



BRIGHTTEK
BRIGHTTEK (EUROPE) LIMITED

APPROVAL SHEET

CUSTOMER: _____

TYPE NO.: NOP08L54

PACKAGE SIZE: 5.0mm Round Silicon PIN Photodiode

DICE MATERIAL: Silicon Planar

RECEIVING ANGLE (deg): 50

LENS COLOR: Water Clear

WAVELENGTH OF THE MAXIMUM SENSITIVITY(nm): 950

SILICON PIN PHOTODIODE

GENERAL DESCRIPTION

The N0P08L54 is silicon planar PIN photodiodes incorporated in plastic packages That simultaneously serve as filters, and also Transparent for infrared emission. The PIN photodiodes are outstanding for low junction Capacitance, high cut-off frequency and fast Switching times.

FEATURES

High radiant intensity
Suitable for pulsed applications.
Low average degradation.

APPLICATION

1. Remote Control
2. Automatic control system
3. Burglar alarm
4. Photo detector
5. Smoke detector
6. Computer I/O peripheral
7. Industrial use

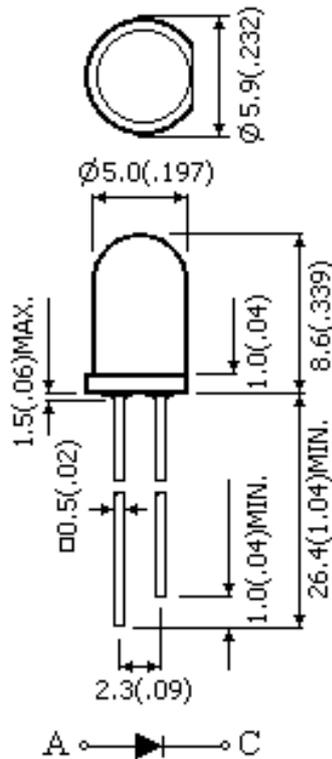
ELECTRICAL CHARACTERISTICS (Ta=25°C)

SYMBOL	PARAMETER	MIN	TYP	MAX	UNIT	TEST CONDITION
I_L	Reverse Light Current	30	65		μA	$V_r = 5V$ $E_e = 1 \text{ mW/cm}^2$ $\lambda_P = 940\text{nm}$
λ_{Pmax}	Wavelength of Peak Sensitivity		950		nm	
$V_{(BR)R}$	Reverse Break down volt	33	170		V	$I_r = 100\mu A$ $E_e = 0 \text{ mW/cm}^2$
V_{oc}	Open-circuit voltage		327		mV	$E_e = 0.5 \text{ mW/cm}^2$ $\lambda_P = 940\text{nm}$
			248			$E_e = 0.05 \text{ mW/cm}^2$ $\lambda_P = 940\text{nm}$
I_{sc}	Short-circuit current		2		μA	$E_e = 0.1 \text{ mW/cm}^2$ $\lambda_P = 940\text{nm}$
T_{on}	Turn-on time		50		nS	$R_L = 1K$ $V_r = 10V$
T_{off}	Turn-off time		50		ns	$R_L = 1K$ $V_r = 10V$
T_c	Temperature coefficient of V_o		-2.6		mV/k	
A	Radiant sensitive area		7.7		mm^2	
$I_{D(R)}$	Dark current		2	30	nA	$V_r = 10V$ $E_e = 0 \text{ mW/cm}^2$
C_t	Total capacitance		25	30	Pf	$V_r = 3V$ $F = 1\text{MHz}$ $E_e = 0 \text{ mW/cm}^2$

ABSOLUTE MAXIMUM RATING at Ta=25°C

Parameter	Symbol	Maximum Rating	Unit
Power Dissipation	P_D	100	mW
Operating Temperature Range	T_{OPT}	-40~+85	°C
Storage Temperature Range	T_{STO}	-50~+100	°C
Lead Soldering Temperature (at 1/16 inch from Body for 5 Sec)	T_s	250	°C
Relative Humidity at 85°C	H_R	85	%

