



PHOTO DIODE

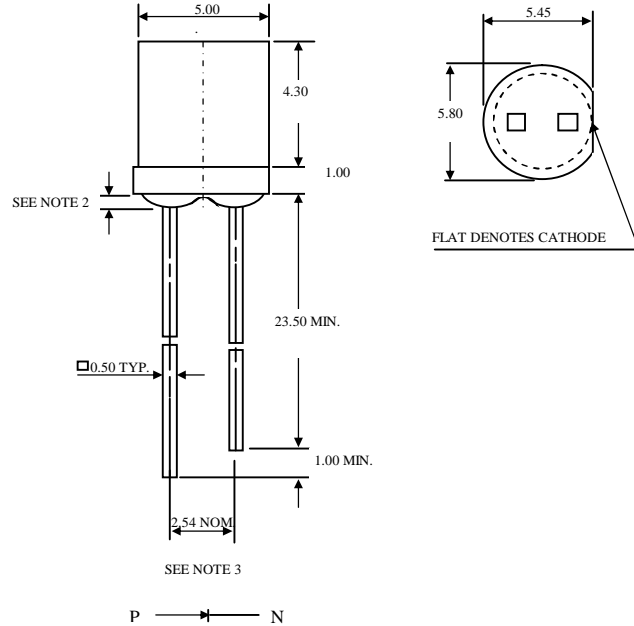
PART NO. : CPD-86416

Description

The CPD-86146 is a high speed and high sensitive PIN photodiode in a water clear plastic package
 Due to its water clear epoxy the device is sensitive to visible and infrared radiation

Package Dimensions

Unit: mm



Features

- 1 High photo sensitivity
- 1 Low junction capacitance
- 1 High cut-off frequency
- 1 Fast switching time
- 1 Acceptance viwe angle : 130°

Notes :

1. Tolerance is ± 0.25 mm unless otherwise noted.
2. Protruded resin under flange is 1.0 mm max.
3. Lead spacing is measured where the leads emerge from the package.

Absolute Maximum Ratings

@ $T_A=25^\circ\text{C}$

Parameter	Maximum Rating	Unit
Power Dissipation	150	mW
Operating Temperature Range	-25°C to +85 °C	
Storage Temperature Range	-40°C to +100°C	
Lead Soldering Temperature	260°C for 5 seconds	



Optical-Electrical Characteristics

@ T_A=25°C

Parameter	Test Conditions	Symbol	Min.	Type .	Max.	Unit
Reverse Break Down Voltage	I _R =100 μA E _e =0	V _{(BR)R}	30	---	---	V
Reverse Dark Current	V _R =10V E _e =0	I _D	---	---	30	nA
Open Circuit Voltage	p=940nm E _e =1 mW/cm ²	V _{OC}	---	350	---	mV
Rise Time	V _R =10V, λ=940nm	T _r	---	30	---	nsec
Fall Time	R _L =1K	T _f	---	30	---	
Light Current	V _R =5V, λ=940nm E _e =0.1mW/cm ²	I _L	---	1.5	---	μA
Total Capacitance	V _R =3V, f=1MHz E _e =0	C _T	---	25	---	pF

