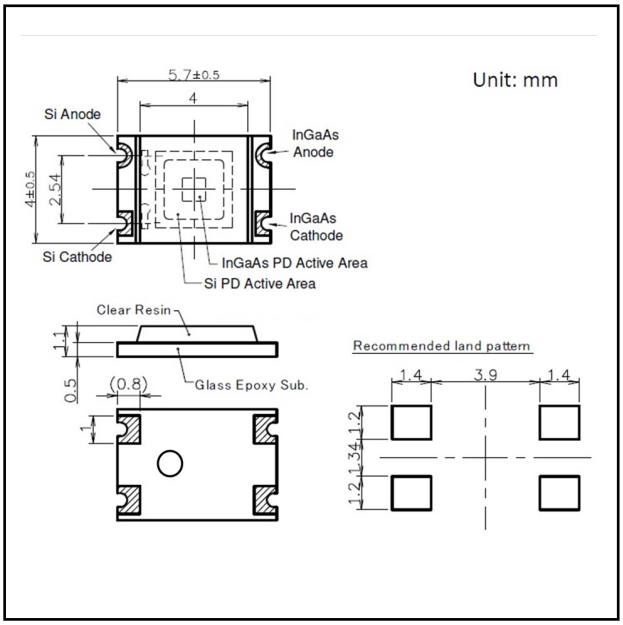
KP-2 Two-tone Photodiodes

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.(US Patented : No.11,145,773)
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（λ=400～1700nm）
- 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

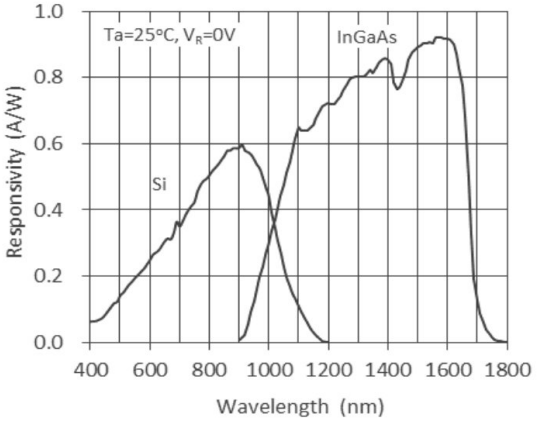
Absolute Maximum Ratings

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

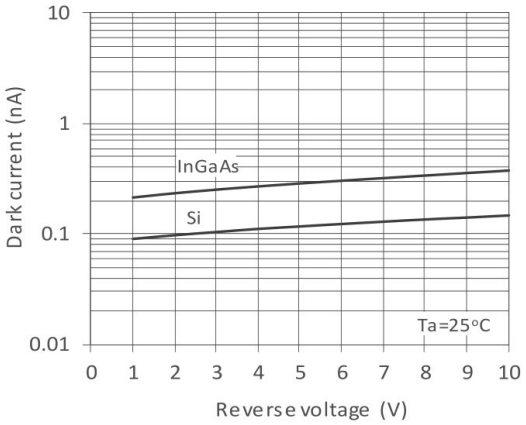
Electrical and Optical characteristics (Ta=25°C unless otherwise noted)

Parameter	Symbol	Detector	Min.	Typ.	Max.	Unit	Conditions
Active area	S	Si	-	2.2 x 2.2	-	mm2	-
		InGaAs	-	0.86 x 0.86	-		
Sensitive wavelength	λ	Si	400	-	1000	nm	-
		InGaAs	900	-	1700		
Responsivity	R	Si	0.5	0.6	-	A/W	V_R=0V, λ=850nm
		InGaAs	0.8	0.9	-		V_R=0V λ=1550nm
Dark current	I_D	Si	-	0.1	10	nA	V_R=5V
		InGaAs	-	1	10		
Terminal capacitance	C_t	Si	-	30	50	pF	V_R=5V f=1MHz
		InGaAs	-	45	60		

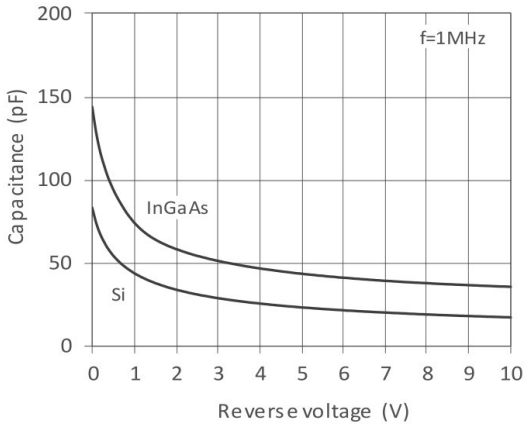
Spectral Responsivity



Dark Current - Reverse Voltage



Capacitance - Reverse Voltage



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