

Features

- 0603 0.20mm SMD LED
- High Brightness
- AlInGaP / InGaN Technology
- Small package
- High reliability
- Clear Lens

Applications

- Consumer Electronics
- Wearables
- Automobile After Market
- Industrial Equipment

Description

The IN-S63ET series is a popular low profile 0603 package with versatile design capabilities. It is a PCB type molding style LED which can be used in various applications.

Recommended Solder Pattern

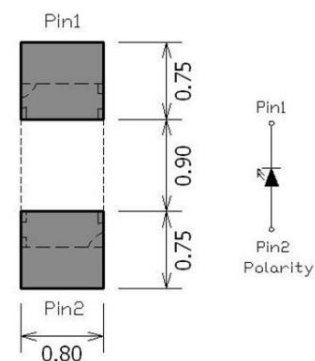
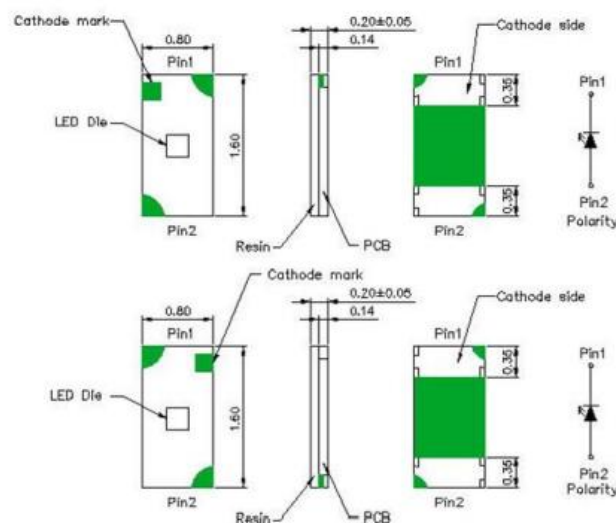


Figure 1. IN-S63ET Solder Pattern

Package Dimensions in mm



Notes.

1. All dimensions are in millimeters.
2. Tolerance is ± 0.10 mm unless otherwise noted

Figure 2. IN-S63ET Package Dimensions

Absolute Maximum Rating at 25°C (Note 1)

Product	Emission Color	P _d (mW)	I _F (mA)	I _{FP} * (mA)	V _R (V)	T _{OP} (°C)	T _{ST} (°C)
IN-S63ETR	Red	42	20	100	5	-40°C~+85°C	-40°C~+100°C
IN-S63ETYG	Yellow Green	48	20	100	5	-40°C~+85°C	-40°C~+100°C
IN-S63ETY	Yellow	48	20	100	5	-40°C~+85°C	-40°C~+100°C
IN-S63ETA	Amber	48	20	100	5	-40°C~+85°C	-40°C~+100°C
IN-S63ETB	Blue	78	20	80	5	-40°C~+85°C	-40°C~+100°C
IN-S63ETG	Green	78	20	80	5	-40°C~+85°C	-40°C~+100°C
IN-S63ETUW	White	66	20	80	5	-40°C~+85°C	-40°C~+100°C

Notes

1. Condition for I_{FP} is pulse of 1/10 duty and 0.1msec width

ESD Precaution

ATTENTION: Electrostatic Discharge (ESD) protection



The symbol above denotes that ESD precaution is needed. ESD protection for GaP and AlGaAs based chips is necessary even though they are relatively safe in the presence of low static-electric discharge. Parts built with AlInGaP, GaN, or/and InGaN based chips are STATIC SENSITIVE devices. ESD precaution must be taken during design and assembly.

If manual work or processing is needed, please ensure the device is adequately protected from ESD during the process.

Please be advised that normal static precautions should be taken in the handling and assembly of this device to prevent damage or degradation which may be induced by electrostatic discharge (ESD).

Electrical Characteristics $T_A = 25^\circ\text{C}$ (Note 1)

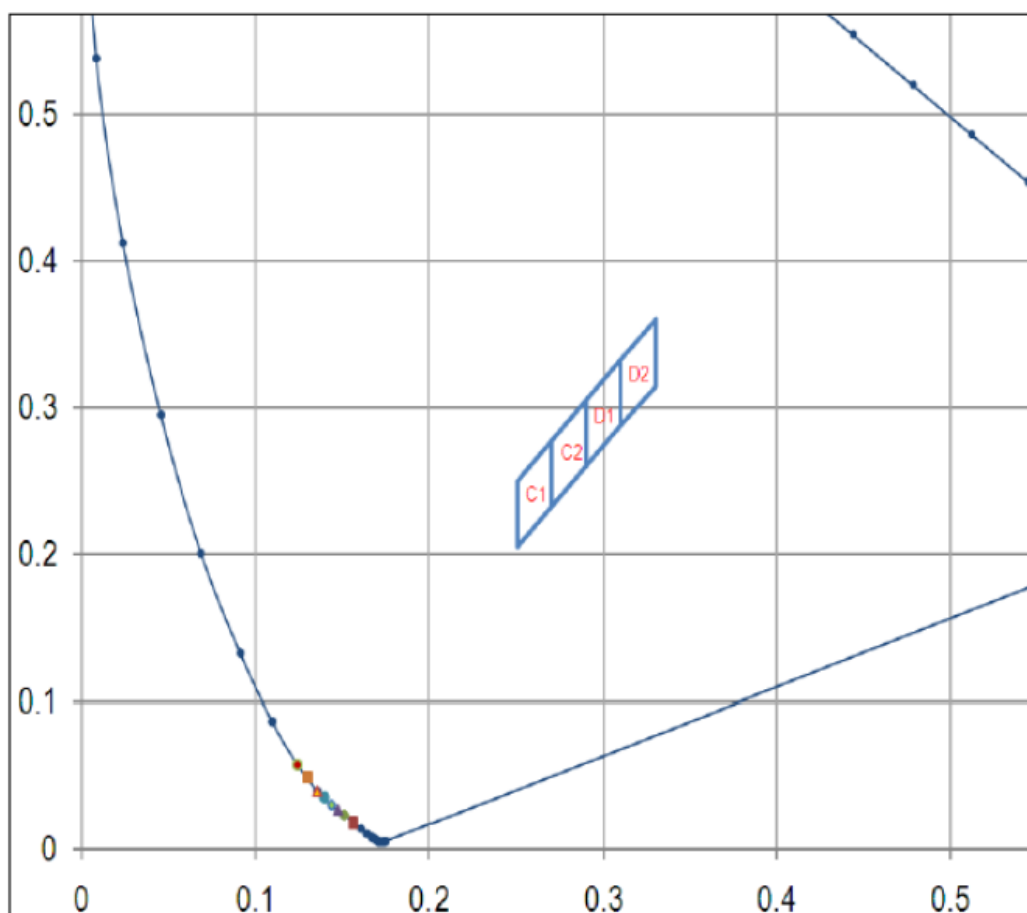
Product	Emission Color	$I_F(\text{mA})$	$V_F(\text{V})$		$\lambda (\text{nm})$			Viewing Angle	$I_v(\text{mcd})$
			typ.	max	λ_D	λ_P	$\Delta\lambda$	$2\theta_{1/2}$	typ.
IN-S63ETR	Red	20	2.0	2.4	624	632	20	X=105 Y=120	71.5
IN-S63ETYG	Yellow Green	20	2.1	2.4	571	573	15	X=105 Y=120	71.5
IN-S63ETY	Yellow	20	2.0	2.4	589	591	20	X=105 Y=120	71.5
IN-S63ETA	Amber	20	2.0	2.4	605	611	17	X=105 Y=120	71.5
IN-S63ETB	Blue	20	3.3	3.9	470	468	40	X=105 Y=120	112.5
IN-S63ETG	Green	20	3.3	3.9	525	520	30	X=105 Y=120	360
IN-S63ETUW	White	20	3.1	3.5	X=0.290 Y=0.285	-	-	X=120 Y=135	1250

