Features

- 3535 IR LED
- ROHS and REACH Compliant
- Good thermal dissipation & optical uniformity
- Dual junction chip and high light efficacy
- ESD 2KV

Description

The IN-C33D(X)TOHIR is a high-power 940nm IR LED with dual junction chip. It is a SMD type LED which can be used in various applications.

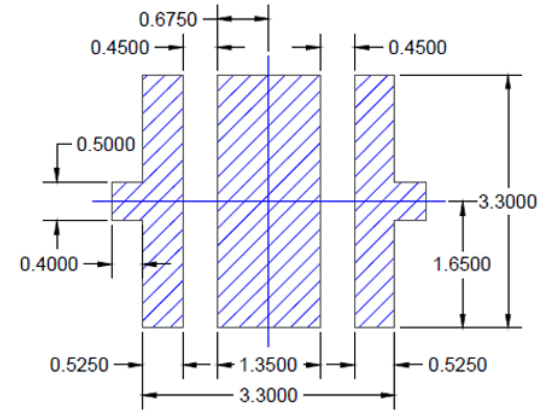
Applications

- IP Cam
- Security
- Industrial facility applications

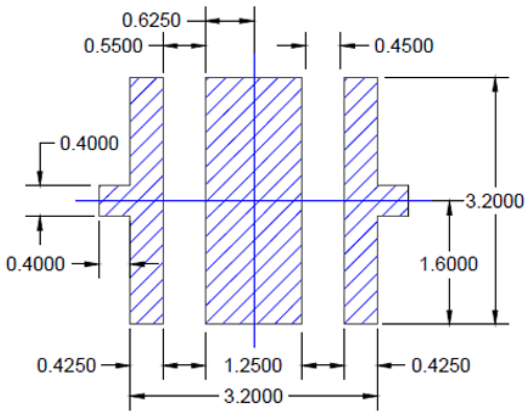
Outline(mm)			
30D	60D	120D	90D
3.5x3.5x3.5	3.5x3.5x2.8	3.5x3.5x2.0	3.5x3.5x2.34
IN-C33DATOHIR	IN-C33DBTOHIR	IN-C33DCTOHIR	IN-C33DETOHIR

Recommended Solder Pattern

(Suggest Stencil t=0.12 mm)



Recommended PCB Solder PAD



Recommended Stencil Pattern (Hatched Area is Opening)

Figure 1. IN-C33D(X)TOIR Recommended Solder Pattern

Notes:
1. All dimensions are in millimeters.
2. Tolerance is ±0.13mm unless others are specified.

Package Dimensions

(All dimensions are in mm, tolerance is ±0.13mm)

