

Features

- 0603 0.8mm SMD LED
- High Brightness
- AllnGaP / InGaN Technology
- Small package
- High reliability

Applications

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

Description

The IN-S63CT 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

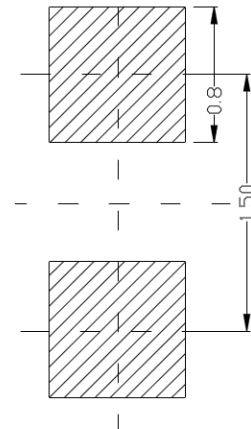


Figure 1. IN-S63CT Series Solder Pattern

Package Dimensions in mm

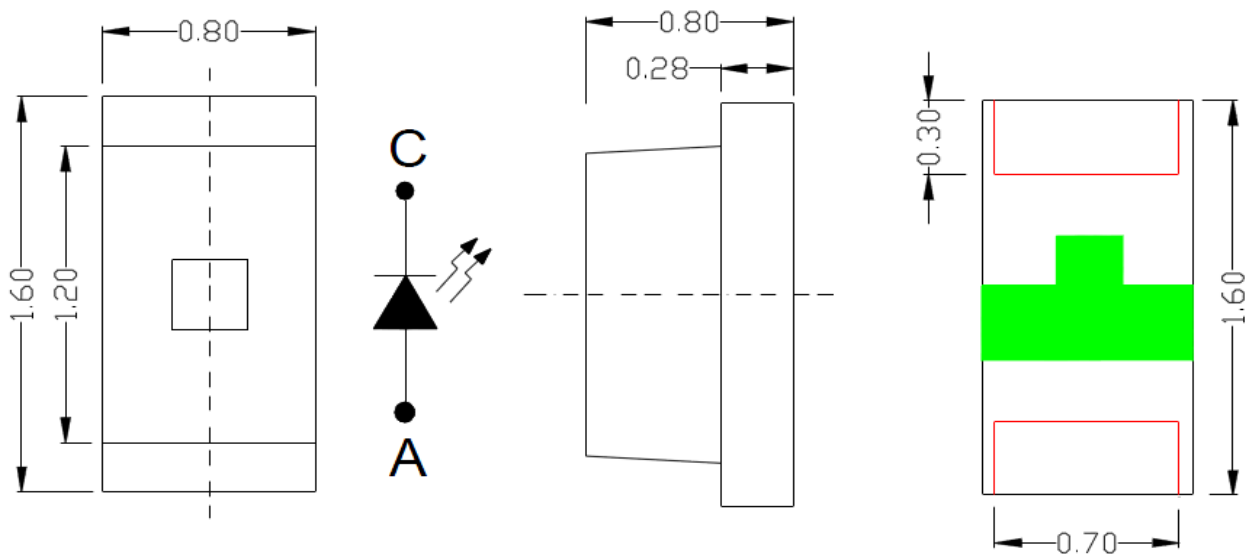


Figure 2. IN-S63CT Package Dimensions

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-S63CTYG	Yellow Green	75	25	70	5	-30°C~+85°C	-40°C~+90°C
IN-S63CTY	Yellow	75	25	70			
IN-S63CTA	Amber	75	25	70			
IN-S63CTR	Red	75	25	70			
IN-S63CT5B	Blue	75	25	100			
IN-S63CTG	Green	75	25	100			
IN-S63CT5UW	White	75	25	100			

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)

