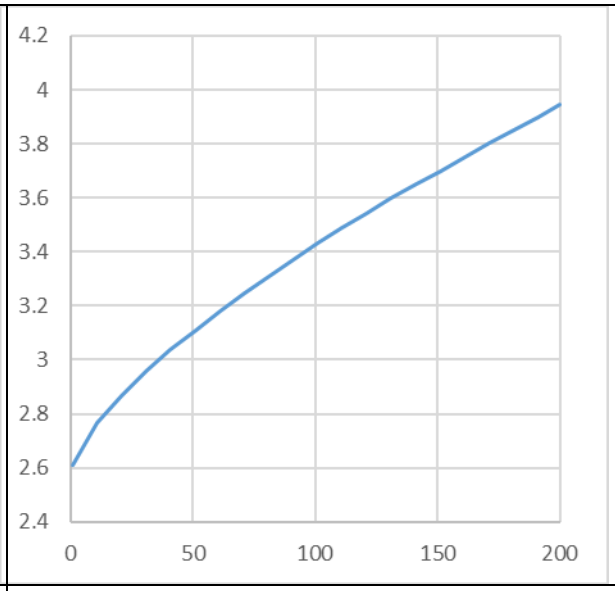
Typical Polar Radiation Pattern for Lambertian



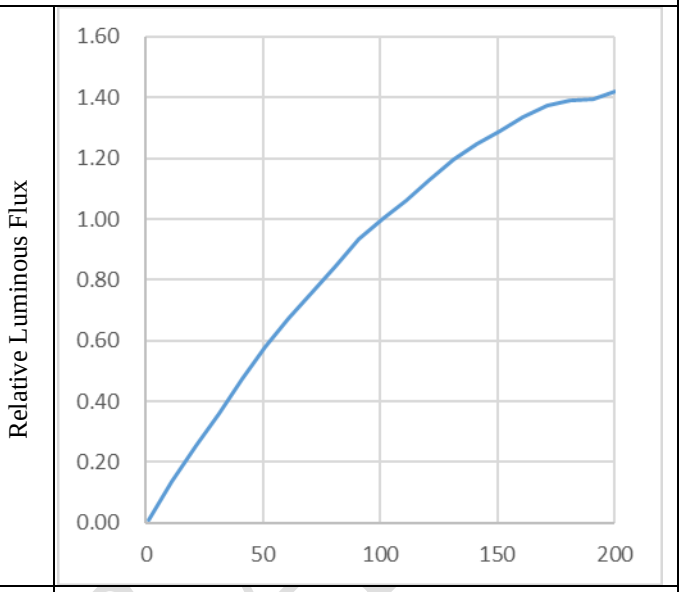
Notes:

1. $2\theta_{1/2}$ is the off axis from lamp centerline where the luminous intensity is 1/2 of the peak value.
2. View angle tolerance is ± 5∘

Forward Voltage vs. Forward Current ($T_{solder\ pad}$=25℃)



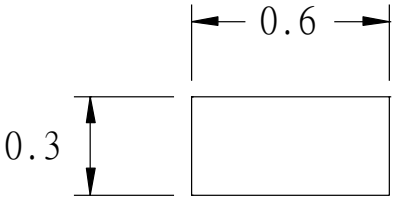
Relative Luminous Flux vs. Forward Current ($T_{solder\ pad}$=25℃)

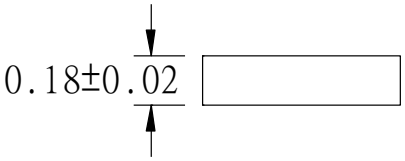


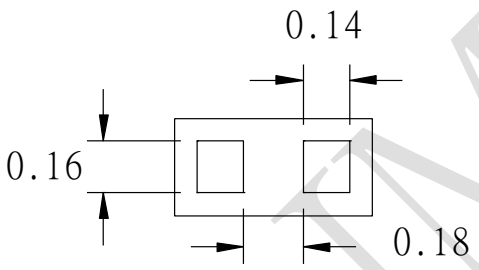
CCT vs. Forward Current ($T_{soldering\ pad}$=25℃)

Correlated Color Temperature(K)	TBD
	Forward Current (mA @50ms)

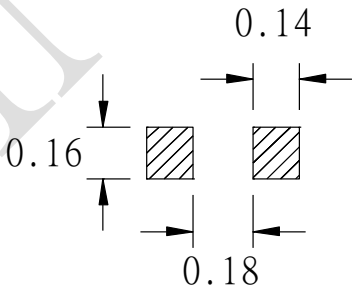
Package Dimension







Bot. view



Recommend Soldering Pattern

Suggested pad dimension is just reference only.