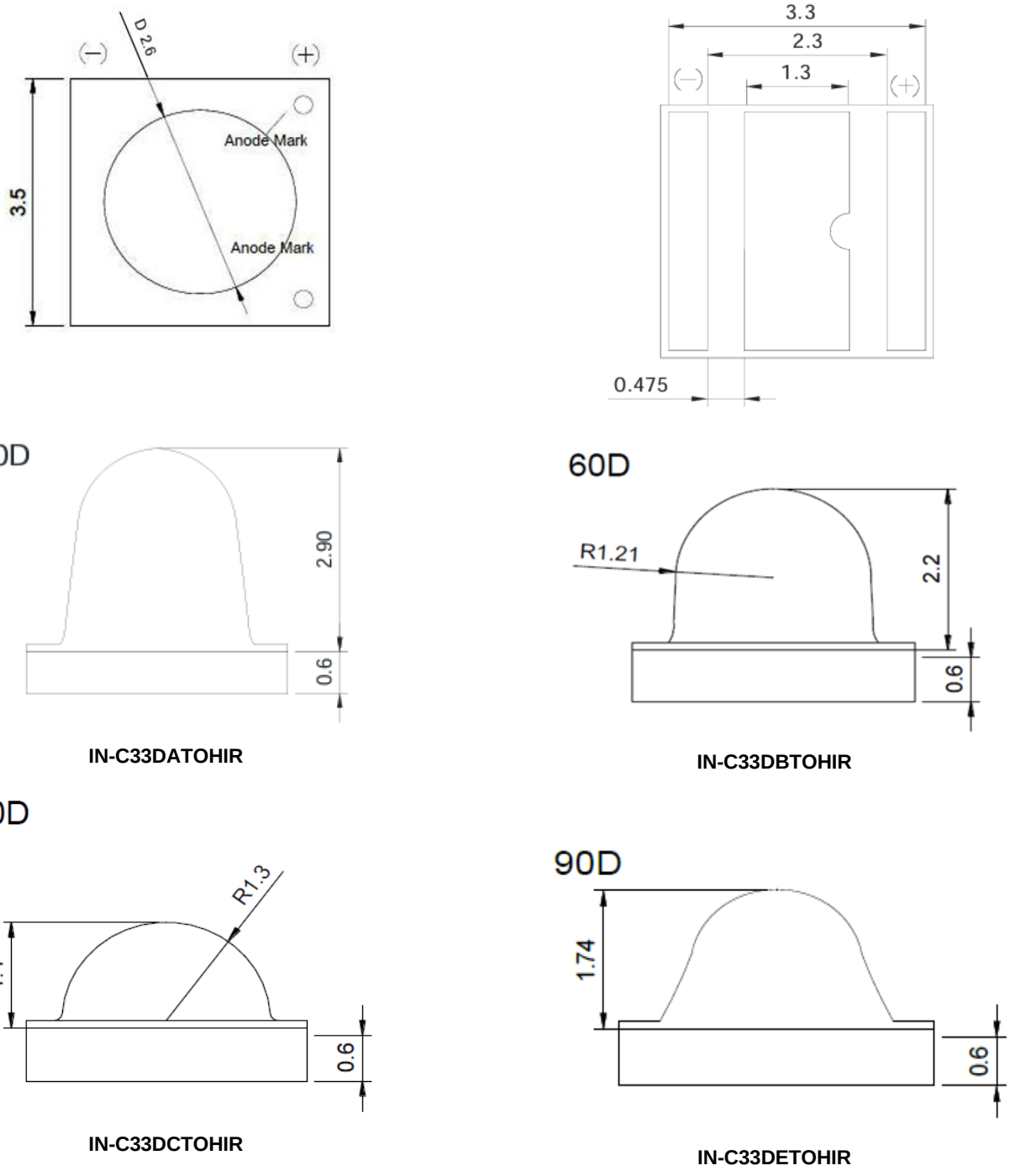


Figure 2. IN-C33D(X)TOHIR Package Dimension

Absolute Maximum Rating at 25ºC

Product	I_F (mA) max	I_{FP}* (mA)	V_R (V)	I_R (μA) max	T_j (ºC)	T_{stg} (ºC)	T_{opr} (ºC)	R_{th} (ºC/W)	Soldering Temp.
IN-C33DATOHIR IN-C33DBTOHIR IN-C33DCTOHIR IN-C33DETOHIR	1000	1200	-5	10	105 ºC	-40~+100	-20~+80	6.5	260 ºC, 5 sec

Electrical Characteristics T_A = 25℃ (Note 1)

Product	V_F(V)@1000mA			Beam Angle			
	min	typ.	max	IN-C33DATOHIR	IN-C33DBTOHIR	IN-C33DCTOHIR	IN-C33DETOHIR
IN-C33DATOHIR IN-C33DBTOHIR IN-C33DCTOHIR IN-C33DETOHIR	2.8	---	3.8	30	60	120	90

Notes

1. Forward Voltage (Vf) measurement tolerance is ±0.1V
2. Peak Wavelength (Wp) measurement tolerance is ±1.5nm
3. Test condition: 1000 mA at time = 0.01 sec
4. When drive on maximum current, Tj must be kept below 105℃
5. Viewing angle(2θ1/2) measurement tolerance is ± 5°

ESD Precaution

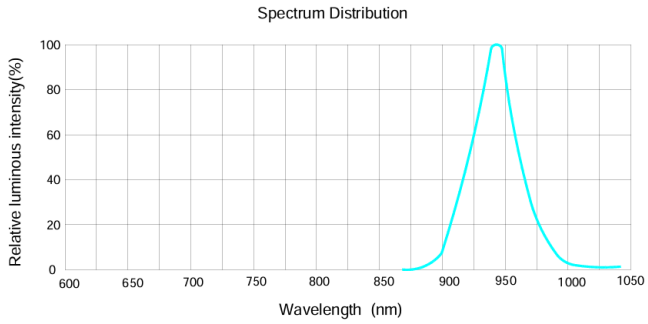
ATTENTION: Electrostatic Discharge (ESD) protection

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.

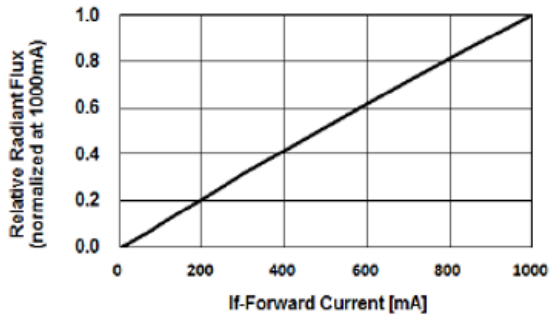
Please be advised that normal static precautions should be taken in the handling and assembly of this device to prevent damage or degradation which may be induced by electrostatic discharge (ESD).