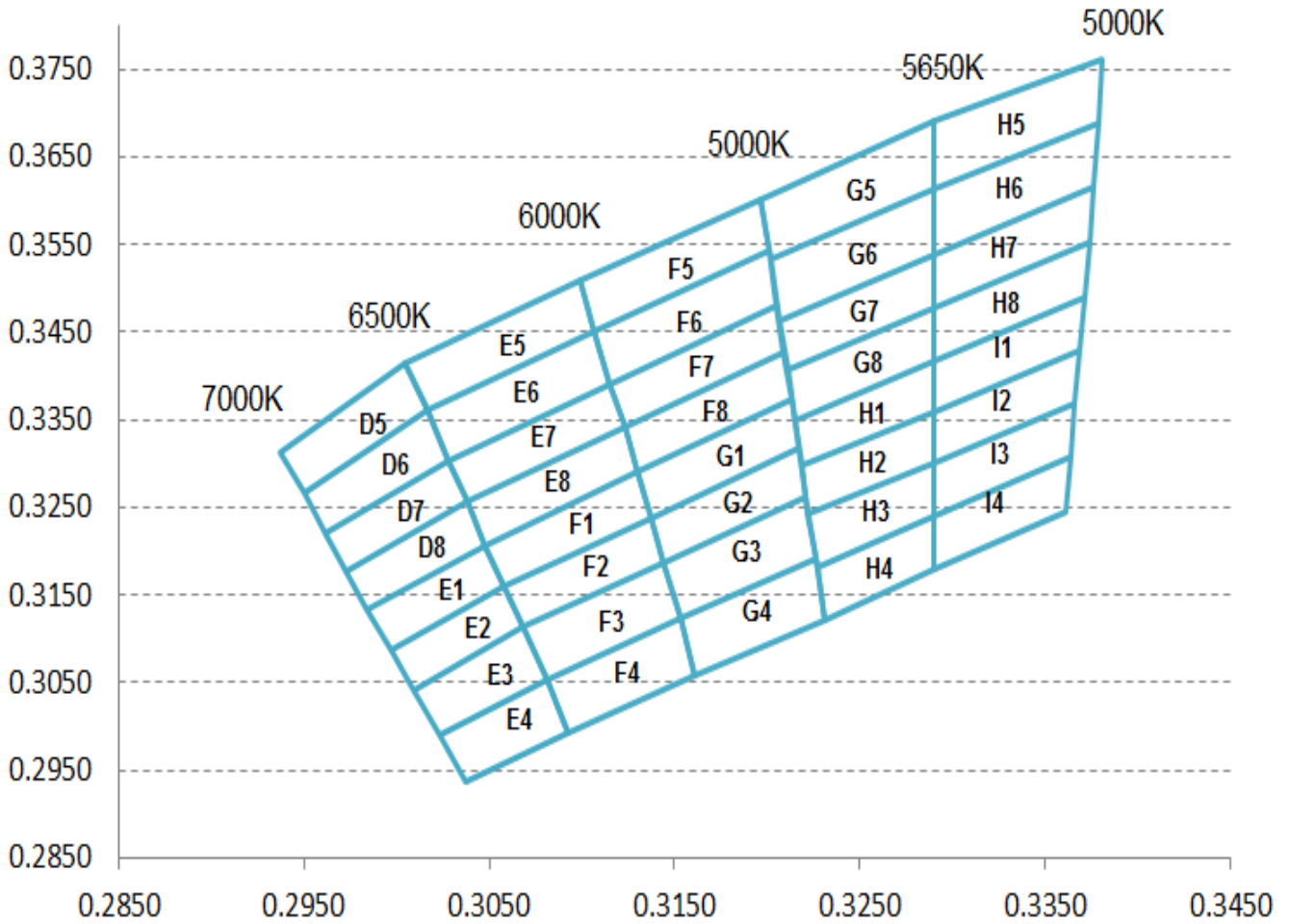
Product	Emission Color	I _F (mA)	V _F (V)		λ(nm)			Viewing Angel	I _v (mcd)
			typ.	max	λ _D	λ _P	Δλ	2θ _{1/2}	typ.
IN-S63CTYG	Yellow Green	20	2.2	2.6	572	576	15	120	45
IN-S63CTY	Yellow	20	1.8	2.6	591	595	15	120	80
IN-S63CTA	Amber	20	2.2	2.6	606	610	17	120	140
IN-S63CTR	Red	20	2.2	2.6	622	630	20	120	140
IN-S63CT5B	Blue	5	2.9	3.1	468	476	30	120	60
IN-S63CTG	Green	20	3.2	3.6	522	530	35	120	560
IN-S63CT5UW	White	5	2.9	3.1	X=0.32 Y=0.33	-	-	120	350

