

# ASDL-5880

## High Speed Photodiode in Top View Package



# Data Sheet

### Description

ASDL-5880 is a Silicon PIN Photodiode encapsulated in clear Top View low profile package. It is ideal for applications from 700nm to 1100nm that require high sensitivity with low dark current and short switching time.

### Features

- Top View Package
- Short Switching Time
- High Sensitivity
- Low Dark Current
- Low Junction Capacitance
- Wide viewing Angle
- Lead Free & ROHS Compliant
- Available in Tape & Reel

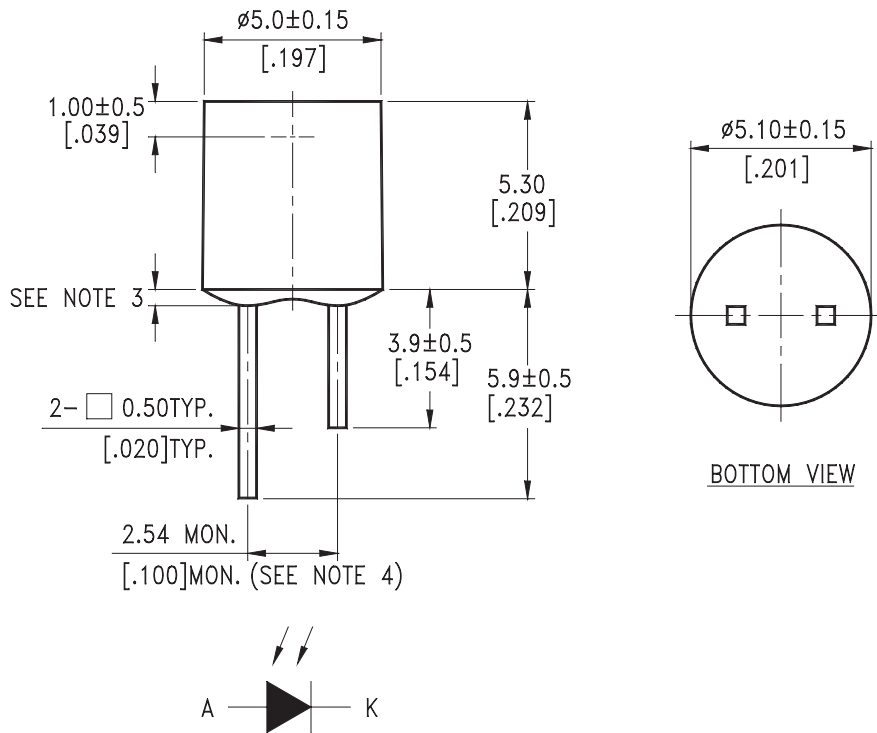
### Applications

- IR Remote Control for Consumer Device
- IR Remote Control for Industrial Electronics & Equipment
- High Speed IR data communication

## Ordering Information

Part Number	Lead Form	Color	Packaging	Shipping Option
ASDL-5880-C22	Straight	Clear	Tape & Reel	4000pcs
ASDL-5880-C31			Bulk	8000pcs / Carton

## Package Dimensions



### Notes:

1. All dimensions are in millimeters (inches)
2. Tolerance is  $+0.25$ mm ( $.010$ " ) unless otherwise noted
3. Protuded resin under flange is  $1.5$ mm ( $.059$ " ) max
4. Lead spacing is measured where leads emerge from package
5. Active area:  $49 \times 49$  mm<sup>2</sup>
6. Refractive index of epoxy:  $n = 1.5$ .
7. Specifications are subject to change without notice.

