MarkTech Optoelectronics

Silicon Photo Detectors

Spring 2023 Catalog

Gary Kardys 04/21/2023
Version: 1

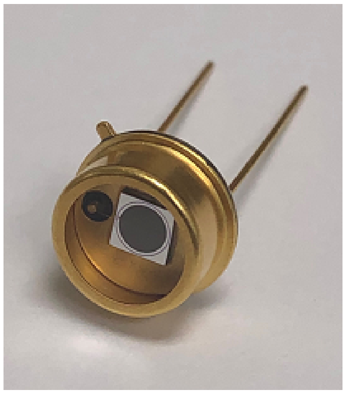
Product	Series	Peak Wavelength	Spectral Range	Active Area	Dark Current	Package
MT03-001	Series 8	940	350-1100	5.0mm2	1nA@10V	TO-5 Metal Can Flat Lens (2 pin)
MT03-002	Series 8	940	350-1100	10.0mm2	1nA@10V	TO-5 Metal Can Flat Lens (2 pin)
MT03-003	Series 11	940	250-1100	15.0mm2	1nA@5V	TO-5 Metal Can Flat Lens (2 pin)
MT03-003-2	Series 11	940	250-1100	15.0mm2	1nA@5V	TO-5 Metal Can Flat Lens (2 pin)
MT03-004	Series 8	940	400-1100	4.0 x 1.44mm2	0.5nA @ 10V	TO-5 Metal Can Flat Lens (4 pin)
MT03-018	Series 4	950	250-1100	7.5mm2	10nA@5V	TO-5 Metal Can Flat Lens (2 pin)
MT03-021	Series 4	950	250-1100	1.2mm2	1nA@5V	Ceramic SAW Package (6 PIN)
MT03-022	Series 4	950	250-1100	7.5mm2	10nA@5V	TO-5 Metal Can Flat Lens (3 pin ISO)
MT03-023	Series 4	950	250-1100	1.2mm2	10nA@5V	TO-46 Metal Can Flat Lens (3 pin ISO)
MT03-026	Series 4	950	250-1100	5.0mm2	0.5nA@5V	T0-5 Metal Can Flat Lens (3 pin)
MT03-027	Series 8	950	350-1100	10.0mm2	2.0nA@5V	TO-5 Metal Can Flat Lens (3 pin)
MT03-028	Series 11	940	250-1100	15.0mm2	1nA@5V	TO-5 Metal Can Flat Lens (3 pin)
MT03-029	Series 11	808	400-1100	3.6mm2	1nA@5V	Ceramic SAW Package (8 PIN)
MT03-036	Series 4	950	250-1100	7.5mm2	10nA@5V	TO-5 Metal Can Flat Lens (2 pin)
MT03-071		950	350-1100	0.12mm2	1.0nA@5V	2.1x2.1 SMD Flat Lens (2 pin)
MTD1114M3B		925	400-1100	1.44mm2	0.5nA @ 10V	3mm Ceramic Domed Lens (2 pin)
MTD1200M3B		925	400-1100	.88mm2	0.5nA@10V	3mm Ceramic Domed Lens (2 pin)
MTD3910D3		940	400-1060	1.21mm2	10nA@10V	3mm Plastic Flat Lens (2 pin)
MTD3910N		900	400-1100	1.21mm2	10nA@10V	TO-18 Metal Can Domed Lens (2 pin)
MTD3910PM		900	400-1100	1.21mm2	10nA@10V	TO-18 Low Profile Metal Can Domed Lens (2 pin)
MTD3910W		940	400-1060	1.21mm2	10nA@10V	TO-18 Metal Can Flat Lens (2 pin)
MTD5032M8		950	400-1100	17.7mm2	10nA@10V	Low Profile Metal Can Domed Lens (2 pin)
MTD5052N		525	410-580	0.57mm2	5pA@5V	TO-18 Metal Can Domed Lens (2 pin)
MTD5052W		525	410-580	0.57mm2	5pA@5V	TO-18 Metal Can Flat Lens (2 pin)
MTD6100PT		880	400-1100	.19 mm2	10nA@10V	Pigtail Metal Can Domed Lens (1 pin)
MTPD2601SIW-100	Multi Detector	950 / / 1750 (InGaAs)	250-1100 / / 800-2600 (InGaAs)	1.0 mm2	10nA@5V	TO-39 Metal Can Flat Lens (3 pin)

Series 8 Silicon Photodiode

Product No: MT03-001

Sensitivity Wavelength Range: 350-1100nm

The MT03-001 is a circular (Ø2.52) 5mm² active area Silicon Photodiode in a hermetic TO-5 metal can package with a glass window. It is well suited for applications requiring visible and near infrared (NIR) light detection.



Features

- > Ultra Low Noise
- > High Shunt Resistance
- > Wide Dynamic Range
- > Broadband Spectral Coverage

Applications

- > Colorimeters
- > Photometers
- > Spectroscopy Equipment
- > Fluorescence

Absolute Maximum Ratings

Pb lead-free RoHS

Items	Symbol	Rating	Unit
Reverse Voltage	V_R	50	V
Operating Temperature Range	Topr	-40 ~ +100	°C
Storage Temperature Range	Tstg	-55 ~ +125	°C
Lead Soldering Temperature*1	Tls	260	°C

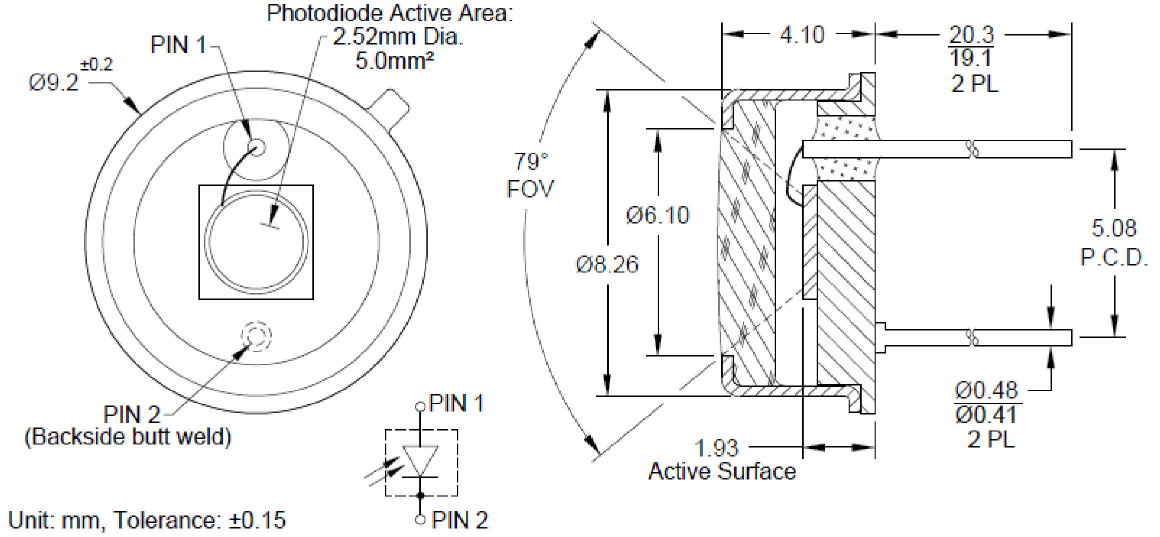
*1: Time 5 Sec max, Position: Up to 3mm from the body.

Electrical & Optical Characteristics (Ta = 23°C)

Items	Symbol	Conditions	MIN	TYP	MAX	Unit
Dark Current	I_d	V_R=5V	--	0.1	1.0	nA
Breakdown Voltage	$V_{(BR)}$	I_R=10μA	50	--	--	V
Spectral Sensitivity	λ	--	--	350-1100	--	nm
Peak Sensitivity	λ_p	--	--	950	--	nm
Wavelength Responsivity	R	V_R=0V, λ=633nm	--	0.38	--	A/W
Responsivity	R	V_R=0V, λ=940nm	--	0.55	--	A/W
Response Time @635nm	T_r	R_L=50Ω, V_R=5V	--	30	--	ns
Junction Capacitance	C_j	@ 1MHz, V_R=0V	--	90	--	pF
Junction Capacitance	C_j	@ 1MHz, V_R=5V	--	20	25	pF
Shunt Resistance	R_{sh}	V_R=10mV	500	1000	--	MΩ

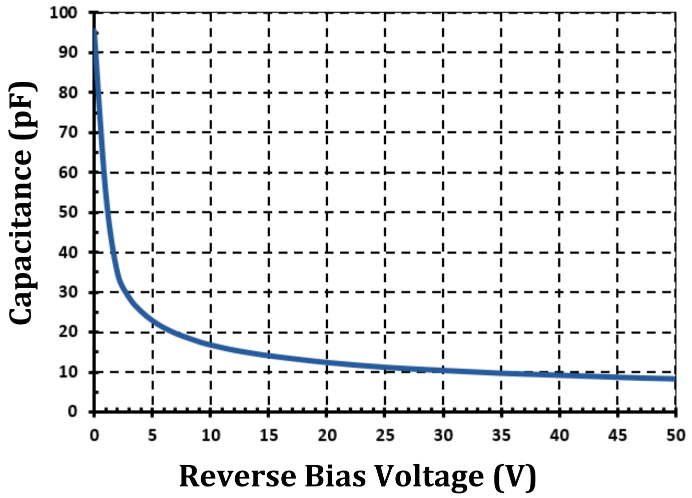
2019-03

TO-5 Package Dimensions (2 Pin)

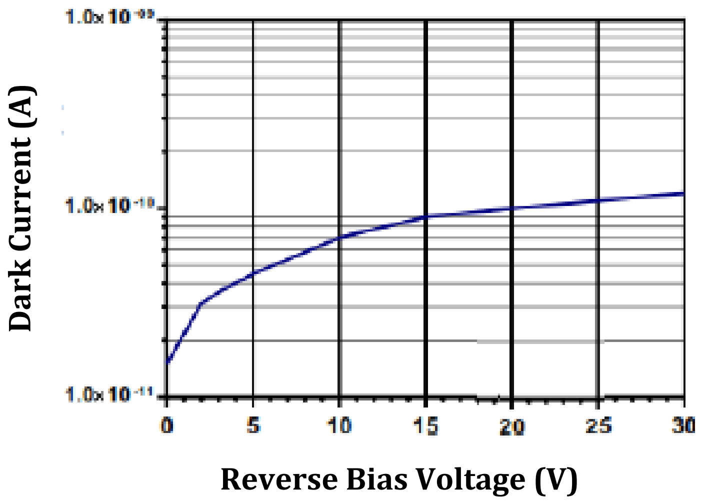


Unit: mm, Tolerance: ±0.15

Capacitance vs Reverse Bias

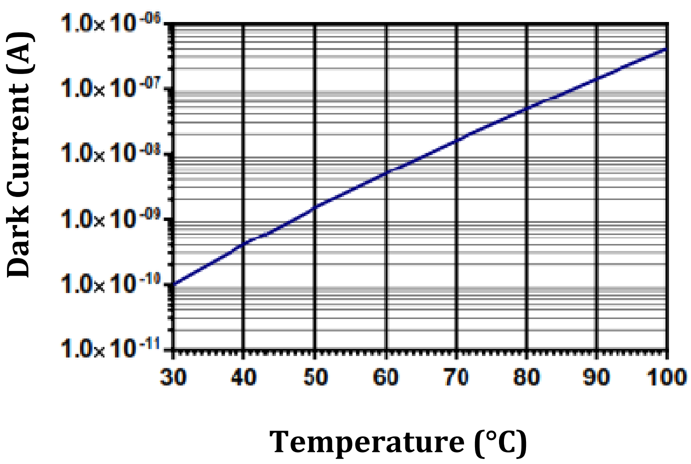


Dark Current vs Reverse Bias (23°C)

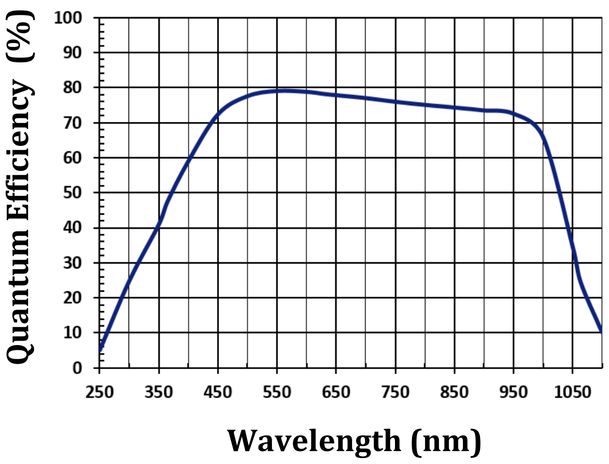


2019-03

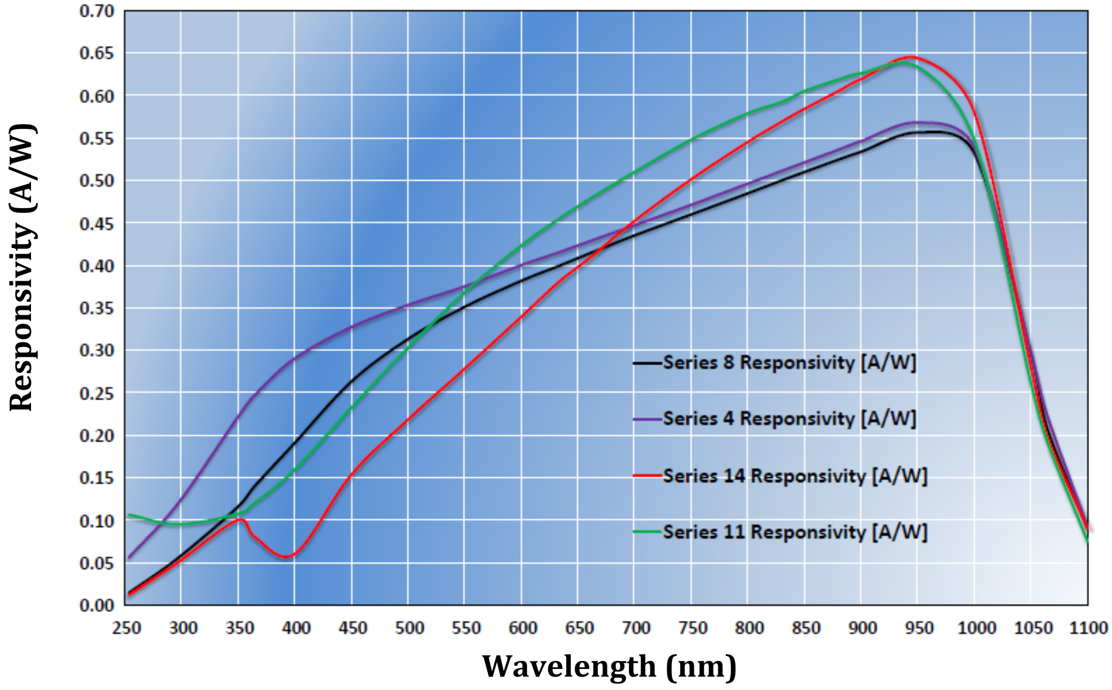
Dark Current vs Temperature (V_r=10V)



Series 8 Quantum Efficiency (23°C)



Photodiode Responsivity by Series

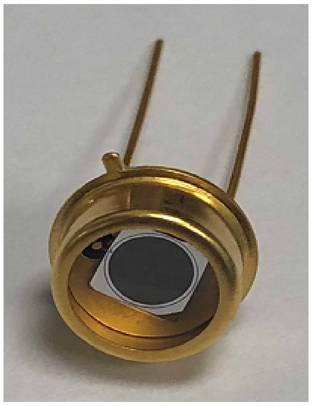


Series 8 Silicon Photodiode

Product No: MT03-002

Sensitivity Wavelength Range: 350-1100nm

The MT03-002 is a circular (Ø3.57) 10mm² active area Silicon Photodiode in a hermetic TO-5 metal can package with a glass window. It is well suited for applications requiring visible and near infrared (NIR) light detection.



Features

> Ultra Low Noise
> High Shunt Resistance
> Wide Dynamic Range
> Broadband Spectral Coverage

Applications

> Colorimeters
> Photometers
> Spectroscopy Equipment
> Fluorescence

Absolute Maximum Ratings

Items	Symbol	Rating	Unit
Reverse Voltage	V_R	50	V
Operating Temperature Range	Topr	-40 ~ +100	°C
Storage Temperature Range	Tstg	-55 ~ +125	°C
Lead Soldering Temperature*1	Tls	260	°C

*1: Time 5 Sec max, Position: Up to 3mm from the body.

Electrical & Optical Characteristics (Ta = 23°C)

Items	Symbol	Conditions	MIN	TYP	MAX	Unit
Dark Current	I_d	V_R=5V	--	0.5	2.0	nA
Breakdown Voltage	$V_{(BR)}$	I_R=10µA	50	--	--	V
Spectral Sensitivity	λ	--	--	350-1100	--	nm
Peak Sensitivity	λ_p	--	--	950	--	nm
Wavelength Responsivity	R	V_R=0V, λ=633nm	--	0.40	--	A/W
Responsivity	R	V_R=0V, λ=950nm	--	0.55	--	A/W
Response Time @635nm	T_r	R_L=50Ω, V_R=5V	--	80	--	ns
Junction Capacitance	C_j	@ 1MHz, V_R=0V	--	170	--	pF
Junction Capacitance	C_j	@ 1MHz, V_R=5V	--	42	50	pF
Shunt Resistance	R_{sh}	V_R=10mV	250	500	--	MΩ

2019-03

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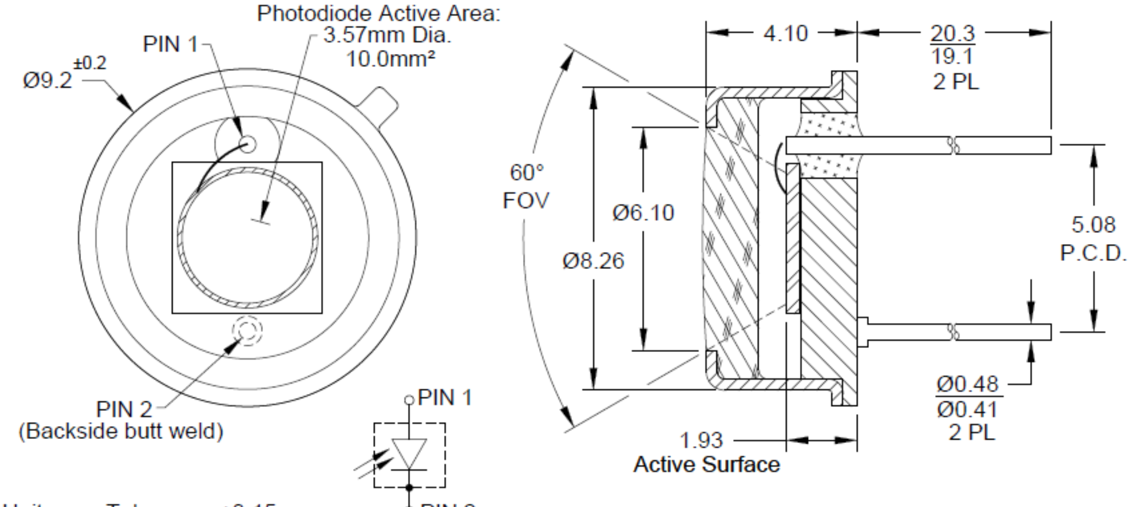
Series 8 Silicon Photodiode

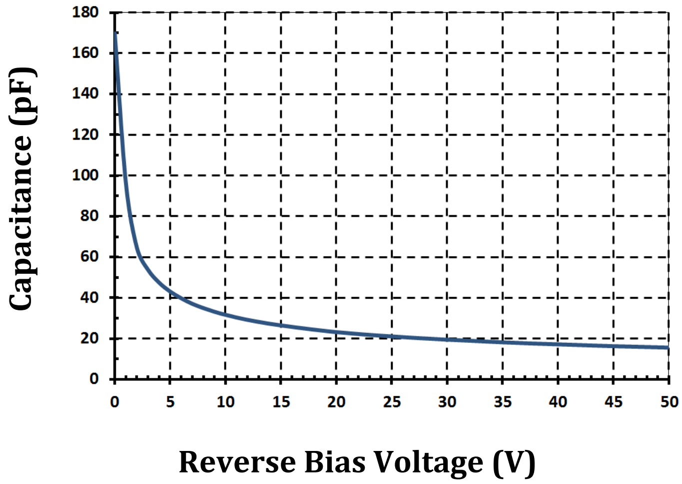
Product No: MT03-002

TO-5 Package Dimensions (2 Pin)

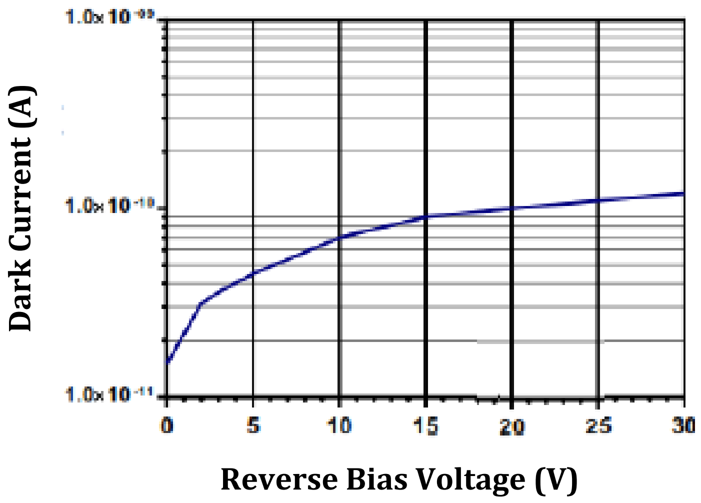


Unit: mm, Tolerance: ±0.15

Capacitance vs Reverse Bias

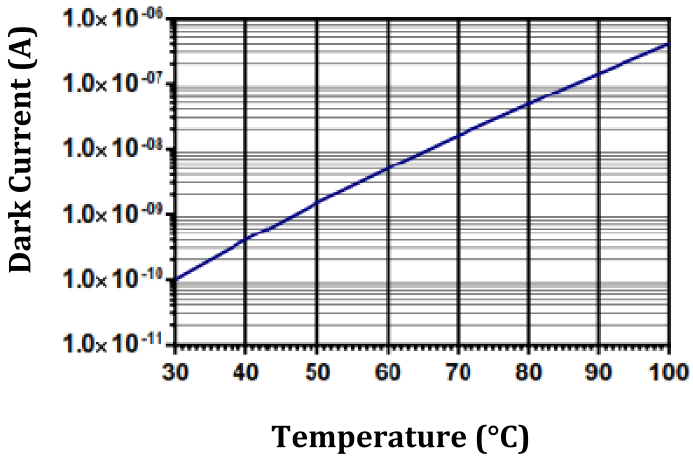


Dark Current vs Reverse Bias (23°C)

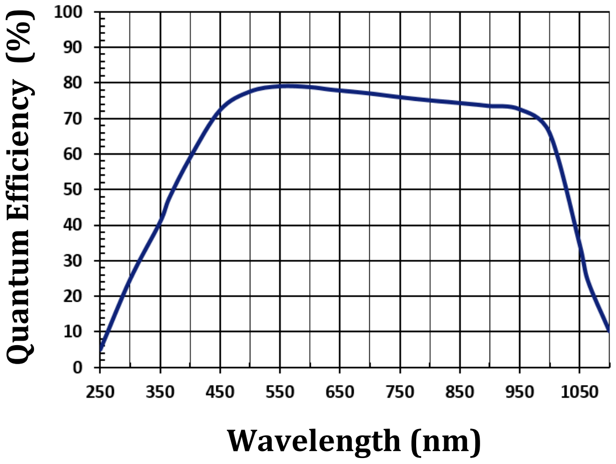


2019-03

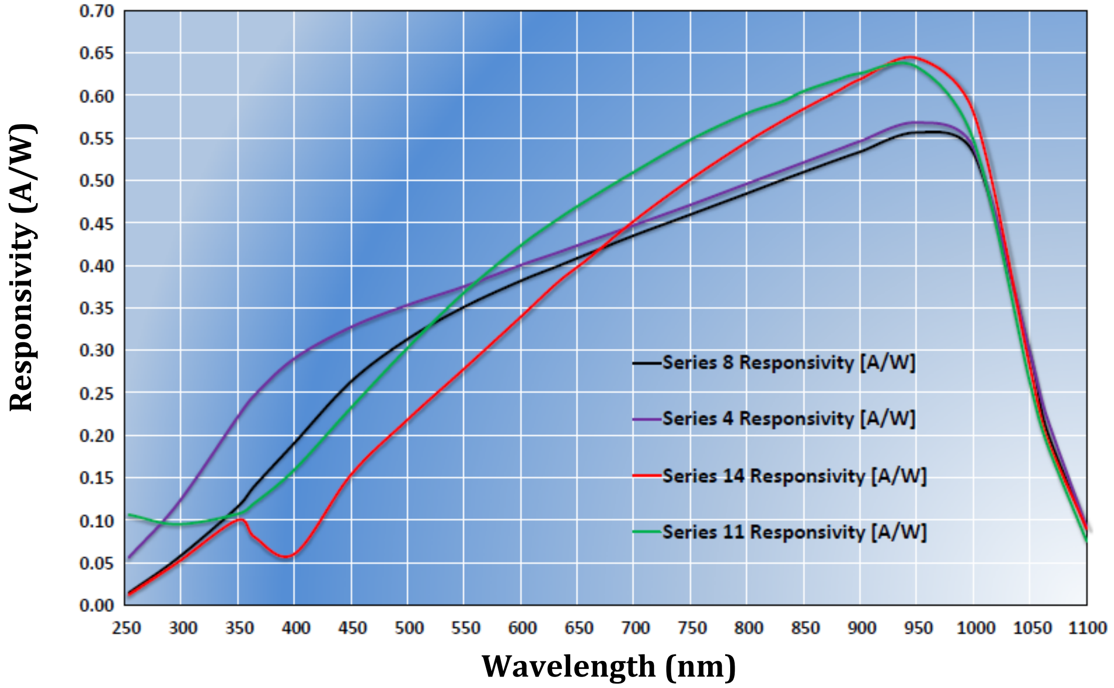
Dark Current vs Temperature (V_r=10V)



Series 8 Quantum Efficiency (23°C)



Photodiode Responsivity by Series



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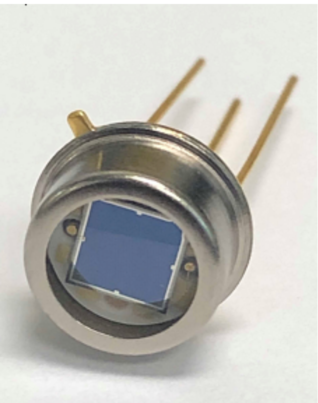
Series 11 Silicon Photodiode

Product No: MT03-003
Description: MTPS15.0PV1-11-5

Sensitivity Wavelength Range: 250-1100nm

The MT03-003 is a square (3.87 x 3.87) 15mm² active area Silicon Photodiode in a hermetic TO-5 metal can package with a glass window. It is designed for applications requiring high red and near infrared (NIR) light sensitivity.



