

SD138-11-31-211

Two Color Silicon Photodiode



FEATURES

- Large Active Area
- Low Noise
- High Shunt Resistance
- Hermetically sealed
- High Saturation

DESCRIPTION

The **SD138-11-31-211** device features two silicon PIN photodiodes vertically integrated in a hermetic TO-5 package. The top photodiode absorbs a portion of the light and the remaining light is transmitted to the bottom photodiode. The current ratio of the two photodiodes is used to remotely determine and monitor the color temperature of an object.

APPLICATIONS

- Dual Wavelength Power Meters
- Remote Color Temperature Sensing

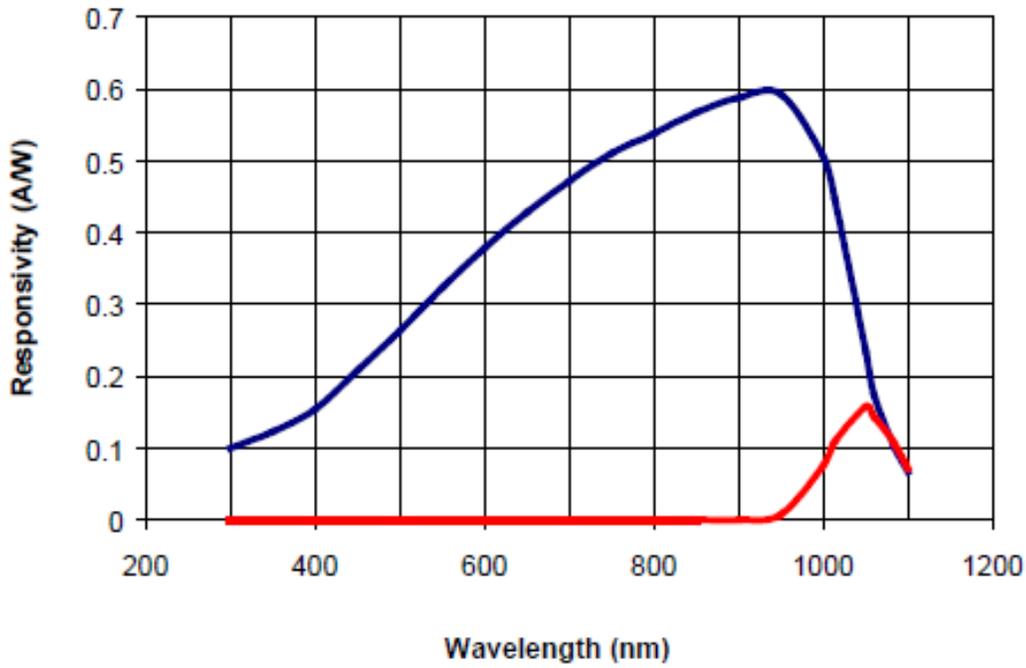
> Absolute Maximum Ratings

Part No.	Wavelength Range Top [nm]	Wavelength Range Bottom [nm]	Reverse Voltage [V]	Operating Temperature [C]	Storage Temperature [C]	Package
SD138-11-31-211	300 to 1100	950 to 1100	25	-40 to +120	-55 to +125	TO-5

