INL-3APD80
3mm Photodiode
Though Hole Lamp LED

Features

- Low power consumption
- General purpose leads
- Bulk, Available on tape and reel
- Fast response time
- High photo sensitivity
- Small junction capacitance
- Compliance with EU REACH
- The product itself remain within RoHS compliant version

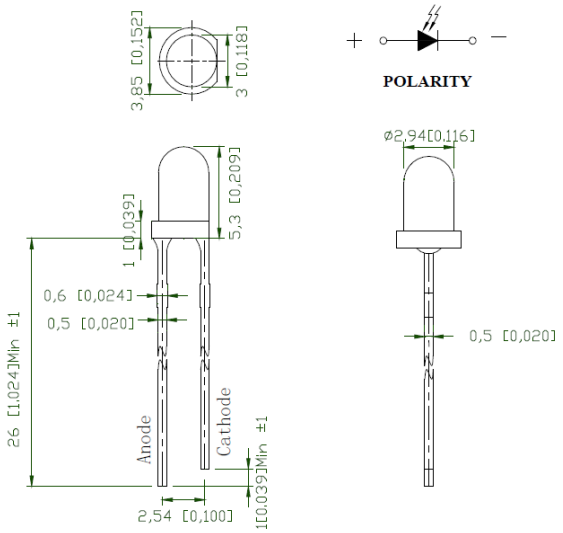
Description

- The INL-3APD80 is a high speed and high sensitive silicon PIN photodiode in a standard 3mm epoxy package.
- Due to its clear epoxy, the device is sensitive to near and infrared radiation.

Applications

- High speed photo detector
- Automatic door sensor
- Security system
- Industrial equipment
- Infrared application system

Package Dimensions in mm



Notes:
1. All dimensions are in millimeters (inches).
2. Tolerance is ± 0.25 mm (.010〃) unless otherwise noted.

Figure 1. INL-3APD80 Package Dimensions

Absolute Maximum Rating at 25°C

Symbol	Parameters	Ratings	Units	Notes
V_R	Reverse Voltage	32	V	1
T_{opr}	Operating Temperature	-40~+80	℃	
T_{stg}	Storage Temperature	-40~+85	℃	
T_{sol}	Soldering Temperature	260	℃	2
P_D	Total Power Dissipation	150	mW	

Notes

1. Test conditions : I_R=100μA, Ee=0mW/cm2.
2. Soldering time≦5 seconds.

Electro-Optical Characteristics

Symbol	Parameters	Test conditions	Min	Typ	Max	Units
λ_D	Rang of Spectral Bandwidth	---	400	-	1100	nm
λ_P	Wavelength of Peak Sensitivity	---	-	850		nm
V_{BR}	Reverse Breakdown Voltage	E_e=0mW/cm2 IR=100uA	30	170	-	V
V_{OC}	Open-Circuit Voltage	Ee=1mW/cm² λ_P=850nm	-	0.4	-	V
I_{SC}	Short-Circuit Current	Ee=1mW/cm² λ_P=850nm	-	35	-	uA
I_D	Dark Current	Ee=0mW/cm² V_R=10V	-	5	30	nA
I_L	Reverse Light Current	Ee=1mW/cm² λ_P=850nm, V_R=5V	20	35	-	uA
t_r	Rise Time	V_R=10V, RL=100Ω	-	45	-	uS
t_f	Fall Time		-	45	-	uS
C_T	Transition Capacitance	E_e=0mW/cm² f=1MHz, V_R=5V		18		pF
$2\theta_{1/2}$	Receiving Angle	I_F=20mA		80		Deg.