Features

- > Ultra Low Noise
- > High Shunt Resistance
- > Wide Dynamic Range
- > Broadband Spectral Coverage

Applications

- > Colorimeters
- > Photometers
- > Spectroscopy Equipment
- > Fluorescence

Absolute Maximum Ratings

Items	Symbol	Rating	Unit
Reverse Voltage	V_R	50	V
Operating Temperature Range	Topr	-40 ~ +100	°C
Storage Temperature Range	Tstg	-55 ~ +125	°C
Lead Soldering Temperature*1	Tls	260	°C

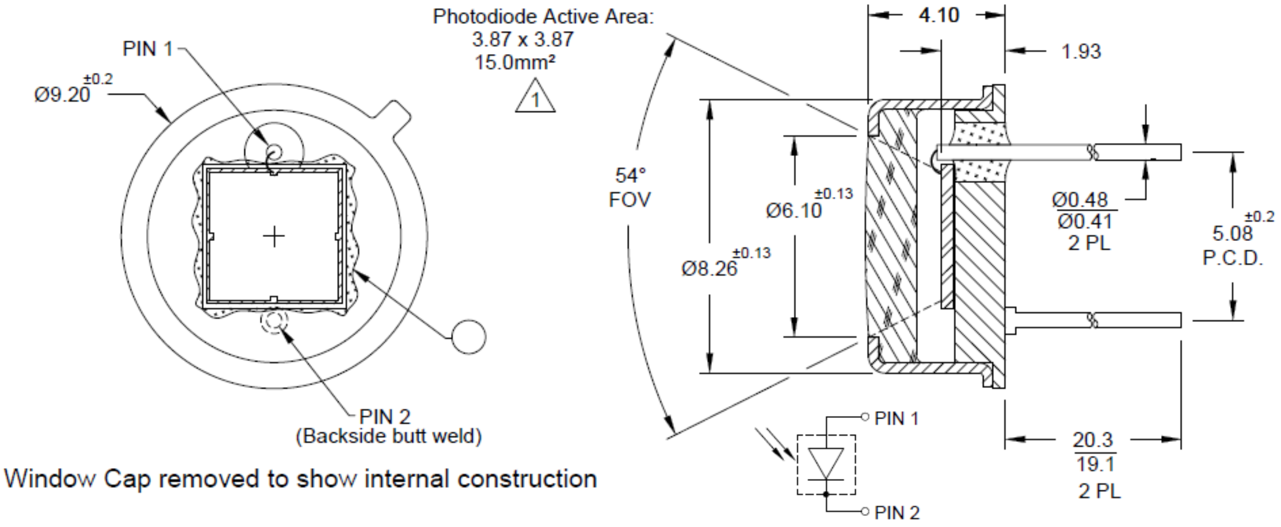
*1: Time 5 Sec max, Position: Up to 3mm from the body.

Electrical & Optical Characteristics (Ta = 23°C)

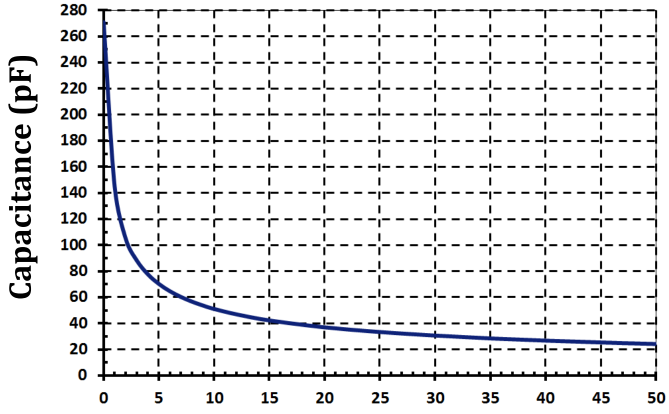
Items	Symbol	Conditions	MIN	TYP	MAX	Unit
Dark Current	I_d	V_R=5V	--	0.2	1.0	nA
Breakdown Voltage	$V_{(BR)}$	I_R=10µA	50	--	--	V
Spectral Sensitivity	λ	--	--	250-1100	--	nm
Peak Sensitivity	λ_p	--	--	940	--	nm
Wavelength Responsivity	R	V_R=0V, λ=633nm	--	0.45	--	A/W
Responsivity	R	V_R=0V, λ=950nm	--	0.64	--	A/W
Response Time @808nm	T_r	R_L=50Ω, V_R=5V	--	80	--	ns
Junction Capacitance	C_j	@ 1MHz, V_R=0V	--	275	--	pF
Junction Capacitance	C_j	@ 1MHz, V_R=5V	--	70	80	pF
Shunt Resistance	R_{sh}	V_R=10mV	500	800	--	MΩ

2022-01

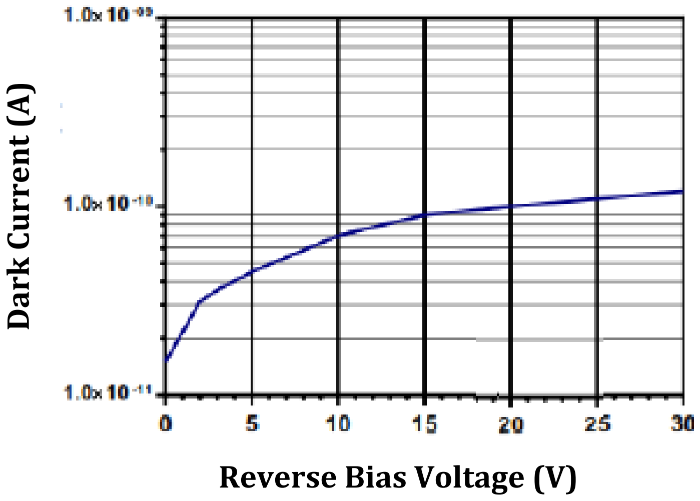
TO-5 Package Dimensions (2 Pin)



Window Cap removed to show internal construction



Capacitance vs Reverse Bias

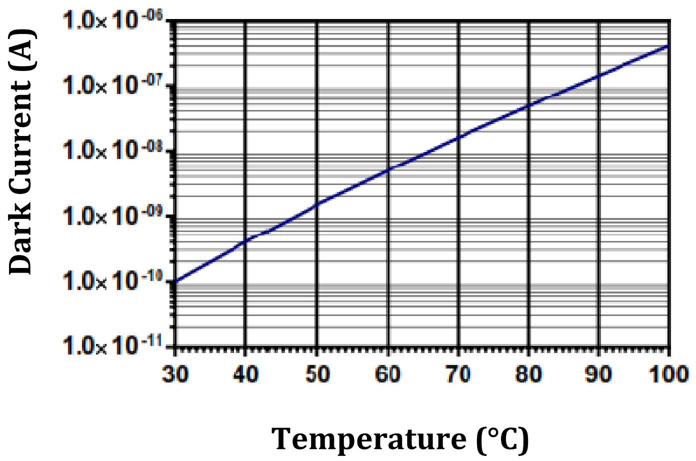


Dark Current vs Reverse Bias (23°C)

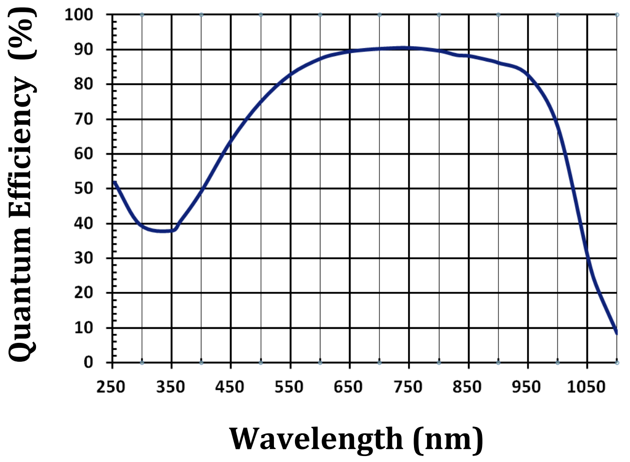
Series 11 Silicon Photodiode

Product No: MT03-003
Description: MTPS15.0PV1-11-5

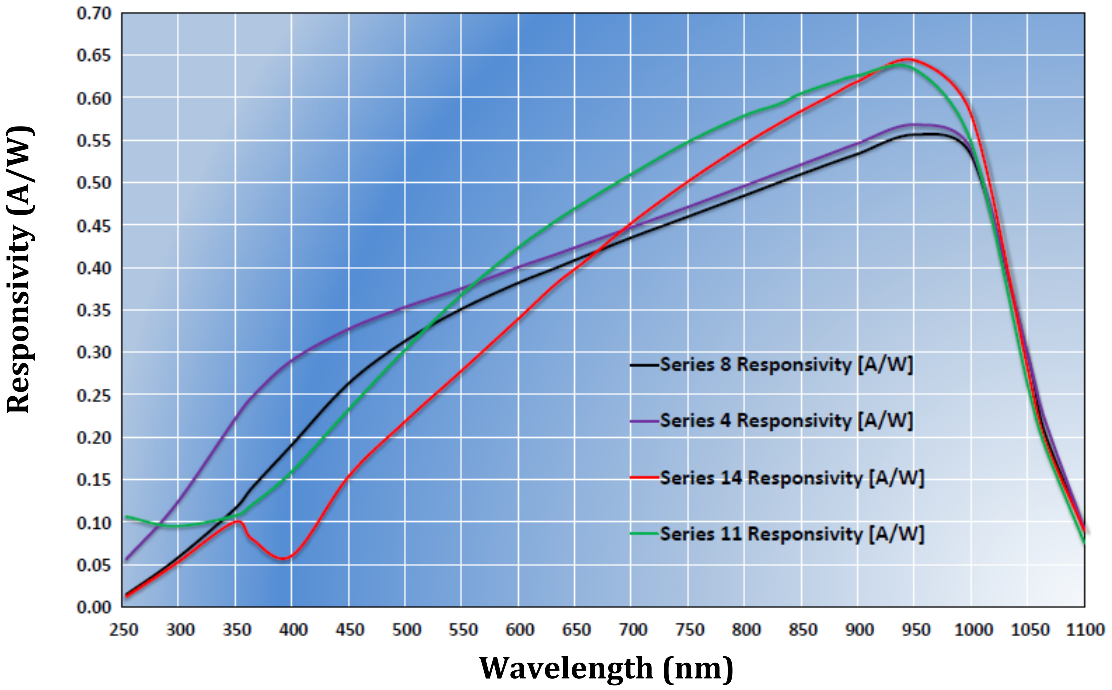
Dark Current vs Temperature (V_r=10V)



Series 11 Quantum Efficiency (23°C)



Photodiode Responsivity by Series



2022-01

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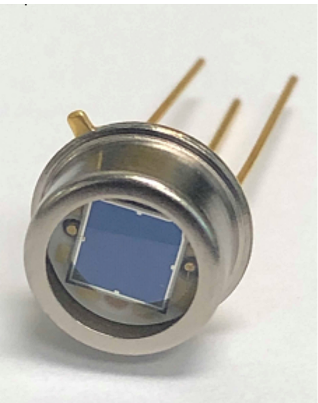
Series 11 Silicon Photodiode

Product No: MT03-003-2
Description: MTPS15.0PV1-11-.5 short leads

Sensitivity Wavelength Range: 250-1100nm

The MT03-003 is a square (3.87 x 3.87) 15mm² active area Silicon Photodiode in a hermetic TO-5 metal can package with a glass window. It is designed for applications requiring high red and near infrared (NIR) light sensitivity.



Features

> Ultra Low Noise
> High Shunt Resistance
> Wide Dynamic Range
> Broadband Spectral Coverage

Applications

> Colorimeters
> Photometers
> Spectroscopy Equipment
> Fluorescence

Absolute Maximum Ratings

Items	Symbol	Rating	Unit
Reverse Voltage	V_R	50	V
Operating Temperature Range	Topr	-40 ~ +100	°C
Storage Temperature Range	Tstg	-55 ~ +125	°C
Lead Soldering Temperature*1	Tls	260	°C

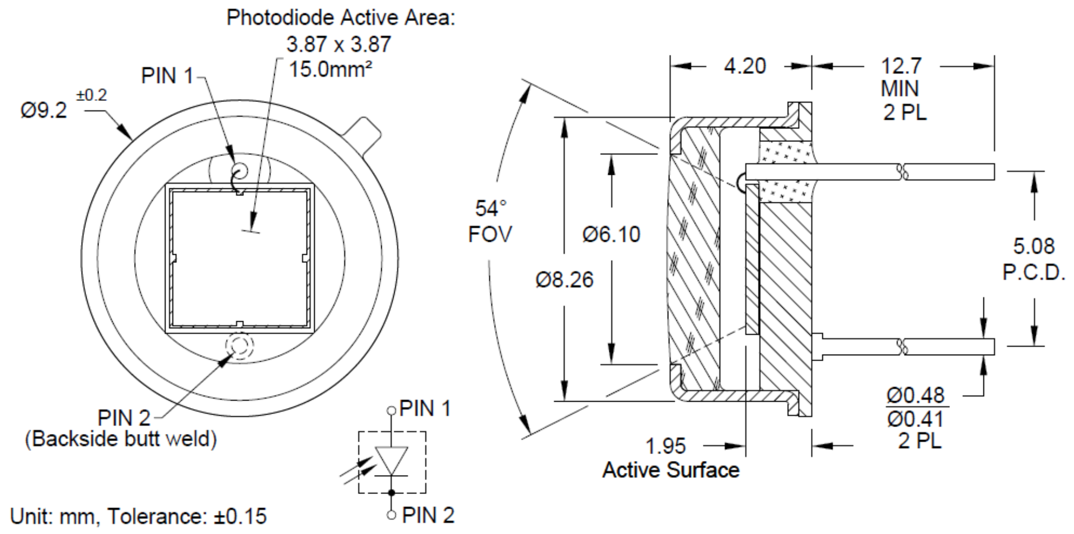
*1: Time 5 Sec max, Position: Up to 3mm from the body.

Electrical & Optical Characteristics (Ta = 23°C)

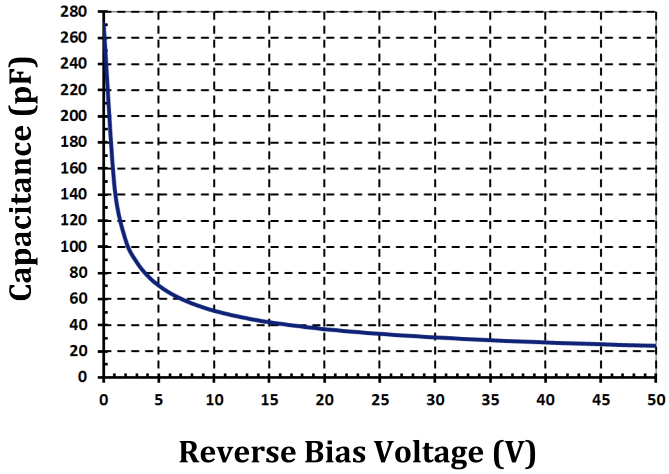
Items	Symbol	Conditions	MIN	TYP	MAX	Unit
Dark Current	I_d	V_R=5V	--	0.2	1.0	nA
Breakdown Voltage	$V_{(BR)}$	I_R=10µA	50	--	--	V
Spectral Sensitivity	λ	--	--	250-1100	--	nm
Peak Sensitivity	λ_p	--	--	940	--	nm
Wavelength Responsivity	R	V_R=0V, λ=633nm	--	0.45	--	A/W
Responsivity	R	V_R=0V, λ=950nm	--	0.64	--	A/W
Response Time @808nm	T_r	R_L=50Ω, V_R=5V	--	80	--	ns
Junction Capacitance	C_j	@ 1MHz, V_R=0V	--	275	--	pF
Junction Capacitance	C_j	@ 1MHz, V_R=5V	--	70	80	pF
Shunt Resistance	R_{sh}	V_R=10mV	500	800	--	MΩ

2022-09

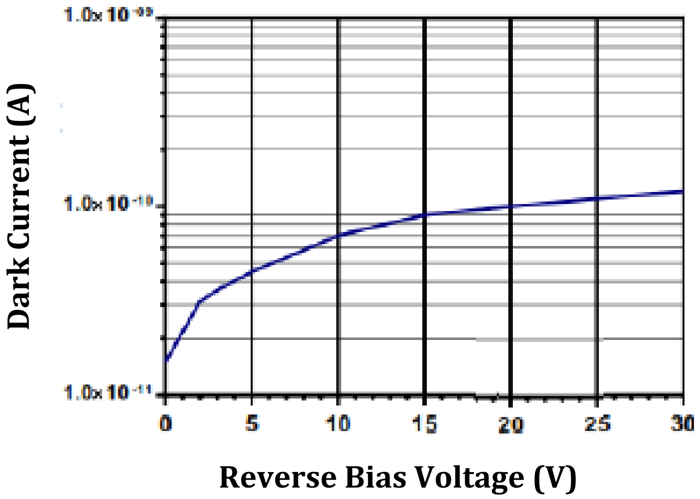
TO-5 Package Dimensions (2 Pin)



Capacitance vs Reverse Bias

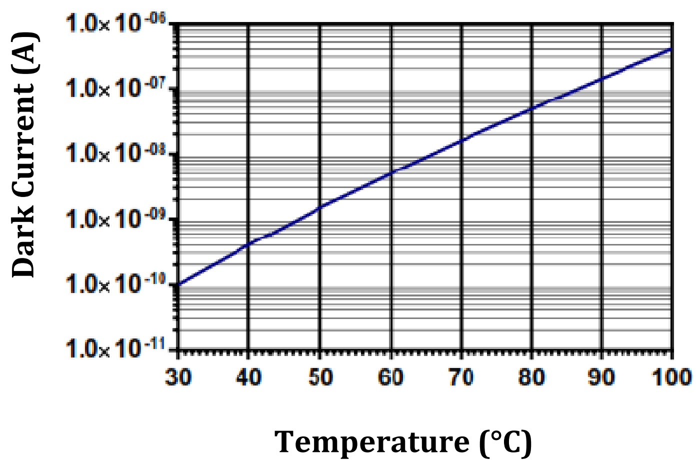


Dark Current vs Reverse Bias (23°C)

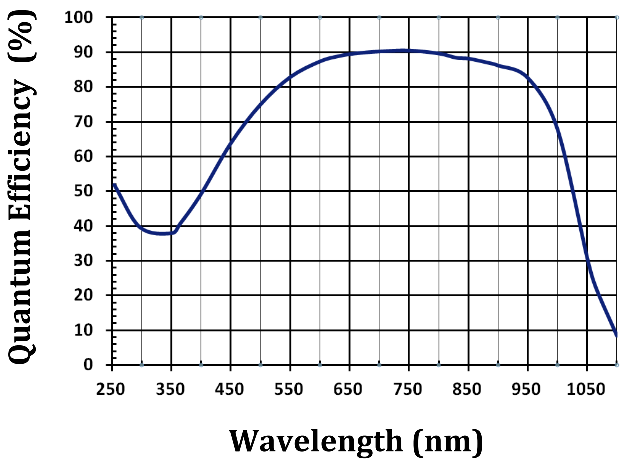


2022-09

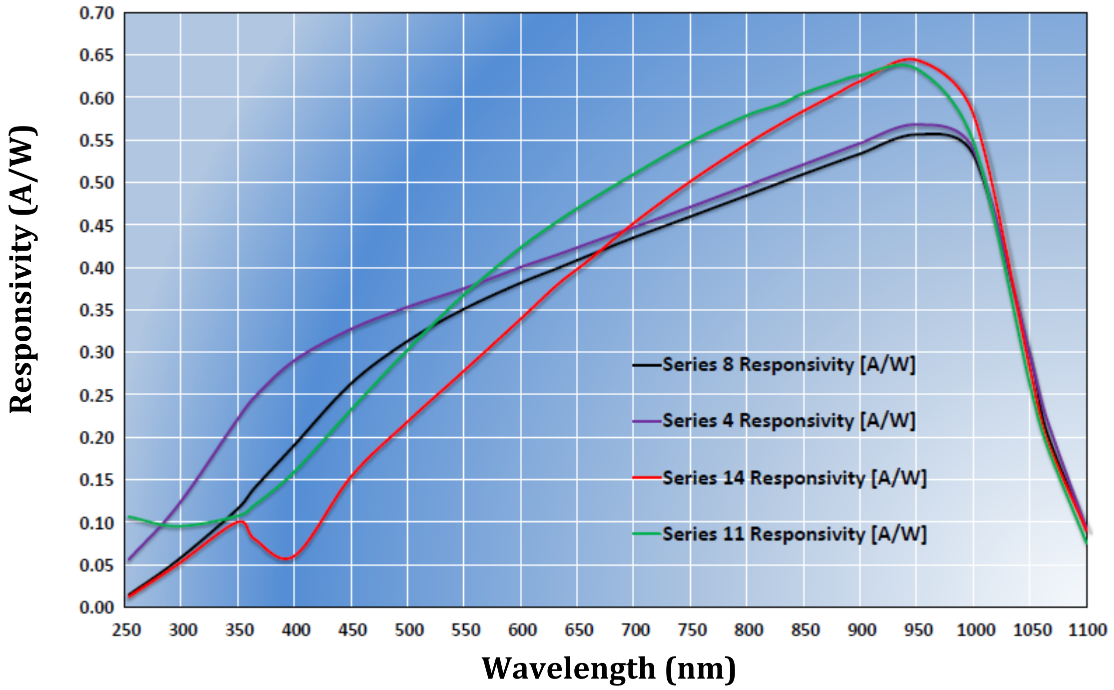
Dark Current vs Temperature (V_r=10V)



Series 11 Quantum Efficiency (23°C)



Photodiode Responsivity by Series

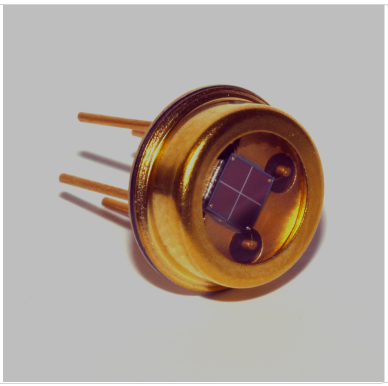


Photodiode

Product No: **MT03-004**

Peak Sensitivity Wavelength: 940nm

The MT03-004 is a square quadrant with a total active area of 5.8mm^2 (4 x 1.44mm^2) with a 50um gap in a hermetic TO-5 metal can package. It is well suited for applications requiring high sensitivity (Green/Blue) as well as visible-near IR applications.



FEATURES	APPLICATIONS
> Ultra Low Noise	> Colorimeters
> High Shunt Resistance	> Beam centering
> Wide Dynamic Range	> Optical Encoders
> Blue Enhanced	> Fluorescence

Absolute Maximum Ratings

Pb lead-free ✓ RoHS

ITEMS	SYMBOL	RATINGS	UNIT
Reverse Voltage	VR	50	V
Operating Temperature Range	Topr	-40 ~ +100	°C
Storage Temperature Range	Tstg	-55 ~ +125	°C
Lead Soldering Temperature *1	Tls	260	°C

*1: Time 5 Sec max, Position: Up to 3mm from the body.