> Electrical and Optical Characteristics

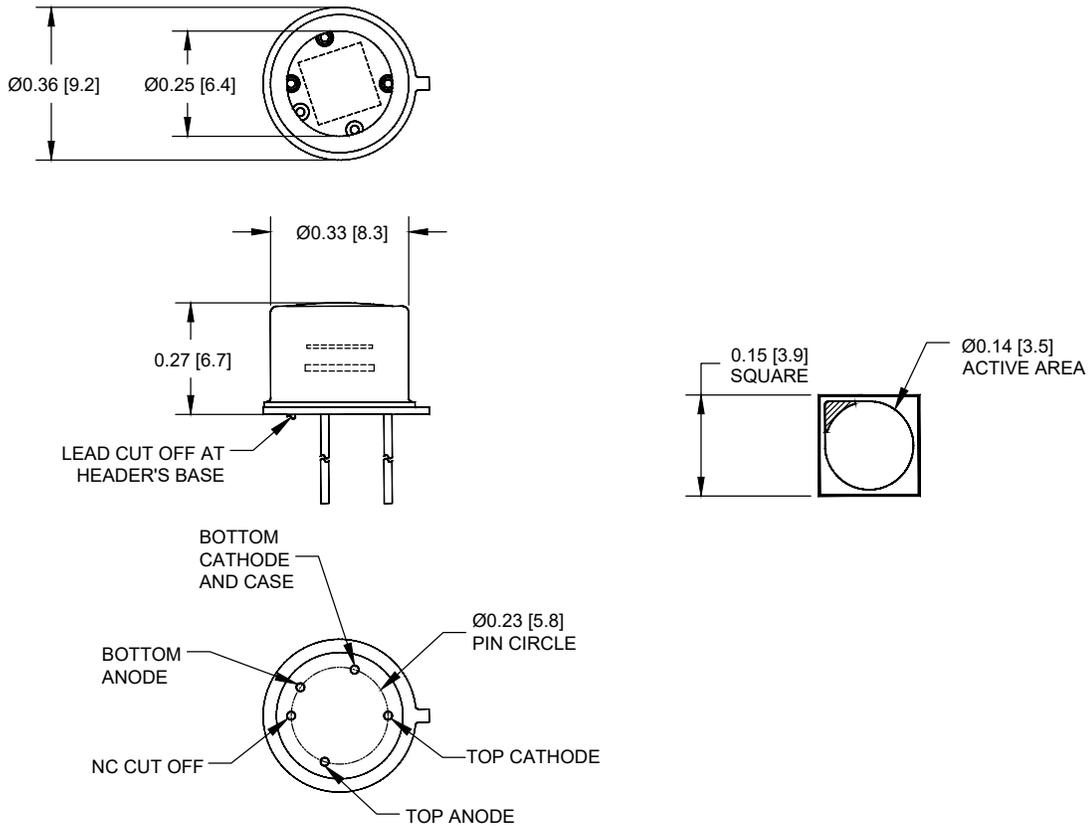
Typical Characteristics per elements (T=23°C unless specified)						
Parameter	Test Conditions	Symbol	Min	Typical	Max	Unit
Active Area Diameter (Top)		A.A.	-	3.5	-	mm
Active Area Diameter (Bottom)		A.A.	-	3.5	-	mm
Responsivity (Top)	$\lambda = 900 \text{ nm}$	R	0.50	0.60	-	A/W
Responsivity (Bottom)	$\lambda = 1050 \text{ nm}$	R	0.19	0.22	-	A/W
Peak NEP (Top)	$\lambda = 900 \text{ nm}$	NEP	-	5×10^{-15}	2×10^{-14}	W/Hz ^{0.5}
Peak NEP (Bottom)	$\lambda = 1050 \text{ nm}$	NEP	-	9×10^{-15}	3.3×10^{-14}	W/Hz ^{0.5}
Shunt Resistance (Top and Bottom)	$V_{\text{bias}} = 10 \text{ mV}$	R _{SH}	80	1000	-	MΩ
Capacitance (Top and Bottom)	$V_{\text{bias}} = 0\text{V}; f = 1 \text{ MHz}$	C _J	-	370	-	pF

> Spectral Response



Top Photodiode= Blue
Bottom Photodiode = Red

> Package Dimensions are in inches [mm]



LEGAL DISCLAIMER

All products, product specifications, and data are subject to change without notice to improve reliability, function, design, or otherwise. Advanced Photonix, its affiliates, agents, employees and all persons acting on its or their behalf (collectively, "Advanced Photonix"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product. Advanced Photonix makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Advanced Photonix disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability. Statements regarding the suitability of products for certain types of applications are based on Advanced Photonix's knowledge of typical requirements that are often placed on Advanced Photonix products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Advanced Photonix's terms and conditions of purchase, including but not limited to the warranty expressed therein. Except as expressly indicated in writing, Advanced Photonix products are not designed for use in life-saving, or life-sustaining applications, or for any other application in which the failure of the Advanced Photonix product could result in personal injury or death. Customers using or selling Advanced Photonix products not expressly indicated for use in such applications do so at their own risk. No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Advanced Photonix. Product names and markings noted herein may be trademarks of their respective owners.

MATERIALS SAFETY

This product is free of conflict minerals and meets REACH compliance. Please see website for reports.