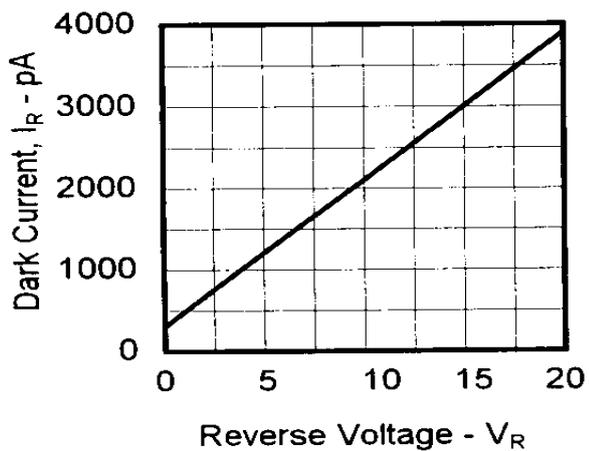
PHOTODIODES PACKAGE DIMENSIONS



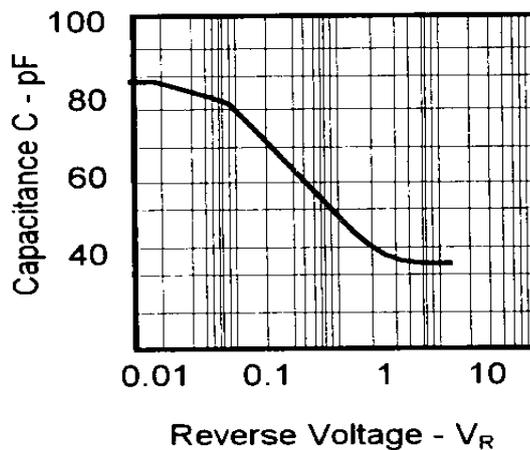
DEVICE NO.: NOP08L54	DRAWING NO.	ENGINEER
ALL TOLERANCE SHALL BE ± 0.01 inch/0.25mm UNLESS OTHERWISE NOTED	DRAWING DATE	APPROVER

Typical Electrical-Optical Characteristics Curves

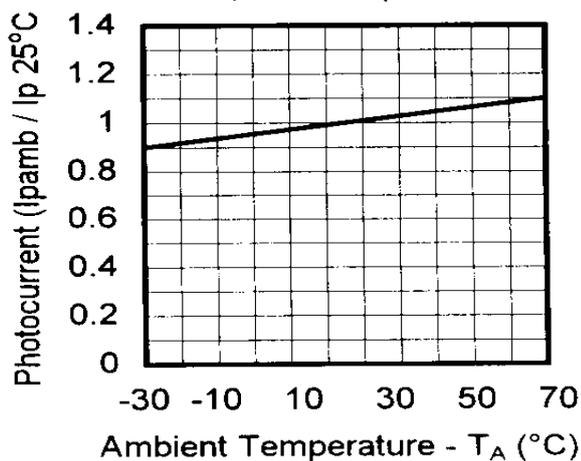
Dark Current vs Reverse Voltage, $E_e=0$



