CHIP LED - 0603 - YELLOW GREEN
- CC - GTB0603TS - BC -

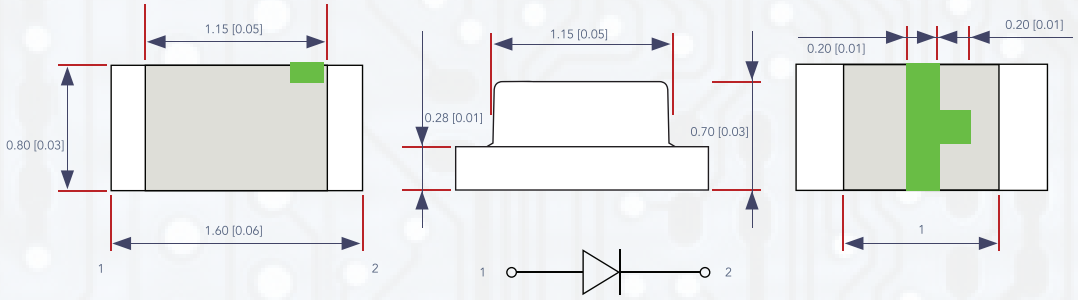
FEATURES

- Viewing angle: 140 deg
- The materials of the LED dice is AlGaInP
- 1.60 mm x 0.80 mm x 070 mm
- RoHS compliant led-free soldering compatible

ATTENTION

OBSERVE PRECAUTIONS
FOR HANDLING
ELECTROSTATIC SENSITIVE DEVICES

PACKAGE OUTINE



NOTE: All dimensions are in millimeters (Inches)
Tolerances are ±0.1mm (0.004 inch) unless otherwise noted

ABSOLUTE MAXIMUM RATINGS AT Ta - 25°C

PARAMETER	SYMBOL	VALUE	UNIT
Forward Current	If	20	mA
Reverse Voltage	Vr	5	V
Operating Temperature Range	Top	-20 ~ +85	°C
Storage Temperature Range	Tstg	-35 ~ +85	°C
Peak Pulsing Current	Ifp	100	mA
Electrostatic Discharge	ESD	2000(HBM)	V

ELECTRO-OPTICAL CHARACTERISTICS AT Ta - 25°C

PARAMETER	TEST CONDITION	SYMBOL	VALUE			UNIT
			MIN	TYPE	MAX	
Special Half Bandwidth	If - 20mA	Δλ	-	15	-	nm
Forward Voltage	If - 20mA	Vf	1.8	-	1.85	V
			1.85	-	1.9	V
			1.9	-	1.95	V
			1.95	-	2.0	V
			2.0	-	2.05	V
			2.05	-	2.1	V
			2.1	-	2.15	V
			2.15	-	2.2	V
			2.2	-	2.25	V
			2.25	-	2.3	V
			2.3	-	2.35	V
			2.35	-	2.4	V
Dominant Wavelength	If - 20mA	λd	565	-	566	nm
			566	-	567	nm
			567	-	568	nm
			568	-	569	nm
			569	-	570	nm
			570	-	571	nm
			571	-	572	nm
			572	-	573	nm
			573	-	574	nm
			574	-	575	nm
			575	-	576	nm
			576	-	577	nm

NOTE: (Tolerance: Iv ± 10%, λd ± 2nm, Vf ±0.05V)
IFP Conditions: Pulse Width ≤10m sec. and Duty ≤1/10.

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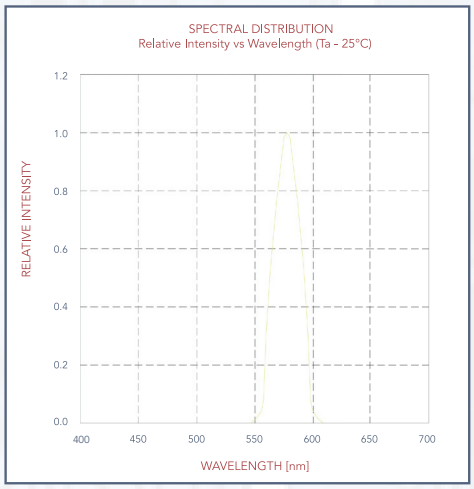
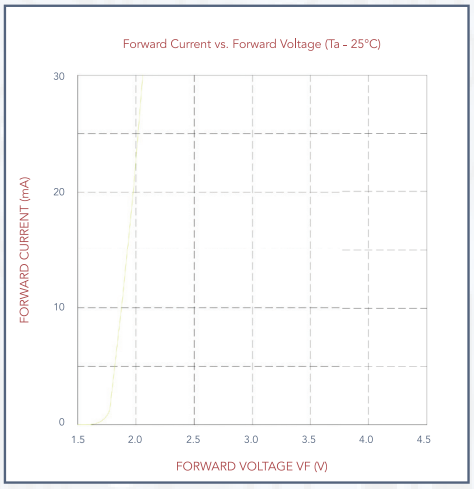
ELECTRO-OPTICAL CHARACTERISTICS AT Ta - 25°C