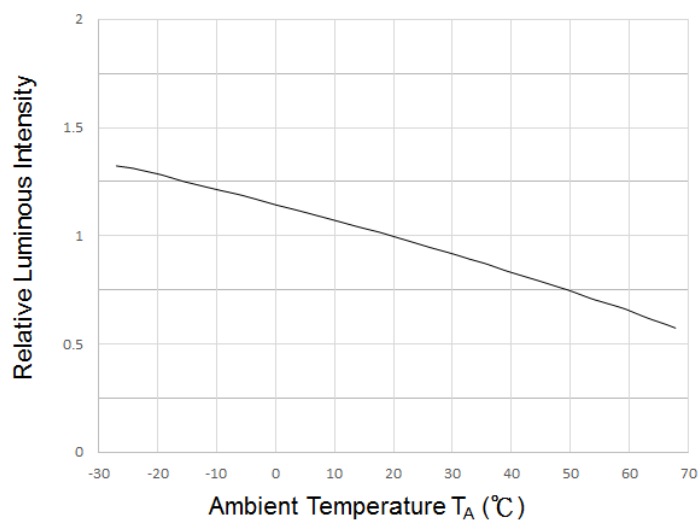
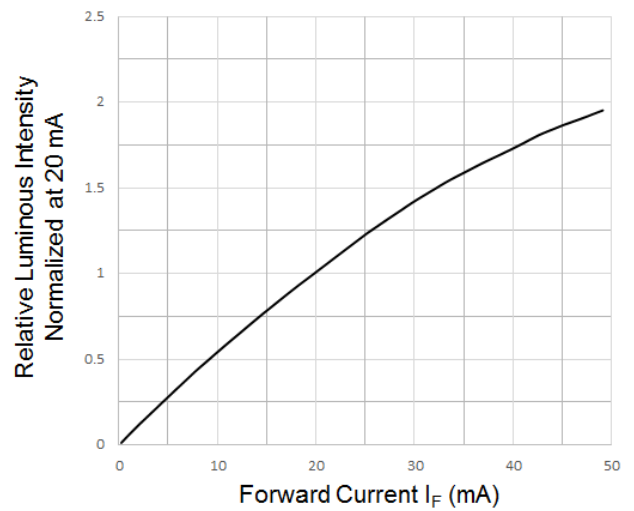
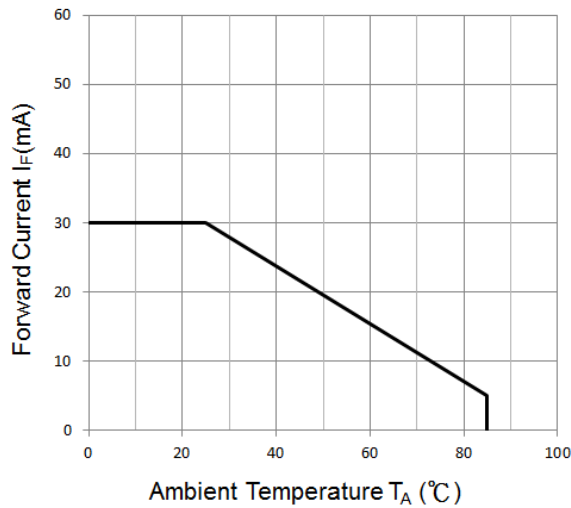
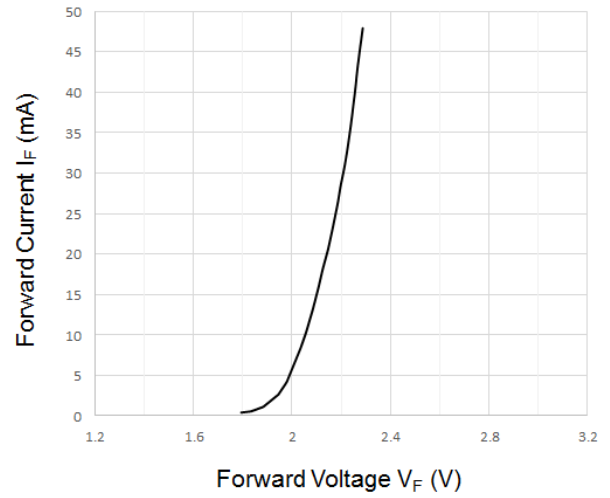
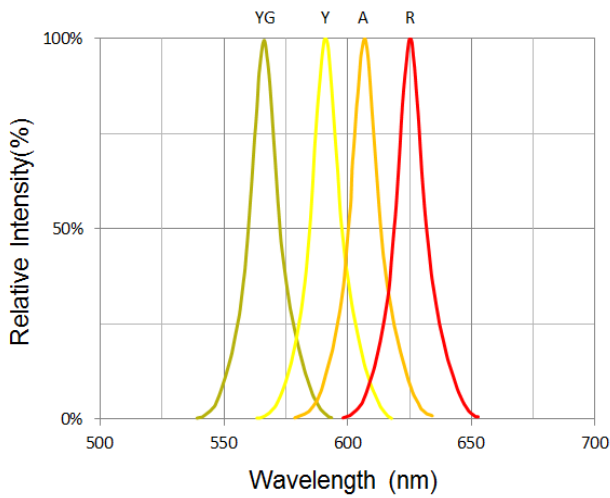
Notes