Electronic-Optical Characteristics

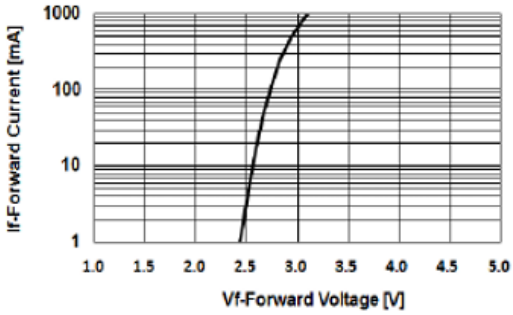
Spectrum Distribution



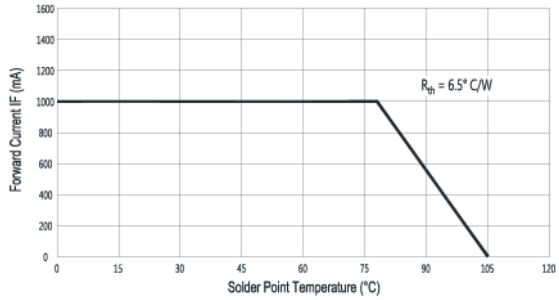
Luminous Intensity VS. Forward Current



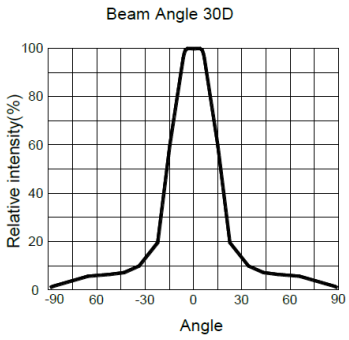
Forward Current VS. Forward Voltage

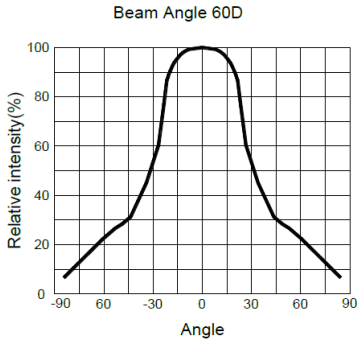


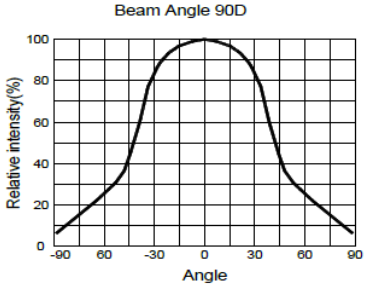
Thermal Design for De-rating

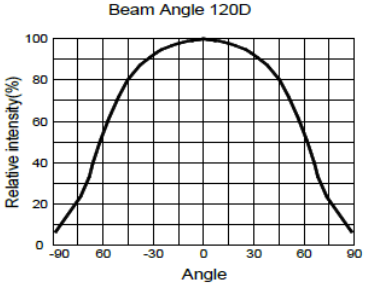


Beam angle (2θ1/2)









Notes:

Viewing angle(2θ1/2) ± 10°

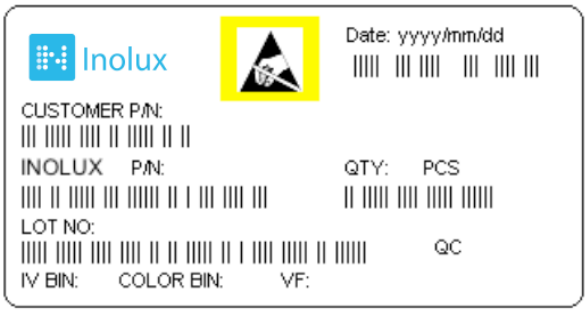
Ordering Information

Orderable Part Number	Peak Wavelength (nm)	Radiometric Power (mW) @1000mA			Forward Voltage (V)		Angle
		Group	Min	Max	Min	Max	
IN-C33DATOHIR	930-950	A	900	1100	2.8	3.3	30°
		B	1100	1300	3.3	3.8	30°
		A	900	1100	2.8	3.3	30°
		B	1100	1300	3.3	3.8	30°
IN-C33DBTOHIR	930-950	A	900	1100	2.8	3.3	60°
		B	1100	1300	3.3	3.8	60°
		A	900	1100	2.8	3.3	60°
		B	1100	1300	3.3	3.8	60°
IN-C33DETOHIR	930-950	A	900	1100	2.8	3.3	90°
		B	1100	1300	3.3	3.8	90°
		A	900	1100	2.8	3.3	90°
		B	1100	1300	3.3	3.8	90°
IN-C33DCTOHIR	930-950	A	900	1100	2.8	3.3	120°
		B	1100	1300	3.3	3.8	120°
		A	900	1100	2.8	3.3	120°
		B	1100	1300	3.3	3.8	120°