Typical Optical-Electrical Characteristic Curves

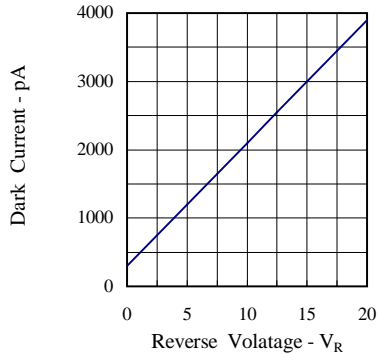


FIG.1 DARK CURRENT VS REVERSE VOLTAGE
T_A=25°C, E_e=0 mW/cm²

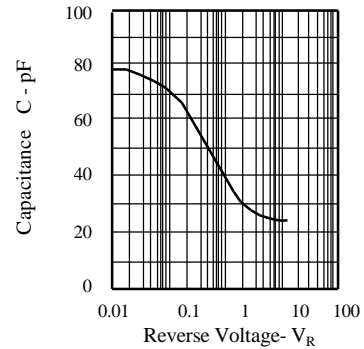


FIG.2 CAPACITANCE VS. REVERSE VOLTAGE
F=1MHz, E_e=0mW/cm²

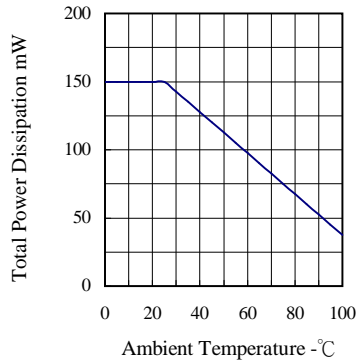


FIG.3 TOTAL POWER DISSIPATION VS. AMBIENT TEMPERATURE

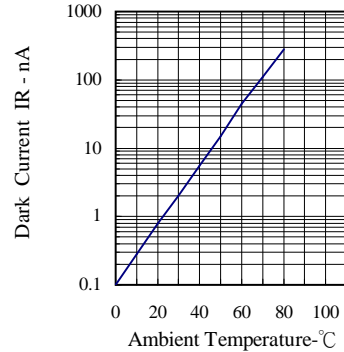


FIG.4 DARK CURRENT VS AMBIENT TEMPERATURE
V_R=10, E_e=0 mw/cm²



Typical Optical-Electrical Characteristic Curves

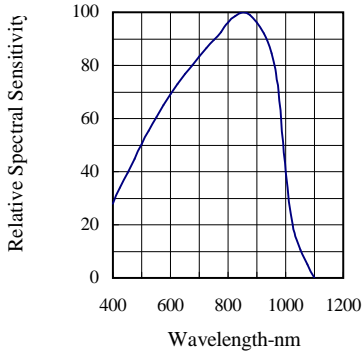


FIG.5 RELATIVE SPECTRAL SENSITIVITY VS. WAVELENGTH

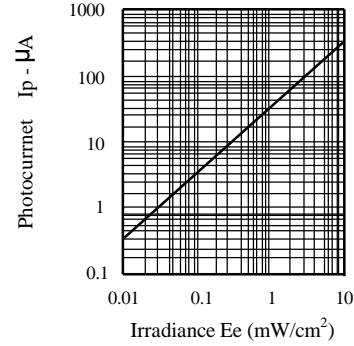


FIG.6 PHOTOCURRENT VS. IRRADIANCE = 940 nm

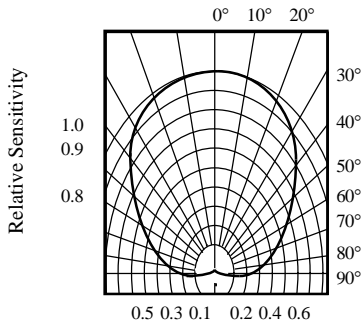


FIG.7 SENSITIVITY DIAGRAM



Reliability test items and test conditions

The reliability of products shall be satisfied with items listed below.

Confidence level : 90%

LTPD (group of permitted defect rate): 10%

No.	Item	Test Conditions	Test Hours/ Cycles	Sample Sizes	Ac/Re	Reference Standard
1	REFLOW Soldering	Temp. : 260 ±5	5secs	22PCS	0/1	JEITA ED-4701 300 302
2	Temperature Cycle	H : +100 15min ~ 5 min L : -40 15min	100Cycles	22PCS	0/1	JEITA ED-4701 100 305
3	Thermal Shock	H : +100 5min ~ 10 sec L : -10 5min	100Cycles	22PCS	0/1	MIL-STD-202G
4	High Temperature Storage	Temp. : 100	1000Hrs	22PCS	0/1	JEITA ED-4701 200 201
5	Low Temperature Storage	Temp. : -40	1000Hrs	22PCS	0/1	JEITA ED-4701 200 202
6	DC Operating Life	IF = 50 mA	1000Hrs	22PCS	0/1	Tested with CGX standard
7	High Temperature/ High Humidity	85 /RH85%	1000Hrs	22PCS	0/1	JEITA ED-4701 100 103

Notes : Failure Judgement Criteria : IR U×2 Ie L×0.8 VF U×1.2

U : Upper Specification Limit L : Lower Specification Limit