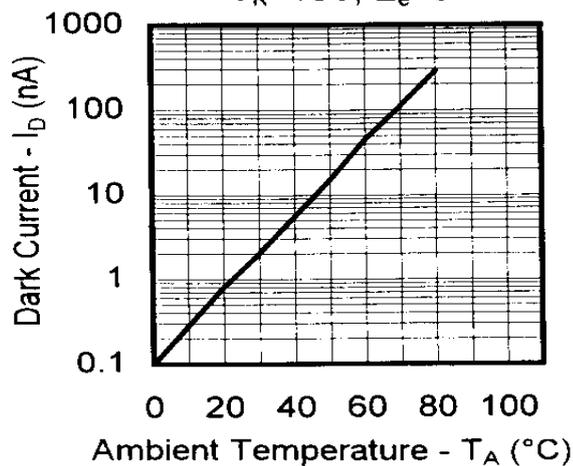
Capacitance vs. Reverse Voltage



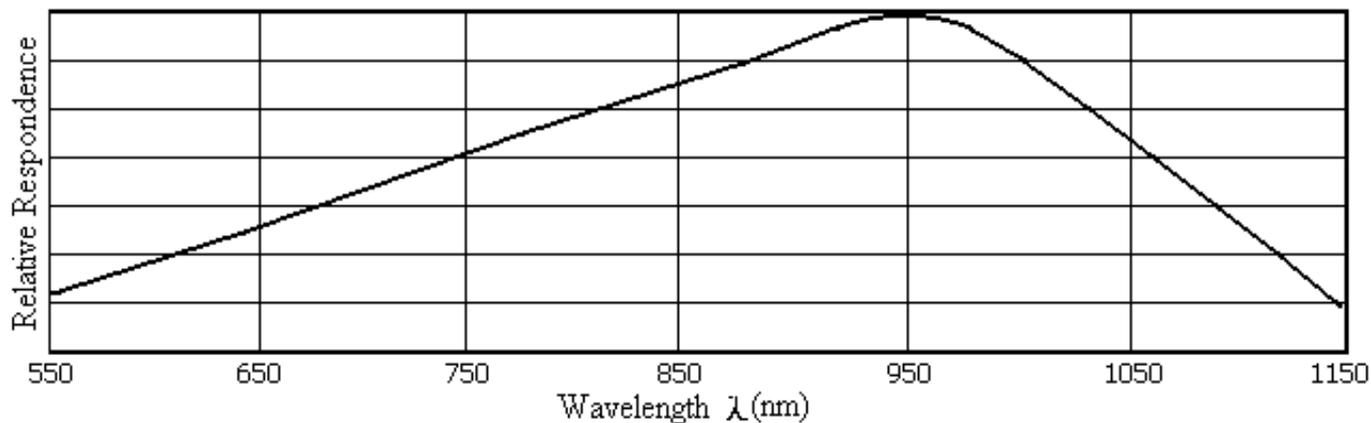
Photocurrent vs. Ambient Temperature



Dark Current vs. Ambient Temperature
 $V_R=10V, E_e=0$



PHOTODIODE RELATIVE CURVES



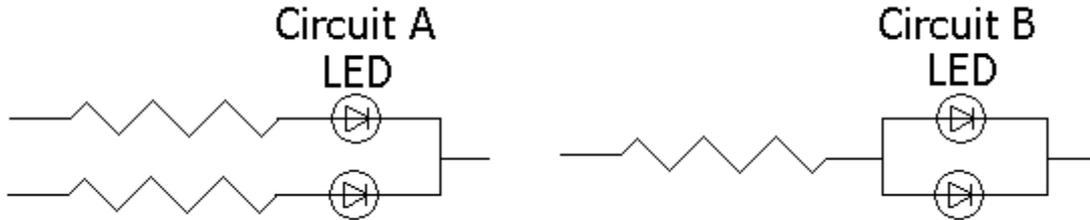
Reliability test For LED Lamps

NO.	Item	Test Conditions	Test Time/ Cycle	Sample Size	Ac/Re
1	DC Operating Life	Temperature:25°C Vce=5v IF:20mA	1000HRS	20PCS	0/1
2	High Temperature High Humidity	Temperature:85°C 85%RH	1000HRS	20PCS	0/1
3	High Temperature Storage	Temperature:100°C	1000HRS	20PCS	0/1
4	Low Temperature Storage	Temperature:— 40°C	1000HRS	20PCS	0/1
5	Temperature Cycling	85°C~ 25°C~— 35°C 15min~ 5min~ 15min	15Cycles	20PCS	0/1
6	Thermal Shock	85°C~ 25°C~— 10°C 5min~ 10sec ~ 5min	15Cycles	20PCS	0/1
7	Solder Heat	Temperature:260°C±5°C	10SEC.	20PCS	0/1

Precautions For Use LED

1. Drive Method

LED is current-operated device. In order to ensure intensity uniformity on multiple LEDs connected in parallel in an application, it is recommended that a current limiting resistor be incorporated in the drive circuit.



(a) Circuit A it is recommended circuit.