Note:

1. Forward voltage (V_F) ±0.1V, Radiometric Power (Po) ±10%.
2. Testing current is 1000mA

Label Specifications



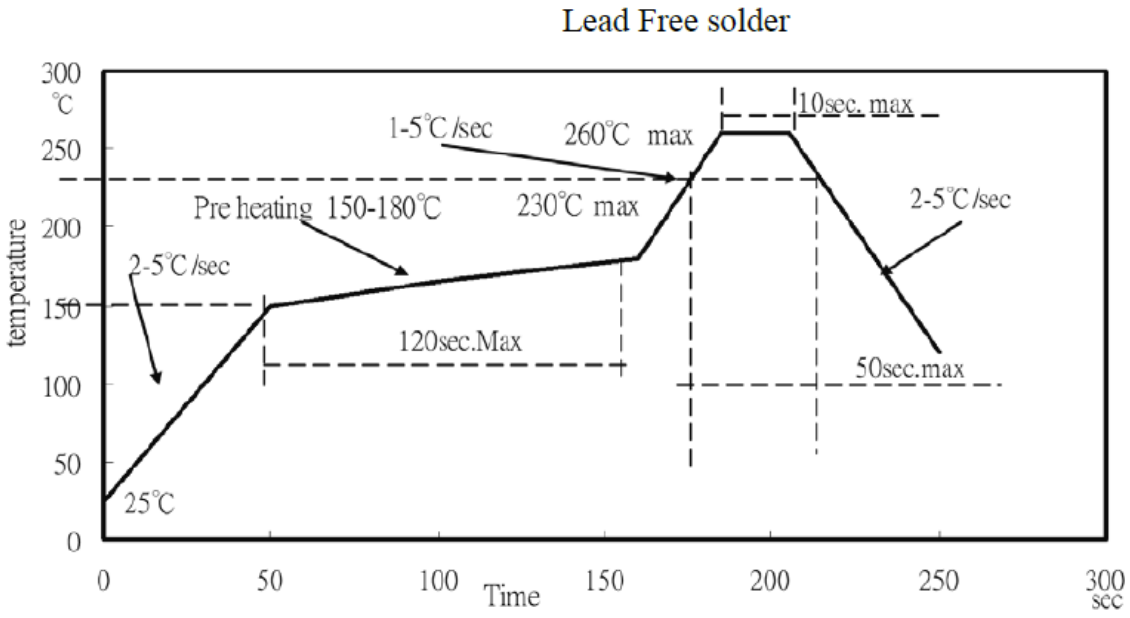
Inolux P/N:

I	N	-	C	3	3	(X)	D	T	O		HIR	-	X	X	X	X
			Material	Package		Variation	Chip	Orientation	Current	Lens	Color		Customized Stamp-off			
Inolux SMD			C = Ceramic Type	33A = 3.5 x 3.5, 30 Deg. 33B = 3.5 x 3.5, 60 Deg. 33C = 3.5 x 3.5, 120 Deg. 33E = 3.5 x 3.5, 90 Deg. D: Dual Junction Chip				T = Top Mount	O = 1000mA	(Blank) = Clear	IR = 940nm					

Lot No.:

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

Reflow Soldering



Soldering Iron

Basic Spec is ≦ 4 sec. when 260°C (+10°C ➔ -1 second). Power dissipation of Iron should be less than 15W. Surface temperature should be under 230°C