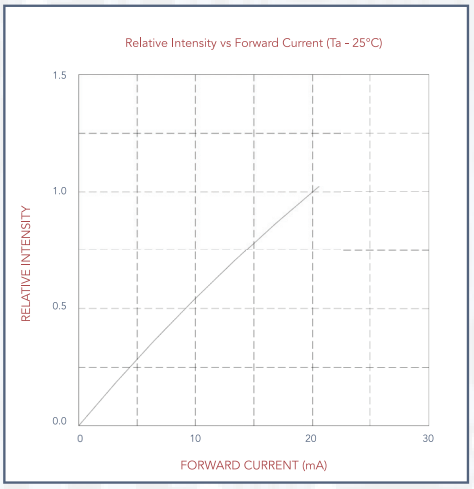
PARAMETER	TEST CONDITION	SYMBOL	VALUE			UNIT
			MIN	TYPE	MAX	
Luminous Intensity	If - 20mA	Iv	30	-	35	mcd
			35	-	40	mcd
			40	-	45	mcd
			45	-	50	mcd
			55	-	60	mcd
			60	-	65	mcd
			65	-	70	mcd
			70	-	75	mcd
			75	-	80	mcd
			80	-	90	mcd
			90	-	100	mcd
Viewing Angle at 50% Iv	If - 20mA	2θ 1/2	-	140	-	Deg
Reverse Current	Vr - 5V	Ir	-	-	10	μA

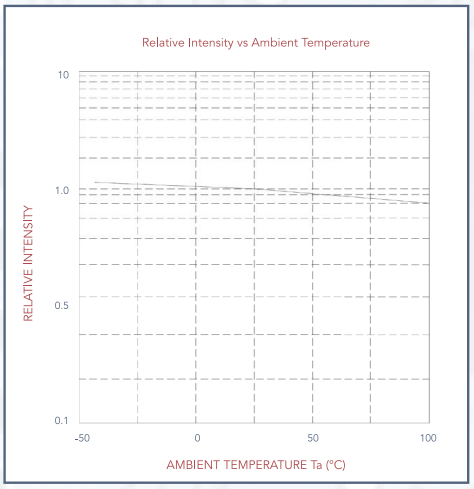
NOTE: (Tolerance: Iv ± 10%, λd ± 2nm, Vf ±0.05V)
IFP Conditions: Pulse Width ≤10m sec. and Duty ≤1/10.