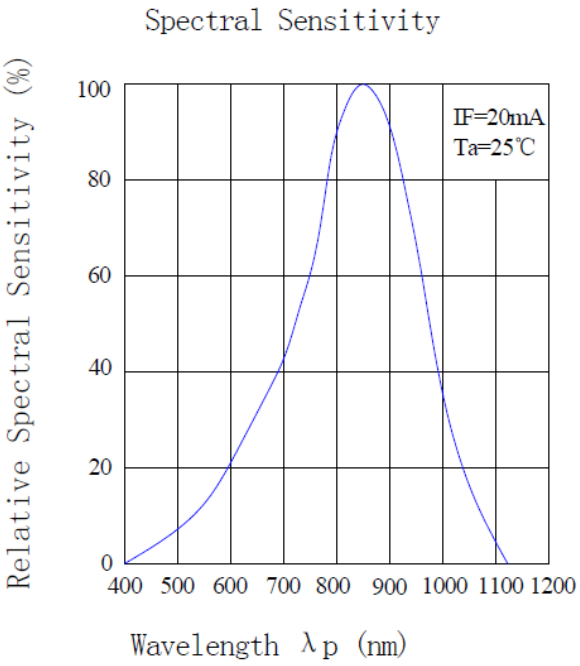
ESD Precaution

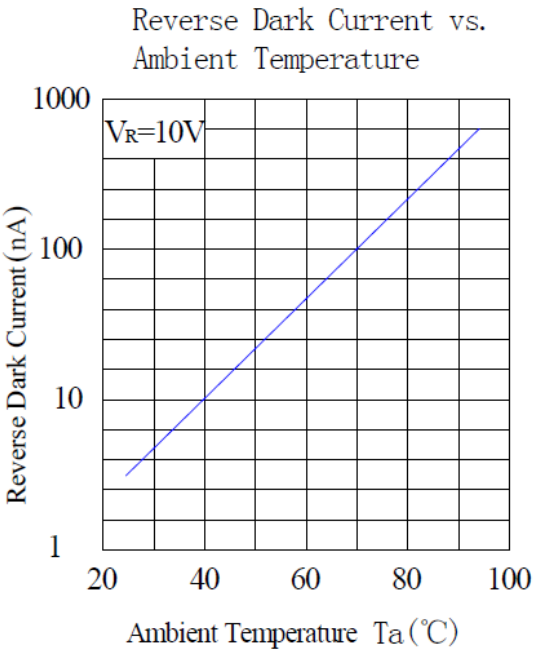
ATTENTION: Electrostatic Discharge (ESD) protection

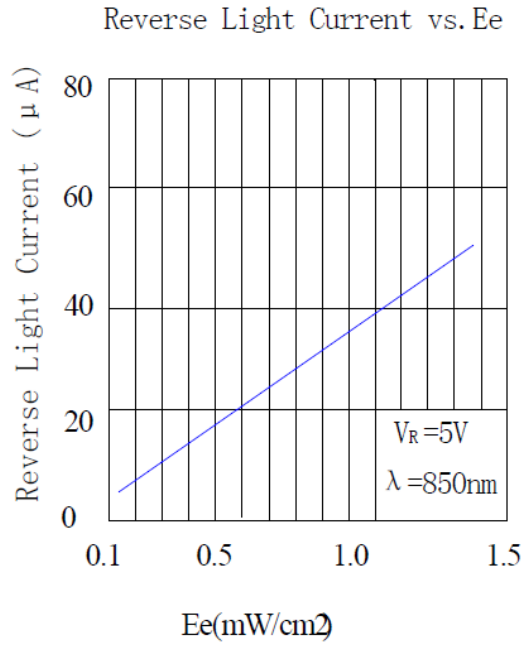
The symbol above denotes that ESD precaution is needed. ESD protection for GaP and AlGaAs based chips is necessary even though they are relatively safe in the presence of low static-electric discharge. Parts built with AlInGaP, GaN, or/and InGaN based chips are STATIC SENSITIVE devices. ESD precaution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

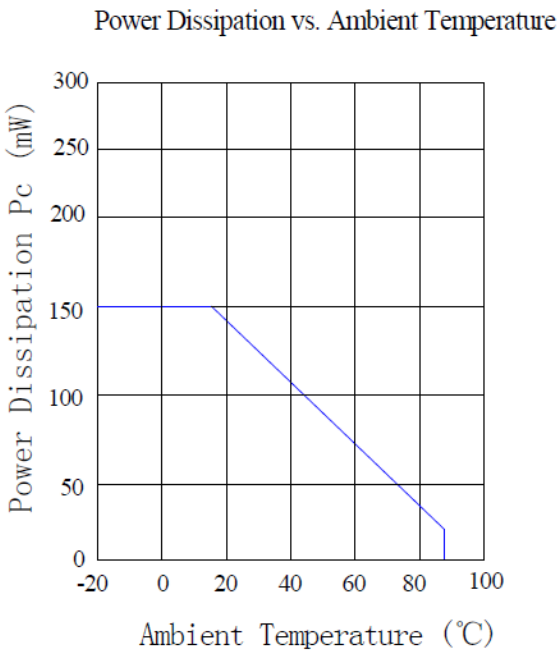
Please be advised that normal static precautions should be taken in the handling and assembly of this device to prevent damage or degradation which may be induced by electrostatic discharge (ESD).