Notes

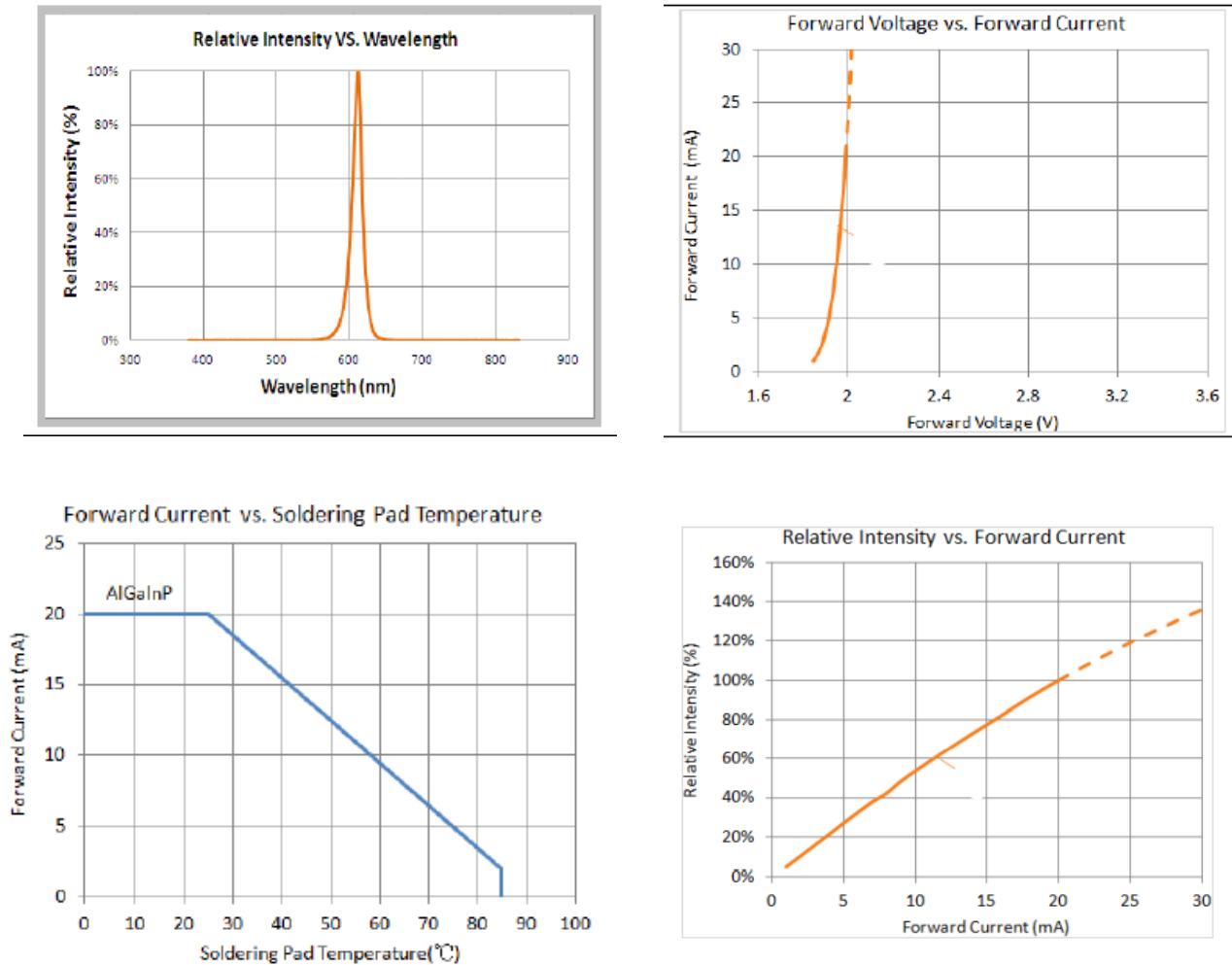
- Performance guaranteed only under conditions listed in above tables.

Chromaticity Bin (for White only)

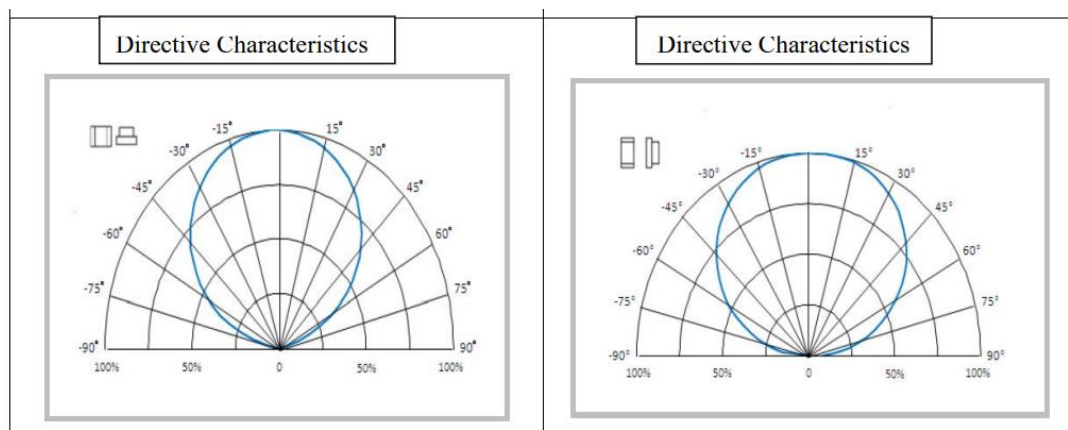
Bin Code	CIE-X	CIE-Y	Bin Code	CIE-X	CIE-Y
C1	0.2500	0.2050	C2	0.2700	0.2325
	0.2500	0.2500		0.2700	0.2775
	0.2700	0.2775		0.2900	0.3050
	0.2700	0.2325		0.2900	0.2600
Bin Code	CIE-X	CIE-Y	Bin Code	CIE-X	CIE-Y
D1	0.2900	0.2600	D2	0.3100	0.2875
	0.2900	0.3025		0.3100	0.3325
	0.3100	0.3325		0.3300	0.3600
	0.3100	0.2875		0.3300	0.3150



