

**DESCRIPTION**

The **SD039-151-011** is a high sensitivity, low noise, 1 mm diameter active area InGaAs photodiode (chip dimensions 1.36mmx1.36mm) for detection at SWIR, NIR wavelengths for imaging and sensing applications. Photodetector assembled in a TO-46 package.

**FEATURES**

- Low Noise
- High Sensitivity
- Detector at AWIR and NIR

**RELIABILITY**

This Luna high-reliability device is in principle able to meet military test requirements (Mil-STD-750, Mil-STD-883) after proper screening and group test. Contact Luna for recommendations on specific test conditions and procedures.

**APPLICATIONS**

- Industrial Sensing
- Security and Defense
- Communication
- Medical

**ABSOLUTE MAXIMUM RATINGS**

SYMBOL	MIN	MAX	UNITS	$T_a = 23^\circ\text{C}$ non condensing 1/16 inch from case for 3 seconds max	
Reverse Voltage	-	-	40	V	-
Operating Temperature	40	to	+100	$^\circ\text{C}$	-
Storage Temperature	-55	to	+125	$^\circ\text{C}$	-
Soldering Temperature	-	-	+260	$^\circ\text{C}$	-
Wavelength Range	400	to	100	nm	-

Information in this technical datasheet is believed to be correct and reliable. However, no responsibility is assumed for possible inaccuracies or omission. Specifications are subject to change without notice.

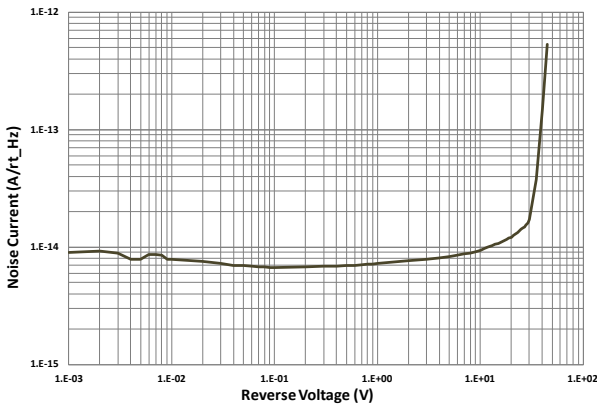
**OPTO-ELECTRICAL PARAMETERS**

T<sub>a</sub> = 23°C UNLESS NOTED OTHERWISE

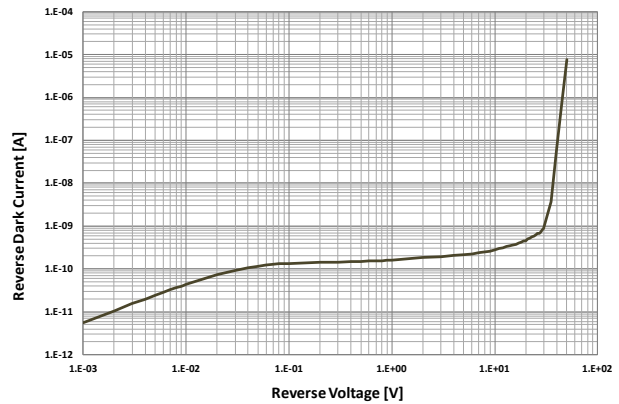
PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNITS
Breakdown Voltage	I <sub>bias</sub> = 1 μA	20	-	40	V
Spectral Range	–	800	-	1700	nm
Responsivity	λ = 1310 nm, V <sub>r</sub> = 5V	0.8	0.9	-	A/W
Shunt Resistance	V <sub>bias</sub> = 10 mV	40	200	-	MΩ
Dark Current	V <sub>bias</sub> = 5V	-	0.2	10	nA
Capacitance	V <sub>bias</sub> = 5V; f = 1 MHz	-	70	150	pF
Rise Time (50Ω load)	V <sub>bias</sub> = 5V; λ = 1310 nm	-	2.0	-	ns
Noise Equivalent Power	V <sub>R</sub> = 5V @ λ = 1310	-	1.0x10 <sup>-14</sup>	-	fW/√Hz

**TYPICAL PERFORMANCE**

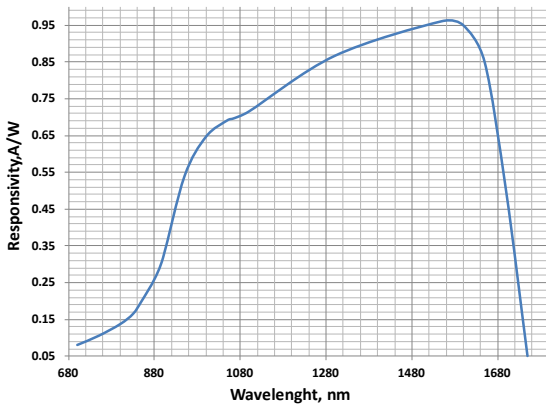
**NOISE CURRENT vs. REVERSE BIAS**



**DARK CURRENT vs REVERSE BIAS**



**SPECTRAL RESPONSE**



**CAPACITANCE vs. REVERSE BIAS**

