

## KP-2 Two-tone Photodiodes

### KPMC29

In order to extend the wavelength range, Si photodiode which has sensitivity to short-wavelength and InGaAs photodiode which has sensitivity to long-wavelength are stacked on the same axis. Also, to make the device more compact, we store InGaAs photodiode to the recess of Si photodiode's substrate.

As a result, the height of the package could be as low as possible. (Patents have been filed.)

Compared to our earlier models, the volume ratio has been reduced to 1/8.

#### Features

- Integrated Si and InGaAs photodiode
- Same optical axis configuration
- Wide sensitive wavelength range
- Low dark current

#### Characteristics

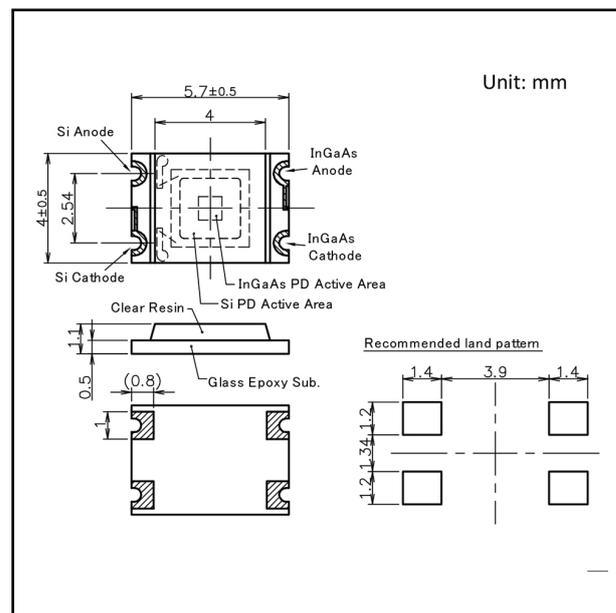
- Wide sensitive wavelength range (  $\lambda = 400 \sim 1700\text{nm}$  )
- Optical design possible under the same optical axis
- Small and thin transfer mold package compatible with reflow soldering

#### Applications

- Spectrophotometer
- Radiation thermometer
- Medical equipment
- Health care equipment
- Fiber optic testing equipment

#### Package

- SMD



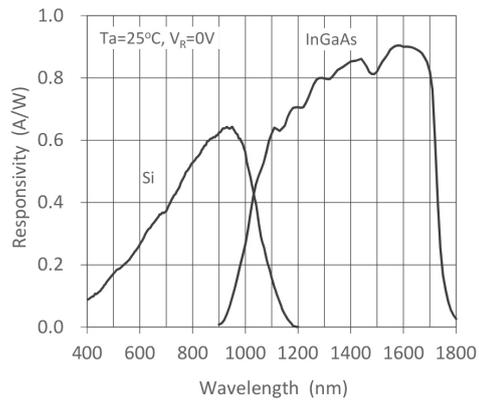
**Absolute Maximum Ratings**

Parameter	Symbol	Value	Unit	Conditions
Reverse voltage	$V_R$	10	V	-
		10		
Reverse Current	$I_R$	1	mA	-
		5		
Forward current	$I_F$	10	mA	-
		10		
Operating temperature	$T_{opr}$	-20 to +80		Avoid dew condensation
Storage temperature	$T_{stg}$	-30 to +85		Avoid dew condensation

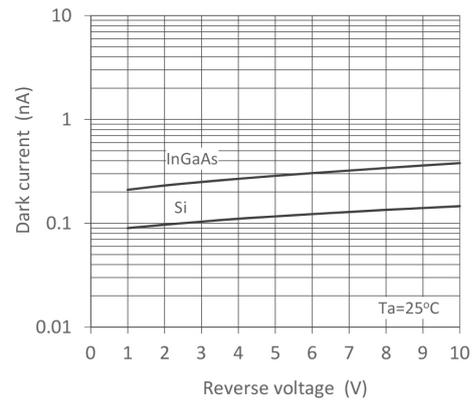
**Electrical and Optical characteristics** (Ta=25 unless otherwise noted)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Active area	S	-	2.2 x 2.2	-	mm <sup>2</sup>	-
		-	0.86 x 0.86	-		
Sensitive wavelength		400	-	1000	nm	-
		900	-	1700		
Responsivity	R	0.5 0.6	0.6 0.7	-	A/W	$V_R=0V$ =850nm $V_R=0V$ =950nm
		0.7 0.8	0.8 0.9	-		
Dark current	$I_D$	-	0.1	10	nA	$V_R=5V$
		-	1	10		
Terminal capacitance	$C_t$	-	30	50	pF	$V_R=5V$ f=1MHz
		-	45	60		