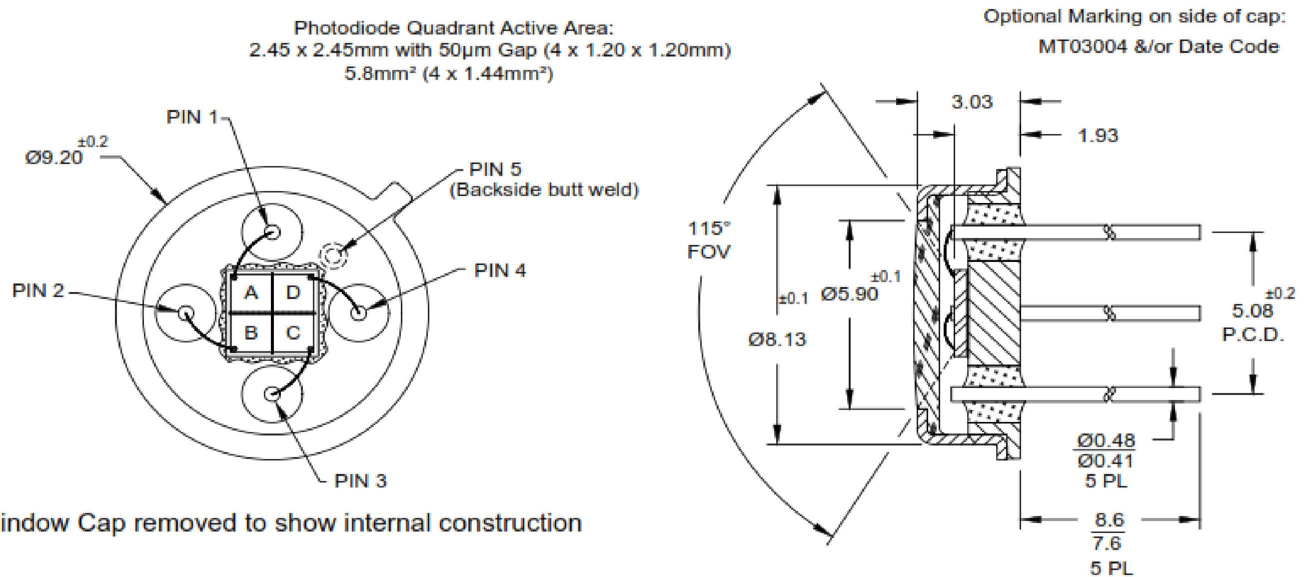
Electrical & Optical Characteristics (Ta = 25°C)

ITEMS	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Light Current	IL	*1, *2	--	--	10.0	mA
Dark Current	ID	VR=10V	--	0.5 per ele	1.0 per ele	nA
Spectral Sensitivity	λ	--	--	400~1100	--	nm
Peak Sensitivity Wavelength	λp	--	--	940	--	nm
Responsivity	Rt	VR=0V, λ=410nm	--	0.22	--	A/W
Responsivity	Rt	VR=0V, λ=940nm	--	0.60	--	A/W
Response Time @850nm	Tr	RL=50Ω, Vr=10V	--	20.0	22.0	nS
Junction Capacitance	Cj	at 1MHz, V=0V per ele	--	20	25	pF
Junction Capacitance	Cj	at 1MHz, V=10V per ele	--	3.5	6.0	pF
Shunt Resistance	Rs	Vr=10mV	200	250	--	MΩ

*1: Color Temperature=2870°K Stardard Tungsten Lamp, *2: VR=10V, Ee=5mW/cm^2.

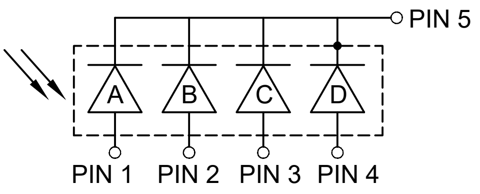
2018-01-02

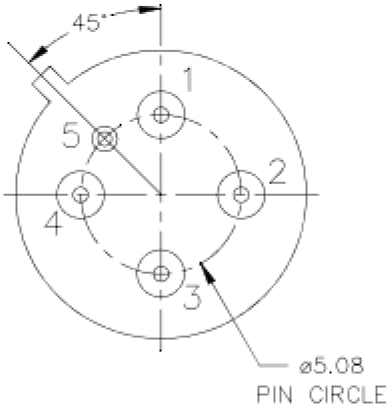
TO-5 Package Dimensions (5 Pin)



Window Cap removed to show internal construction

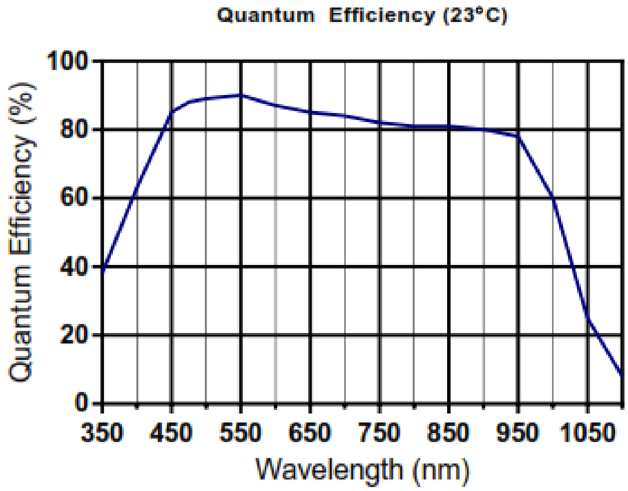
Unit: mm, Tolerance: ±0.2

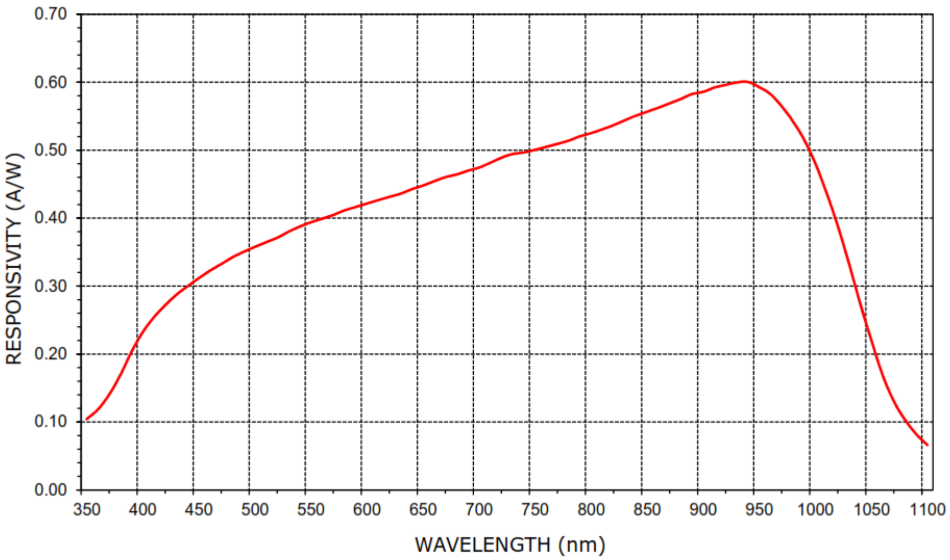




Bottom Side

2018-01-02





The information contained herein is subject to change without notice.

2018-01-02

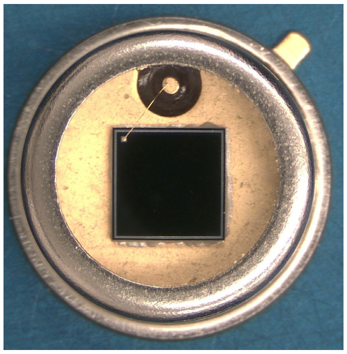
Marktech
Optoelectronics

Series 4 Photodiode

Product No: **MT03-018**

Enhanced Sensitivity Wavelength: 365nm

The MT03-018 is a 7.50mm² Active area Photodiode in a hermetic TO-5 metal can package.
It is specifically designed for use @365nm or Blue/Green applications requiring high signal and low noise.



FEATURES

> Ultra low noise
> High Shunt Resistance
> Wide Dynamic Range
> 365nm and Blue/Green enhanced

APPLICATIONS

> Color Meter
> Currency Authentication
> Spectroscopy Equipment
> Fluorescence

Absolute Maximum Ratings

ITEMS	SYMBOL	RATINGS	UNIT
Reverse Voltage	VR	50	V
Operating Temperature Range	Topr	-40 ~ +100	°C
Storage Temperature Range	Tstg	-55 ~ +125	°C
Lead Soldering Temperature*1	Tls	260	°C

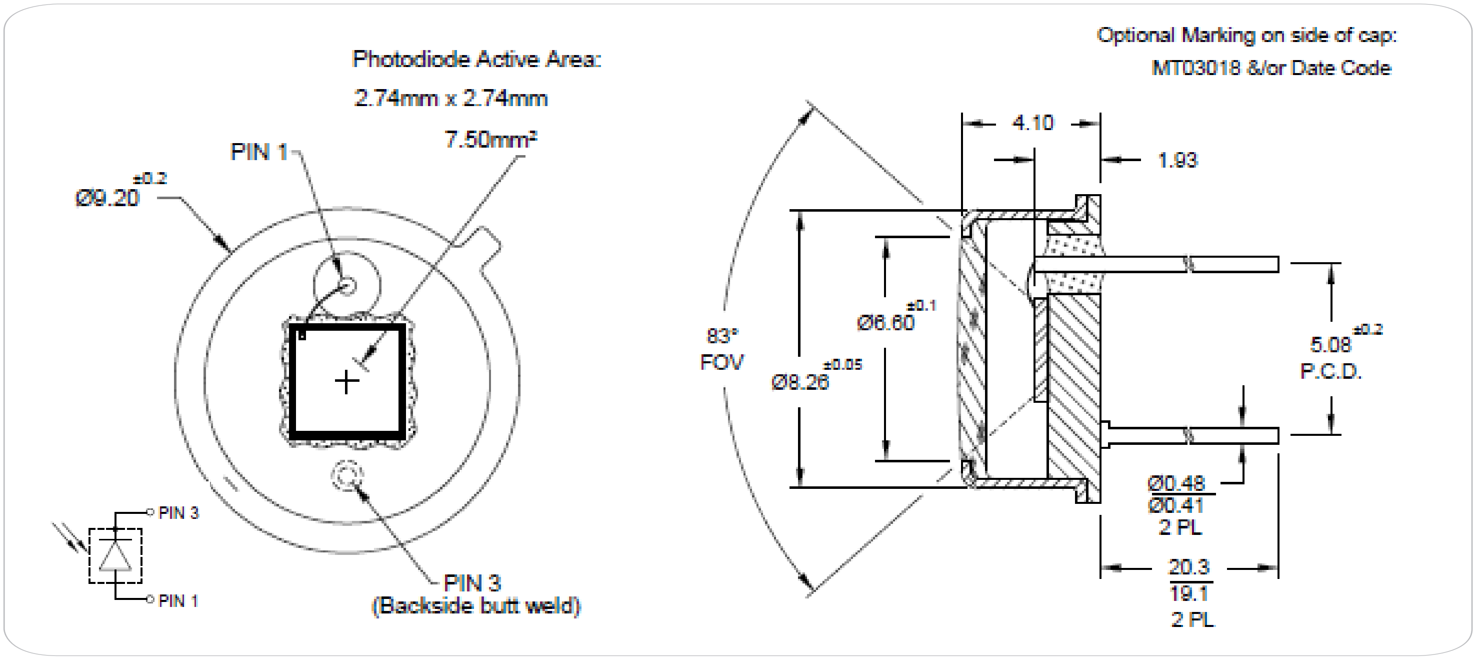
*1: Time 5 Sec max, Position: Up to 3mm from the body.

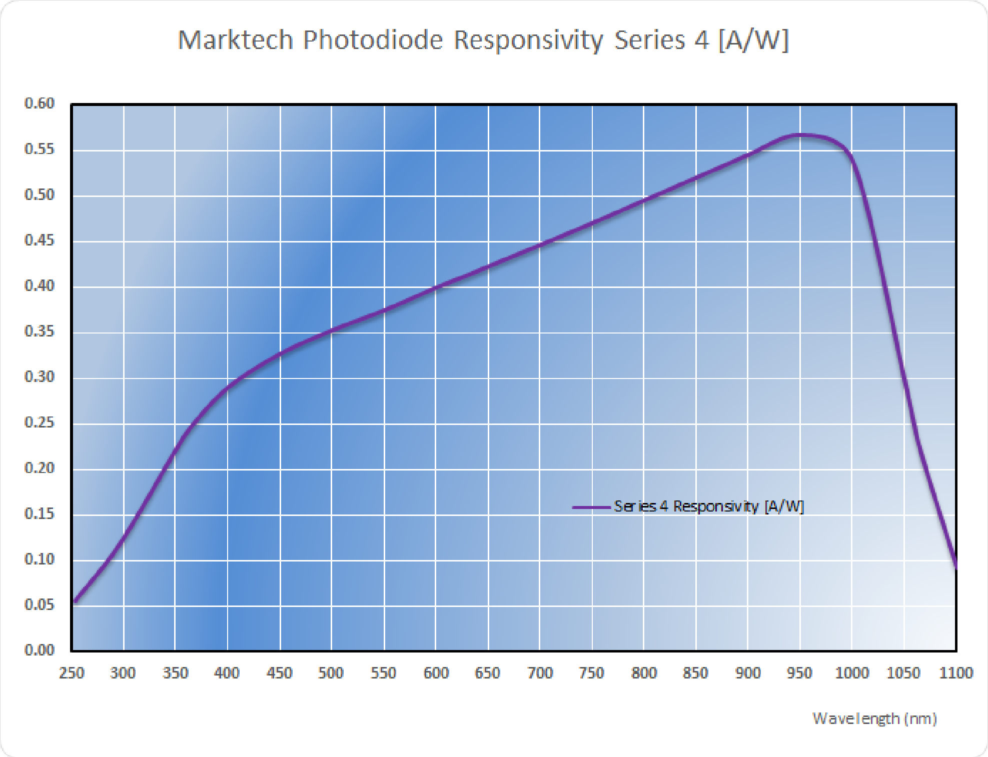
Electrical & Optical Characteristics (Ta = 23°C)

ITEMS	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Dark Current	ID	Vr=5V	--	.1	10	nA
Forward Voltage	Vf	If=2mA	--	--	0.8	V
Breakdown Voltage	Vb	Ir=10uA	130	--	--	V
Spectral Sensitivity	λ	--	--	250-1100	--	nm
Peak Sensitivity Wavelength	λp	--	--	950	--	nm
Responsivity	Rt	Vr=0V, λ=365nm	0.18	0.22	--	A/W
Responsivity	Rt	Vr=0V, λ=633nm	--	0.38	--	A/W
Response Time 365nm	Tr	Vr=0V, RL=1kΩ	--	100	--	nS
Junction Capacitance	Cj	at 1MHz, Vr=0V	--	130	--	pF
Junction Capacitance	Cj	at 1MHz,Vr=5V	--	50	70	pF
Shunt Resistance	Rsh	Vr=10mV	--	400	--	MΩ

2018-08-09

Device Dimensions





The information contained herein is subject to change without notice.

2018-08-09

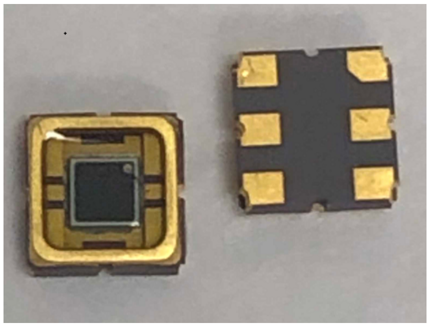
Marktech
Optoelectronics

Series 4 Silicon Photodiode

Product No: MT03-021

Sensitivity Wavelength Range: 250-1100nm

The MT03-021 is a square (1.1 x1.1) 1.2mm² active area Silicon Photodiode in a surface mount package with clear encapsulation. It is optimized for applications requiring high sensitivity in the 300 to 500nm region (UVA, Blue & Green).



Features

- > Ultra Low Noise
- > High Shunt Resistance
- > Wide Dynamic Range
- > 365nm & Blue/Green Enhanced

Applications

- > Flame Detection
- > Currency Authentication
- > Spectroscopy Equipment
- > Fluorescence

Absolute Maximum Ratings

Items	Symbol	Rating	Unit
Reverse Voltage	V_R	50	V
Operating Temperature Range	Topr	-40 ~ +100	°C
Storage Temperature Range	Tstg	-55 ~ +125	°C
Lead Soldering Temperature*1	Tls	260	°C

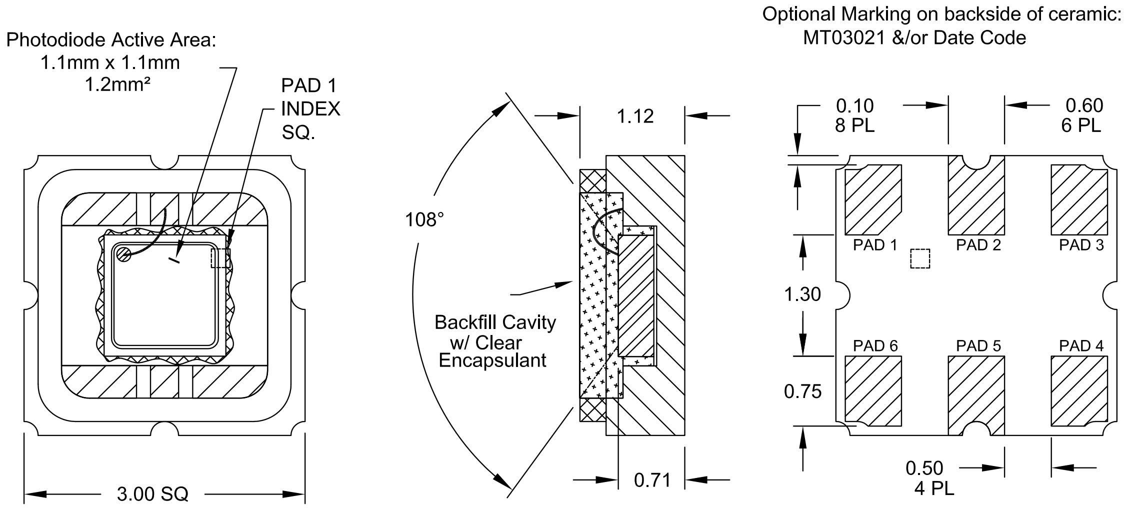
*1: Time 5 Sec max, Position: Up to 3mm from the body.

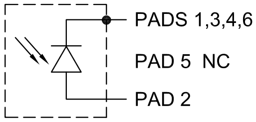
Electrical & Optical Characteristics (Ta = 23°C)

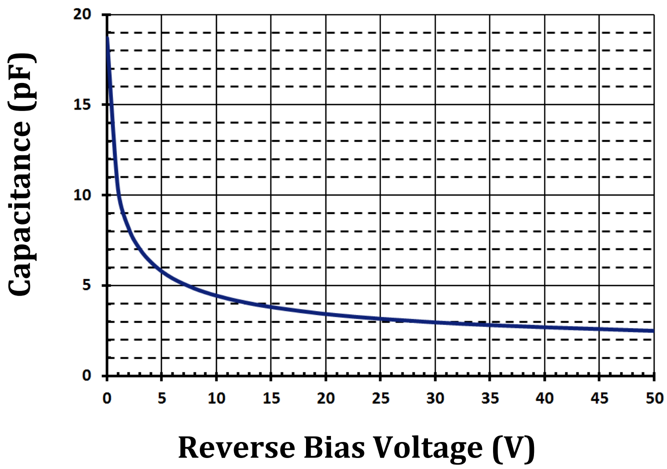
Items	Symbol	Conditions	MIN	TYP	MAX	Unit
Dark Current	I_d	V_R=5V	--	0.2	1.0	nA
Breakdown Voltage	$V_{(BR)}$	I_R=10µA	50	--	--	V
Spectral Sensitivity	λ	--	--	250-1100	--	nm
Peak Sensitivity	λ_p	--	--	950	--	nm
Wavelength Responsivity	R	V_R=0V, λ=365nm	--	0.22	--	A/W
Responsivity	R	V_R=0V, λ=633nm	--	0.40	--	A/W
Response Time @635nm	T_r	R_L=50Ω, V_R=5V	--	20	--	ns
Junction Capacitance	C_j	@ 1MHz, V_R=0V	--	20	--	pF
Junction Capacitance	C_j	@ 1MHz, V_R=5V	--	6	8	pF
Shunt Resistance	R_{sh}	V_R=10mV	500	800	--	

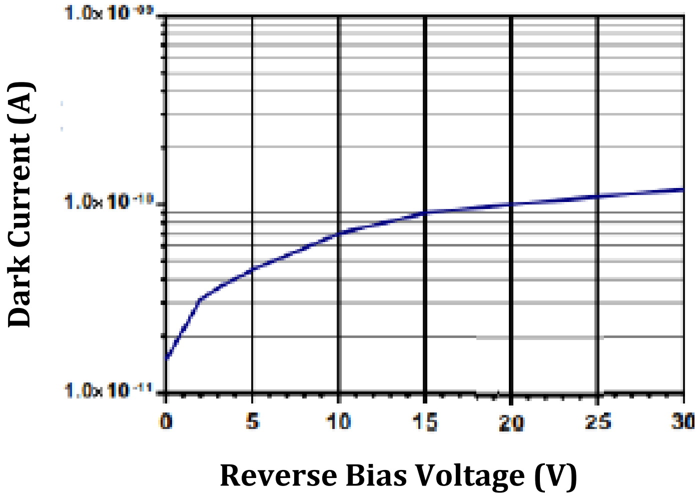
2023-01-31

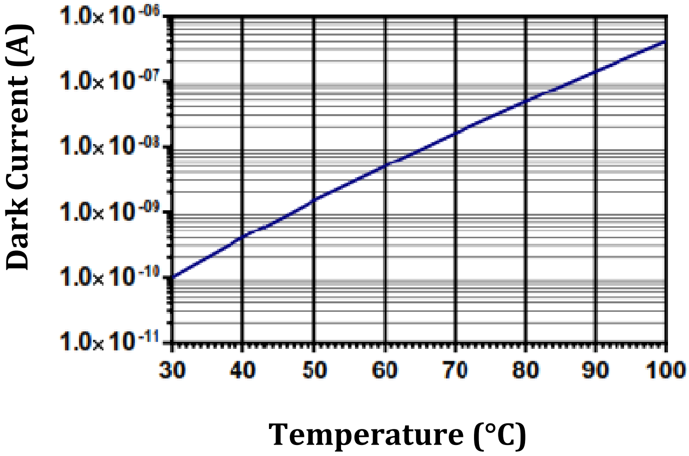
SMD Package Dimensions (6 Pads)

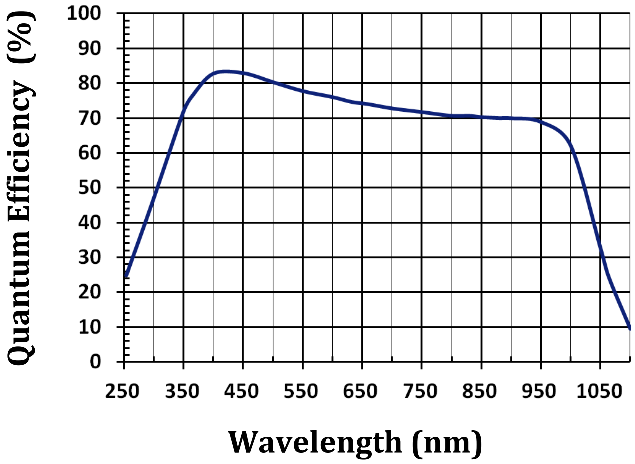




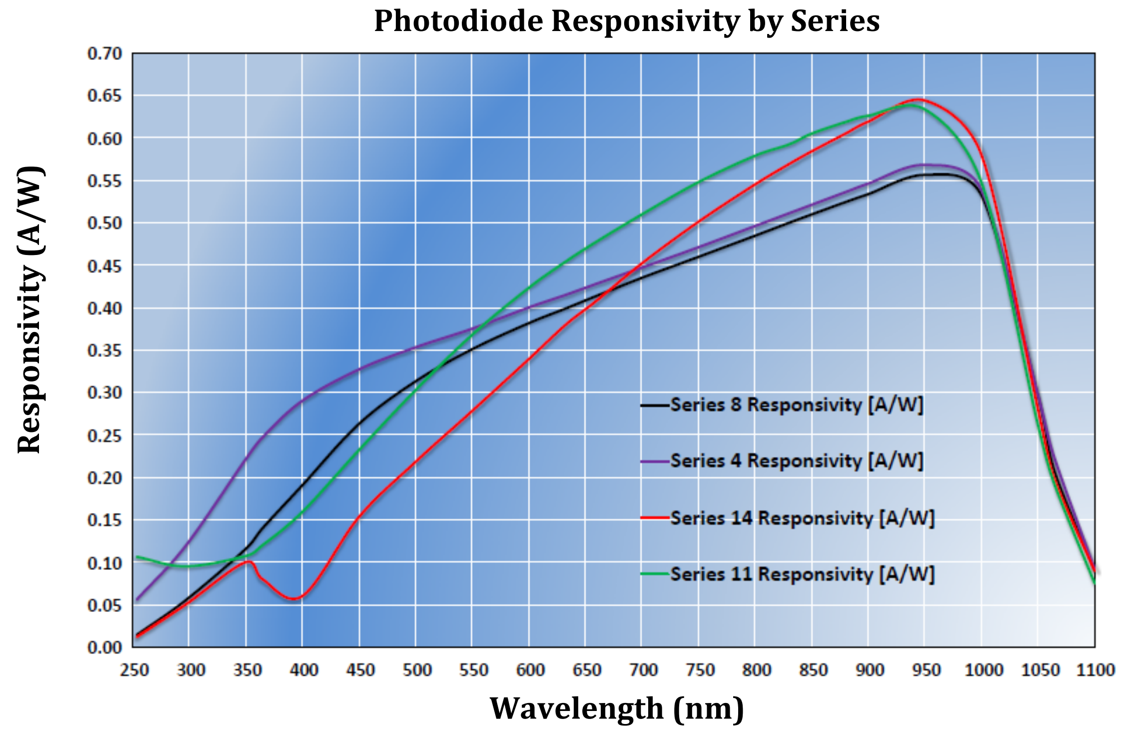

Capacitance vs Reverse Bias


Dark Current vs Reverse Bias (23°C)


Dark Current vs Temperature (V_r=10V)


Series 4 Quantum Efficiency (23°C)

2023-01-31

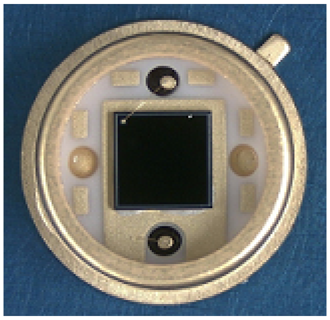

Photodiode Responsivity by Series
Responsivity (A/W)
0.70
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
250
300
350
400
450
500
550
600
650
700
750
800
850
900
950
1000
1050
1100
Wavelength (nm)
Series 8 Responsivity [A/W]
Series 4 Responsivity [A/W]
Series 14 Responsivity [A/W]
Series 11 Responsivity [A/W]

Series 4 Photodiode

Product No: **MT03-022**

Enhanced Sensitivity Wavelength: 365nm

The MT03-022 is a 7.50mm² Active area Photodiode in a Isolated hermetic TO-5 metal can package. It is specifically designed for use @365nm or Blue/Green applications requiring high signal and low noise.