(b) Circuit B the brightness of each LED might appear different due to the differences in the I-V characteristics of those LEDs.

2. Over-current-proof

Customer must apply resistors for protection, otherwise slight voltage shift will cause big current change (Burn out will happen).

3. Storage

The Storage Temperature and RH are: 5°C ~ 30°C, RH 60% or less.

Once the package is opened, the products should be used within a week. Otherwise, they should be kept in moisture proof package with moisture absorbent material (silica gel). we suggest our customers to use our products within a year.

If the moisture absorbent material (silica gel) has faded away or the LEDs exceeded the storage time, baking treatment should be performed using the following conditions.

Baking treatment: more than 24 hours at 60°C ±5°C.

4. Electrostatic Discharge (ESD)

Static electricity or surge voltage will damage the LEDs

Suggestions to prevent ESD damage:

Use of a conductive wrist band or anti-electrostatic glove when handling these LEDs

All devices, equipment, and machinery must be properly grounded.

Work tables storage racks, etc. should be properly grounded

In the events of manual working in process, make sure the devices are well protected from ESD at any time.

5. Others

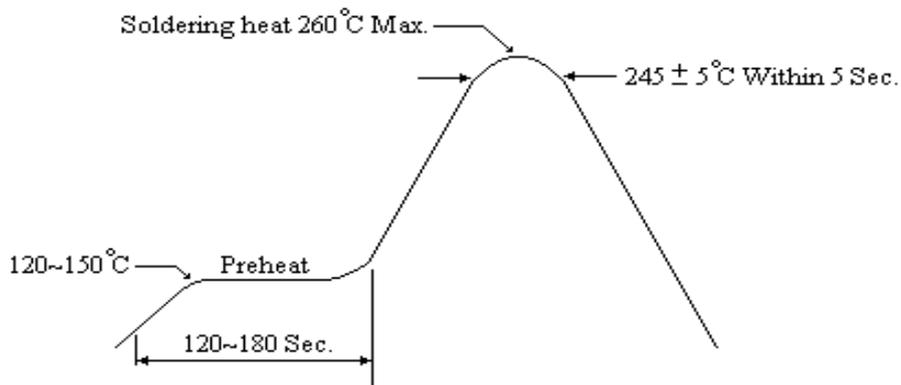
(a) If want to have the uniform luminance and color, please use the same binning number, and avoid using intermix to cause the differences of luminance and color.

(b) The appearance and specifications of the product may be modified for improvement without prior notice.

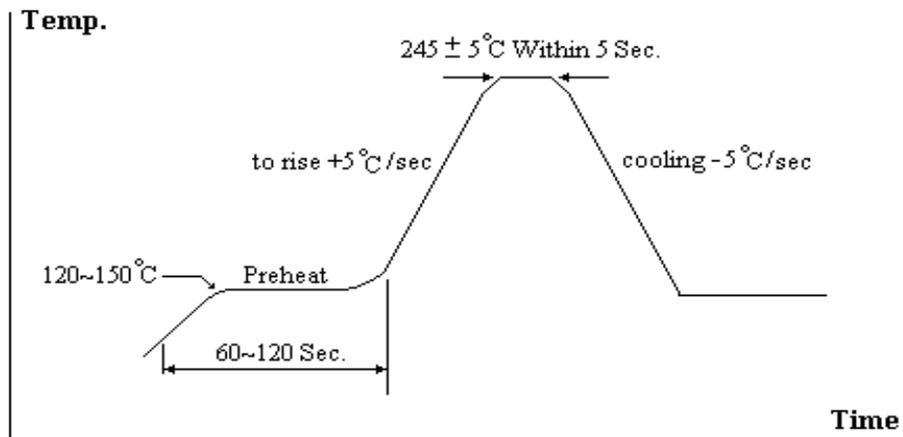
6. Soldering

Recommended soldering condition as shown below:

Soldering heat (DIP)



Reflow Temp./Time



Soldering Iron

Temperature at tip of iron : 300°C Max. (25 W Max.)

Soldering Time : 3 sec. ± 1 sec.(one time only)

If temperature is higher, time should be shorter