



APD230-SMD

- Silicon Avalanche Photodiode
- 230 μm Active Area, 635 nm filter
- Fast Rise Time
- High Gain

Description

APD230-SMD is a silicon semiconductor avalanche photodiode with an active area of 230 μm . It features extremely fast rise time of 250 ps, high gain at low bias voltage, and low capacitance, and does contain a 635 nm filter.

APD230-SMD is typically used for **Laser Range Finding** and **LIDAR** applications.

Maximum Ratings

Parameter	Symbol	Values		Unit
		Min.	Max.	
Supply Voltage	V_{PD}		$0.95 \times V_{BR}$	V
Forward Current	I_F		1	mA
Power Dissipation	P_E		1	mW
Operating Temperature	T_{OP}	- 50	+ 80	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	- 55	+ 85	$^{\circ}\text{C}$

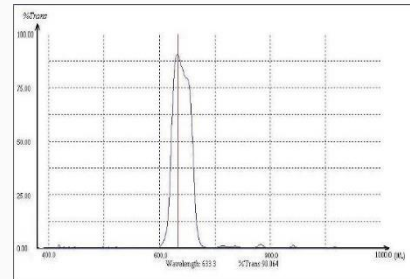
Characteristics ($T_{CASE} = 25^{\circ}\text{C}$)

Parameter	Symbol	Min.	Values		Unit
			Typ.	Max.	
Spectral response range	λ	400		1100	nm
Peak sensivity wavelength	λ_P		800		nm
Photosensitive area	\varnothing		230		μm
Photosensitivity ($\lambda=800\text{nm}, \Phi_e=1\mu\text{W}, M=100$)	R_e	35	45		A/W
Response time ($\lambda=800\text{nm}, f=1\text{MHz}, R_L=50\Omega$)	t_s		0.25	1	ns
Dark current ($M=100$)	I_D	0.05	0.2	2	nA
Terminal capacitance ($M=100, f=1\text{MHz}$)	C_t		1.5		pF
Optimum gain	M		50-60		
Breakdown voltage ($I_R=10\mu\text{A}$)	V_{BR}	80		180	V
Temp. coefficient of V_{BR} ($T_{OP}=-40^{\circ}\text{C}\sim 85^{\circ}\text{C}$)	δ		0.4		V/ $^{\circ}\text{C}$



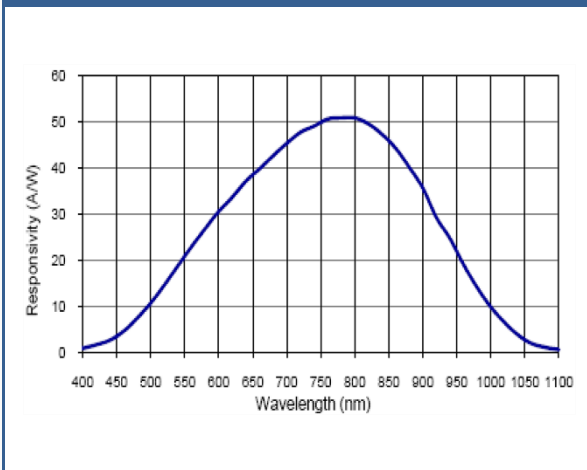
Filter Characteristics ($T_{CASE} = 25^{\circ}C$)

Parameter	Description
Receive Wavelength	635 nm
Transmittance	± 25 nm
Closing Rate	0.90064
Wavelength Band	0.001
Size	3.4x2.8x0.3 ± 0.1 mm

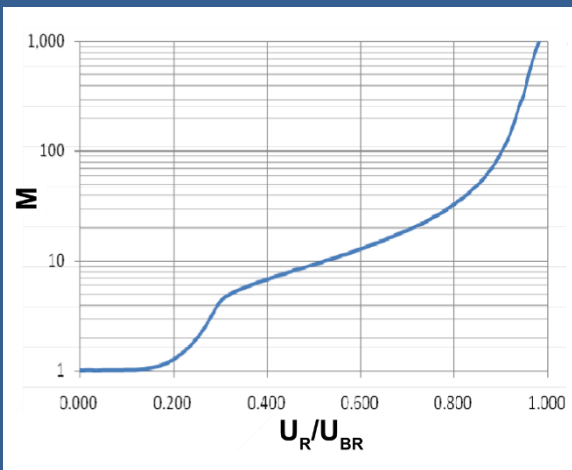


Performance Characteristics

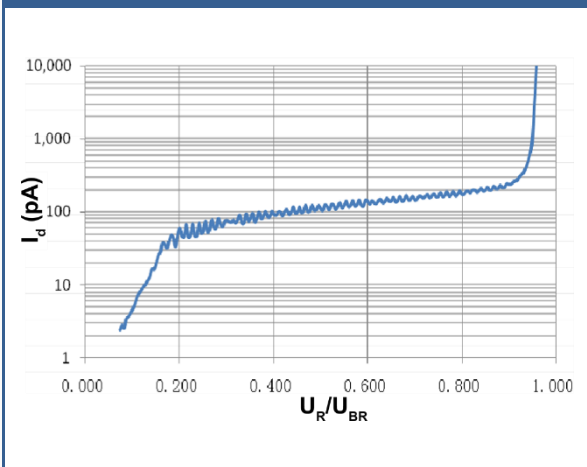
Responsivity vs. Wavelength (0V)