1. Performance guaranteed only under conditions listed in above tables.

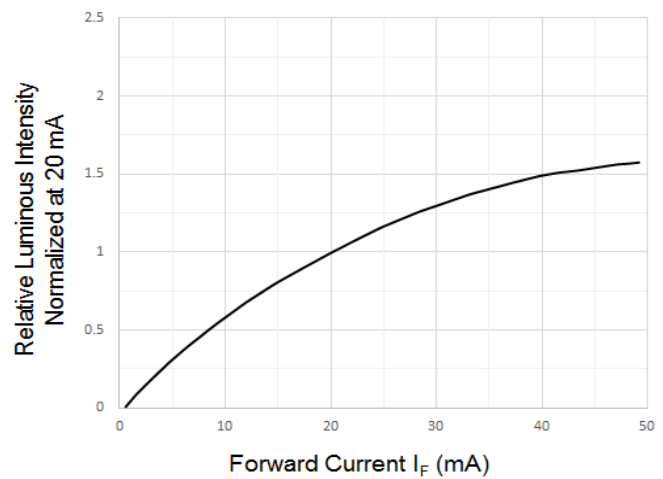
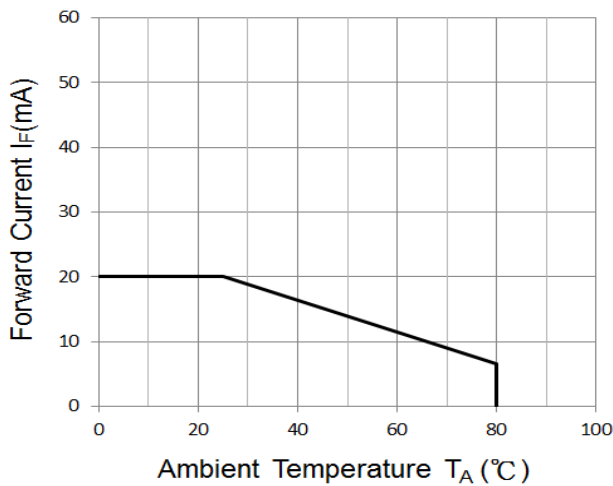
Chromaticity Bin (for White only)