Typical Characteristic Curves

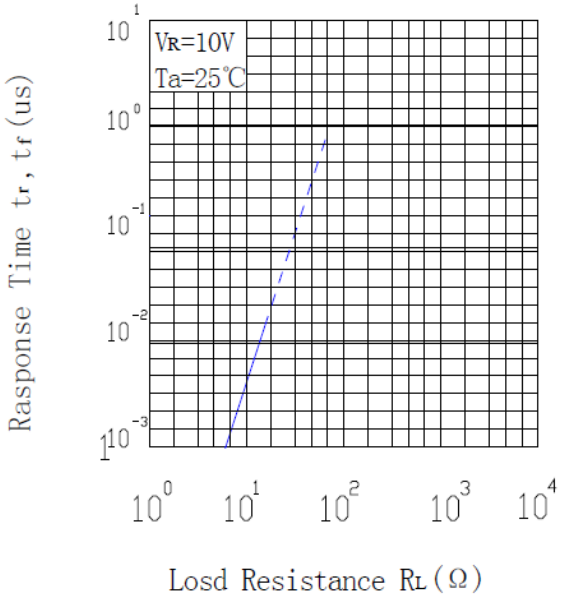




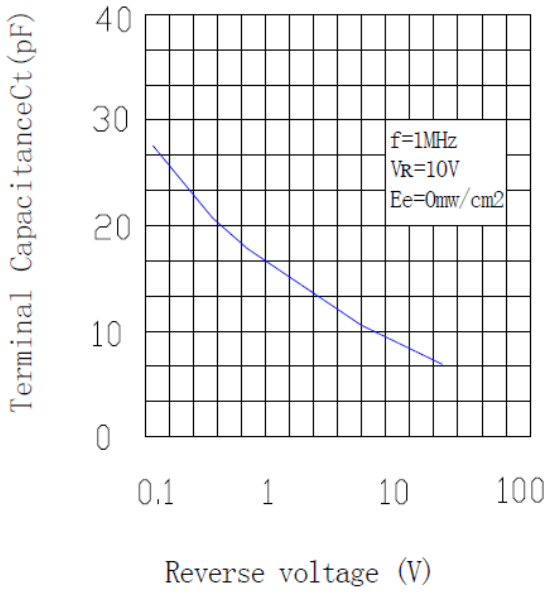




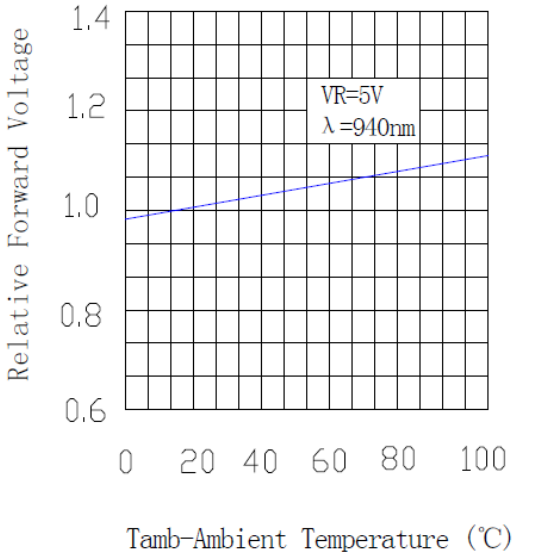
Rasponse Time vs. Losd Resistance



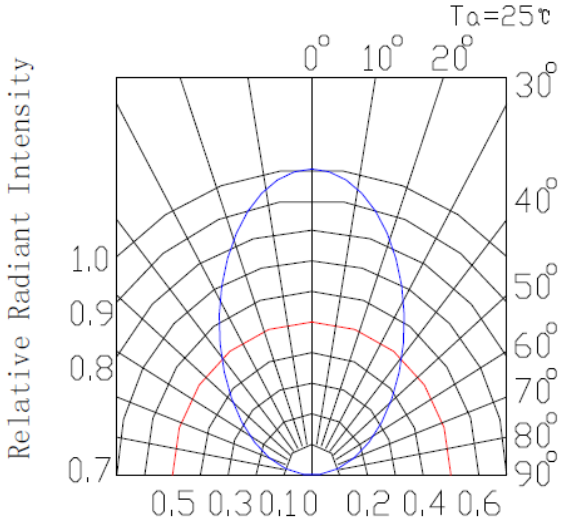
Terminal Capacitance vs. Reverse voltage



Relative Reverse Light Current vs. Ambient Temperatyre(℃)



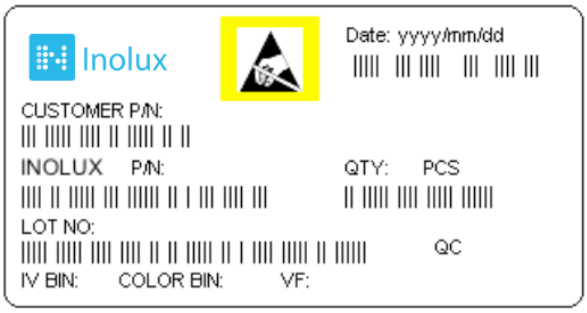
Relative Radiant Intensity vs. Angular Displacement



Ordering Information

Product	Symbol	Parameters	Test conditions	Min	Typ	Max	Units	Orderable Part Number
INL-3APD80	I_L	Reverse Light Current	Ee=1mW/cm² λ_P=850nm, V_R=5V	20	35	-	uA	INL-3APD80

Label Specifications



Inolux P/N:

I	N	L	-	3	A	-	PD	8	0	.	X	X	X	X
				Package		Lens	Color	View Angle			Customized Stamp-off			
Inolux Lamp Type				3A = standard 3mm		(Blank) = clear	PD = Photo Diode	80 = 80 deg.						

Lot No.:

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

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		1.0	01-24-2019

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