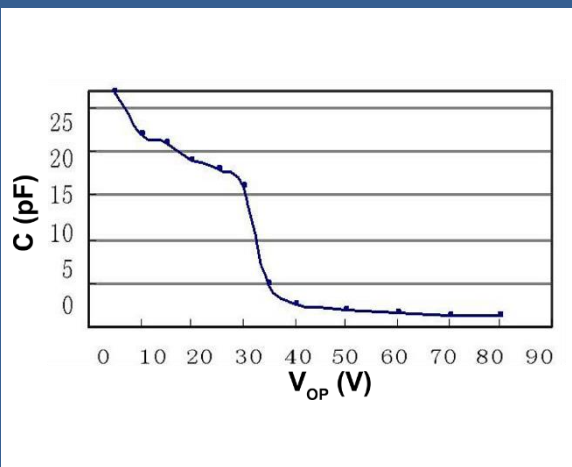
Gain vs. U_R/U_{BR}



Dark Current vs. U_R/U_{BR}

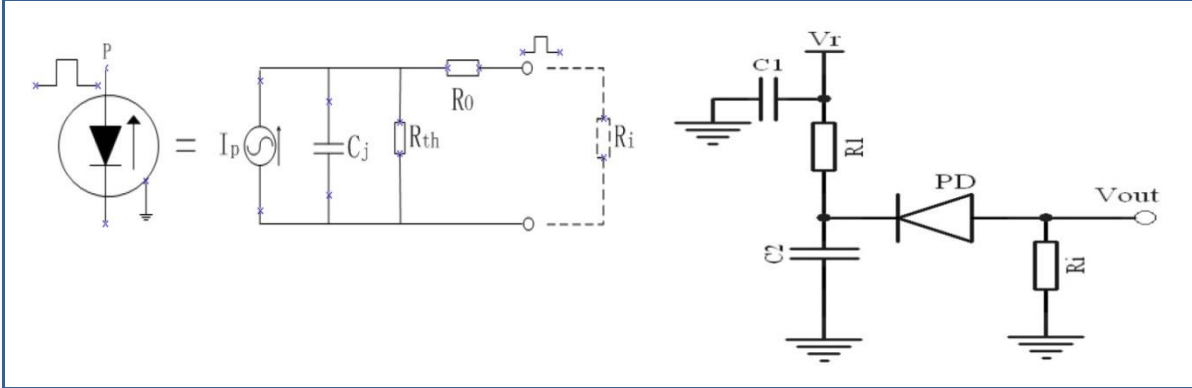


Capacitance vs. Operating Voltage

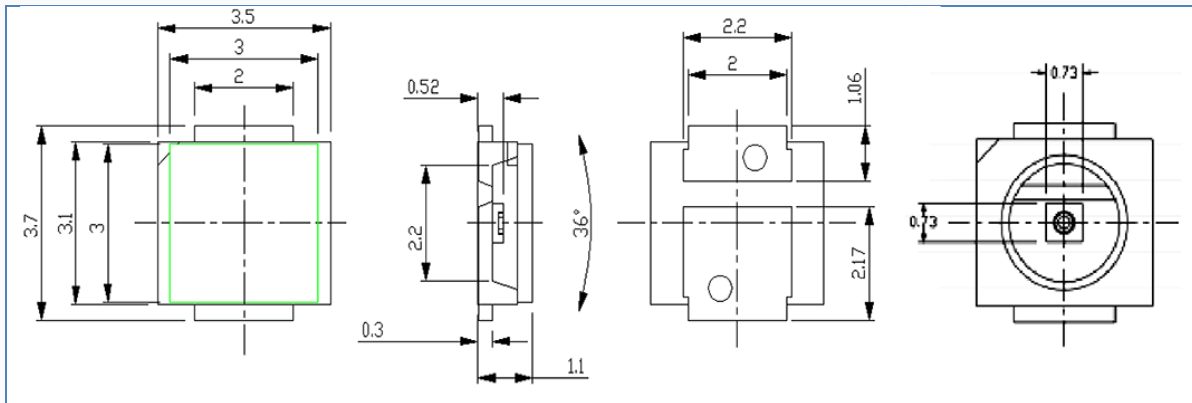




Application Circuit



Drawing



All dimensions in mm

ESD Caution

Always do handle photodiodes with caution to prevent electrostatic discharge, the primary cause of unexpected semiconductor failure. ESD failures can be prevented by always wearing wrist straps, only using a grounded workplace, and following strict anti-static guidelines when handling the photodiode.