Bin Code	CIE-X	CIE-Y	Bin Code	CIE-X	CIE-Y	Bin Code	CIE-X	CIE-Y
E5	0.3005	0.3415	F1	0.3048	0.3207	G1	0.313	0.329
	0.3017	0.336		0.3058	0.316		0.3137	0.3238
	0.3107	0.345		0.3137	0.3238		0.3217	0.3317
	0.3099	0.3509		0.313	0.329		0.3213	0.3373
E6	0.3017	0.336	F2	0.3058	0.316	G2	0.3137	0.3238
	0.3028	0.3304		0.3068	0.3113		0.3144	0.3186
	0.3115	0.3391		0.3144	0.3186		0.3221	0.3261
	0.3107	0.345		0.3137	0.3238		0.3217	0.3317
E7	0.3028	0.3304	F3	0.3068	0.3113	G3	0.3144	0.3186
	0.3038	0.3256		0.3081	0.3053		0.3153	0.3123
	0.3123	0.3341		0.3153	0.3123		0.3226	0.3191
	0.3115	0.3391		0.3144	0.3186		0.3221	0.3261
E8	0.3038	0.3256	F4	0.3081	0.3053	G4	0.3153	0.3123
	0.3048	0.3207		0.3093	0.2993		0.3161	0.3059
	0.313	0.329		0.3161	0.3059		0.3231	0.312
	0.3123	0.33405		0.3153	0.3123		0.3226	0.3191
F7	0.3115	0.3391	F5	0.3099	0.3509	G5	0.3202	0.3532
	0.3123	0.3341		0.3107	0.345		0.3290	0.3614
	0.3209	0.3427		0.3201	0.3542		0.3290	0.3690
	0.3205	0.3481		0.3196	0.3602		0.3196	0.3602
F8	0.3123	0.3341	F6	0.3107	0.345	G6	0.3202	0.3532
	0.313	0.329		0.3115	0.3391		0.3207	0.3462
	0.3213	0.3373		0.3205	0.3481		0.3290	0.3537
	0.3209	0.3427		0.3201	0.3542		0.3290	0.3614
G7	0.3207	0.3462	H4	0.3227	0.3182	I1	0.3290	0.3417
	0.3211	0.3406		0.3231	0.3120		0.3290	0.3359
	0.3290	0.3477		0.3290	0.3180		0.3369	0.3430
	0.3290	0.3537		0.3290	0.3240		0.3371	0.3490
G8	0.3211	0.3406	H5	0.3290	0.3690	I2	0.3290	0.3359
	0.3215	0.3350		0.3290	0.3614		0.3290	0.3300
	0.3290	0.3417		0.3379	0.3689		0.3366	0.3369
	0.3290	0.3477		0.3381	0.3762		0.3369	0.3430
H1	0.3215	0.3350	H6	0.3290	0.3614	I3	0.3290	0.3300
	0.3219	0.3297		0.3290	0.3538		0.3290	0.3240
	0.3290	0.3359		0.3376	0.3616		0.3364	0.3307
	0.3290	0.3417		0.3379	0.3689		0.3366	0.3369
H2	0.3219	0.3297	H7	0.3290	0.3538	I4	0.3290	0.3240
	0.3222	0.3243		0.3290	0.3478		0.3290	0.3180
	0.3290	0.3300		0.3374	0.3553		0.3361	0.3245
	0.3290	0.3359		0.3376	0.3616		0.3364	0.3307
H3	0.3222	0.3243	H8	0.3290	0.3478	D5	0.2937	0.3312
	0.3227	0.3182		0.3290	0.3417		0.2950	0.3266
	0.3290	0.3240		0.3371	0.3490		0.3017	0.3360
	0.3290	0.3300		0.3374	0.3553		0.3005	0.3415
D7	0.2962	0.3220	E1	0.2984	0.3133	D6	0.2950	0.3266
	0.2973	0.3177		0.2997	0.3088		0.2962	0.3220
	0.3038	0.3256		0.3058	0.3160		0.3028	0.3304
	0.3028	0.3304		0.3048	0.3207		0.3017	0.3360
D8	0.2973	0.3177	E2	0.2997	0.3088	E3	0.3009	0.3042
	0.2984	0.3133		0.3009	0.3042		0.3023	0.2990
	0.3048	0.3207		0.3068	0.3113		0.3081	0.3053
	0.3038	0.3256		0.3058	0.3160		0.3068	0.3113
E4	0.3023	0.2990						
	0.3037	0.2937						
	0.3093	0.2993						
	0.3081	0.3053						



Typical Characteristic Curves – YG, Y, A, R


Typical Characteristic Curves – B, G, W

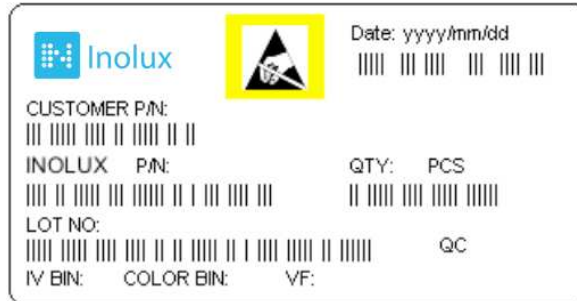


Typical Characteristic Curves – Radiation Pattern

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-S63CTYG	Yellow Green	AllnGaP	20	45	2.2	IN-S63CTYG
IN-S63CTY	Yellow	AllnGaP	20	80	1.8	IN-S63CTY
IN-S63CTA	Amber	AllnGaP	20	140	2.2	IN-S63CTA
IN-S63CTR	Red	AllnGaP	20	140	2.2	IN-S63CTR
IN-S63CT5B	Blue	InGaN	5	60	2.9	IN-S63CT5B
IN-S63CTG	Green	InGaN	20	560	3.2	IN-S63CTG
IN-S63CT5UW	White	InGaN	5	350	2.9	IN-S63CT5UW