FEATURES

> Ultra low noise
> High Shunt Resistance
> Wide Dynamic Range
> 365nm and Blue/Green enhanced

APPLICATIONS

> Color Meter
> Currency Authentication
> Spectroscopy Equipment
> Fluorescence

Absolute Maximum Ratings

ITEMS	SYMBOL	RATINGS	UNIT
Reverse Voltage	VR	50	V
Operating Temperature Range	Topr	-40 ~ +100	°C
Storage Temperature Range	Tstg	-55 ~ +125	°C
Lead Soldering Temperature*1	Tls	260	°C

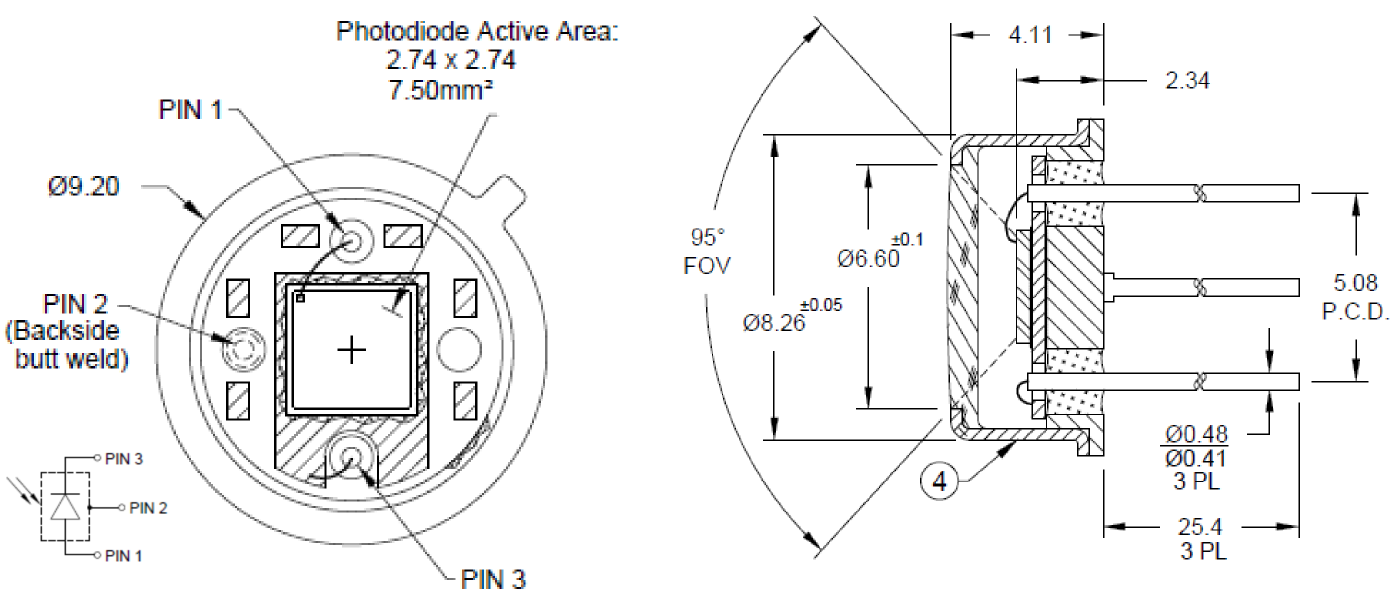
*1: Time 5 Sec max, Position: Up to 3mm from the body.

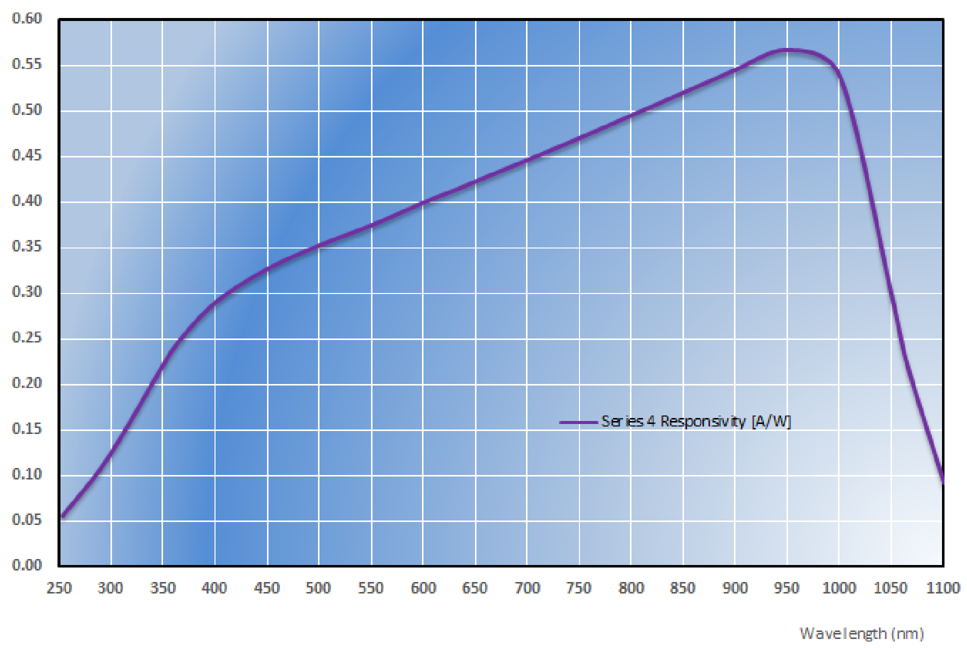
Electrical & Optical Characteristics (Ta = 23°C)

ITEMS	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Dark Current	ID	Vr=5V	--	.1	10	nA
Forward Voltage	Vf	If=2mA	--	--	0.8	V
Breakdown Voltage	Vb	Ir=10uA	130	--	--	V
Spectral Sensitivity	λ	--	--	250-1100	--	nm
Peak Sensitivity Wavelength	λp	--	--	950	--	nm
Responsivity	Rt	Vr=0V, λ=365nm	0.18	0.22	--	A/W
Responsivity	Rt	Vr=0V, λ=633nm	--	0.38	--	A/W
Response Time 365nm	Tr	Vr=0V, RL=1kΩ	--	100	--	nS
Junction Capacitance	Cj	at 1MHz, Vr=0V	--	130	--	pF
Junction Capacitance	Cj	at 1MHz,Vr=5V	--	50	70	pF
Shunt Resistance	Rsh	Vr=10mV	--	400	--	MΩ

2017-06-28

Device Dimensions




Marktech Photodiode Responsivity Series 4 [A/W]

The information contained herein is subject to change without notice.

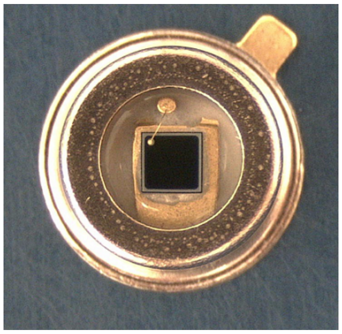
2017-06-28

Series 4 Photodiode

Product No: **MT03-023**

Enhanced Sensitivity Wavelength: 365nm

The MT03-023 is a 1.2mm2 active area Photodiode in a Isolated hermetic TO-46 metal can package. specifically designed for use @365nm or Blue/Green applications requiring high signal and low noise.



FEATURES

- >Ultra low noise
- >High Shunt Resistance
- >Wide Dynamic Range
- > 365nm & Blue/Green Enhanced

APPLICATIONS

- >Color Meter
- >Currency Authentication
- >Spectroscopy Equipment
- >Fluorescence

Absolute Maximum Ratings

ITEMS	SYMBOL	RATINGS	UNIT
Reverse Voltage	VR	50	V
Operating Temperature Range	Topr	-40~ +100	℃
Storage Temperature Range	Tstg	-55~ +125	℃
Lead Soldering Temperature*1	Tls	260	℃

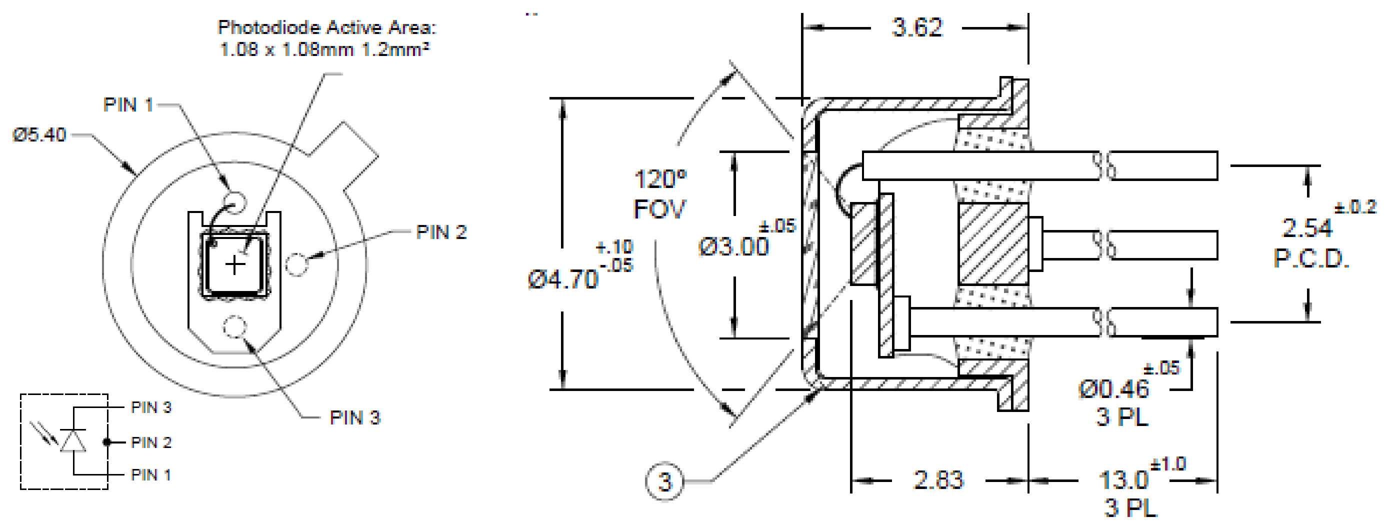
*1: Time 5 Sec max, Position: Up to 3mm from the body.

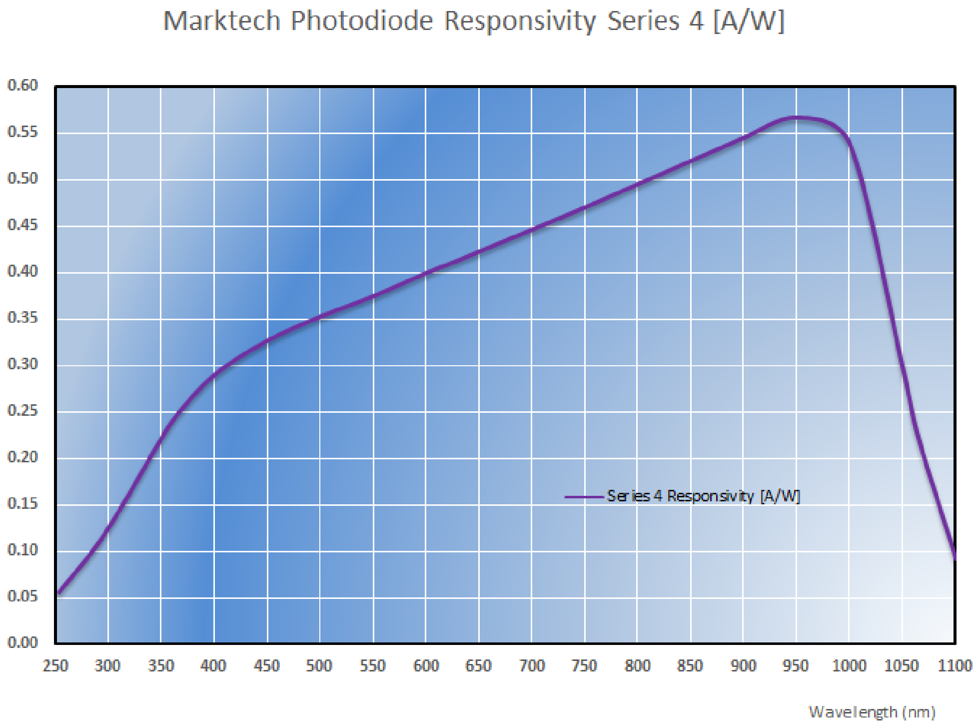
Electrical & Optical Characteristics (Ta = 23°C)

ITEMS	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Dark Current	ID	Vr=5V	--	0.2	1.0	nA
Forward Voltage	Vf	If=2mA	--	--	0.8	V
Breakdown Voltage Spectral	Vb	Ir=10uA	30	--	--	V
Sensitivity	λ	--	--	250-1100	--	nm
Peak Sensitivity Wavelength	λp	--	--	950	--	nm
Responsivity	Rt	Vr=0V, λ=365nm	0.18	0.22	--	A/W
Responsivity	Rt	Vr=0V, λ=633nm	--	0.38	--	A/W
Response Time 365	Tr	Vr=0V, RL=1kΩ	--	100	--	nS
Junction Capacitance	Cj	at 1MHz, Vr=0V	--	20	--	pF
Junction Capacitance	Cj	at 1MHz, Vr=5V	--	6	8	pF
Shunt Resisitance	Rsh	Vr=10mV	--	800	--	MΩ

2017-06-29

Device Dimensions





The information contained herein is subject to change without notice.

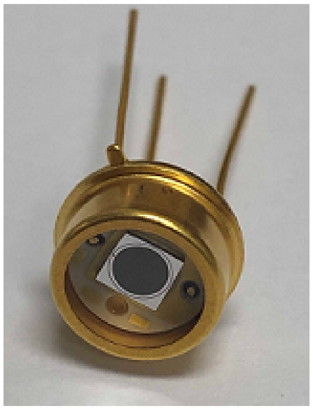
2017-06-29

Series 4 Silicon Photodiode

Product No: MT03-026

Sensitivity Wavelength Range: 250-1100nm

The MT03-026 is a circular (Ø2.52) 5mm² active area Silicon Photodiode in an isolated, hermetic TO-5 metal can package with a UV transmitting glass window. It is optimized for applications requiring high sensitivity in the 300 to 560nm region (UVA, Blue & Green).



Features

- > Ultra Low Noise
- > High Shunt Resistance
- > Wide Dynamic Range
- > 365nm & Blue/Green Enhanced

Applications

- > Flame Detection
- > Currency Authentication
- > Spectroscopy Equipment
- > Fluorescence

Absolute Maximum Ratings

Pb lead-free RoHS

Items	Symbol	Rating	Unit
Reverse Voltage	V_R	50	V
Operating Temperature Range	Topr	-40 ~ +100	°C
Storage Temperature Range	Tstg	-55 ~ +125	°C
Lead Soldering Temperature*1	Tls	260	°C

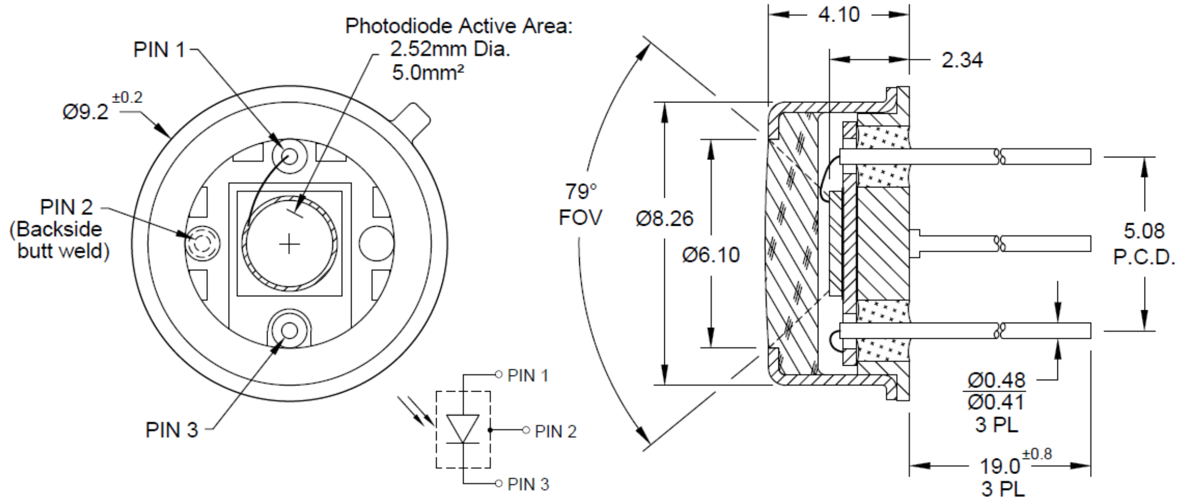
*1: Time 5 Sec max, Position: Up to 3mm from the body.

Electrical & Optical Characteristics (Ta = 23°C)

Items	Symbol	Conditions	MIN	TYP	MAX	Unit
Dark Current	I_d	V_R=5V	--	0.05	0.5	nA
Breakdown Voltage	$V_{(BR)}$	I_R=10µA	50	--	--	V
Spectral Sensitivity	λ	--	--	250-1100	--	nm
Peak Sensitivity	λ_p	--	--	950	--	nm
Wavelength Responsivity	R	V_R=0V, λ=365nm	--	0.22	--	A/W
Responsivity	R	V_R=0V, λ=633nm	--	0.40	--	A/W
Response Time @635nm	T_r	R_L=50Ω, V_R=5V	--	20	--	ns
Junction Capacitance	C_j	@ 1MHz, V_R=0V	--	80	--	pF
Junction Capacitance	C_j	@ 1MHz, V_R=5V	--	18	25	pF
Shunt Resistance	R_{sh}	V_R=10mV	500	800	--	MΩ

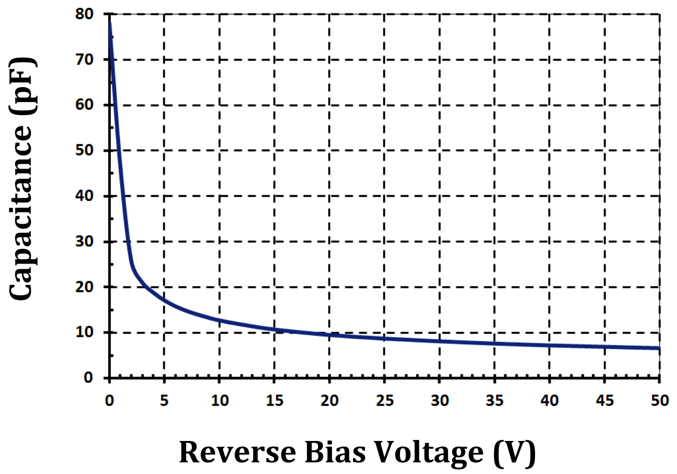
2020-04-14

TO-5 Package Dimensions (3 Pin)

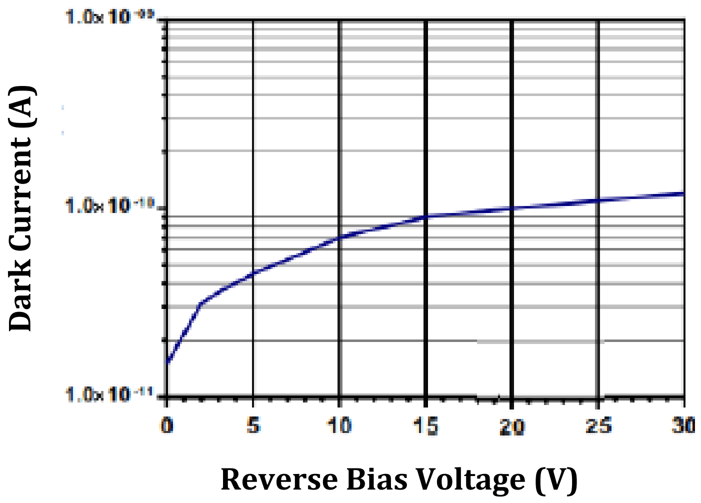


Unit: mm, Tolerance: ±0.15

Capacitance vs Reverse Bias

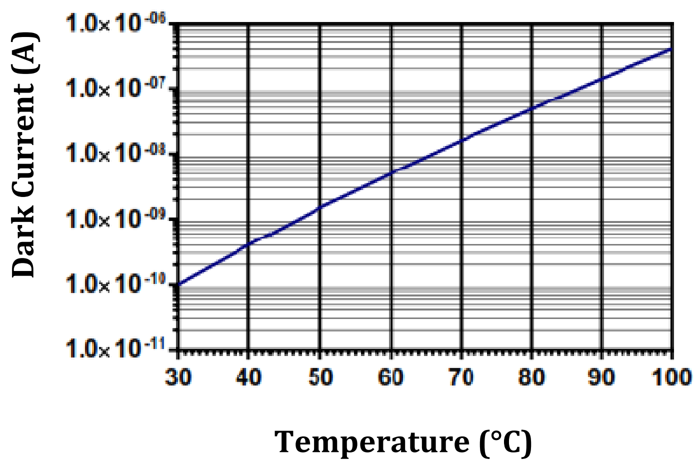


Dark Current vs Reverse Bias (23°C)

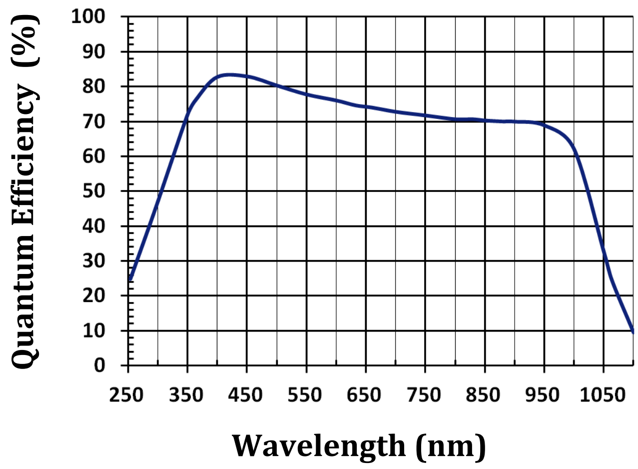


2020-04-14

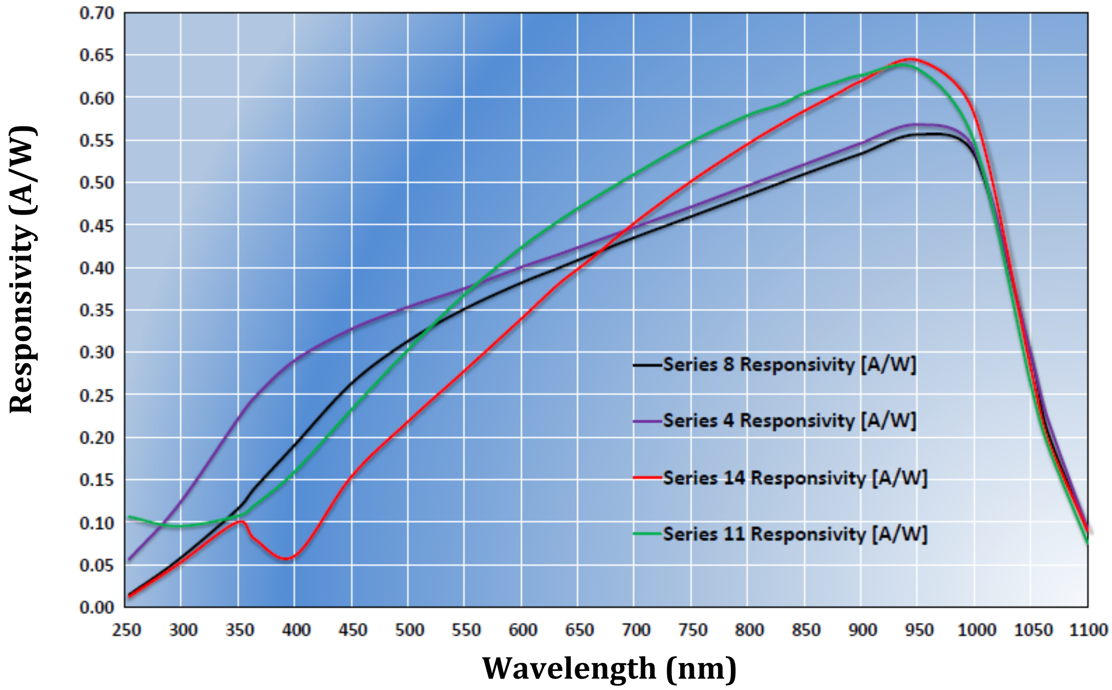
Dark Current vs Temperature (V_r=10V)

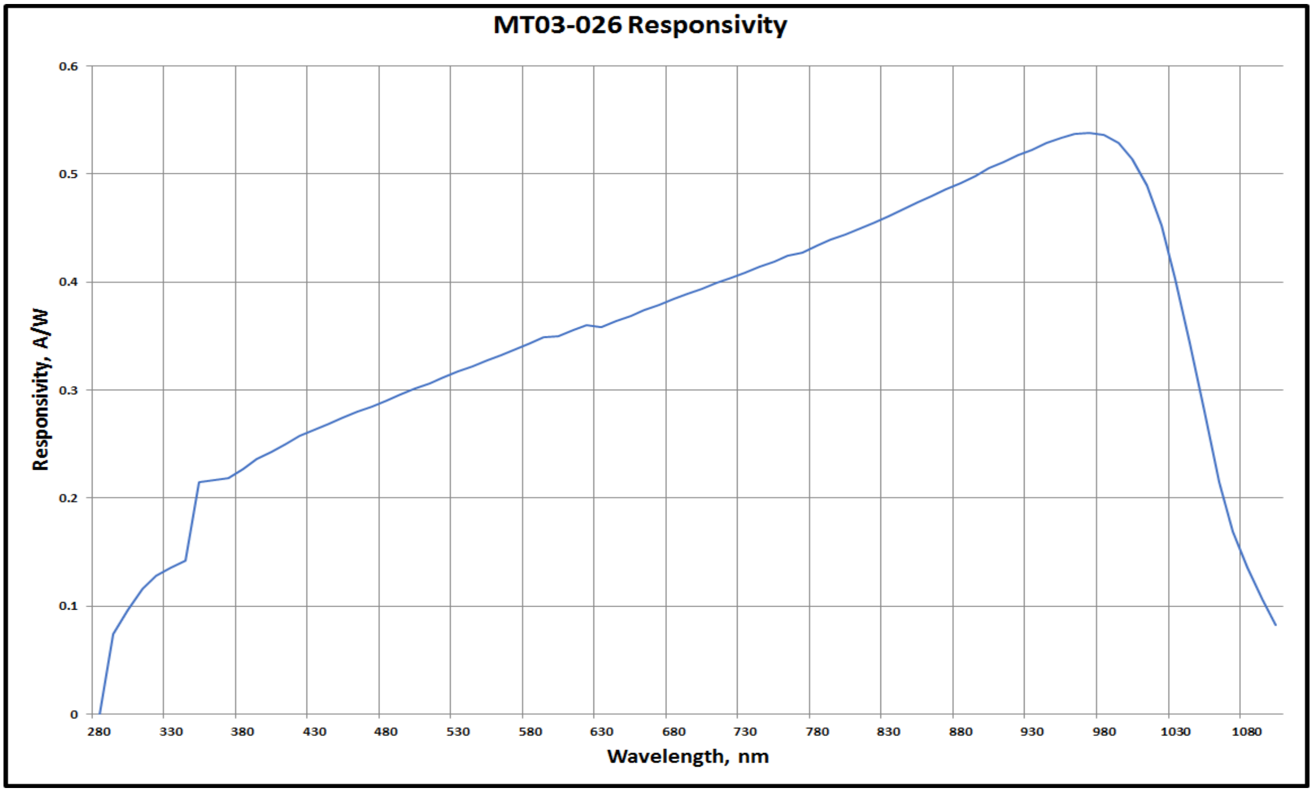


Series 4 Quantum Efficiency (23°C)



Photodiode Responsivity by Series




MT03-026 Responsivity
Responsivity, A/W
0.6
0.5
0.4
0.3
0.2
0.1
0
280
330
380
430
480
530
580
630
680
730
780
830
880
930
980
1030
1080
Wavelength, nm

2020-04-14

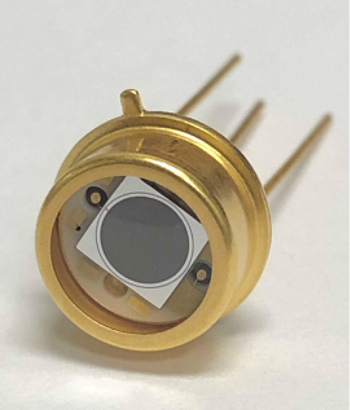
Marktech Optoelectronics

Series 8 Silicon Photodiode

Product No: MT03-027

Sensitivity Wavelength Range: 350-1100nm

The MT03-027 is a circular (Ø3.57) 10mm² active area Silicon Photodiode in an isolated, hermetic TO-5 metal can package with a glass window. It is well suited for applications requiring visible and near infrared (NIR) light detection.