### Absolute Maximum Ratings at $T_A=25^{\circ}\text{C}$

Parameter	Symbol	Min.	Max	Unit
Power Dissipation	$P_{DISS}$		150	mW
Reverse Voltage ( $I_r=100\mu\text{A}$ )	$V_R$		30	V
Operating Temperature	$T_O$	-40	85	$^{\circ}\text{C}$
Storage Temperature	$T_S$	-55	100	$^{\circ}\text{C}$
Junction temperature	$T_J$		110	$^{\circ}\text{C}$
Lead Soldering Temperature [ .6mm (0.063") From Body ]		260 $^{\circ}\text{C}$ for 5 seconds		

### Electrical Characteristics at $25^{\circ}\text{C}$

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Forward Voltage	$V_F$		1	1.3	V	$I_f = 50\text{mA}$
Breakdown Voltage	$V_{BR}$	30			V	$I_r = 100\mu\text{A}$ $E_e = 0\text{mW}/\text{cm}^2$
Reverse Dark Current	$I_D$			30	nA	$V_R = 10\text{V}$ $E_e = 0\text{mW}/\text{cm}^2$
Diode Capacitance	$C_O$	-	25		pF	$V_r = 3\text{V}$ $F = 1\text{MHz}$ $E_e = 0\text{mW}/\text{cm}^2$
Open Circuit Voltage	$V_{OC}$		350		mV	$\lambda = 940\text{nm}$ $E_e = 0.5\text{mW}/\text{cm}^2$
Thermal Resistance, Junction to Pin	$R_{\theta JP}$	-	375		$^{\circ}\text{C}/\text{W}$	

### Optical Characteristics at $25^{\circ}\text{C}$

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Photocurrent	$I_{PH}$	1	3		$\mu\text{A}$	$E_e = 0.5\text{mW}/\text{cm}^2$ $\lambda = 940\text{nm}$ $V_r = 5\text{V}$
Radiant Sensitive Area	$A$		1.55		$\text{mm}^2$	
Absolute Spectral Sensitivity	$S$		0.6		A/W	$\lambda = 940\text{nm}$ $V_r = 5\text{V}$
Viewing Angle	$2\theta_{1/2}$		180		Deg	
Wavelength of Peak sensitivity	$\lambda_{PK}$		900		nm	
Spectral BandWidth	$\Delta\lambda$	700	900	1100	nm	
Rise Time	$t_r$		5		ns	$V_R = 10\text{V}$ $\lambda = 850\text{nm}$ $R_L = 1\text{K}\Omega$
Fall Time	$t_f$		5		ns	$V_R = 10\text{V}$ $\lambda = 850\text{nm}$ $R_L = 1\text{K}\Omega$

Typical Electrical/Optical Characteristics Curves ( $T_A=25^\circ\text{C}$  unless otherwise indicated)

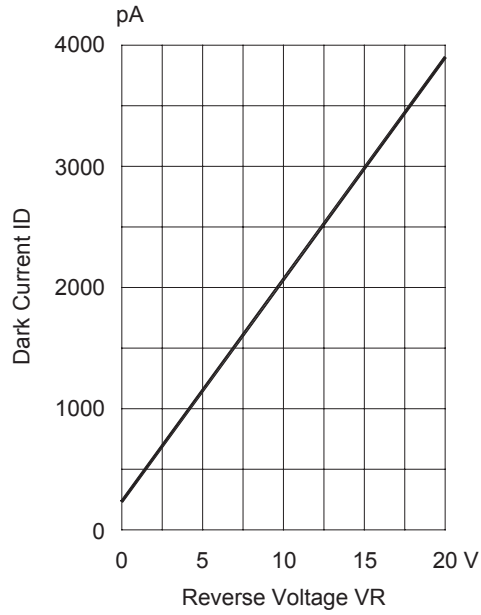


Figure 1. DARK CURRENT VS. REVERSE VOLTAGE  
 $T_A=25^\circ\text{C}$ ,  $E_e=0\text{ mW/cm}^2$