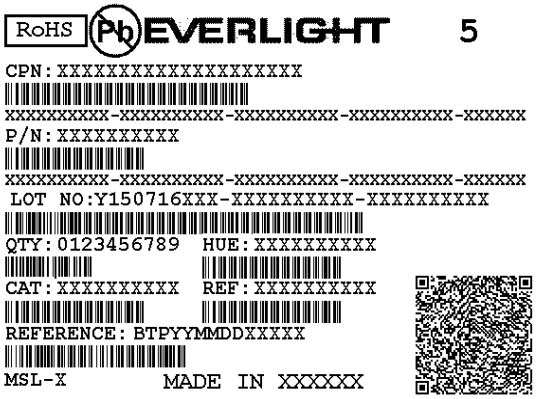
Please modify the pad dimension based on individual ne

Notes:

1. Dimensions are in millimeters.
2. Tolerances unless mentioned are ± 0.05 mm.

Moisture Resistant Packing Materials

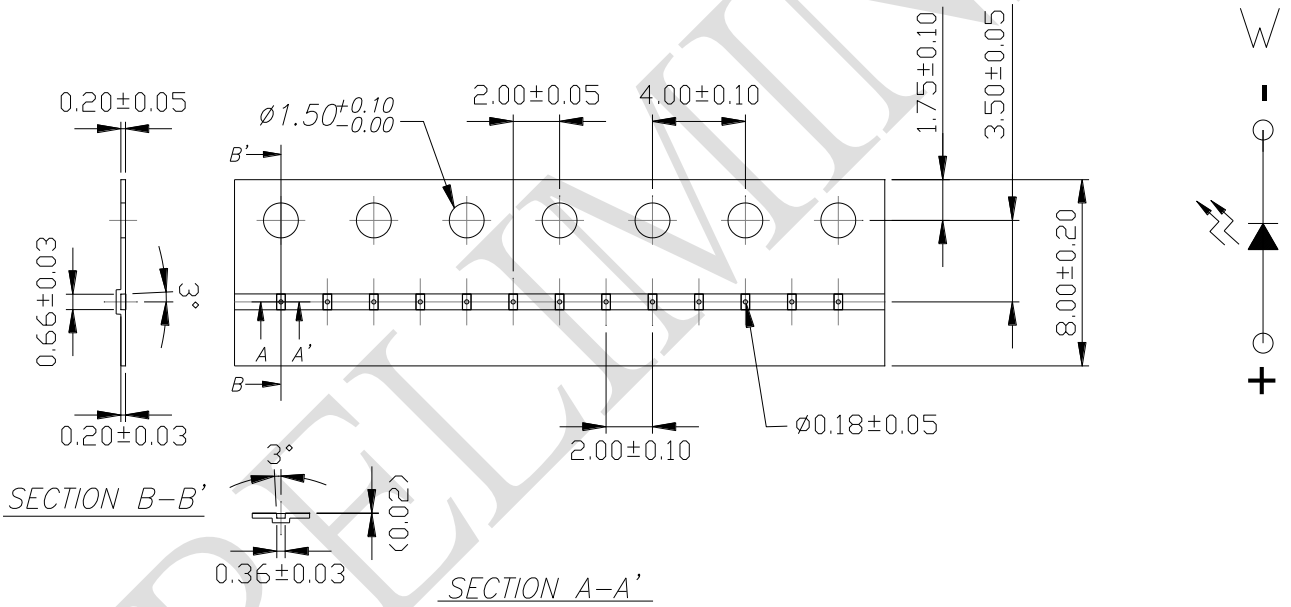
Product Labeling



- CPN:Customer's Product Number
- P/N:Everlight Product Number
- LOT NO:Lot Number
- QTY:Packing Quantity
- CAT:Luminous Flux (Brightness) Bin
- HUE:Color Bin
- REF:Forward Voltage Bin
- REFERENCE:Reference
- MSL-X:MSL Level

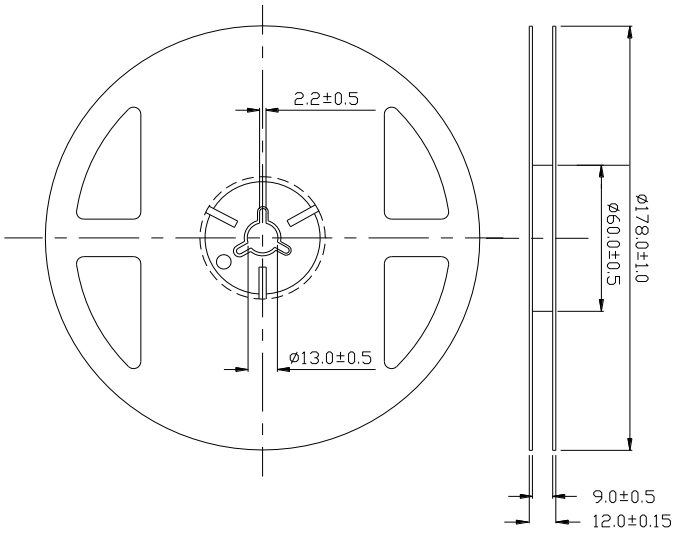
Carrier Tape Dimensions: Loaded Quantity 3000 pcs Per Reel