Features

- > Ultra Low Noise
- > High Shunt Resistance
- > Wide Dynamic Range
- > Broadband Spectral Coverage

Applications

- > Colorimeters
- > Photometers
- > Spectroscopy Equipment
- > Fluorescence

Absolute Maximum Ratings

Pb lead-free RoHS

Items	Symbol	Rating	Unit
Reverse Voltage	V_R	50	V
Operating Temperature Range	Topr	-40 ~ +100	°C
Storage Temperature Range	Tstg	-55 ~ +125	°C
Lead Soldering Temperature*1	Tls	260	°C

*1: Time 5 Sec max, Position: Up to 3mm from the body.

Electrical & Optical Characteristics (Ta = 23°C)

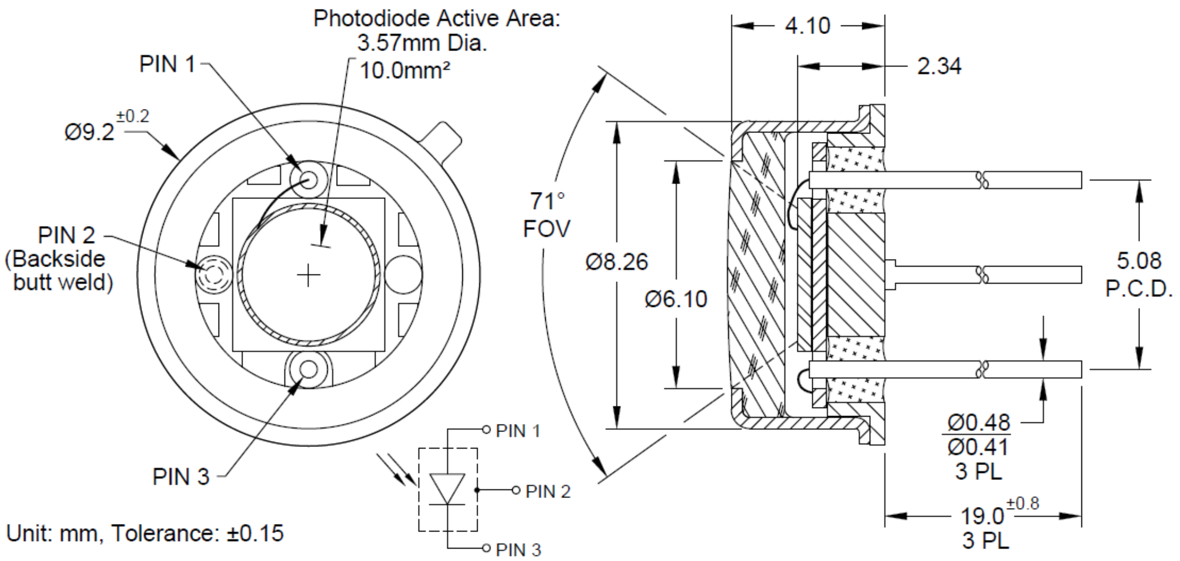
Items	Symbol	Conditions	MIN	TYP	MAX	Unit
Dark Current	I_d	V_R=5V	--	0.5	2.0	nA
Breakdown Voltage	$V_{(BR)}$	I_R=10µA	50	--	--	V
Spectral Sensitivity	λ	--	--	350-1100	--	nm
Peak Sensitivity	λ_p	--	--	950	--	nm
Wavelength Responsivity	R	V_R=0V, λ=633nm	--	0.40	--	A/W
Responsivity	R	V_R=0V, λ=950nm	--	0.55	--	A/W
Response Time @635nm	T_r	R_L=50Ω, V_R=5V	--	80	--	ns
Junction Capacitance	C_j	@ 1MHz, V_R=0V	--	170	--	pF
Junction Capacitance	C_j	@ 1MHz, V_R=5V	--	42	50	pF
Shunt Resistance	R_{sh}	V_R=10mV	500	800	--	MΩ

2019-03

Series 8 Silicon Photodiode

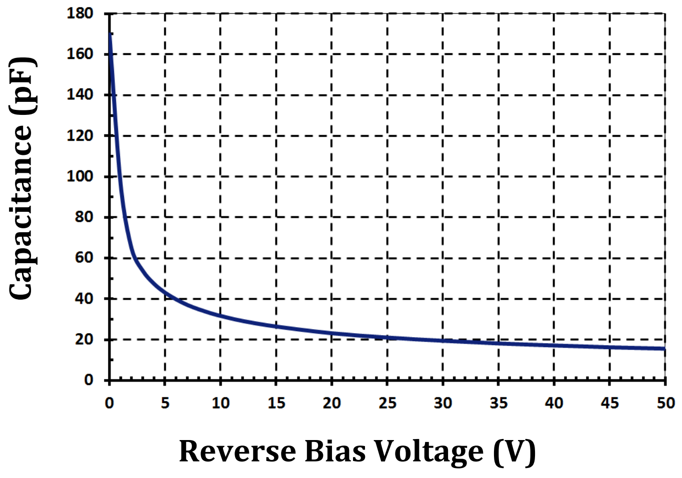
Product No: MT03-027

TO-5 Package Dimensions (3 Pin)

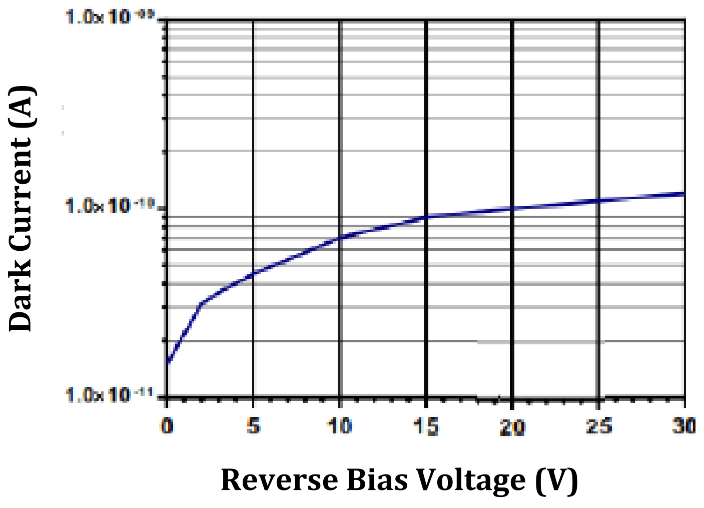


Unit: mm, Tolerance: ±0.15

Capacitance vs Reverse Bias

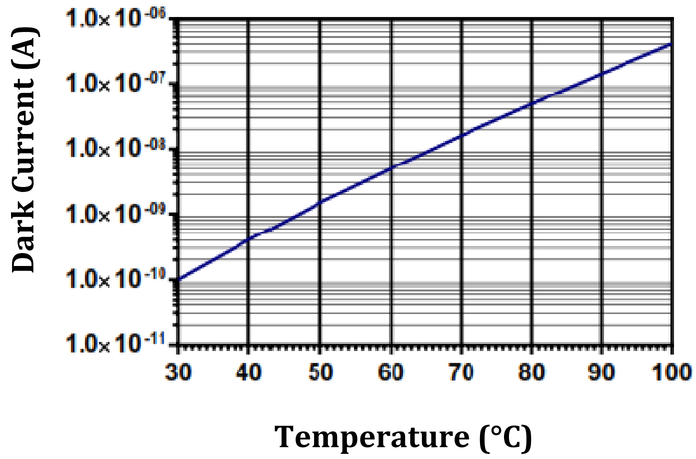


Dark Current vs Reverse Bias (23°C)

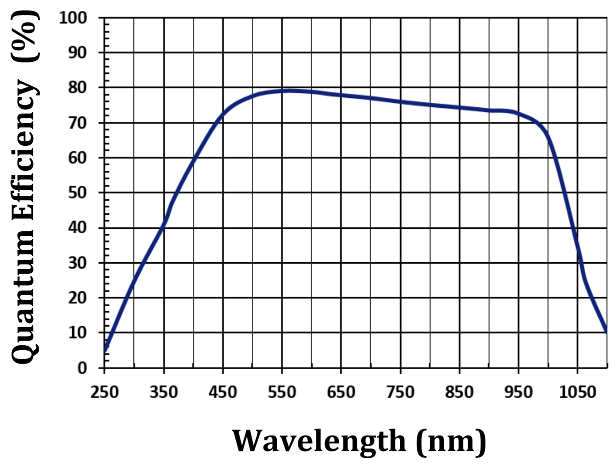


2019-03

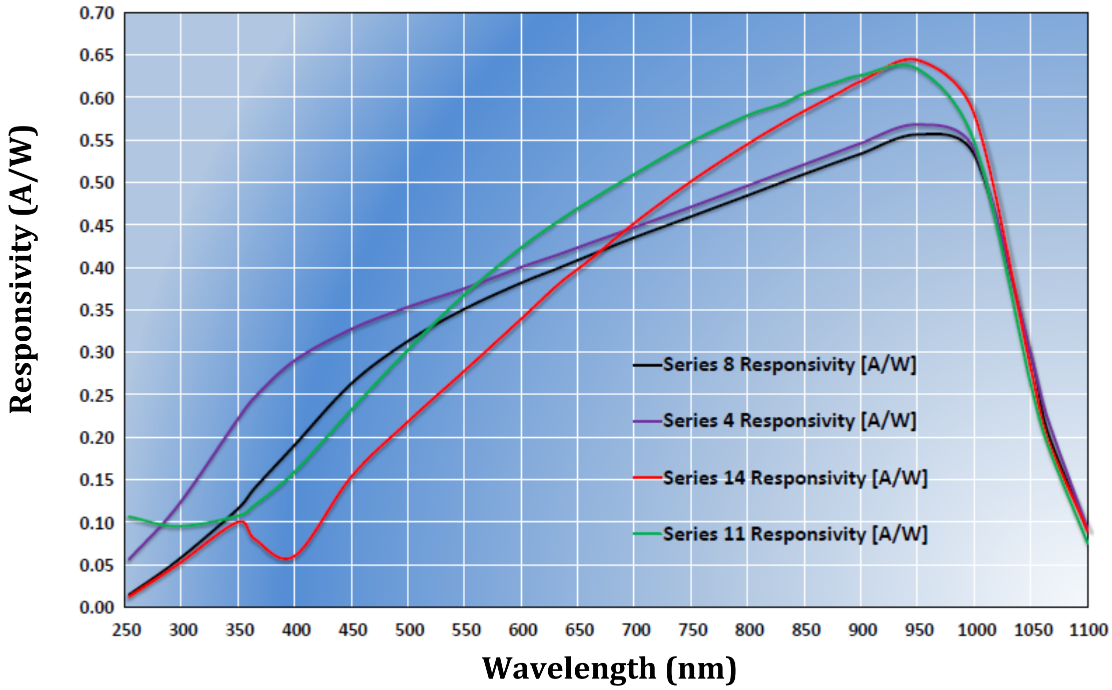
Dark Current vs Temperature (V_r=10V)



Series 8 Quantum Efficiency (23°C)



Photodiode Responsivity by Series



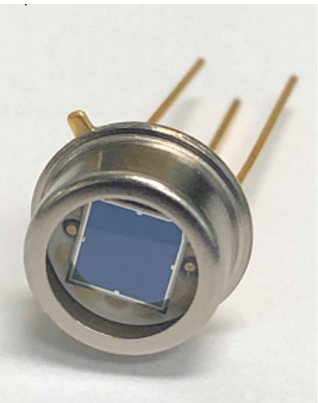
2019-03

Series 11 Silicon Photodiode

Product No: MT03-028

Sensitivity Wavelength Range: 250-1100nm

The MT03-028 is a square (3.87 x 3.87) 15mm² active area Silicon Photodiode in an isolated, hermetic TO-5 metal can package with a glass window. It is designed for applications requiring high red and near infrared (NIR) light sensitivity.



Features

- > Ultra Low Noise
- > High Shunt Resistance
- > Wide Dynamic Range
- > Broadband Spectral Coverage

Applications

- > Colorimeters
- > Photometers
- > Spectroscopy Equipment
- > Fluorescence

Absolute Maximum Ratings

Pb lead-free RoHS

Items	Symbol	Rating	Unit
Reverse Voltage	V_R	50	V
Operating Temperature Range	Topr	-40 ~ +100	°C
Storage Temperature Range	Tstg	-55 ~ +125	°C
Lead Soldering Temperature*1	Tls	260	°C

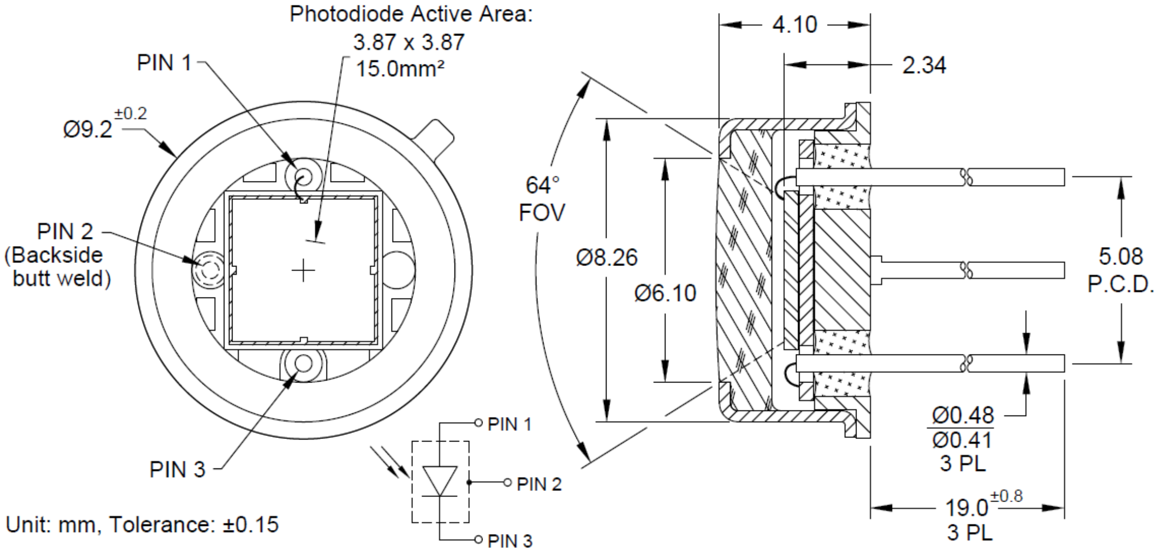
*1: Time 5 Sec max, Position: Up to 3mm from the body.

Electrical & Optical Characteristics (Ta = 23°C)

Items	Symbol	Conditions	MIN	TYP	MAX	Unit
Dark Current	I_d	V_R=5V	--	0.2	1.0	nA
Breakdown Voltage	$V_{(BR)}$	I_R=10µA	50	--	--	V
Spectral Sensitivity	λ	--	--	250-1100	--	nm
Peak Sensitivity	λ_p	--	--	940	--	nm
Wavelength Responsivity	R	V_R=0V, λ=633nm	--	0.45	--	A/W
Responsivity	R	V_R=0V, λ=950nm	--	0.64	--	A/W
Response Time @808nm	T_r	R_L=50Ω, V_R=5V	--	80	--	ns
Junction Capacitance	C_j	@ 1MHz, V_R=0V	--	275	--	pF
Junction Capacitance	C_j	@ 1MHz, V_R=5V	--	70	80	pF
Shunt Resistance	R_{sh}	V_R=10mV	500	800	--	MΩ

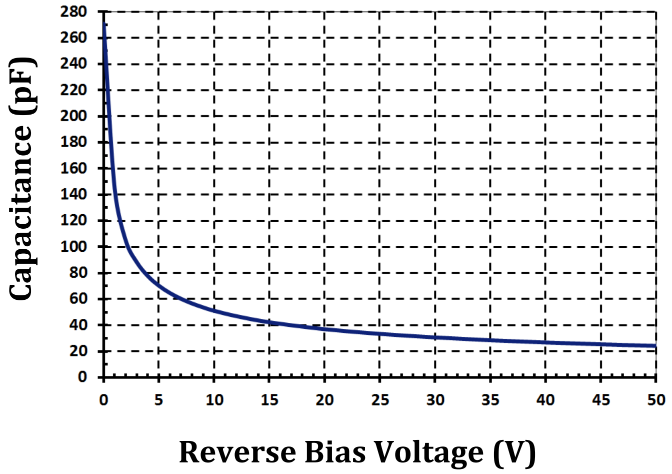
2019-04

TO-5 Package Dimensions (3 Pin)

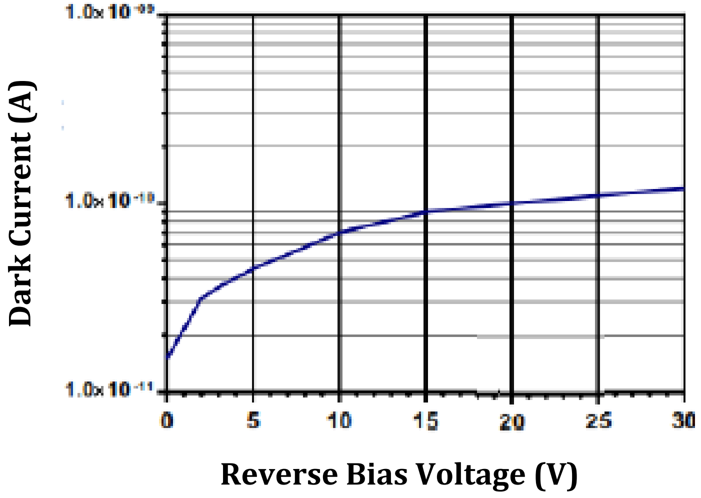


Unit: mm, Tolerance: ±0.15

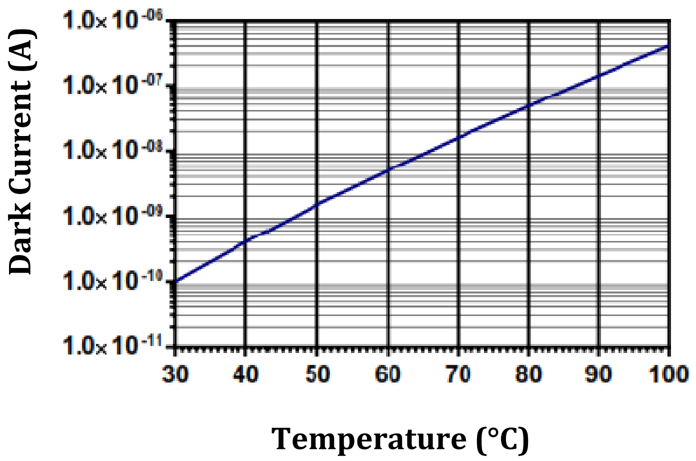
Capacitance vs Reverse Bias



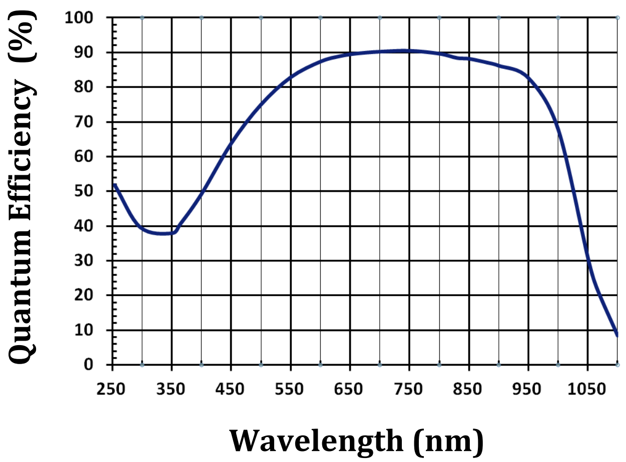
Dark Current vs Reverse Bias (23°C)



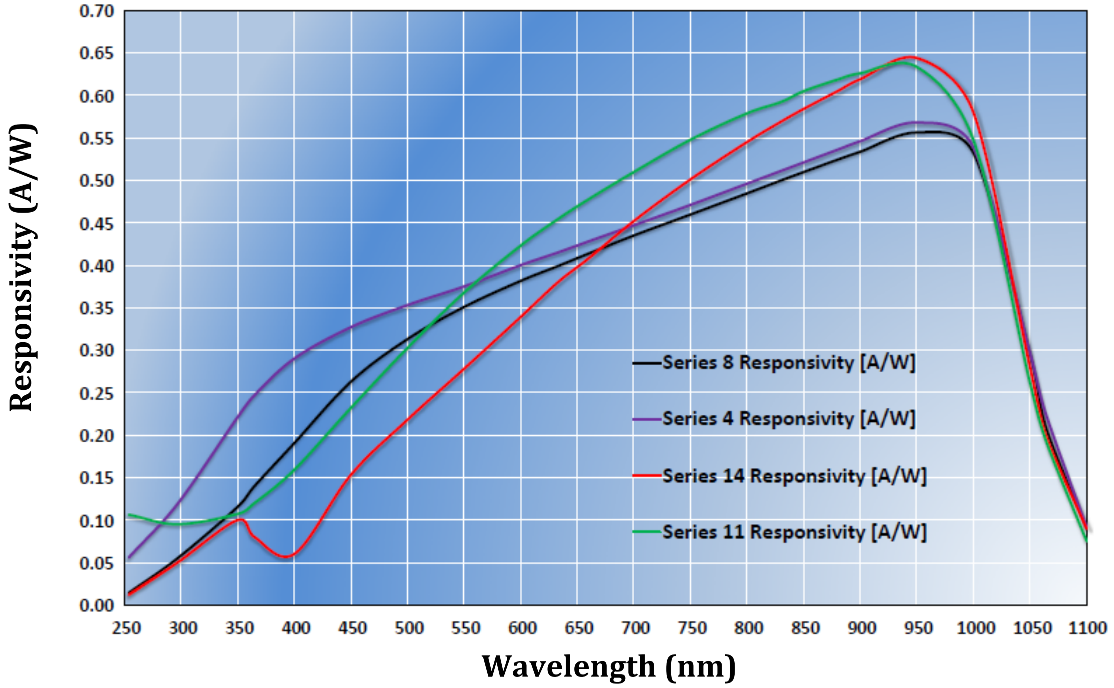
2019-04



Dark Current vs Temperature (V_r=10V)



Series 11 Quantum Efficiency (23°C)



Photodiode Responsivity by Series

2019-04

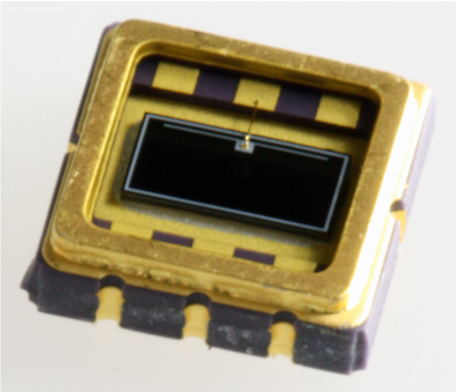
Marktech
Optoelectronics

Series 11 Silicon Photodiode

Product No: MT03-029

Sensitivity Wavelength Range: 250-1100nm

The MT03-029 is a rectangular (1.30 x 2.80) 3.6mm² active area Silicon Photodiode in a surface mount package with clear epoxy encapsulation. It is designed for applications requiring high red and near infrared (NIR) light sensitivity.