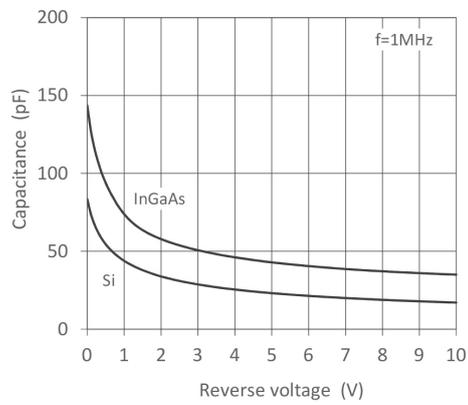
Spectral Responsivity



Dark Current - Reverse Voltage



Capacitance - Reverse Voltage



## Precautions and disclaimers

Please note the following points regarding the technical information and product usage described in this document.

1. Information such as product specifications, characteristics, data, specification materials, and structures described in this document is subject to change. Before using our products, make sure to order the latest specifications and check the contents.
2. We do not guarantee that your intended use will be satisfied or that our product will actually comply and operate with the equipment that you use.
3. While the information contained in this document has been carefully prepared for the sake of accuracy, Kyoto Semiconductor shall not be liable whatsoever even in the unlikely event that you or a third party suffers damage as a result of the information being incorrect, insufficient, incomplete, or misprinted.
4. Reprinting or reproduction of any part or this entire document without our permission is strictly prohibited.
5. The circuits and usage, etc. included in this document are for reference only. We do not guarantee that there will be no infringement of the intellectual property rights or other rights of the customer or a third party regarding these.
6. We are not liable for any damage related to the infringement of the intellectual property rights or other rights of the customer or a third party.
7. The information contained in this document does not permit the customer to implement or use intellectual property rights or other rights owned or managed by us or a third party.  
The products included in this document require an extremely high level of reliability, and they are not designed and manufactured for use with equipment or devices (medical equipment, transportation equipment, public transportation equipment, aerospace equipment, nuclear power control devices, fuel control, in-vehicle equipment (excluding car accessories not related to car control), various safety devices, etc.) (hereinafter, "specific application") whose failure or malfunction may cause danger or damage to one's life or health or any other serious damage. We are not liable for any damage caused to you or a third party by using this product or this information for a specific application without obtaining the prior written consent of Kyoto Semiconductor. If you are considering using this product or this information for a specific purpose, please contact our sales office beforehand.
8. For our customers to export this product or the technology we provide, it is necessary to comply with the 'Foreign Exchange and Foreign Trade Act' and the security export control laws and regulations of each country, and follow the procedures stipulated by the said laws and regulations. Do not use this product or this information for purposes such as developing weapons of mass destruction, military use, or other military purposes.
9. This product conforms to the RoHS Directive (2011/65/EU).
10. If you have any inquiries regarding the details of the products described in this document, or if you have any other questions, please feel free to contact us.



## KYOTO SEMICONDUCTOR Co.,Ltd.

---

### Kyoto Headquarter Kansai Sales Office

307-21, Nishiote-cho, Fushimi-ku, Kyoto, 612-8362, Japan  
TEL:+81 75-605-7314(Kansai Sales Office) FAX:+81 75-605-7312

### Tokyo Headquarter Tokyo Sales Office

24th Sky Building 2nd and 4th Floor, 1-34-3, Shinjuku Shinjuku-ku, Tokyo, 160-0022, Japan  
TEL:+81 3-5312-5360(Tokyo Sales Office) FAX:+81 3-5312-5367

### Kyosemi Opto America Corporation

4655, Old Ironsides Suite, 230, Santa Clara, California, 95054, USA  
TEL: +1 408-492-9361 FAX: +1 408-492-9843