(Minimum Package Quantity :250 PCS)



Notes:
1. Tolerances unless mentioned ±0.1mm. Unit = mm
2. Minimum packing amount is 250/500/1000/2000/3000 pcs per reel

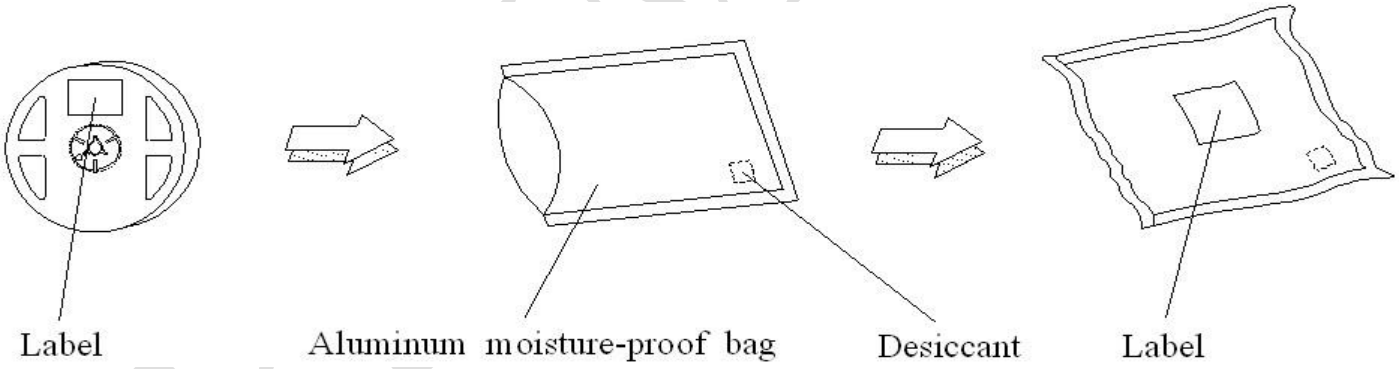
Emitter Reel Dimensions



Notes:

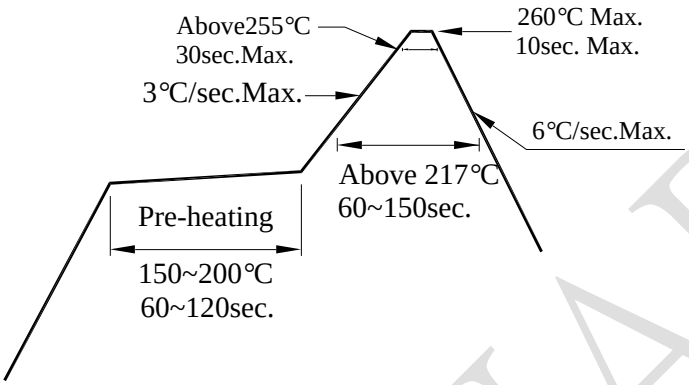
1. The tolerances unless mentioned is ±0.1mm ,Unit = mm

Moisture Resistant Packing Process

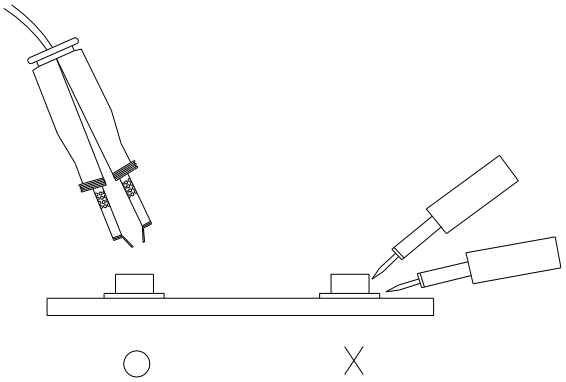


Precautions for Use

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).



2. Storage
   2.1 Moisture proof bag should only be opened immediately prior to usage.
   2.2 Environment should be less than 30℃ and 60% RH when moisture proof bag is opened.
   2.3 After opening the package MSL Conditions stated on page 1 of this spec should not be exceeded.
   2.4 If the moisture sensitivity card indicates higher than acceptable moisture, the component should be baked at min. 60deg +/-5deg for 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.



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.

DISCLAIMER

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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