Features

> Ultra Low Noise
> High Shunt Resistance
> Wide Dynamic Range
> Broadband Spectral Coverage

Applications

> Colorimeters
> Photometers
> Spectroscopy Equipment
> Fluorescence

Absolute Maximum Ratings

lead-free RoHS

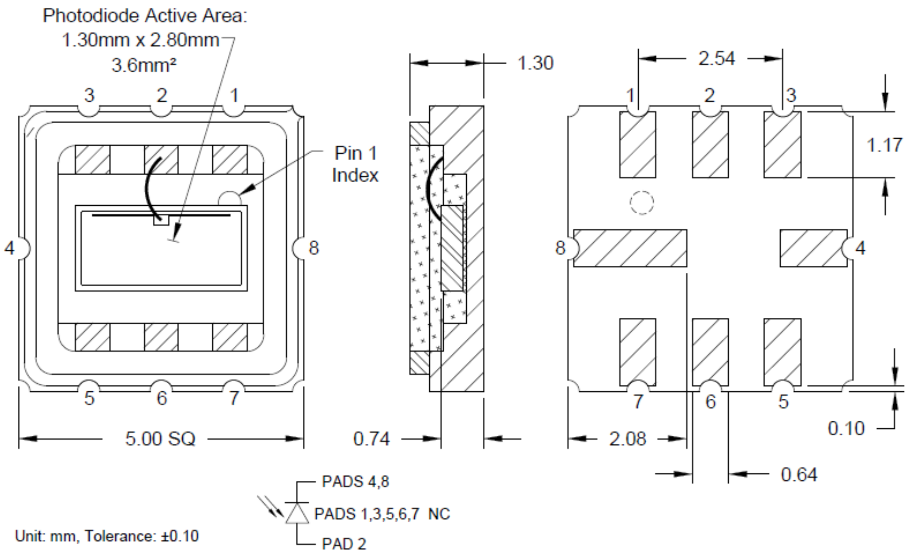
Items	Symbol	Rating	Unit
Reverse Voltage	V_R	50	V
Operating Temperature Range	Topr	-40 ~ +100	°C
Storage Temperature Range	Tstg	-55 ~ +125	°C
Reflow Soldering Temperature	Tls	250	°C

Electrical & Optical Characteristics (Ta = 23°C)

Items	Symbol	Conditions	MIN	TYP	MAX	Unit
Dark Current	I_d	V_R=5V	--	0.2	1.0	nA
Breakdown Voltage	$V_{(BR)}$	I_R=10μA	50	--	--	V
Spectral Sensitivity	λ	--	--	250-1100	--	nm
Peak Sensitivity	λ_p	--	--	940	--	nm
Wavelength Responsivity	R	V_R=0V, λ=633nm	--	0.45	--	A/W
Responsivity	R	V_R=0V, λ=950nm	--	0.64	--	A/W
Response Time @808nm	T_r	R_L=50Ω, V_R=5V	--	50	--	ns
Junction Capacitance	C_j	@ 1MHz, V_R=0V	--	60	--	pF
Junction Capacitance	C_j	@ 1MHz, V_R=5V	--	18	22	pF
Shunt Resistance	R_{sh}	V_R=10mV	700	1000	--	MΩ

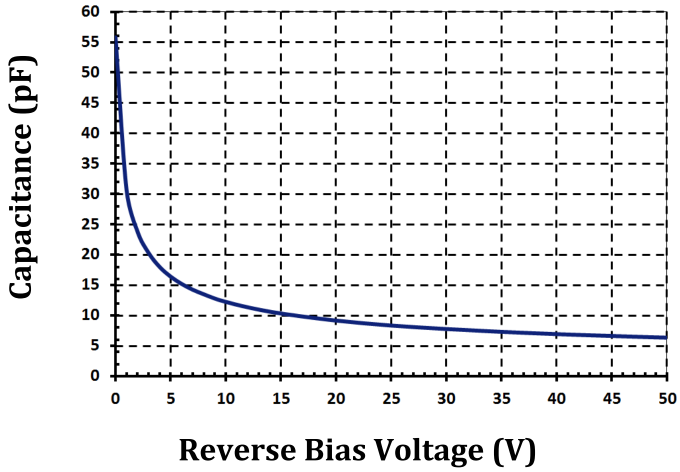
2019-06

SMD Package Dimensions (8 Pad)

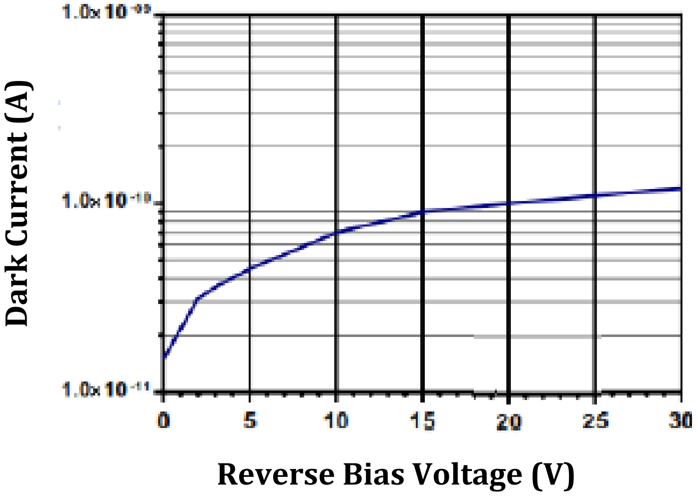


Unit: mm, Tolerance: ±0.10

Capacitance vs Reverse Bias

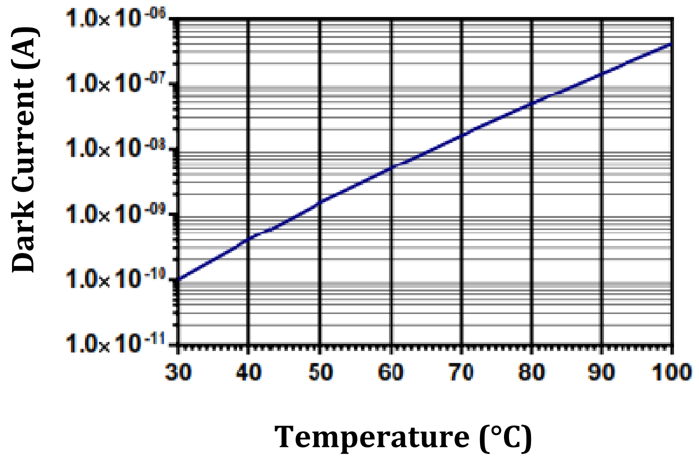


Dark Current vs Reverse Bias (23°C)

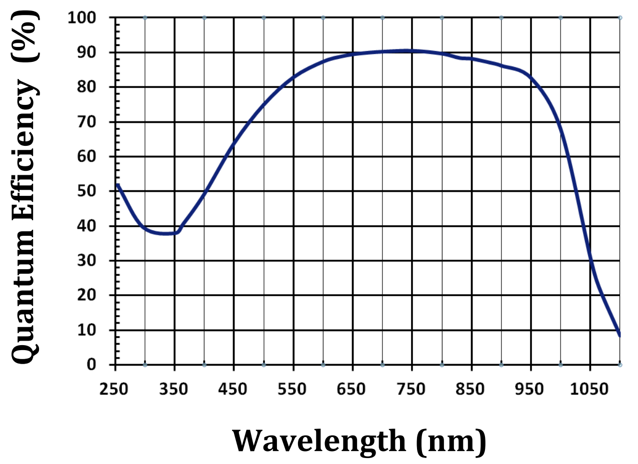


2019-06

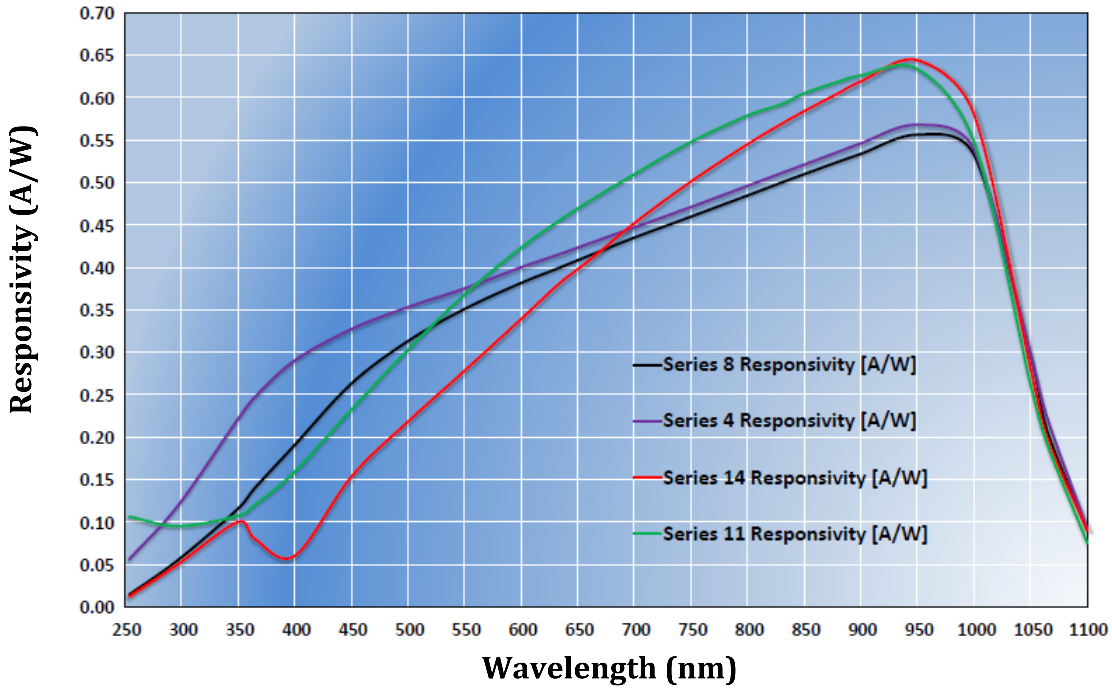
Dark Current vs Temperature (V_r=10V)



Series 11 Quantum Efficiency (23°C)



Photodiode Responsivity by Series



2019-06

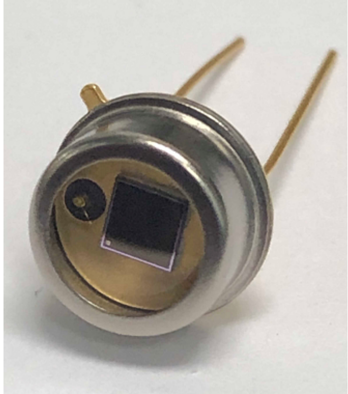
Marktech
Optoelectronics

Series 4 Silicon Photodiode

Product No: MT03-036

Sensitivity Wavelength Range: 250-1100nm

The MT03-036 is a square (2.74 x 2.74) 7.5mm² active area Silicon Photodiode in a hermetic TO-5 metal can package with a UV transmitting glass window. It is optimized for applications requiring high sensitivity in the 300 to 500nm region (UVA, Blue & Green).



Features
- > Ultra Low Noise
- > High Shunt Resistance
- > Wide Dynamic Range
- > 365nm & Blue/Green Enhanced

Applications
- > Flame Detection
- > Currency Authentication
- > Spectroscopy Equipment
- > Fluorescence

Absolute Maximum Ratings

Pb lead-free RoHS

Items	Symbol	Rating	Unit
Reverse Voltage	V_R	50	V
Operating Temperature Range	Topr	-40 ~ +100	°C
Storage Temperature Range	Tstg	-55 ~ +125	°C
Lead Soldering Temperature*1	Tls	260	°C

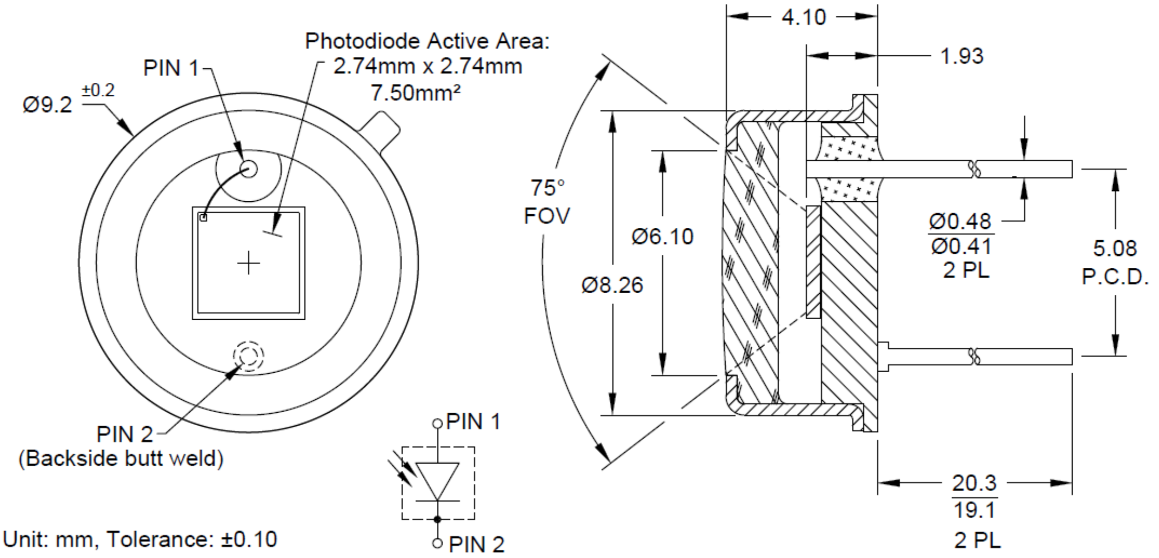
*1: Time 5 Sec max, Position: Up to 3mm from the body.

Electrical & Optical Characteristics (Ta = 23°C)

Items	Symbol	Conditions	MIN	TYP	MAX	Unit
Dark Current	I_d	V_R=5V	--	0.1	1.0	nA
Breakdown Voltage	$V_{(BR)}$	I_R=10µA	50	--	--	V
Spectral Sensitivity	λ	--	--	250-1100	--	nm
Peak Sensitivity Wavelength	λ_p	--	--	950	--	nm
Responsivity	R	V_R=0V, λ=365nm	--	0.22	--	A/W
Responsivity	R	V_R=0V, λ=633nm	--	0.40	--	A/W
Response Time @635nm	T_r	R_L=50Ω, V_R=5V	--	30	--	ns
Junction Capacitance	C_j	@ 1MHz, V_R=0V	--	110	--	pF
Junction Capacitance	C_j	@ 1MHz, V_R=5V	--	35	40	pF
Shunt Resistance	R_{sh}	V_R=10mV	200	400	--	MΩ

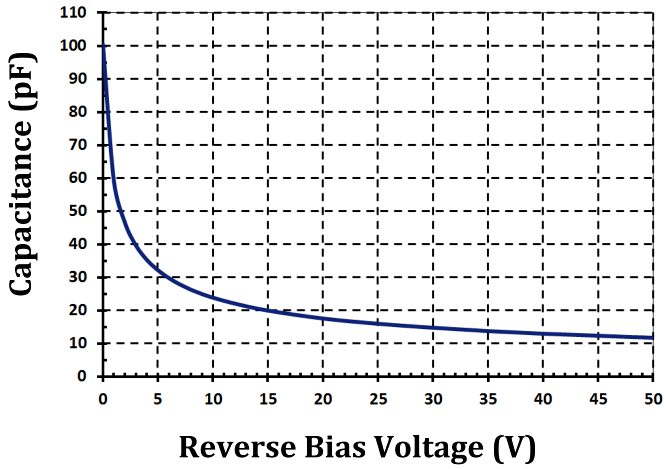
2019-03

TO-5 Package Dimensions (2 Pin)

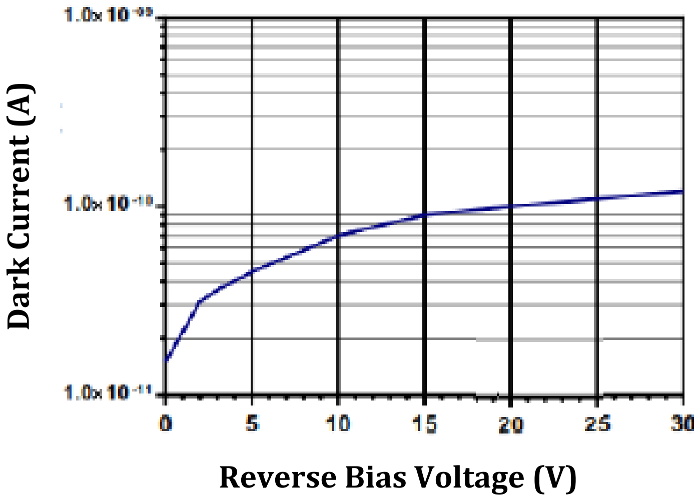


Unit: mm, Tolerance: ±0.10

Capacitance vs Reverse Bias

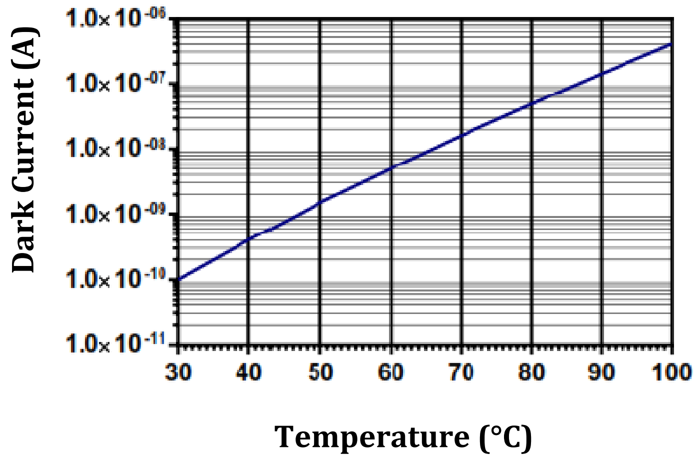


Dark Current vs Reverse Bias (23°C)

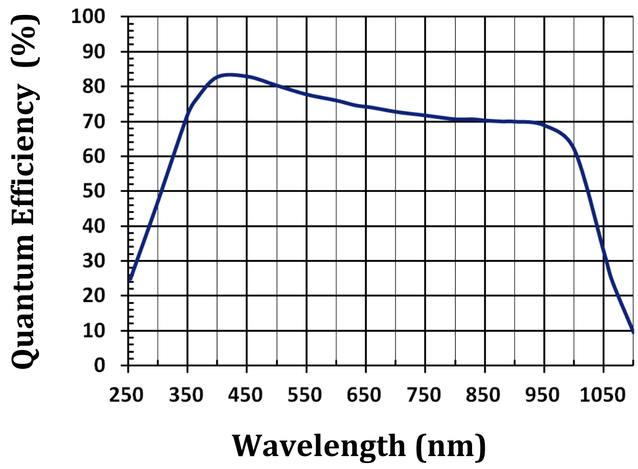


2019-03

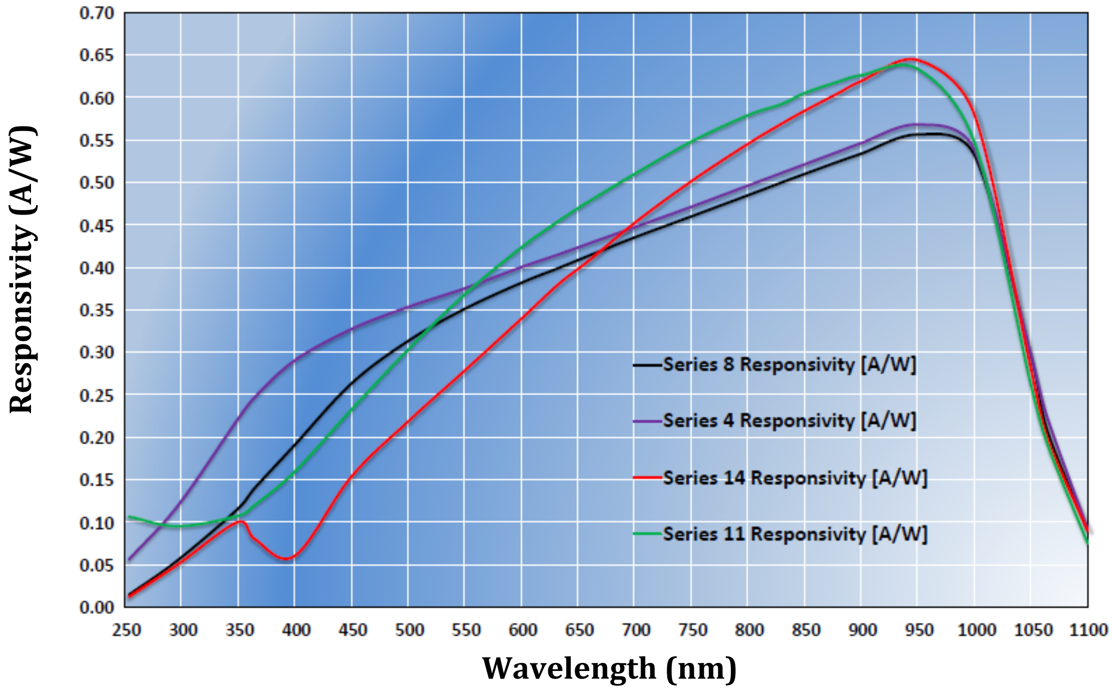
Dark Current vs Temperature (V_r=10V)



Series 4 Quantum Efficiency (23°C)



Photodiode Responsivity by Series



Marktech
Optoelectronics

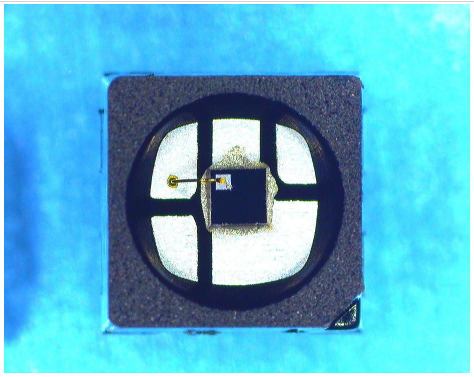
Preliminary

Photodiode

Product No: **MT03-071**

Enhanced Sensitivity Wavelength: 350nm-1100nm

The MT03-071 is a Photodiode with a square 0.12mm^2 active area that is packaged in a 2.1mm square SMD package. It is specifically designed for laser monitoring of wave lengths from Blue/Green through IR where applications requireing high signal and low noise.