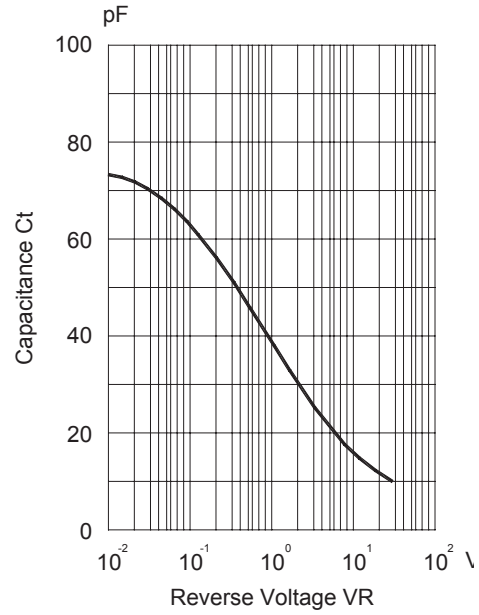


Figure 2. CAPACITANCE VS. REVERSE VOLTAGE  
 $F=1\text{MHz}$ ;  $E_e=0\text{mW/cm}^2$

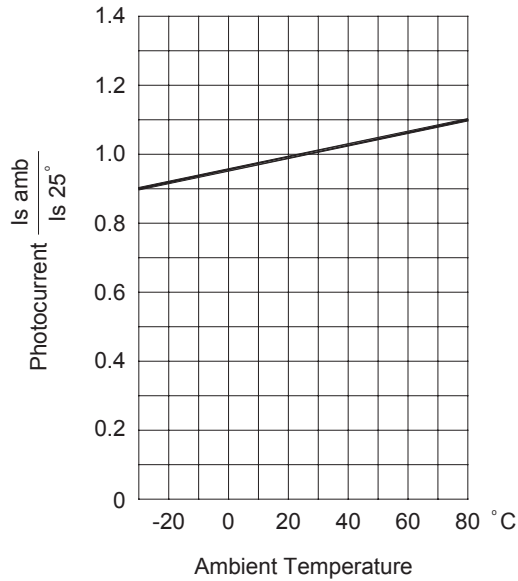


Figure 3. PHOTOCURRENT VS. AMBIENT TEMPERATURE

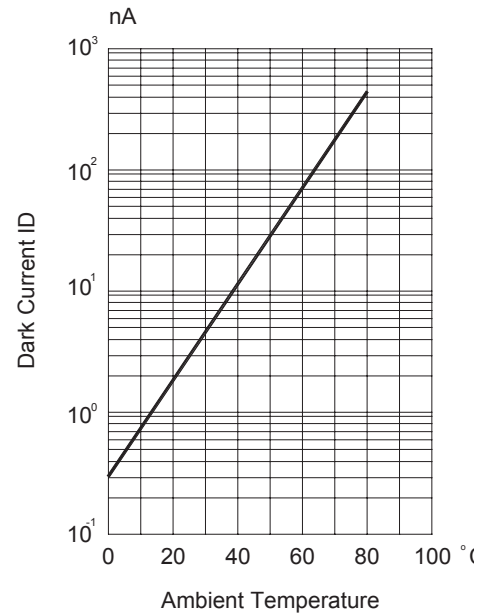


Figure 4. DARK CURRENT AMBIENT TEMPERATURE  
 $VR=10$ ,  $E_e=0\text{mW/cm}^2$

Typical Electrical/Optical Characteristics Curves ( $T_A=25^\circ\text{C}$  unless otherwise indicated) Cont.