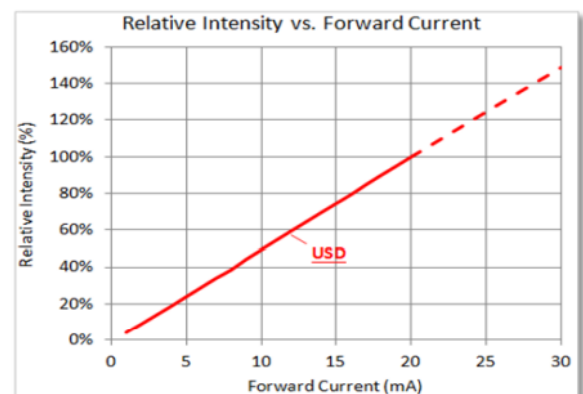
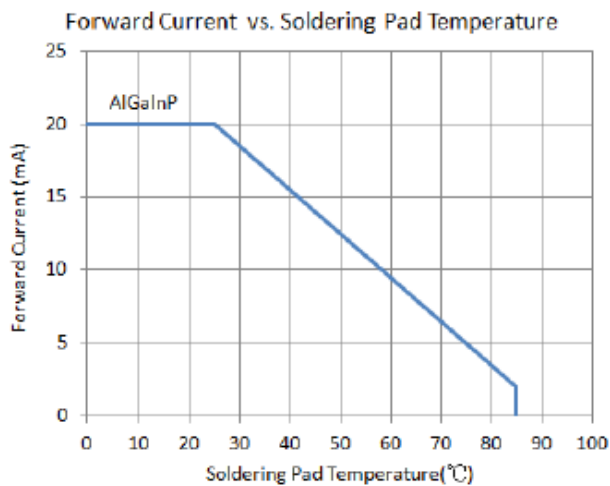
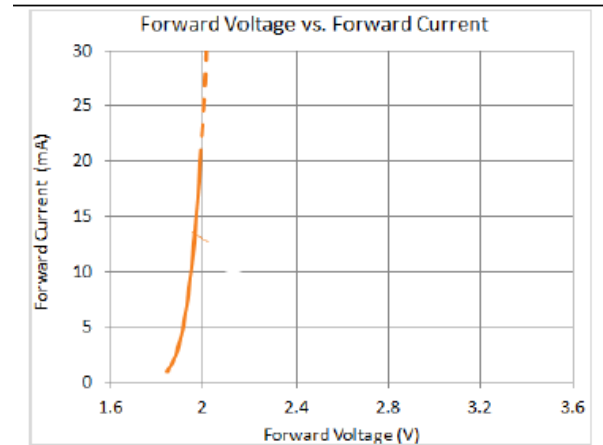
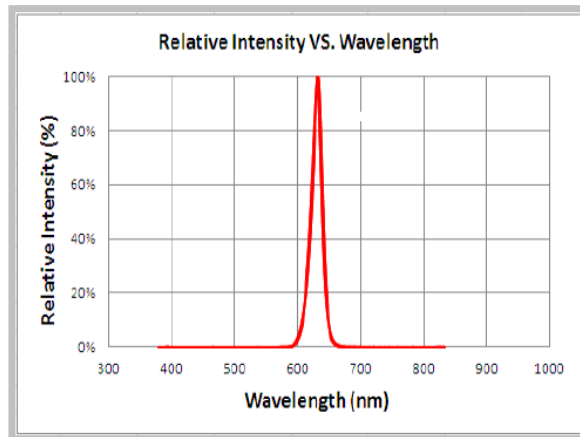
Typical Characteristic Curves –A



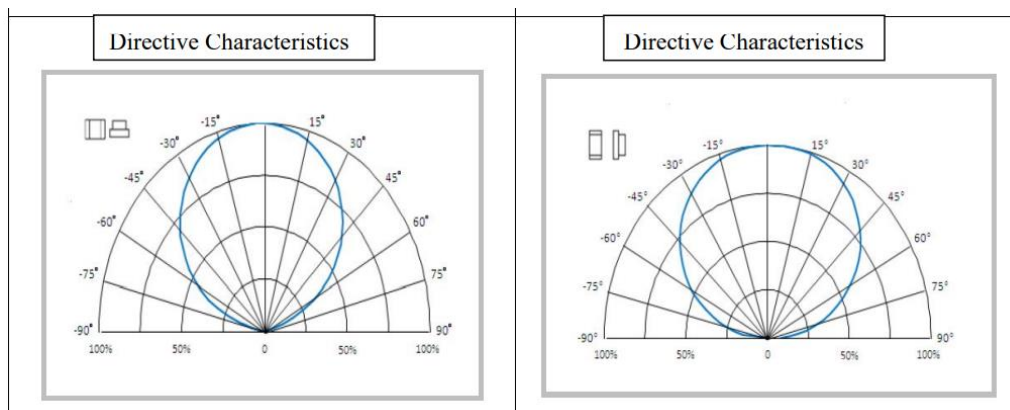
Typical Characteristic Curves – Radiation Pattern



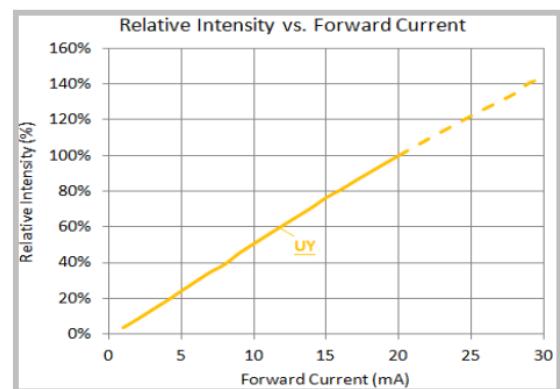
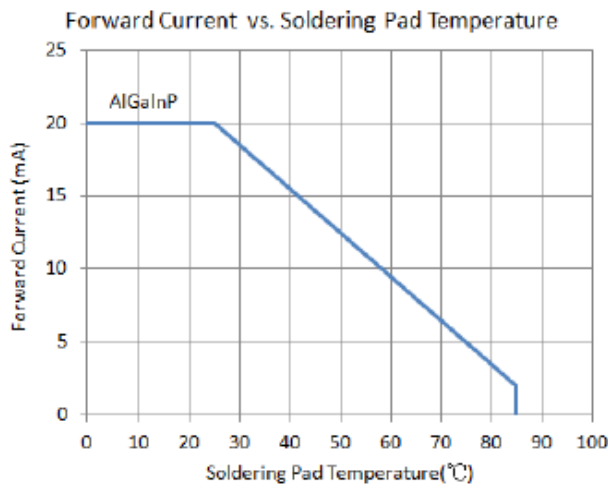
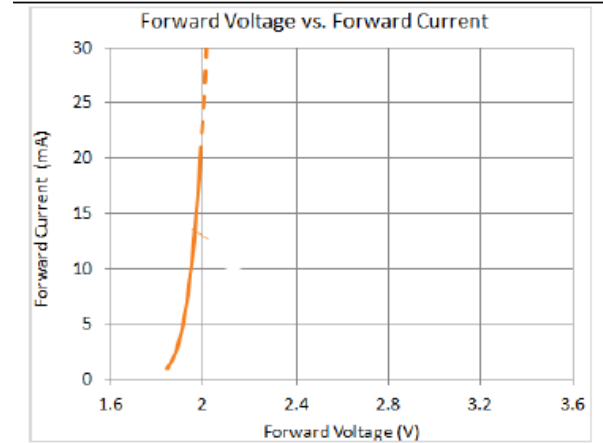
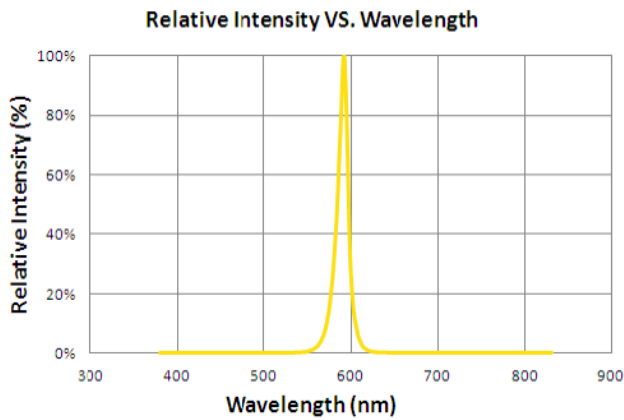
Typical Characteristic Curves –R