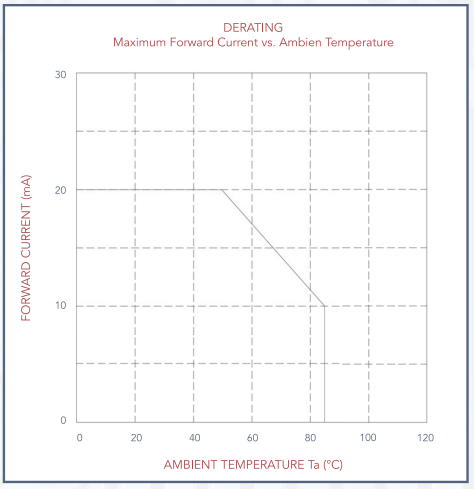
TYPICAL OPTICAL CHARACTERISTICS CURVES

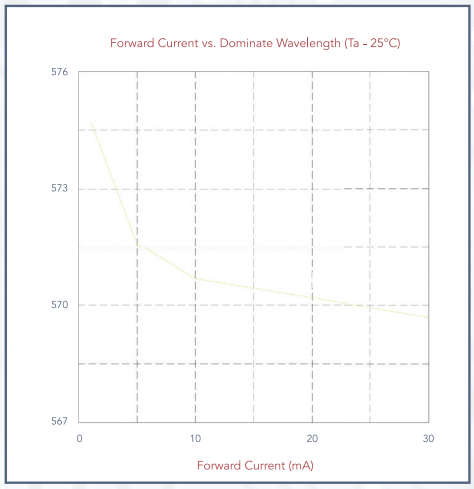


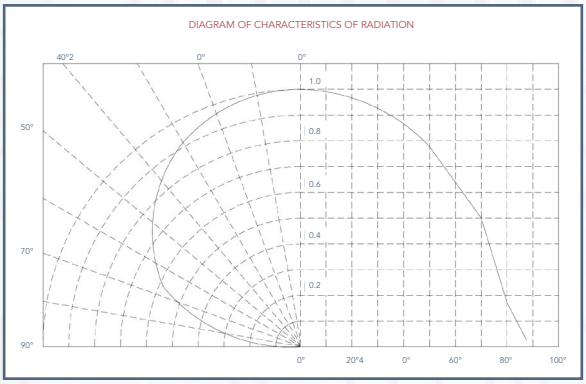












RoHS Pb HF

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REFLOW PROFILE

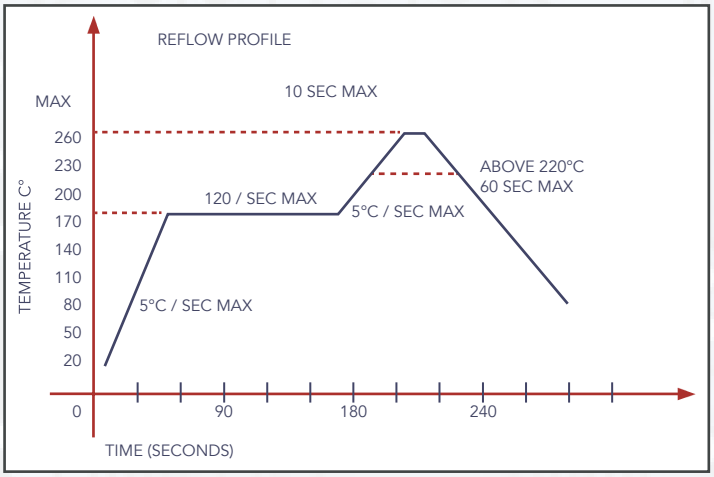
- Soldering Condition

Recommended Soldering
After reflow soldering rapid cooling should be avoided

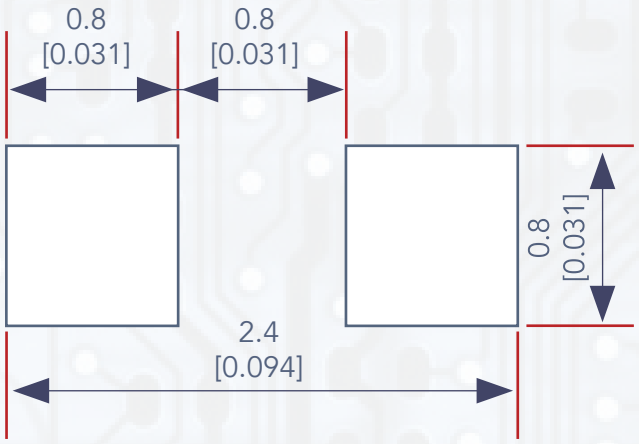
REFLOW SOLDERING		HAND SOLDERING	
Pre-Heat	160 °C ~ 180°C	Temperature	300°C Max
Pre-Heat Time	120 Seconds Max.	Soldering Time	3 Second Max - One Time Only
Peak Temperature	260°C Max		
Soldering Time	10 Seconds Max		
Condition	Refer to Temperature		

- Temperature - profile (surface of circuit board)

Use the following Conditions Shown in Figure



- Recommend Pad Design (Units: mm)



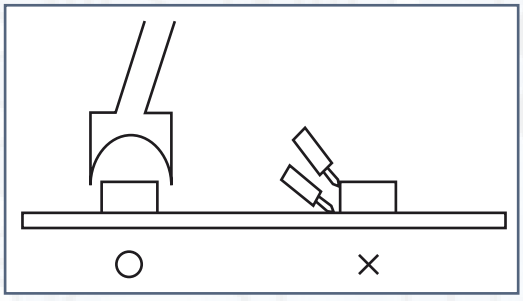
Reflow soldering should not be done more than two times
When soldering, do not put stress on the LEDs during heating

- Soldering Iron

When hand soldering, keep the temperature of the iron under 300°C, and at that temperature keep the time under 3 sec.
The hand soldering should be done only a time
The basic spec is ≤5 sec. when the temperature of 260°C, do not contact the resin when hand soldering.