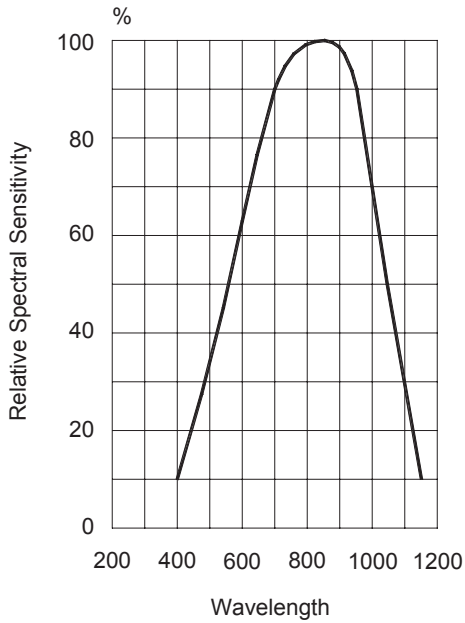


Figure 5. RELATIVE SPECTRAL SENSITIVITY VS WAVELENGTH

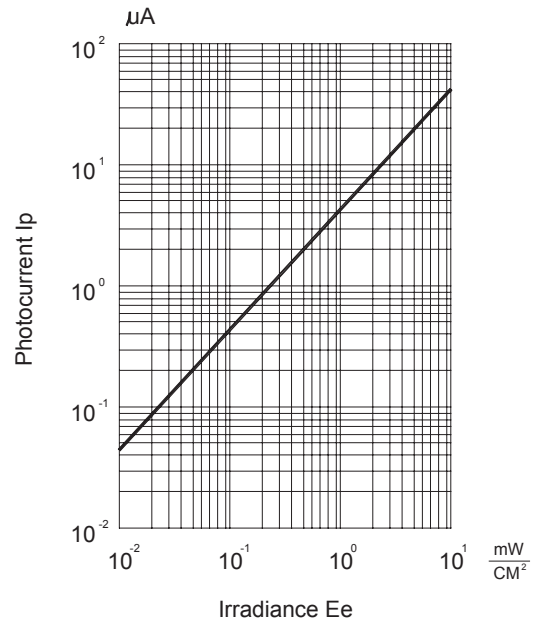


Figure 6. PHOTOCURRENT VS IRRADIANCE  $\lambda = 940 \text{ nm}$

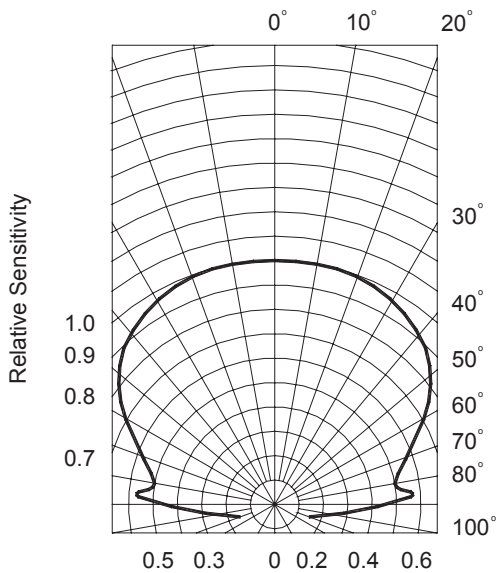


Figure 7. SENSITIVITY DIAGRAM

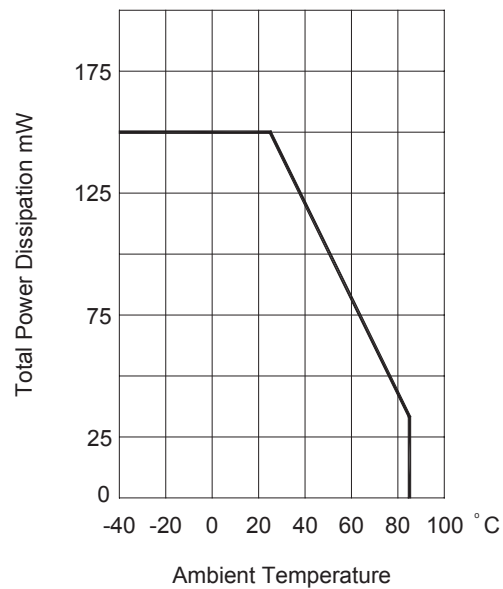


Figure 8. TOTAL POWER DISSIPATION VS AMBIENT TEMPERATURE

For product information and a complete list of distributors, please go to our web site: [www.avagotech.com](http://www.avagotech.com)

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