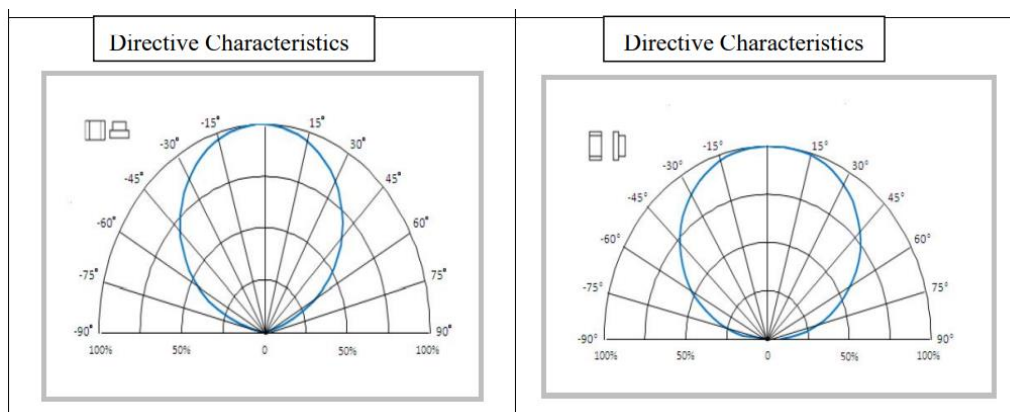
Typical Characteristic Curves – Radiation Pattern



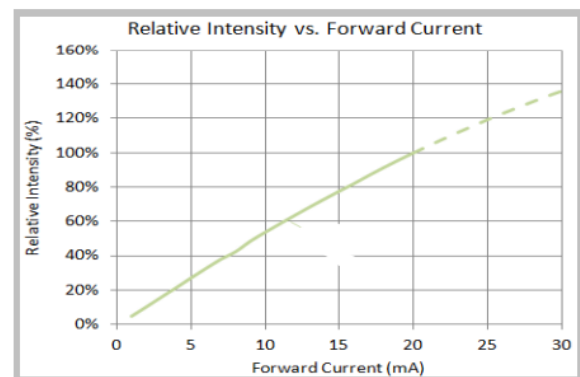
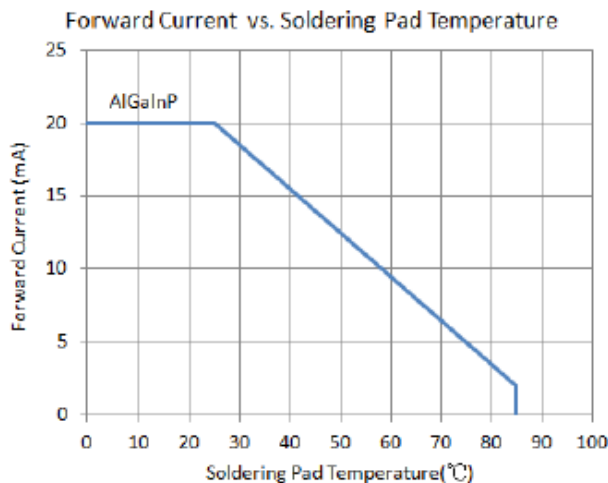
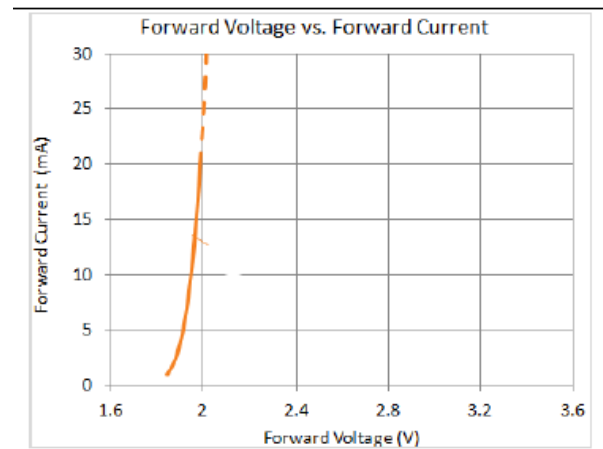
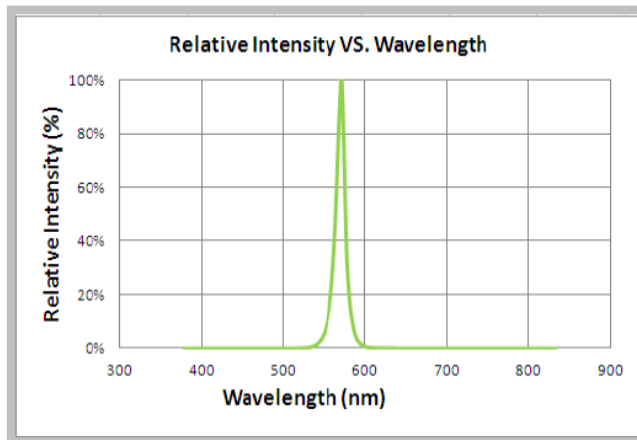
Typical Characteristic Curves –Y



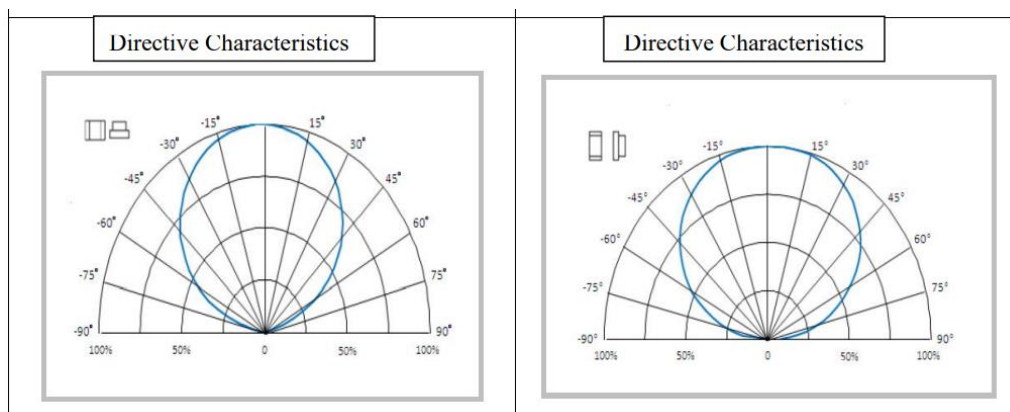
Typical Characteristic Curves – Radiation Pattern