- Rework

Customer must finish rework within 5 sec under 260°C
The head of iron can not touch the resin
Twin-head type is preferred



RELIABILITY

- TEST ITEMS AND RESULTS

TYPE	TEST ITEM	REF STANDARD	TEST CONDITIONS	NOTE	NUMBER OF DAMAGED
Environmental Sequence	Resistance to Soldering Heat (Reflow Soldering)	JESD22 - B106	Tsld - 260°C, 10 sec	2 times	0/22
	Temperature Cycle	JESD22 - A104	-40°C 30 min 25°C ↑↓ 5min 100°C 30 min	300 cycle	0/22
	Thermal Shock	JESD22 - A106	-35°C 15min ↑↓ 85°C 15 min	300 cycle	0/22
	High Temperature Storage	JESD22 - A103	T_a - 100°C	1000 hrs	0/22
	Low Temperature Storage	JESD22 - A119	T_a - 40°C	1000 hrs	0/22
Operation Sequence	Life Test	JESD22 - A108	T_a - 25°C I_F - 20mA	1000 hrs	0/22

- CRITERIA FOR JUDGING THE DAMAGE

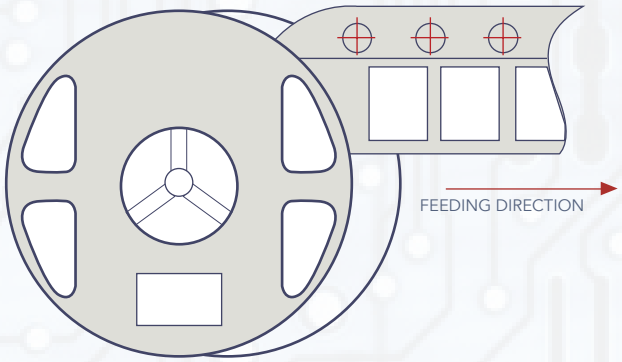
ITEM	SYMBOL	TEST CONDITIONS	CRITERIA FOR JUDGEMENT	
			MIN.	MAX.
Forward Voltage	VF	IF- 20mA	-	U.S.L *) x 1.1
Reverse Current	IR	VR - 5V	-	U.S.L*) x 2.0
Luminous Intensity	IV	IF - 20mA	L.S.L**) x 0.5	-

- U.S.L.: Upper Standard Level
- L.S.L.: Lower Standard Level

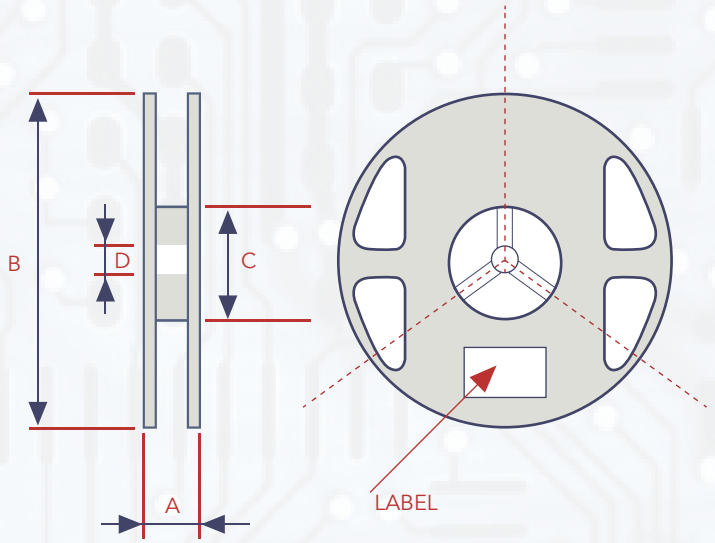
NOTE: Any reliability test standard change is confidential

PACKAGING SPECIFICATIONS

- Feeding Direction



- Dimensions of Reel (Unit: mm)