Label Specifications

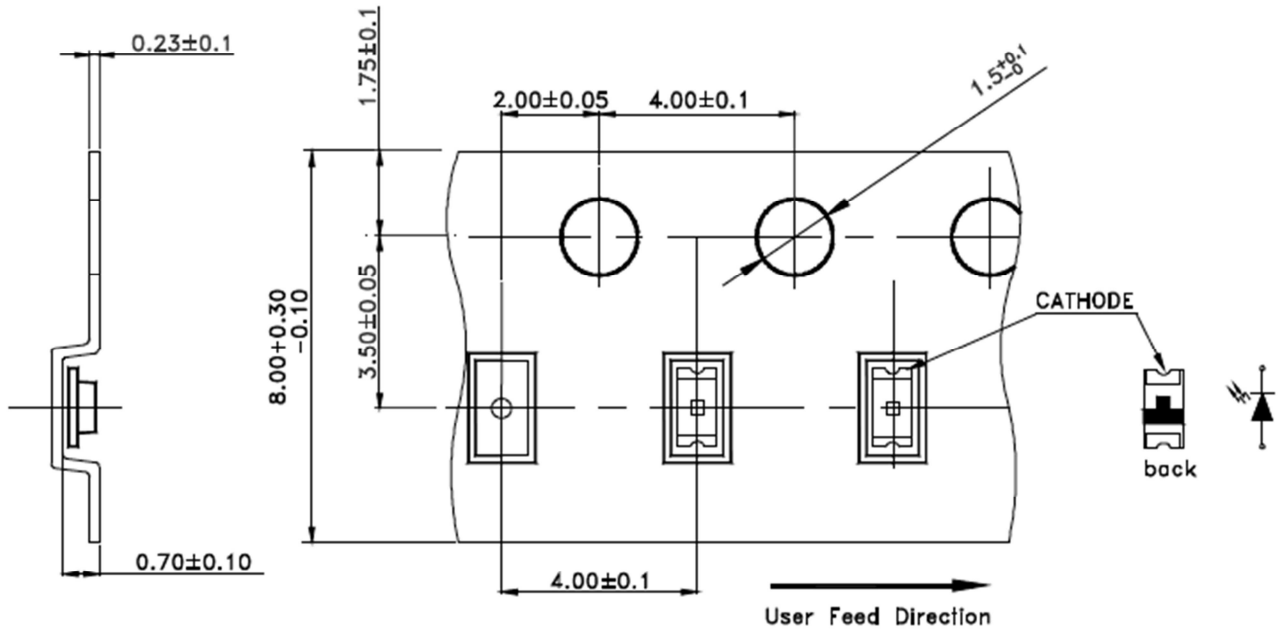
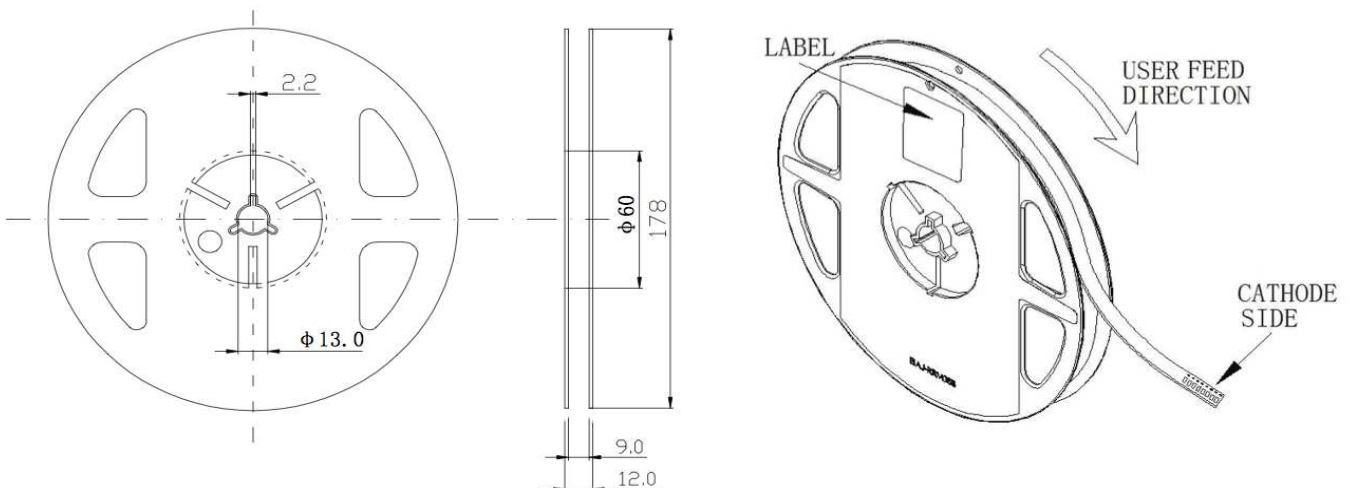