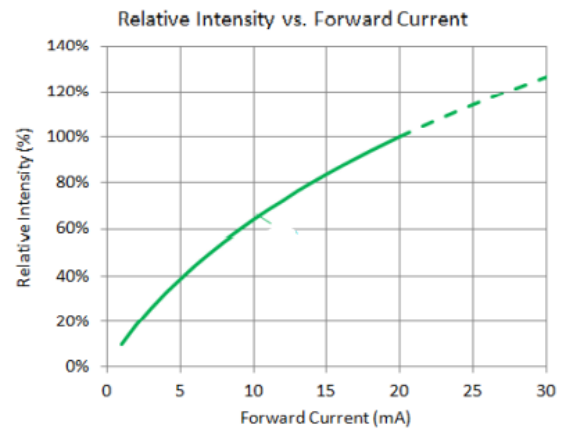
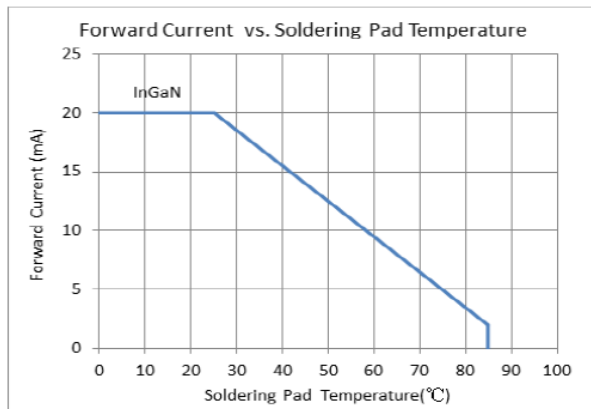
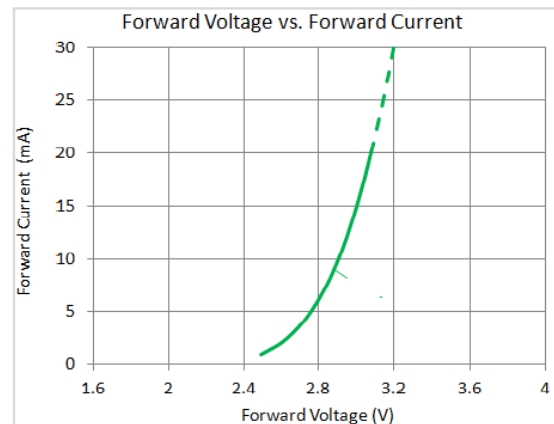
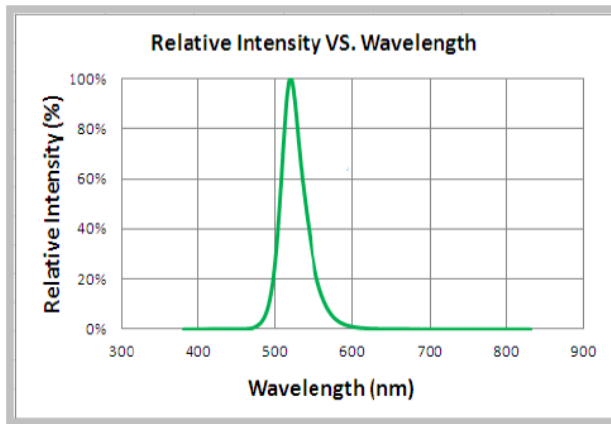
Typical Characteristic Curves –YG



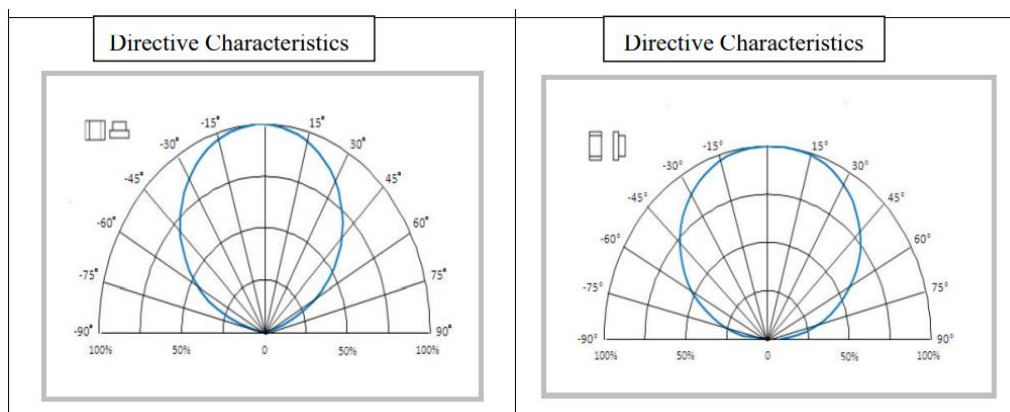
Typical Characteristic Curves – Radiation Pattern



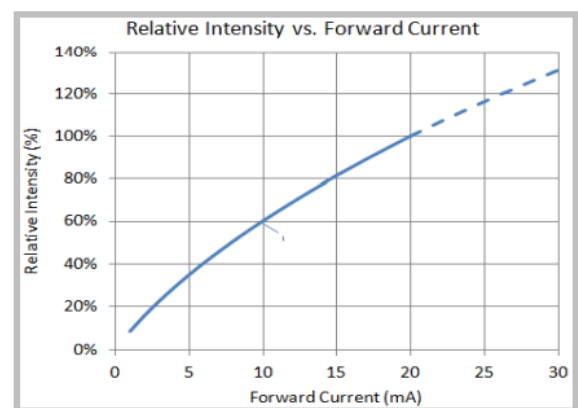
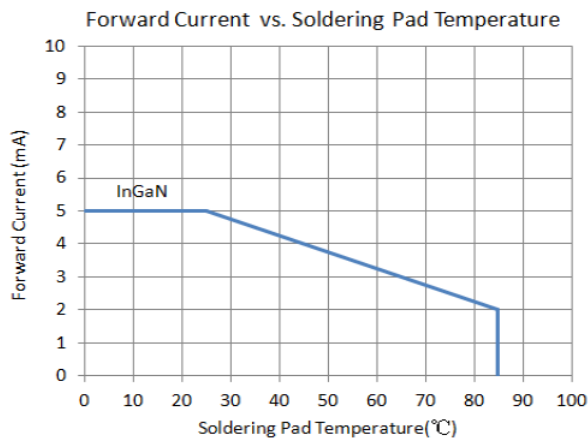
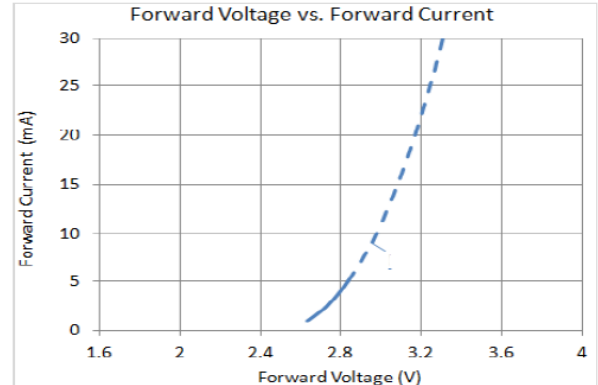
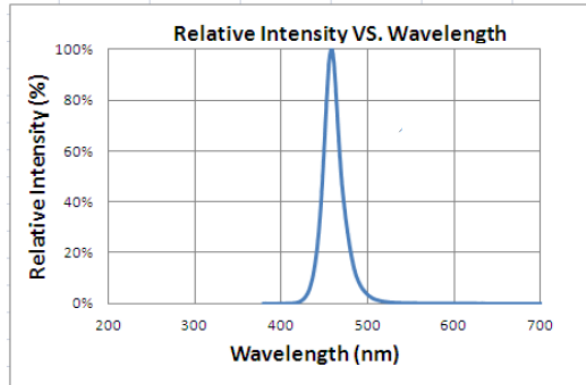
Typical Characteristic Curves –G



