



DESCRIPTION

The SD039-121-011 is a high sensitivity, low capacitance and noise, 1mm diameter active area InGaAs photodiode, sensitive to wavelengths in visible extended (450-1700nm) spectral range and used sensing applications. The photodetector is assembled in a TO-46 package.

RELIABILITY

This API high-reliability detector is in principle able to meet military test requirements (Mil-STD-750, Mil-STD-883) after proper screening and group test.

Contact API for recommendations on specific test conditions and procedures.

MOISTURE SENSITIVITY LEVEL

API silicon light dependent resistors are classified as MSL level 1 per J-STD-020 allowing for unlimited floor time at temperatures less than or equal to 30°C and humidity less than or equal to 85%.

ABSOLUTE MAXIMUM RATINGS

SYMBOL	MIN	MAX	UNITS
Operating Temperature	0	+85	°C
Storage Temperature	-25	+85	°C
Soldering Temperature *	-	+240	°C
Wavelength Range	450	1700	nm
Reverse Voltage	-	20	V

*) 1/16 inch from case for 3s max.

FEATURES

- Low Noise
- Low Dark Current and Capacitance
- High Sensitivity
- Light Detection (Visible, NIR, SWIR)

APPLICATIONS

- Industrial Sensing
- Security and Defense
- Communication

ESD

This device is Class 1A (HBM).

T_a = 23°C non condensing

OPTO-ELECTRICAL PARAMETERS

$T_a = 23^\circ\text{C}$ unless noted otherwise

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNITS
Breakdown Voltage	$I_{\text{bias}} = 100 \mu\text{A}$	10	-	-	V
Responsivity	$\lambda = 600 \text{ nm}$	0.3	0.35	-	A/W
Responsivity	$\lambda = 1200 \text{ nm}$	0.8	0.85	-	A/W
Responsivity	$\lambda = 1550 \text{ nm}$	0.9	1.00	-	A/W
Shunt Resistance	$V_{\text{bias}} = 10 \text{ mV}$	0.8	5	-	$\text{M}\Omega$
Dark Current	$V_{\text{bias}} = 1\text{V}$	-	20	100	nA
Capacitance	$V_{\text{bias}} = 1\text{V}; f = 1 \text{ MHz}$	-	40	70	pF
Rise Time (50 Ω load)	$V_{\text{bias}} = 1\text{V}; \lambda = 826 \text{ nm}$	-	5	-	ns
Noise Equivalent Power	$\lambda = 900 \text{ nm}$	-	1.6	-	$10^{-13} \text{ W/Hz}^{0.5}$

TYPICAL PERFORMANCE

SPECTRAL RESPONSE