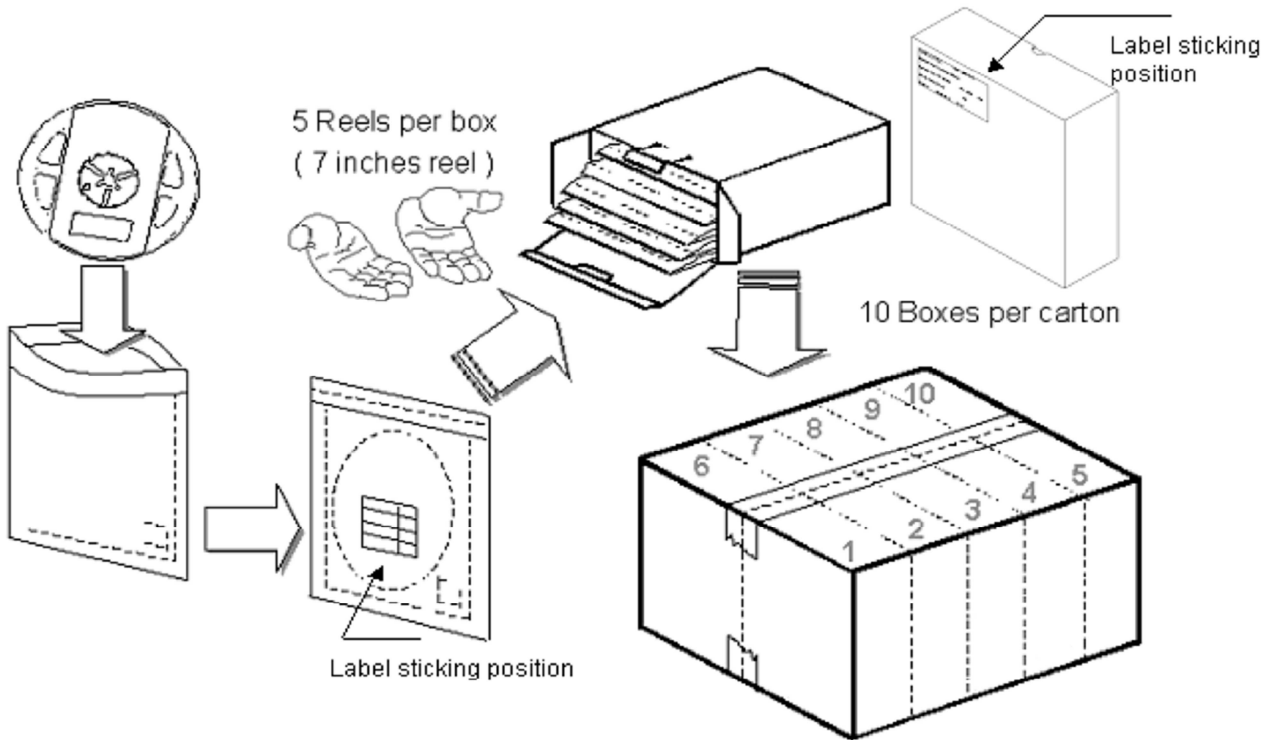
Inolux P/N:

I	N	-	S	6	3	C	T			X	-	X	X	X	X
Inolux SMD			Material	Package		Variation	Orientation	Current	Lens	Color		Customized Stamp-off			
			S = PCB Type	63C = 1.6 x 0.8 x 0.8mm			T = Top Mount	(Blank) = 20mA 5=5mA	(Blank) = Clear U = Diffused	R=630nm A=610nm Y=595nm YG=576nm G=530nm B=476nm W=White					

Lot No.:

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

Packaging Information: 4000pcs Per Reel
Tape Dimension

Reel Dimension


Packing Dimension


5 boxes per carton are available depending on shipment quantity.