A	8.0 ± 0.1mm
B	178 ± 1mm
C	60 ± 1mm
D	13.0 ± 0.5mm

RoHS Pb HF

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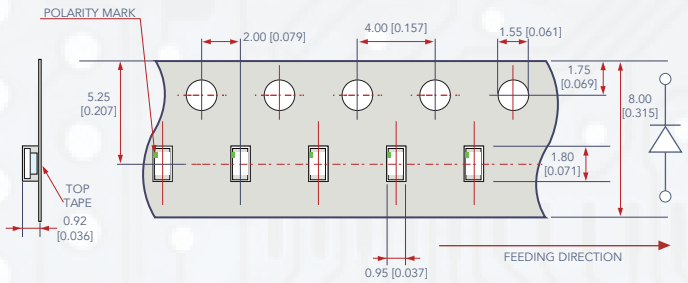
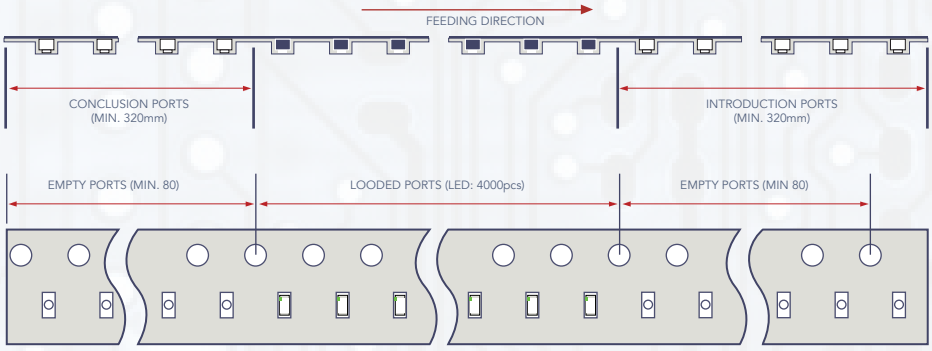
PACKAGING SPECIFICATIONS

- Dimensions of Tape (Unit: mm)

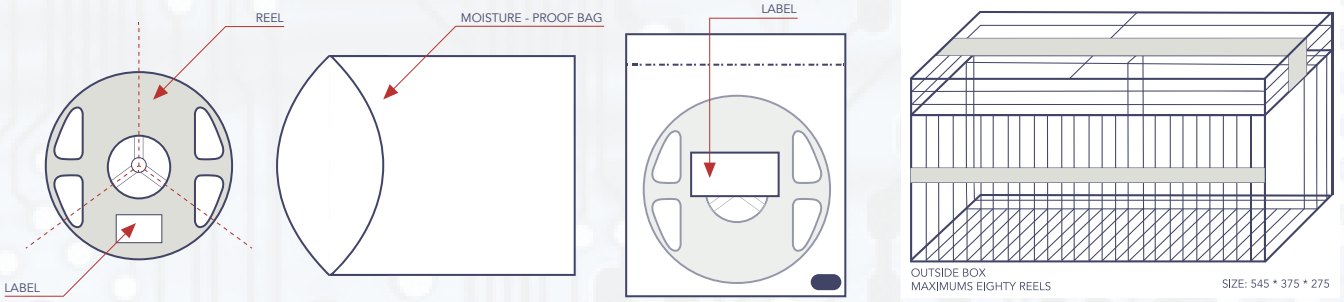


- Arrangement of Tape

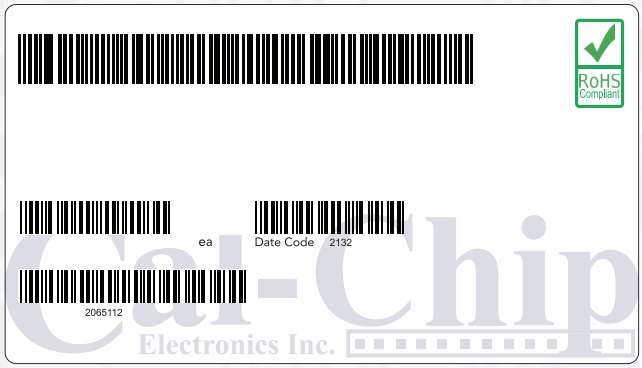


NOTE: Empty component pockets are sealded with top cover tape
The maximum number of missing lamps is two:
The cathode is oriented towards the tape sprocket hole in accordance with ANSI/EIA RS-481 specifications.
4,000 pcs / Reel

PACKAGING SPECIFICATIONS



- Label



- Cautions

- Packaging Specification

- Reeld products (numbers of products are 4,000 pcs) packed in a seal off moisture-proof bag along with a desiccant one by one, Eighty moisture-proof bag of maximum are put the outside box (size: abou 545mm x about 375mm x about 275mm) Together with buffer material, and it is packed. (Part No., quantity should appear on the label on the moisture-proof bag, part No. And wuatitiy should appear on the label on the cardboard box.) The number of the loading steps of outside box (cardboard box) has two steps.

- Storage Conditions

- **Before Opening the Packaging** - The LEDs should be kept at 30°C or less and 70% RH or less. The LEDs should be used within a hyear. When storing the LEDs, moisture proof packaging with absorbant material is recommended.

- **After Opening the Packge** - The LEDs should be kept at 30°C or less and 50% RH or less. THe LEDs should be soldered withing 168 hours (7 days) after opening the package. If unused LEDS remain, they should be stored in moisture proof packages, such as sealed containers with packages of moisture absorbent material. It is also recommended to return the LEDs to the original moisture proof bag and to reseal the moisture proof bag again.