FEATURES

- > Ultra low noise
- > High Shunt Resistance
- > Wide Dynamic Range
- > Blue/Green Enhanced Silicon

APPLICATIONS

- > Laser Monitoring
- > Currency Authentican
- > Spectroscopy
- > Fluorescence

Absolute Maximum Ratings

ITEMS	SYMBOL	RATINGS	UNIT
Reverse Voltage	Vr	30	V
Operating Temperature Range	Topr	-40 ~ +100	℃
Storage Temperature Range	Tstg	-55 ~ +125	℃

Electrical & Optical Characteristics (Ta = 25ºC)

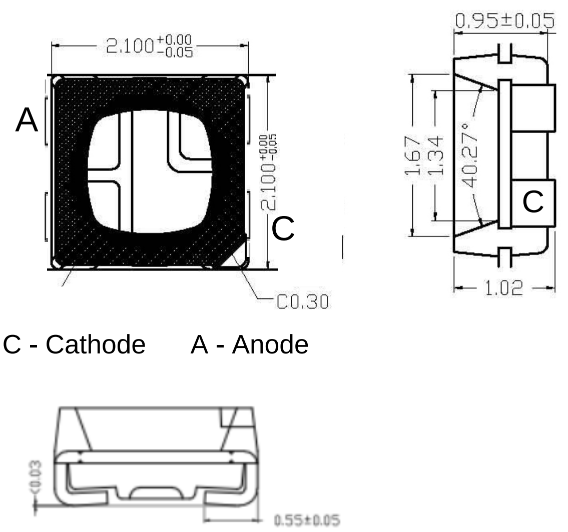
ITEMS	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Dark Current	Id	Vr=5V	--	0.05	1.0	nA
Forward Voltage	Vf	If=2mA	--	--	0.8	V
Breakdown Voltage	Vb	Ir=10uA	50	--	--	V
Spectral Sensivity Range	λ		350		1100	nm
Peak Sensivity Wavelength	λp		--	950	--	nm
Responsivity	Rt	Vr=0V, λ=410nm	--	0.19	--	A/W
Responsivity	Rt	Vr=0V, λ=940nm	--	0.55	--	A/W
Shunt Resistance	Rs	Vr=10V	1000	5000	--	mΩ
Junction Capacitance	Cj	Vr=0V	--	3.0	3.5	pF
Junction Capacitance	Cj	Vr=10V	--	1.0	1.5	pF
Response Time @410nm	Tr	Vr=10V, RL=1kΩ	--	20.0	--	ns
Photocurrent *	Iph	Vr=10V, Ee=5mW/cm2	--	2.7	--	uA

* Temperature = 2870 ºK Standard Tungsten Lamp

2023-03-28

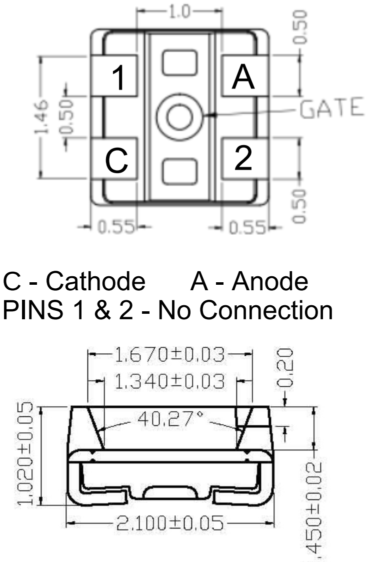
Package Dimensions

Top Side



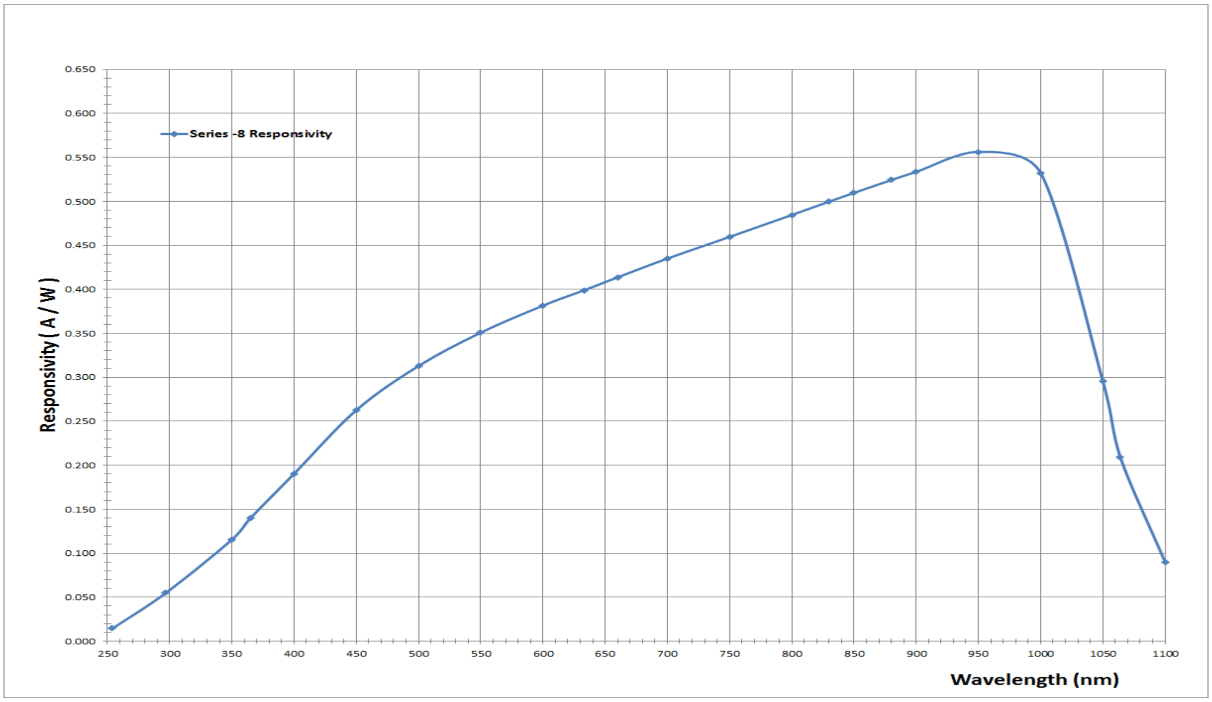
C - Cathode A - Anode

Bottom Side



C - Cathode A - Anode
PINS 1 & 2 - No Connection

Responsivity



2023-03-27

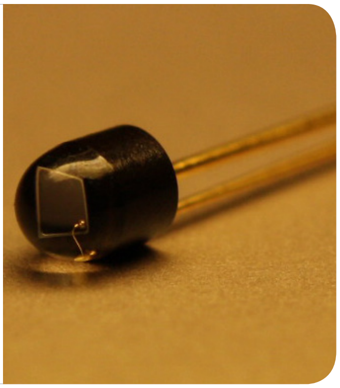
Marktech
Optoelectronics

Photo Diode

Product No: **MTD1114M3B**

Peak Sensitivity Wavelength: 925nm

The MTD1114M3B is a photo diode in a ceramic package. It is well suited for high reliability and high sensitivity applications.



FEATURES

- > Very High Light Current
- > Compact / Ceramic Package
- > Active Area: 1.44mm2

APPLICATIONS

- > Optical Switches
- > Optical Sensors
- > Optical Detectors

Absolute Maximum Ratings (Ta=25°C)

Pb lead-free RoHS

ITEMS	SYMBOL	RATINGS	UNIT
Reverse Voltage	VR	20	V
Power Dissipation	PD	70	mW
Operating Temperature Range	Topr	-20 ~ +85	ºC
Storage Temperature Range	Tstg	-30 ~ +100	ºC
Junction Temperature	Tj	100	ºC
Lead Soldering Temperature*1	Tls	260	ºC

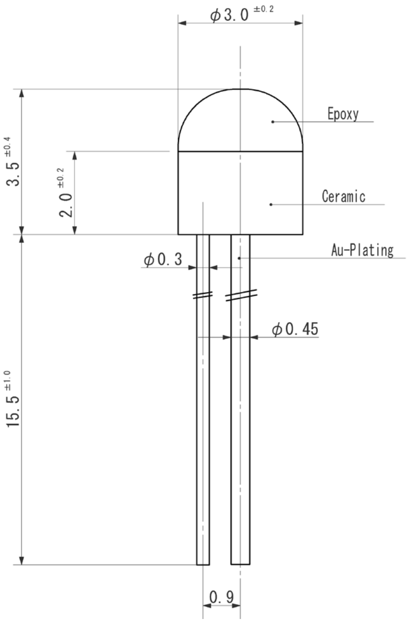
*1: Time 5 Sec max, Position: Up to 3mm from the body.

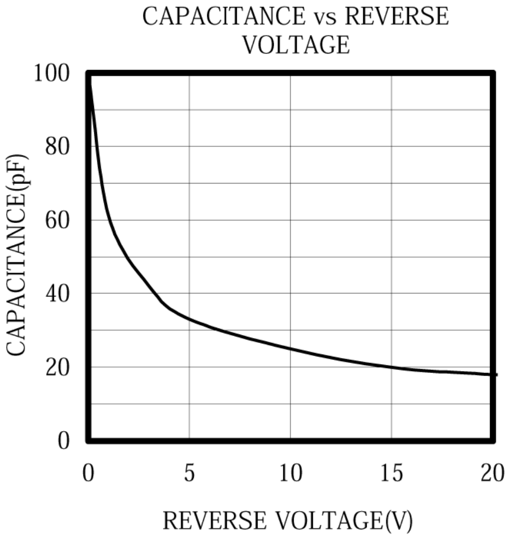
Electrical & Optical Characteristics (Ta = 25°C)

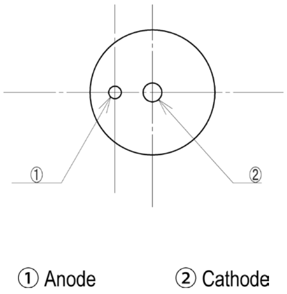
ITEMS	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Open Circuit Voltage	Voc	Ee=5mW/cm^2 *1	--	0.35	--	V
Light Current	IL	*1, *2	--	38	--	μA
Dark Current	ID	VR=10V	--	0.5	5	nA
Curve Factor	CF	Ee=5mW/cm^2 *1	0.55	--	--	--
Spectral Sensitivity	λ	--	--	400~1100	--	nm
Peak Sensitivity Wavelength	λp	--	--	925	--	nm
Angular Response	Θ	--	--	±65	--	deg.
Switching Time (Rise Time)	Tr	RL=50Ω, Vr=0V	--	--	2	μS
Switching Time (Fall Time)	Tf	RL=50Ω, Vr=0V	--	--	2	μS
Junction Capacitance	Cj	at 1MHz, V=0V	--	100	130	pF

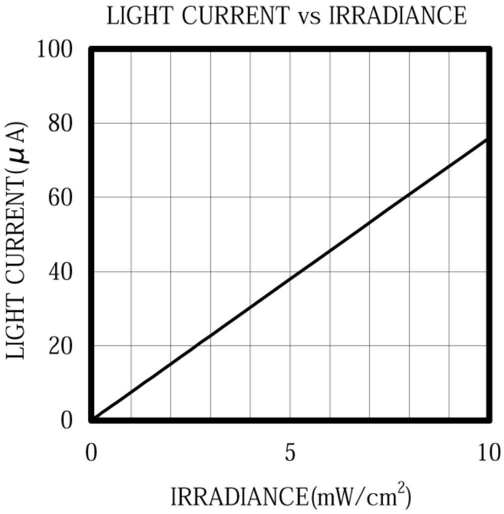
*1: Color Temperature=2870^{O}K Stardard Tungsten Lamp, *2: VR=10V, Ee=5mW/cm^2.

2020-10-27

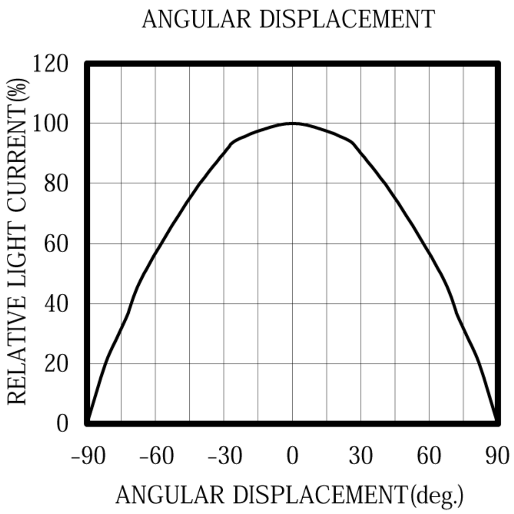


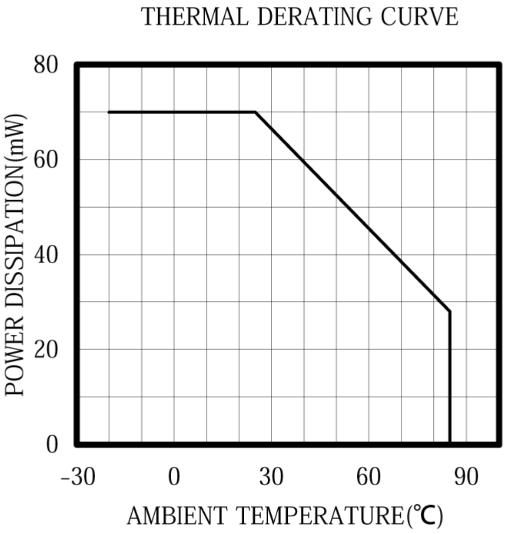






Unit: mm, Tolerance: ±0.2


ANGULAR DISPLACEMENT
RELATIVE LIGHT CURRENT(%)
120
100
80
60
40
20
0
-90
-60
-30
0
30
60
90
ANGULAR DISPLACEMENT(deg.)


THERMAL DERATING CURVE
POWER DISSIPATION(mW)
80
60
40
20
0
-30
0
30
60
90
AMBIENT TEMPERATURE(℃)

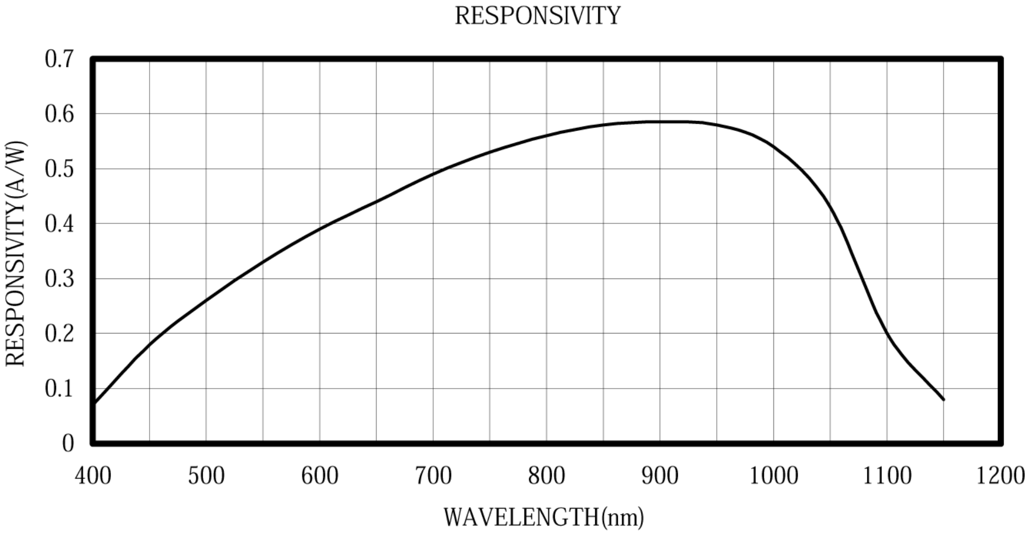
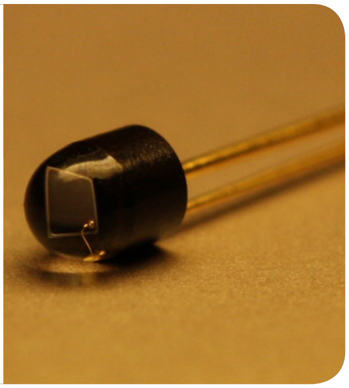

RESPONSIVITY
RESPONSIVITY(A/W)
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
400
500
600
700
800
900
1000
1100
1200
WAVELENGTH(nm)

Photo Diode

Product No: **MTD1200M3B**

Peak Sensitivity Wavelength: 925nm

The MTD1200M3B is a photo diode in a ceramic package. It is well suited for high reliability and high sensitivity applications.



FEATURES

- > Very Small Dark Current
- > Compact / Ceramic Package
- > High Reliability in Demanding Environments

APPLICATIONS

- > Optical Switches
- > Optical Sensors
- > Optical Detectors

Absolute Maximum Ratings (Ta=25°C)

ITEMS	SYMBOL	RATINGS	UNIT
Reverse Voltage	VR	20	V
Power Dissipation	PD	70	mW
Operating Temperature Range	Topr	-20 ~ +85	ºC
Storage Temperature Range	Tstg	-30 ~ +100	ºC
Junction Temperature	Tj	100	ºC
Lead Soldering Temperature*1	Tls	260	ºC

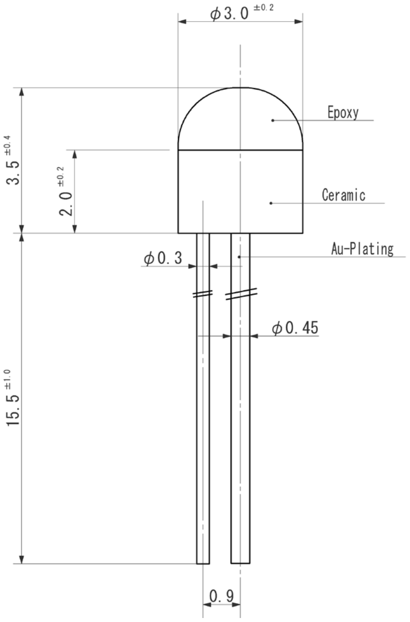
*1: Time 5 Sec max, Position: Up to 3mm from the body.

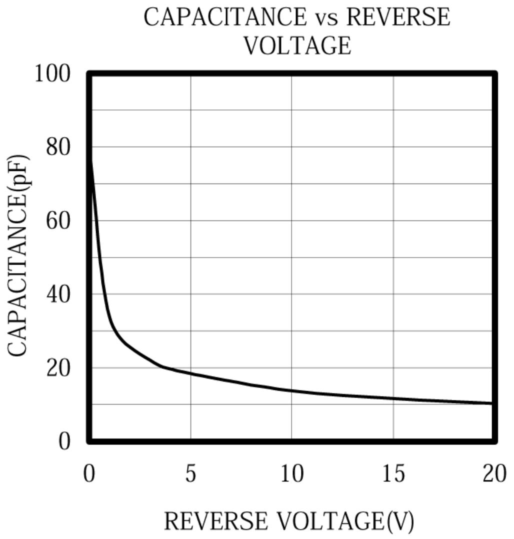
Electrical & Optical Characteristics (Ta = 25°C)

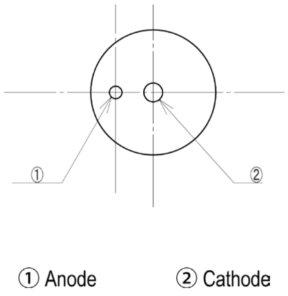
ITEMS	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Open Circuit Voltage	Voc	$Ee=5mW/cm^2$ *1	--	0.35	--	V
Light Current	IL	*1, *2	--	20	--	μA
Dark Current	ID	VR=10V	--	0.5	5	nA
Curve Factor	CF	$Ee=5mW/cm^2$ *1	0.55	--	--	--
Spectral Sensitivity	λ	--	--	400~1100	--	nm
Peak Sensitivity Wavelength	λp	--	--	925	--	nm
Angular Response	ϴ	--	--	±65	--	deg.
Switching Time (Rise Time)	Tr	RL=50Ω, Vr=0V	--	--	2	μS
Switching Time (Fall Time)	Tf	RL=50Ω, Vr=0V	--	--	2	μS
Junction Capacitance	Cj	at 1MHz, V=0V	--	80	100	pF

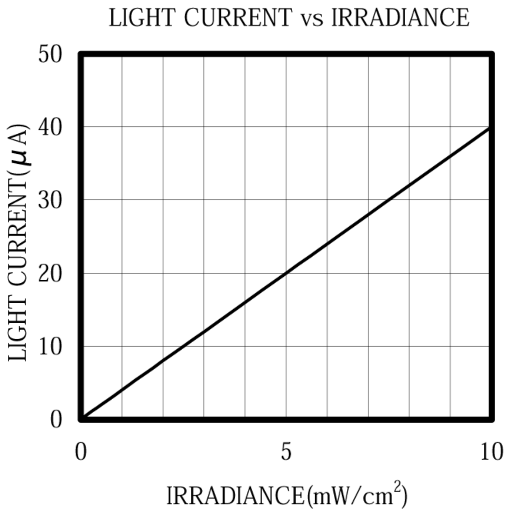
*1: Color Temperature=2870^{O}K Stardard Tungsten Lamp, *2: VR=10V, $Ee=5mW/cm^2$.

2011-11-16



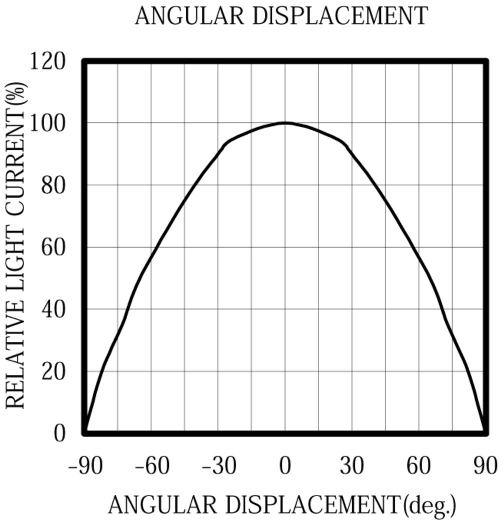


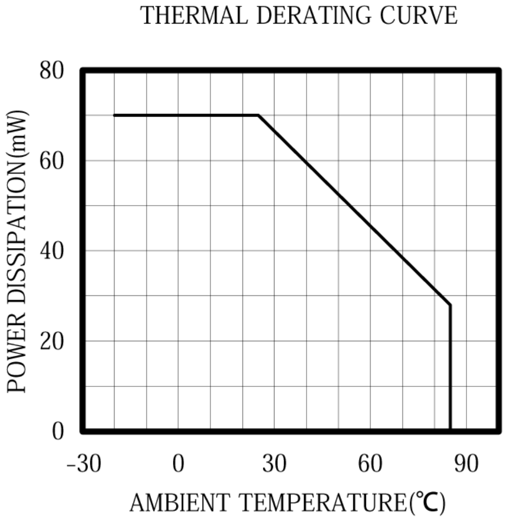


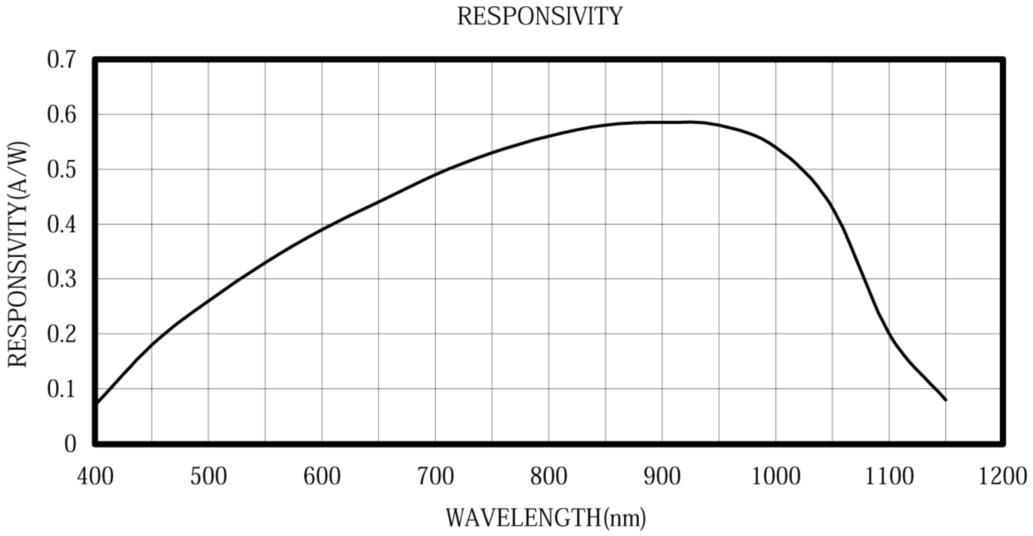


Unit: mm, Tolerance: ±0.2

2011-11-16


ANGULAR DISPLACEMENT
RELATIVE LIGHT CURRENT(%)
120
100
80
60
40
20
0
-90
-60
-30
0
30
60
90
ANGULAR DISPLACEMENT(deg.)


THERMAL DERATING CURVE
POWER DISSIPATION(mW)
80
60
40
20
0
-30
0
30
60
90
AMBIENT TEMPERATURE(℃)


RESPONSIVITY
RESPONSIVITY(A/W)
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
400
500
600
700
800
900
1000
1100
1200
WAVELENGTH(nm)

Marktech
Optoelectronics

Photo Diode

Product No: **MTD3910D3**

Peak Sensitivity Wavelength: 940nm

The MTD3910D3 is a photo diode in a water-clear 3mm plastic molded package. It is well suited for high reliability and high sensitivity applications. Custom package solutions and sorting are available.

FEATURES

> High Light Current
> Active Area: 1.21mm2
> Low Dark Current
> Wide Angular Response

APPLICATIONS

> Optical Switches / Sensors
> Edge Sensing
> Fiber Optical Communications

Absolute Maximum Ratings (Ta=25°C)

ITEMS	SYMBOL	RATINGS	UNIT
Reverse Voltage	VR	20	V
Power Dissipation	PD	50	mW
Operating Temperature Range	Topr	-20 ~ +85	°C
Storage Temperature Range	Tstg	-30 ~ +100	°C
Junction Temperature	Tj	100	°C
Lead Soldering Temperature*1	Tls	260	°C

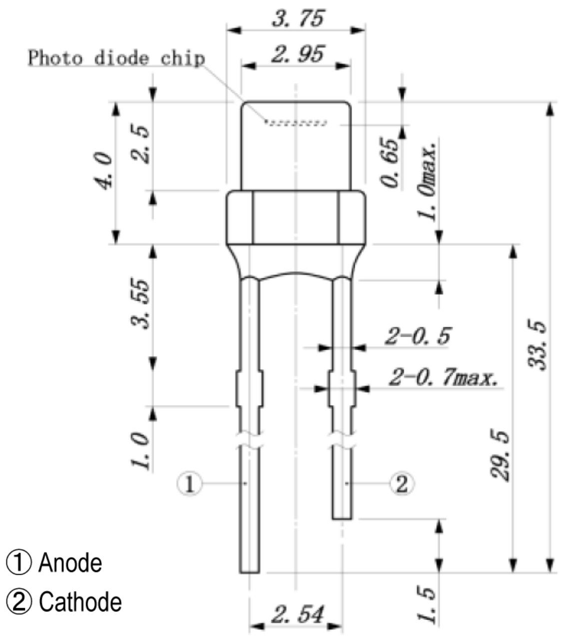
*1: Time 5 Sec max, Position: Up to 3mm from the body.