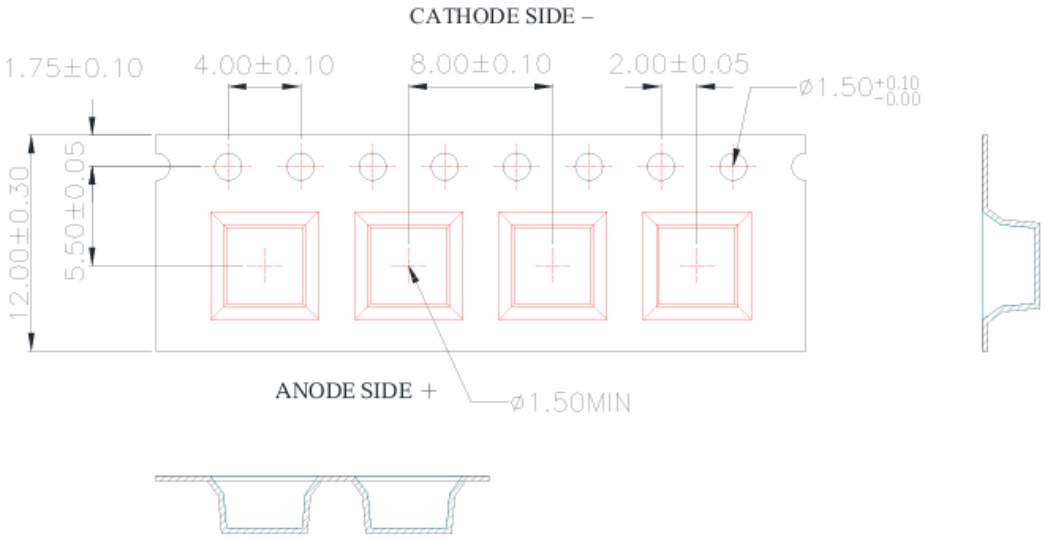
Rework

Rework should be completed within 4 second under 245°C

Notes

1. Do not stress the silicone resin while it is exposed to high temperature.
2. The reflow process should not exceed 3 times.

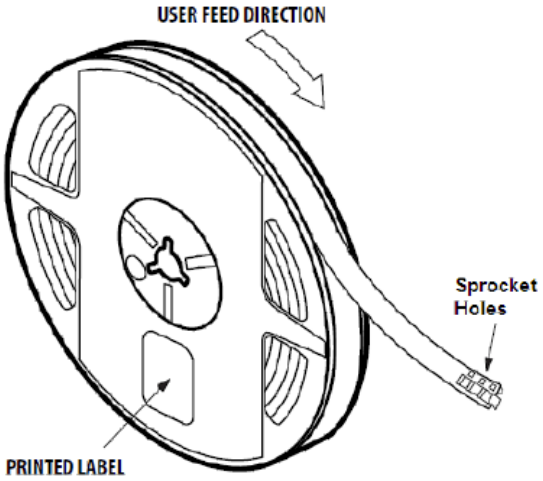
Packing



1. 10 sprocket hole pitch cumulative tolerance ±0.20.
2. Carrier camber is within 1 mm in 250 mm.
3. Material : Black Conductive Polystyrene Alloy.
4. All dimensions meet EIA-481-D requirements.
5. Thickness : 0.30±0.05mm.

Notes:

1. Each Reel (120° maximum is 1000 pcs, other products maximum are 500 pcs) is packed in a moisture-proof bag along with 1 packs of desiccant and a humidity indicator card.



Precautions

1. Recommendation for using LEDs

   1.1 The lens of LEDs should not be exposed to dust or debris. Excessive dust and debris may cause a drastic decrease in the luminosity.

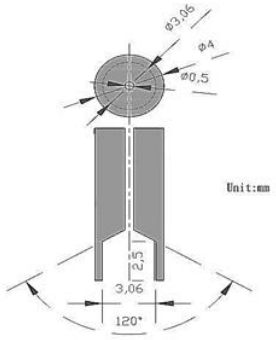
   1.2 Avoid mechanical stress on LED lens.

   1.3 Do not touch the LED lens surface. It would affect the optical performance of the LED due to the LED lens' damage.

   1.4 Pick & place tools are recommended for the remove of LEDs from the factory tape & reel packaging

2. Pick & place nozzle

   The pickup tool was recommended and shown as below



3. Lens handling

   Please follow the guideline to pick LEDs

   3.1 Use tweezers to pick LEDs

   3.2 Do not touch the lens by using tweezers

   3.3 Do not touch lens with fingers

   3.4 Do not apply more than 4N of lens (400g) directly onto the lens

4. Lens cleaning

   In the case which a small amount of dirt and dust particles remain on the lens surface, a suitable cleaning solution can be applied.

   4.1 Try a gentle wiping with dust-free cloth

   4.2 If needed, use dust-free cloth and isopropyl alcohol to gently clean the dirt from the lens surface.

   4.3 Do not use other solvents as they may directly react with the LED assembly

   4.4 Do not use ultrasonic cleaning which will damage the LEDs

Revision History

Changes since last revision	Page	Version No.	Revision Date
Initial Release		1.0	04-24-2025

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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.