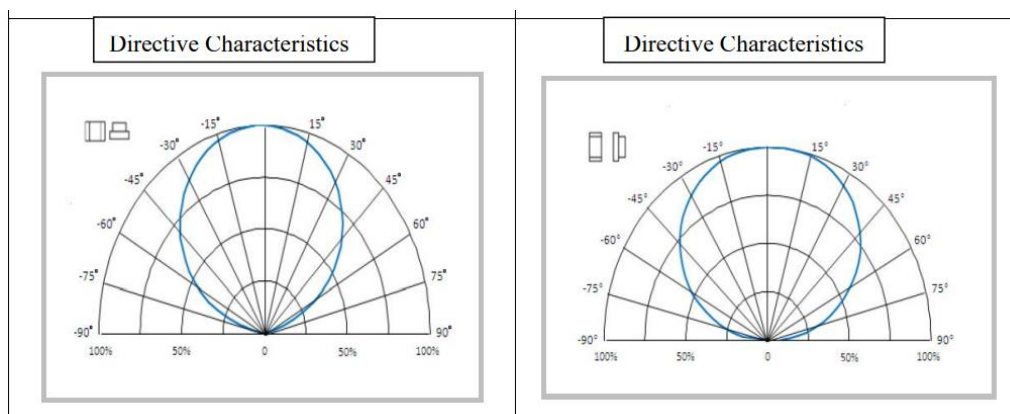
Typical Characteristic Curves – Radiation Pattern



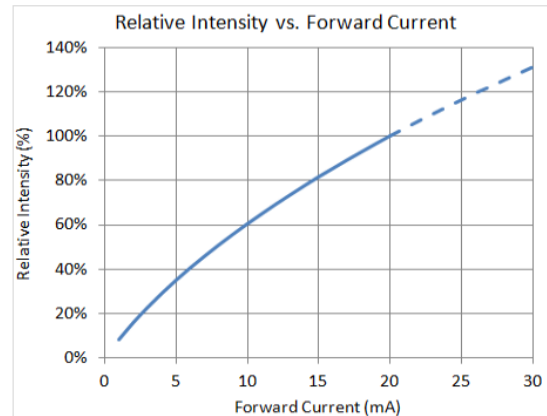
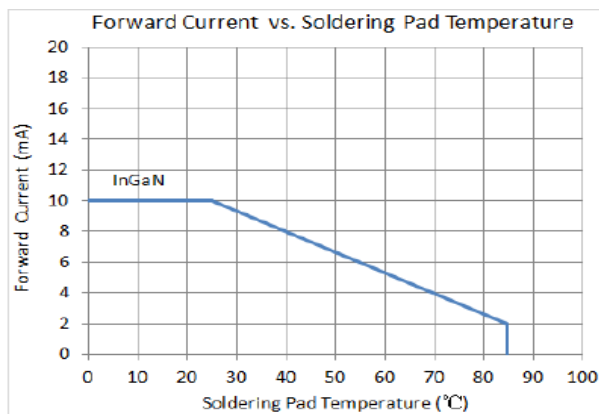
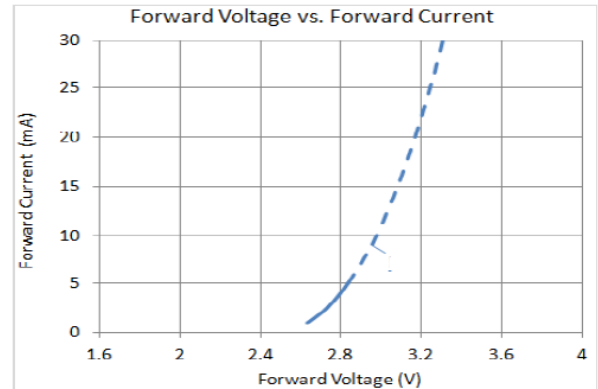
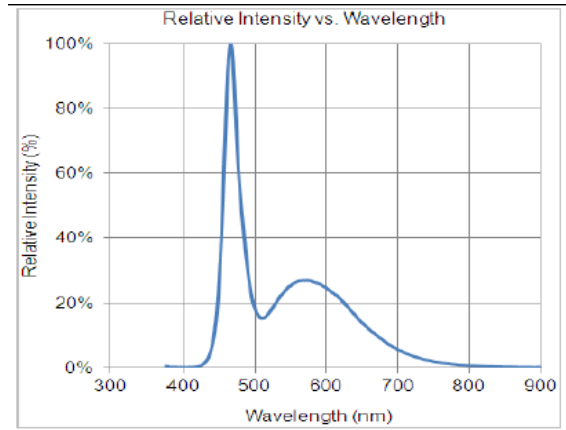
Typical Characteristic Curves –B



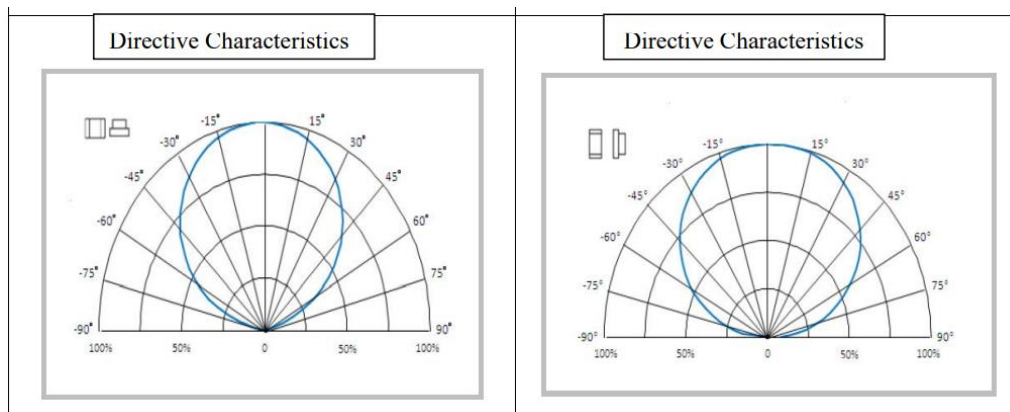
Typical Characteristic Curves – Radiation Pattern



Typical Characteristic Curves –W





Typical Characteristic Curves – Radiation Pattern



Ordering Information

Product	Emission Color	Technology	Test Current I_F (mA)	Luminous Intensity I_V (mcd) (Typ.)	Forward Voltage V_F (V) (Typ.)	Orderable Part Number
IN-S63ETR	Red	AlInGaP	20	71.5	2.0	IN-S63ETR
IN-S63ETYG	Yellow Green	AlInGaP	20	71.5	2.1	IN-S63ETYG
IN-S63ETY	Yellow	AlInGaP	20	71.5	2.0	IN-S63ETY
IN-S63ETA	Amber	AlInGaP	20	71.5	2.0	IN-S63ETA
IN-S63ETB	Blue	InGaN	20	112.5	3.3	IN-S63ETB
IN-S63ETG	Green	InGaN	20	360	3.3	IN-S63ETG
IN-S63ETUW	White	InGaN	20	1250	3.1	IN-S63ETUW

Label Specifications

		Date: yyyy/mm/dd
CUSTOMER P/N: 		
INOLUX	P/N: 	QTY: PCS
LOT NO: 		QC
IV BIN:	COLOR BIN:	VF:

Inolux P/N:

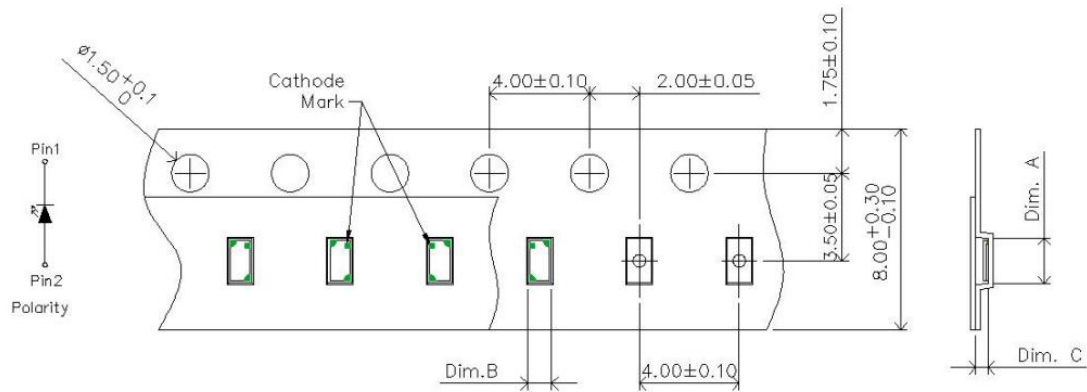
I	N	-	S	6	3	E	T		-		-	-	-	-	-
Inolux SMD			Material	Package		Variation	Orientation	Current	Lens	Color		Customized Stamp-off			
			S = PCB Type	63E = 1.6 x 0.8 x 0.20mm			T = Top Mount	(Blank) =20mA	(Blank) = Clear U = Diffused	R=624nm A=605nm Y=590nm YG=570nm G=520nm B=470nm W=White		-			

Lot No.:

Z	2	0	1	7	01	24	001
Internal Tracker	Year (2017, 2018,)				Month	Date	Serial

Packaging Information: 3000pcs Per Reel

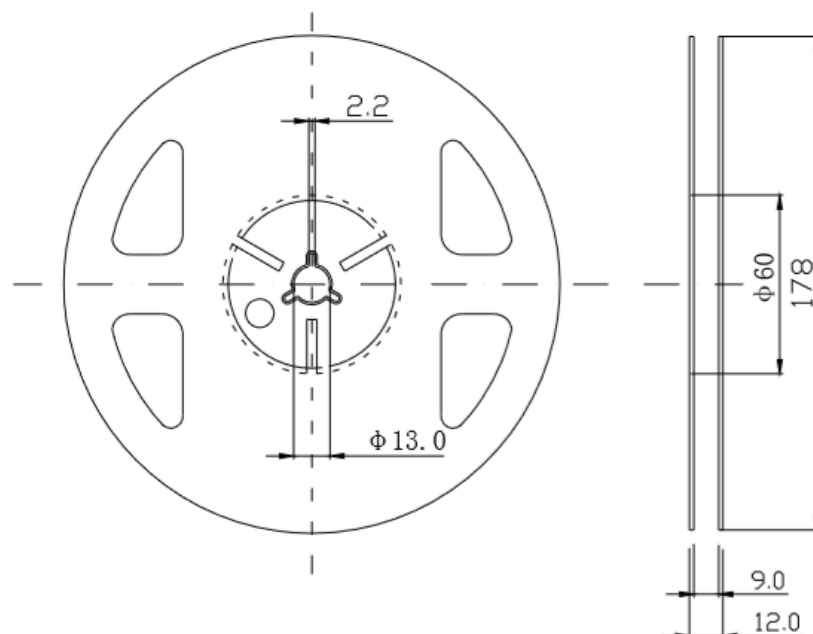
Packaging Tape Dimension



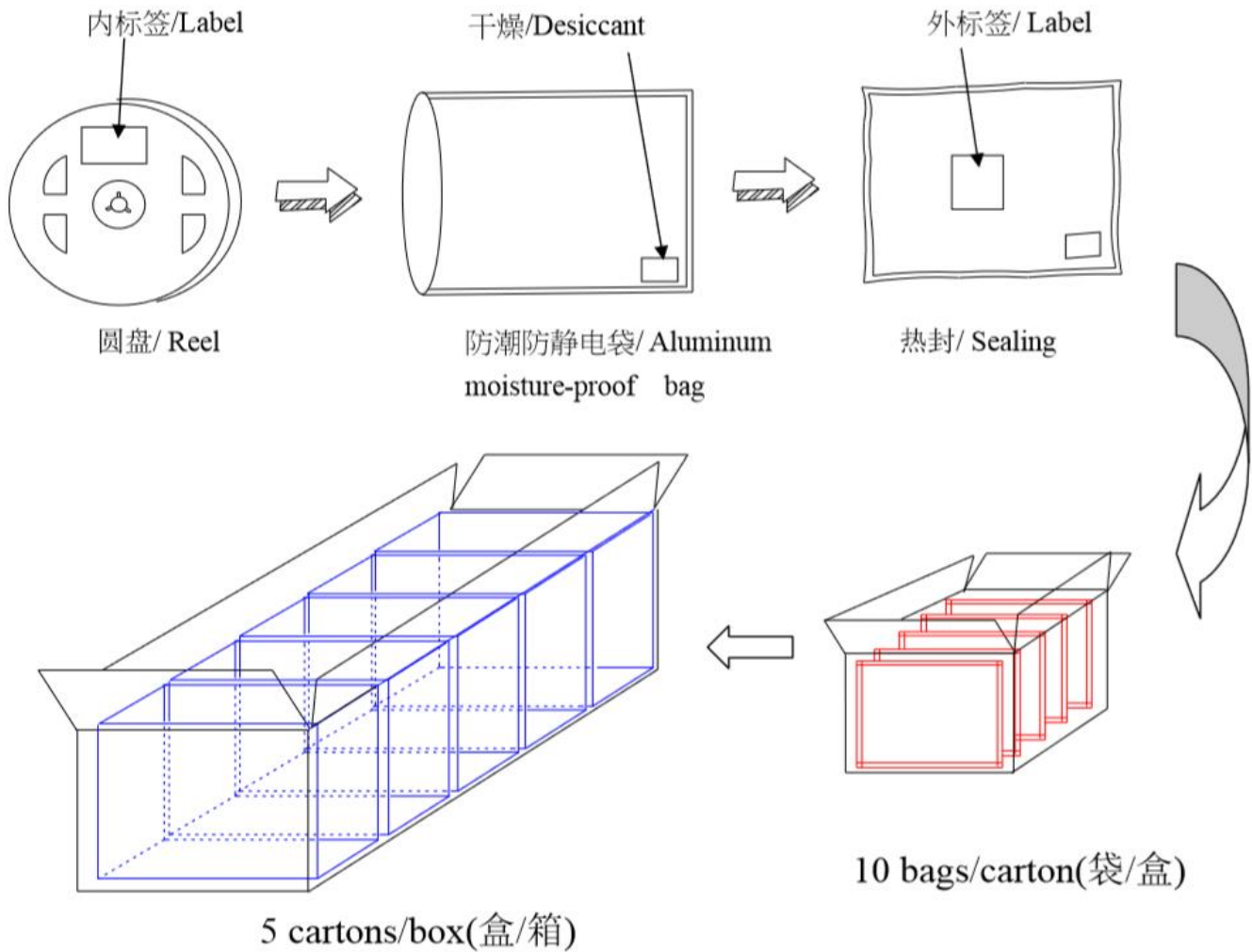
Dim. A	Dim. B	Dim. C	Q'ty/Reel
1.77 ± 0.05	0.97 ± 0.05	0.51 ± 0.05	3K