	Specification	Material	Quantity
Carrier tape	Per EIA 481-1A specs	Conductive black tape	4000pcs per reel
Reel	Per EIA 481-1A specs	Conductive black	
Label	IN standard	Paper	
Packing bag	220x240mm	Aluminum laminated bag/ no-zipper	One reel per bag
Carton	IN standard	Paper	Non-specified

Others:

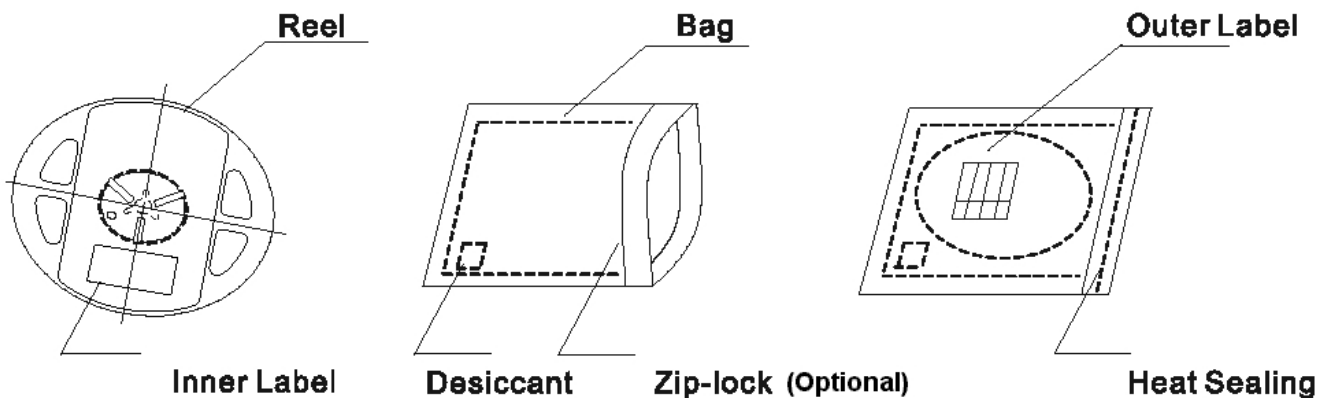
Each immediate box consists of 5 reels. The 5 reels may not necessarily have the same lot number or the same bin combinations of I_v , λ_D and V_f . Each reel has a label identifying its specification; the immediate box consists of a product label as well.

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.

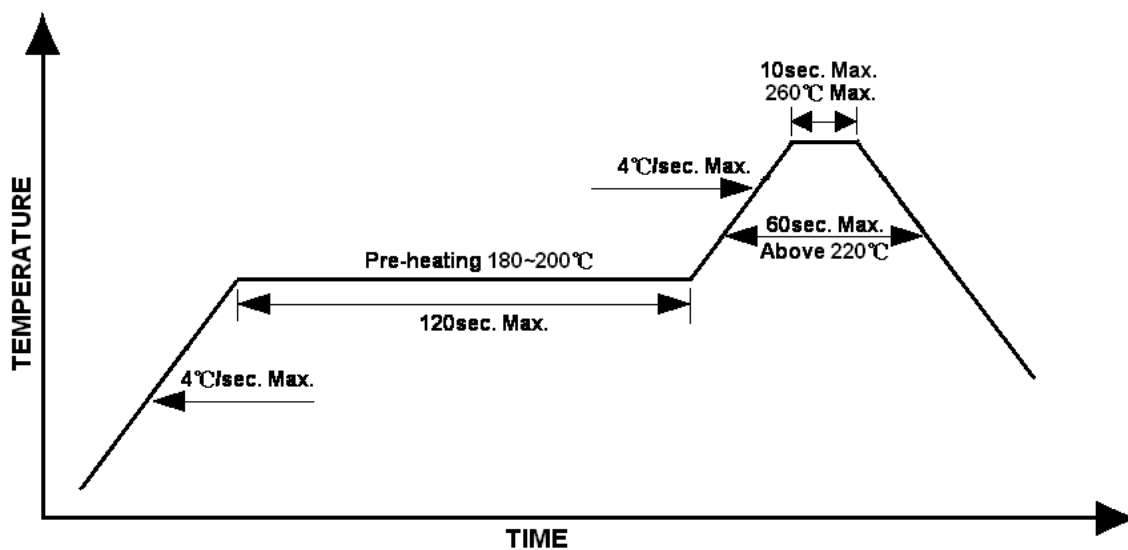
The packaging sequence is as follows:



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 μs, 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		V1.0	05-12-2017

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.