Unit: mm

Reel Dimension



Packing Dimension

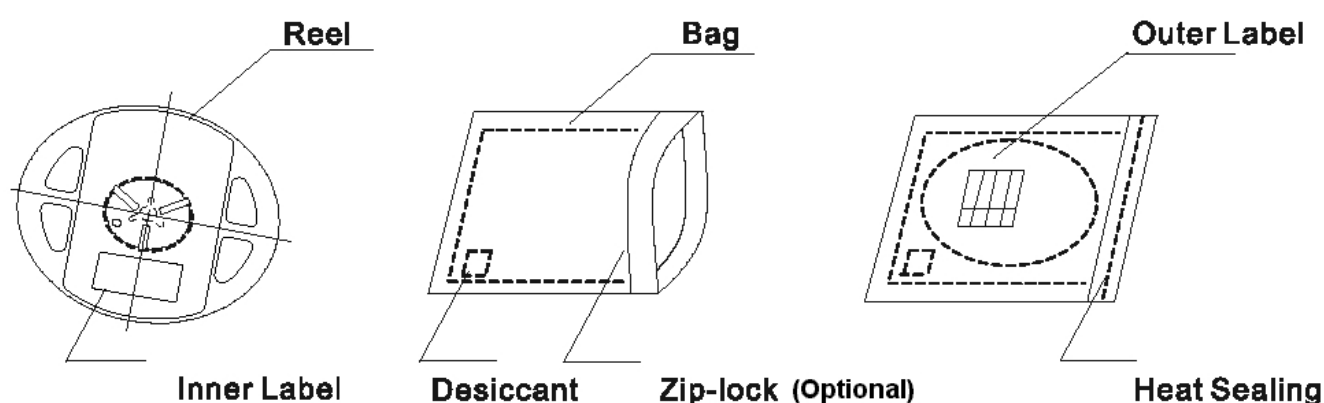


Dry Pack

All SMD optical devices are **MOISTURE SENSITIVE**. Avoid exposure to moisture at all times during transportation or storage. Every reel is packaged in a moisture protected anti-static bag. Each bag is properly sealed prior to shipment.

Upon request, a humidity indicator will be included in the moisture protected anti-static bag prior to shipment.

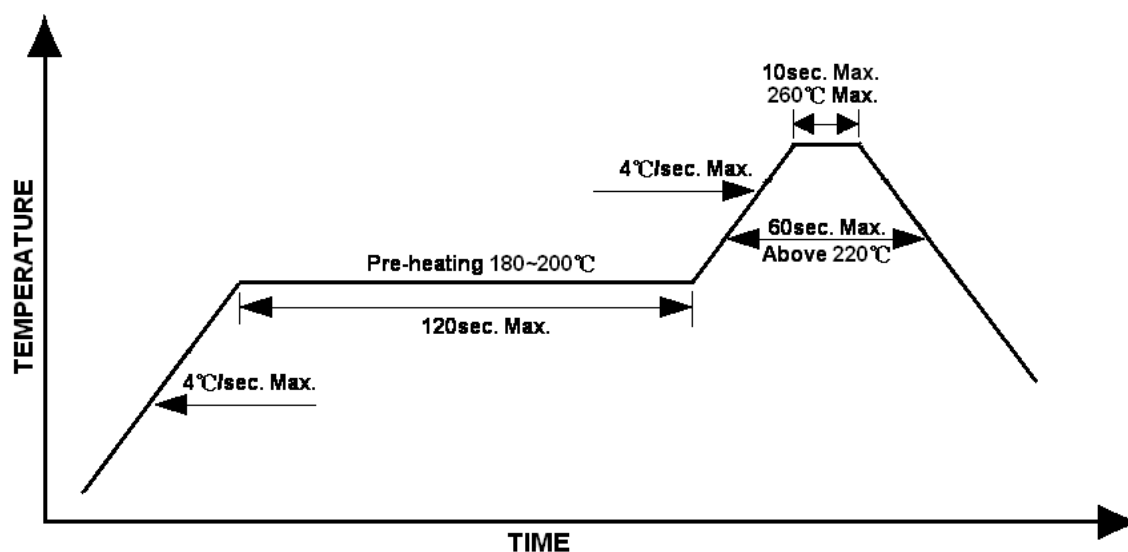
The packaging sequence is as follows:



Reflow Soldering

- Recommended tin glue specifications: melting temperature in the range of 178~192 °C
- The recommended reflow soldering profile is as follows (temperatures indicated are as measured on the surface of the LED resin):

Lead-free Solder Profile



Precautions

- Avoid exposure to moisture at all times during transportation or storage.
- Anti-Static precaution must be taken when handling GaN, InGaN, and AlInGaP products.
- It is suggested to connect the unit with a current limiting resistor of the proper size. Avoid applying a reverse voltage.
- Avoid operation beyond the limits as specified by the absolute maximum ratings.
- Avoid direct contact with the surface through which the LED emits light.
- If possible, assemble the unit in a clean room or dust-free environment.

Reworking

- Rework should be completed within 5 seconds under 260 °C.
- The iron tip must not come in contact with the copper foil.
- Twin-head type is preferred.

Cleaning

Following are cleaning procedures after soldering:

- An alcohol-based solvent such as isopropyl alcohol (IPA) is recommended.
- Temperature x Time should be 50°C x 30sec. or <30°C x 3min
- Ultra sonic cleaning: < 15W/ bath; bath volume ≤ 1liter
- Curing: 100 °C max, <3min

Cautions of Pick and Place

- Avoid stress on the resin at elevated temperature.
- Avoid rubbing or scraping the resin by any object.
- Electro-static may cause damage to the component. Please ensure that the equipment is properly grounded. Use of an ionizer fan is recommended.

Reliability

Item	Frequency/ lots/ samples/ failures	Standards Reference	Conditions
Precondition	For all reliability monitoring tests according to JEDEC Level 2	J-STD-020	1.) Baking at 85°C for 24hrs 2.) Moisture storage at 85°C/ 60% R.H. for 168hrs
Solderability	1Q/ 1/ 22/ 0	JESD22-B102-B And CNS-5068	Accelerated aging 155°C/ 24hrs Tinning speed: 2.5+0.5cm/s Tinning: A: 215°C/ 3+1s or B: 260°C/ 10+1s
Resistance to soldering heat		CNS-5067	Dipping soldering terminal only Soldering bath temperature A: 260+/-5°C; 10+/-1s B: 350+/-10°C; 3+/-0.5s
Operating life test	1Q/ 1/ 40/ 0	CNS-11829	1.) Precondition: 85°C baking for 24hrs 85°C/ 60%R.H. for 168hrs 2.) Tamb25°C; IF=20mA; duration 1000hrs
High humidity, high temperature bias	1Q/ 1/ 45/ 0	JESD-A101-B	Tamb: 85°C Humidity: 85% R.H., IF=5mA Duration: 1000hrs
High temperature bias	1Q/ 1/ 20	IN specs.	Tamb: 55°C IF=20mA Duration: 1000hrs
Pulse life test	1Q/ 1/ 40/ 0		Tamb25°C, If=20mA,, Ip=100mA, Duty cycle=0.125 (tp=125 μ s, T=1sec) Duration 500hrs)
Temperature cycle	1Q/ 1/ 76/ 0	JESD-A104-A IEC 68-2-14, Nb	A cycle: -40 degree C 15min; +85 degree C 15min Thermal steady within 5 min.. 300 cycles 2 chamber/ Air-to-air type
High humidity storage test	1Q/ 1/ 40/ 0	CNS-6117	60+3°C 90+5/-10% R.H. for 500hrs
High temperature storage test	1Q/ 1/ 40/ 0	CNS-554	100+10°C for 500hrs
Low temperature storage test	1Q/ 1/ 40/ 0	CNS-6118	-40+5°C for 500hrs

Revision History

Changes since last revision	Page	Version No.	Revision Date
Initial Release		1.0	02-25-2022

DISCLAIMER

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1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury of the user.
2. A critical component in any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

Mouser Electronics

Authorized Distributor

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