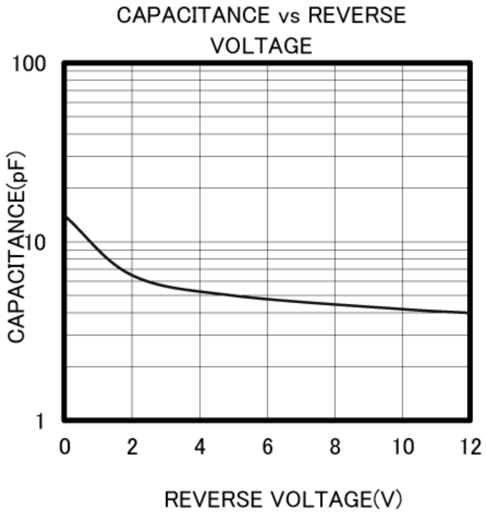
Electrical & Optical Characteristics (Ta = 25°C)

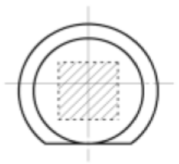
ITEMS	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Light Current	IL	*1, *2	15	20	--	µA
Dark Current	ID	VR=10V	--	--	10	nA
Spectral Sensitivity	λ	--	400	--	1060	nm
Peak Sensitivity Wavelength	λp	--	--	940	--	nm
Responsivity	S	λ=660nm	--	0.45	--	A/W
Junction Capacitance	Cj	VR=2.5V, f=1MHz	--	6	12	pF

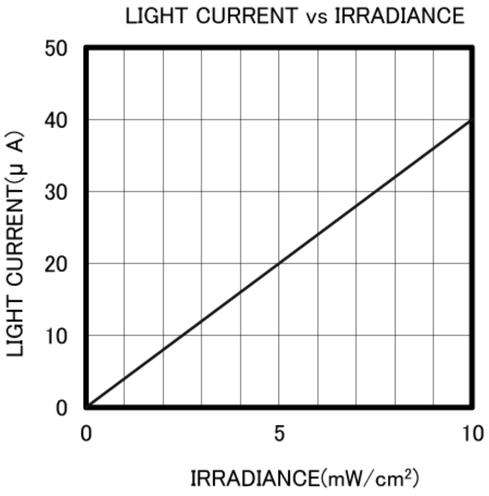
*1: Color Temperature=2870^{O}K Standard Tungsten Lamp, *2: VR=10V, E_e=5mW/cm^2.

2022-02-25



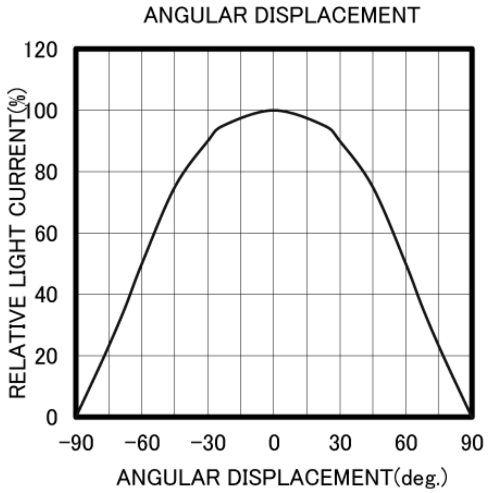


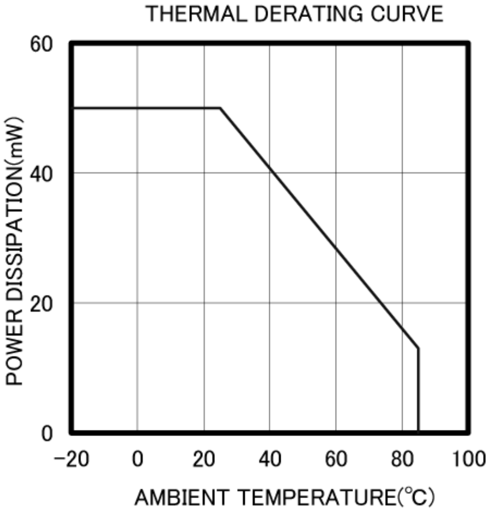


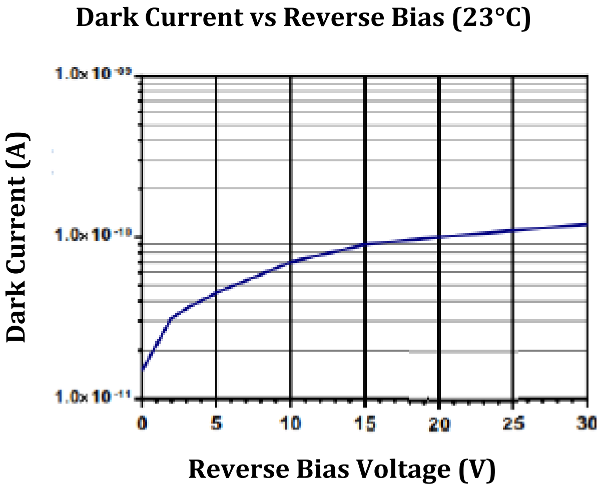


Unit: mm, Tolerance: ±0.2

2022-02-25

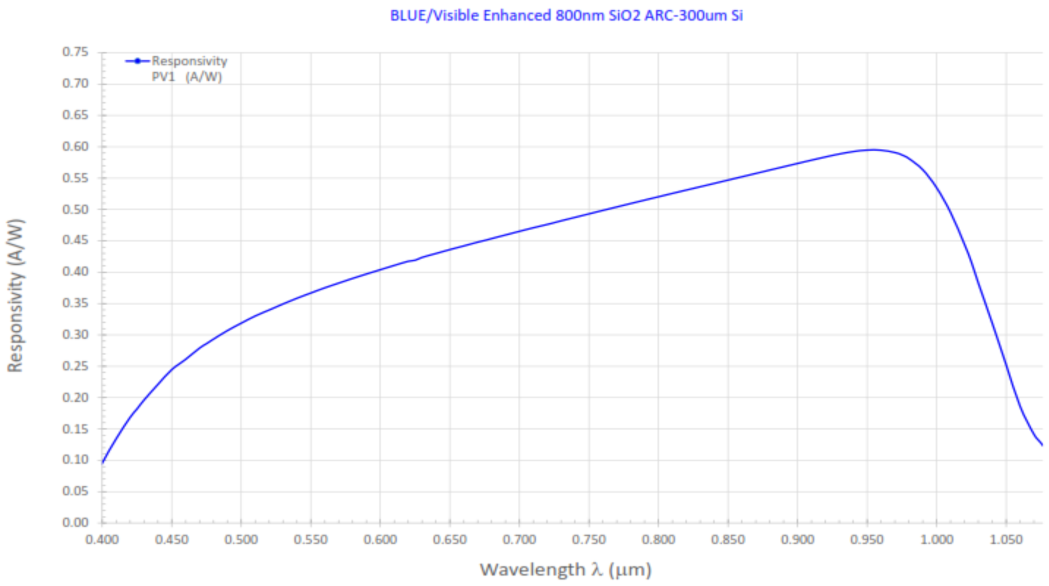






Unit: mm, Tolerance: ±0.2

2022-02-25



The information contained herein is subject to change without notice.

2022-02-25

Marktech
Optoelectronics

Photo Diode

Product No: **MTD3910N**

Peak Sensitivity Wavelength: 900nm

The MTD3910N is a photo diode in a TO-18 metal can package. It is well suited for high reliability and high sensitivity applications. Custom package solutions and sorting are available.

FEATURES

- Low Light Current
- Linearity of Ee vs IL
- Narrow Angular Response
- High Reliability in Demanding Environment

APPLICATIONS

- Optical Switches / Sensors
- Edge Sensing
- Fiber Optical Communications
- Smoke Detectors

Absolute Maximum Ratings (Ta=25°C)

Pb lead-free ✓ RoHS

ITEMS	SYMBOL	RATINGS	UNIT
Reverse Voltage	VR	30	V
Power Dissipation	PD	100	mW
Operating Temperature Range	Topr	-30 to 100	℃
Storage Temperature Range	Tstg	-40 to 125	℃
Junction Temperature	Tj	125	℃
Lead Soldering Temperature*1	Tls	260	℃

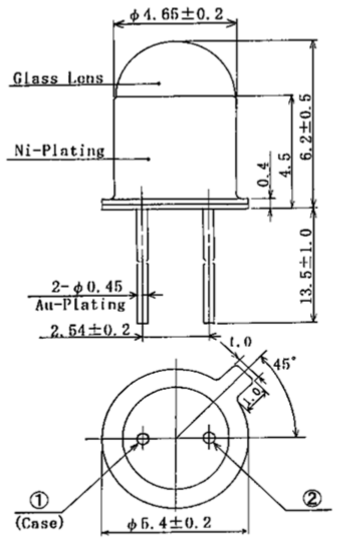
*1: Time 5 Sec max, Position: Up to 3mm from the body.

Electrical & Optical Characteristics (Ta = 25°C)

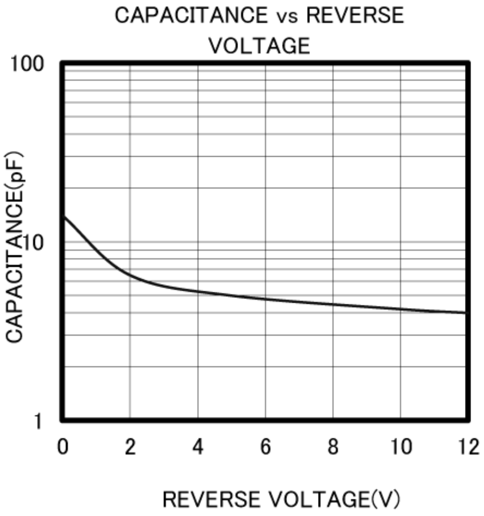
ITEMS	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Light Current	IL	*1, *2	--	120	--	μA
Dark Current	ID	VR=10V	--	--	10	nA
Spectral Sensitivity	λ	--	400	--	1060	nm
Peak Sensitivity Wavelength	λp	--	--	900	--	nm
Responsivity	S	VR=0V, λ=900	--	0.58	--	A/W
Junction Capacitance	Cj	VR=2.5V, f=1MHz	--	6	12	pF

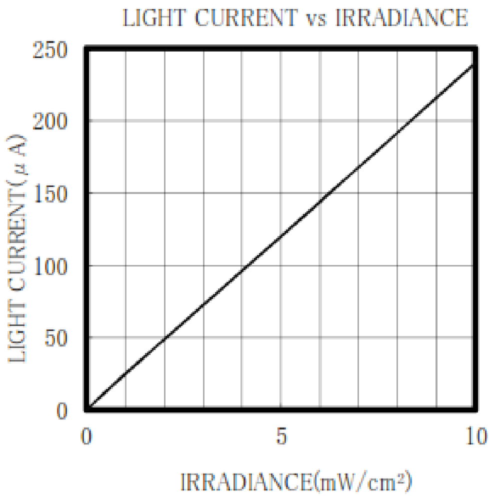
*1: Color Temperature=2870°K Standard Tungsten Lamp, *2: VR=10V, E_e=5mW/cm^2.

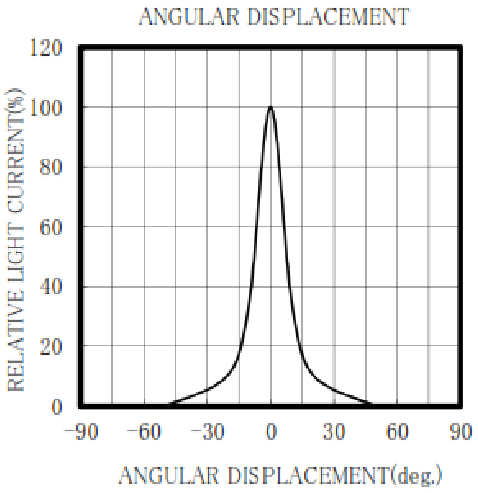
2018-02-12



① Cathode ② Anode

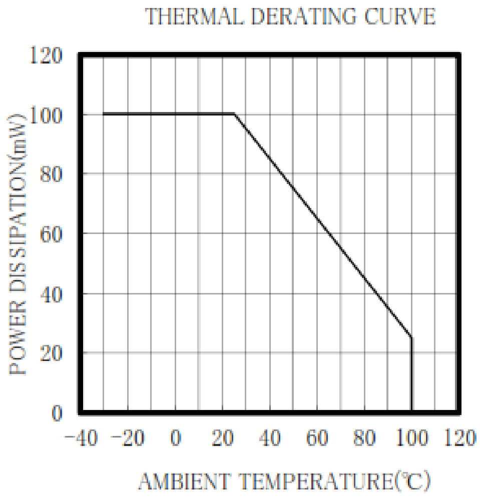


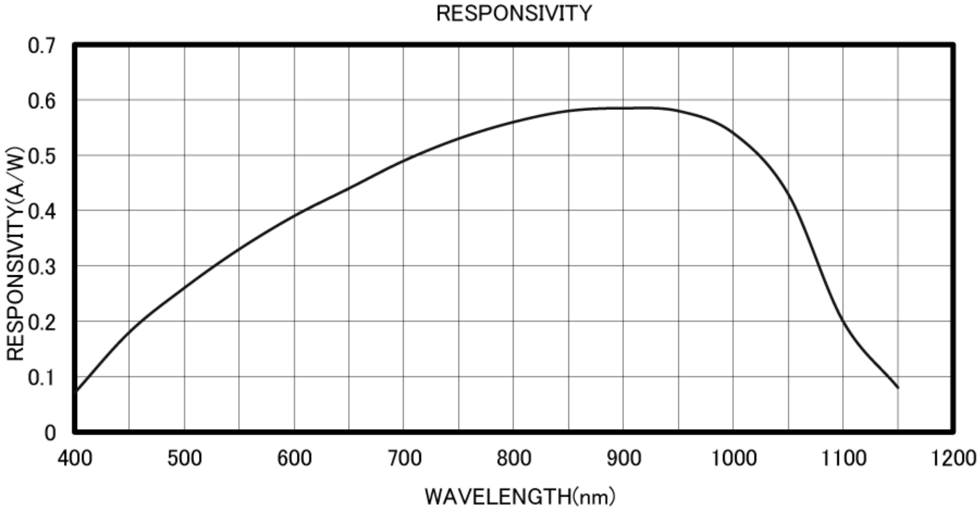




Unit: mm, Tolerance: ±0.2

2018-02-12


THERMAL DERATING CURVE
POWER DISSIPATION(mW)
120
100
80
60
40
20
0
−40
−20
0
20
40
60
80
100
120
AMBIENT TEMPERATURE(℃)


RESPONSIVITY
RESPONSIVITY(A/W)
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
400
500
600
700
800
900
1000
1100
1200
WAVELENGTH(nm)

Marktech
Optoelectronics

Photo Diode

Product No: **MTD3910PM**

Peak Sensitivity Wavelength: 900nm

The MTD3010PM is a photo diode in a TO-18 low profile metal can domed package. It is well suited for high reliability and high speed applications.

FEATURES

> Linearity of Ee vs IL
> Low Dark Current
> Wide Angular Response
> Active Area: 1.21mm2

APPLICATIONS

> Optical Switches
> Edge Sensing
> Fiber Optical Communications
> Smoke Detectors

Absolute Maximum Ratings (Ta=25°C)

ITEMS	SYMBOL	RATINGS	UNIT
Reverse Voltage	VR	30	V
Power Dissipation	PD	100	mW
Operating Temperature Range	Topr	-30 ~ +100	ºC
Storage Temperature Range	Tstg	-40 ~ +125	ºC
Junction Temperature	Tj	125	ºC
Lead Soldering Temperature*1	Tls	260	ºC

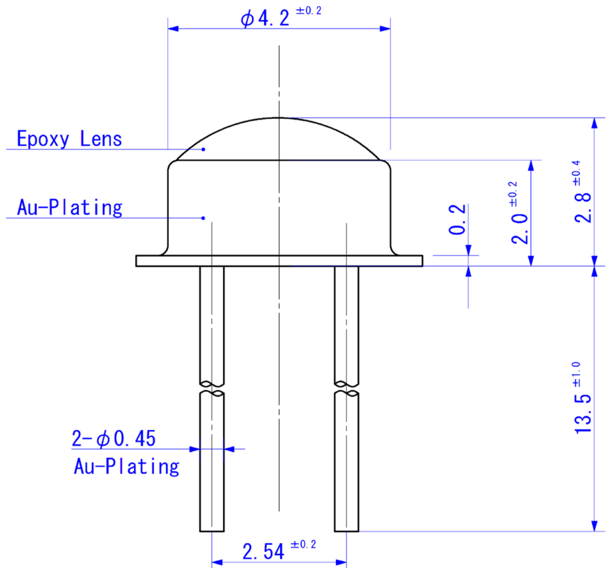
*1: Time 5 Sec max, Position: Up to 3mm from the body.

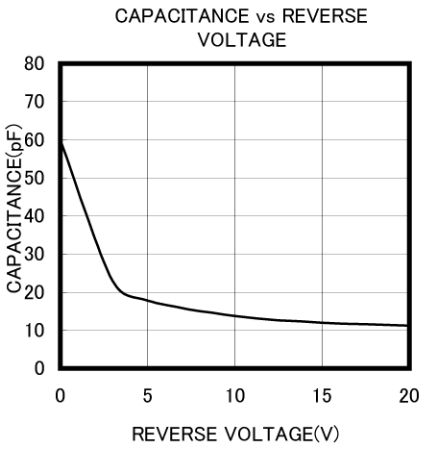
Electrical & Optical Characteristics (Ta = 25°C)

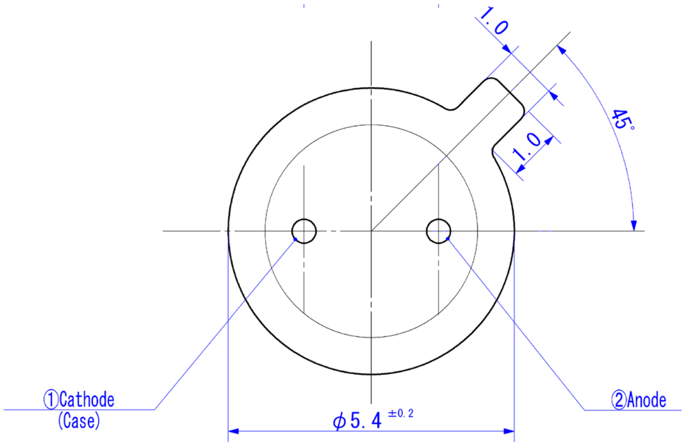
ITEMS	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Open Circuit Voltage	Voc	Ee=5mW/cm^2 *1	0.35	--	--	V
Light Current	IL	*1, *2	--	30	--	μA
Dark Current	ID	VR=10V	--	--	10	nA
Curve Factor	CF	Ee=5mW/cm^2 *1	0.55	--	--	--
Spectral Sensitivity	λ	--	--	400~1100	--	nm
Peak Sensitivity Wavelength	λp	--	--	900	--	nm
Responsivity	Rt	VR=0V, λ=450nm	--	0.18	--	A/W
Responsivity	Rt	VR=0V, λ=900nm	--	0.58	--	A/W
Angular Response	Θ	--	--	±60	--	deg
Junction Capacitance	Cj	VR=2.5V, f=1MHz	--	6	12	pF

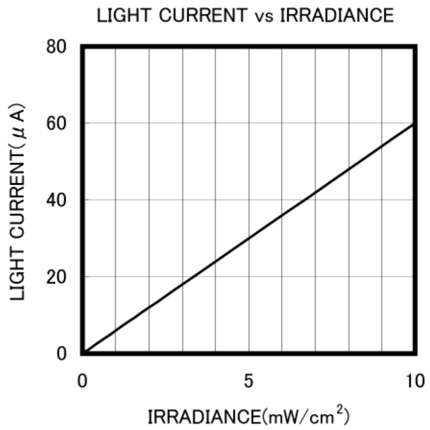
*1: Color Temperature=2870^{O}K Stardard Tungsten Lamp, *2: VR=10V, Ee=5mW/cm^2.

2020-10-27

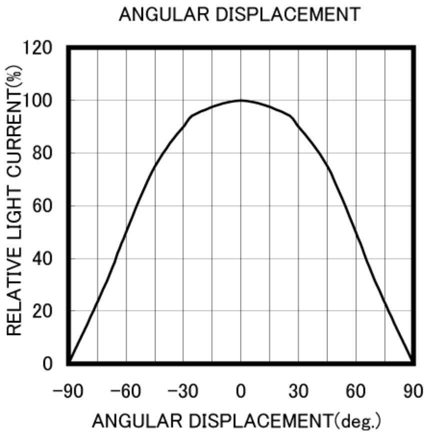


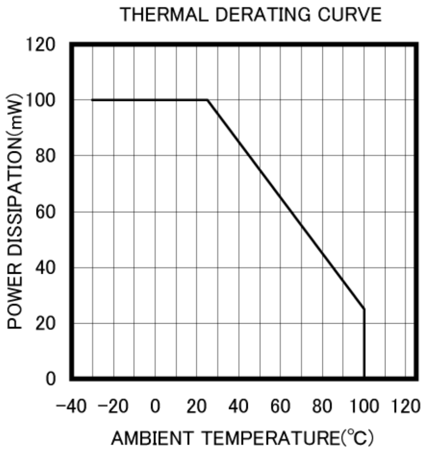


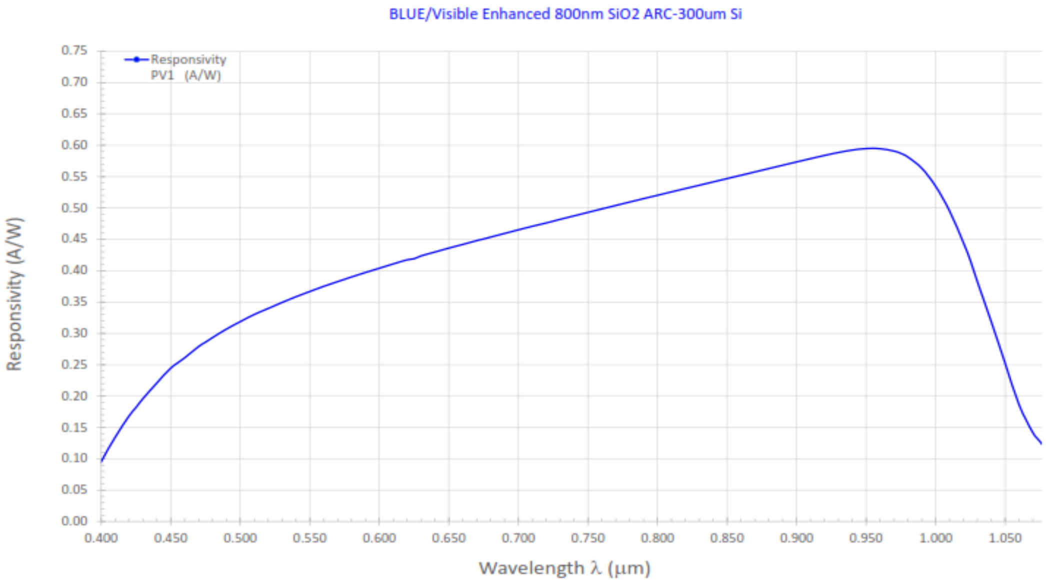




Unit: mm, Tolerance: ±0.2


ANGULAR DISPLACEMENT
RELATIVE LIGHT CURRENT(%)
120
100
80
60
40
20
0
−90
−60
−30
0
30
60
90
ANGULAR DISPLACEMENT(deg.)


THERMAL DERATING CURVE
POWER DISSIPATION(mW)
120
100
80
60
40
20
0
−40
−20
0
20
40
60
80
100
120
AMBIENT TEMPERATURE(℃)


BLUE/Visible Enhanced 800nm SiO2 ARC-300um Si
Responsivity PV1 (A/W)
Responsivity (A/W)
0.75
0.70
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0.400
0.450
0.500
0.550
0.600
0.650
0.700
0.750
0.800
0.850
0.900
0.950
1.000
1.050
Wavelength λ (μm)

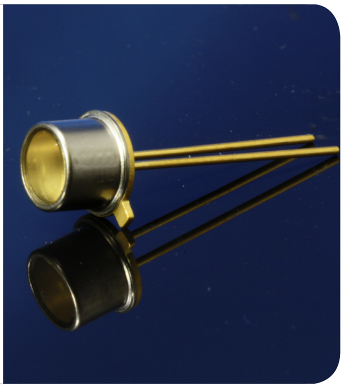
2020-10-27

Photo Diode

Product No: **MTD3910W**

Peak Sensitivity Wavelength: 940nm

The MTD3910W is a photo diode in a TO-18 metal can flat top package. It is well suited for high reliability and high speed applications.



FEATURES

- > Linearity of Ee vs IL
- > Low Dark Current / Metal Can Package
- > Wide Angular Response
- > High Reliability in Demanding Environments

APPLICATIONS

- > Optical Switches
- > Edge Sensing
- > Fiber Optical Communications
- > Smoke Detectors

Absolute Maximum Ratings (Ta=25°C)

Pb lead-free RoHS

ITEMS	SYMBOL	RATINGS	UNIT
Reverse Voltage	VR	30	V
Power Dissipation	PD	100	mW
Operating Temperature Range	Topr	-30 ~ +100	ºC
Storage Temperature Range	Tstg	-40 ~ +125	ºC
Junction Temperature	Tj	125	ºC
Lead Soldering Temperature*1	Tls	260	ºC

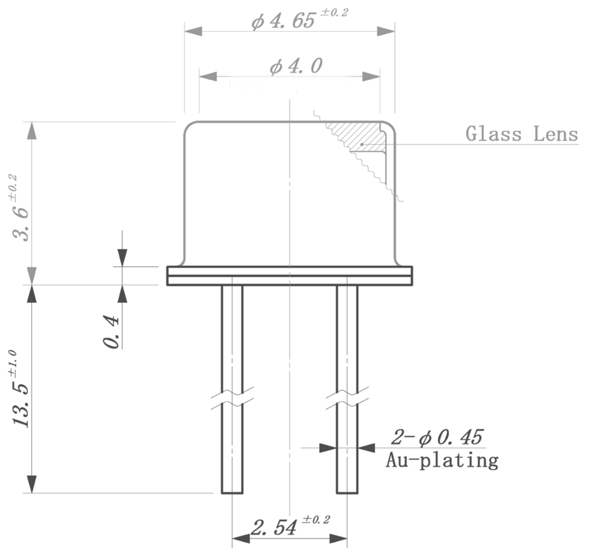
*1: Time 5 Sec max, Position: Up to 3mm from the body.

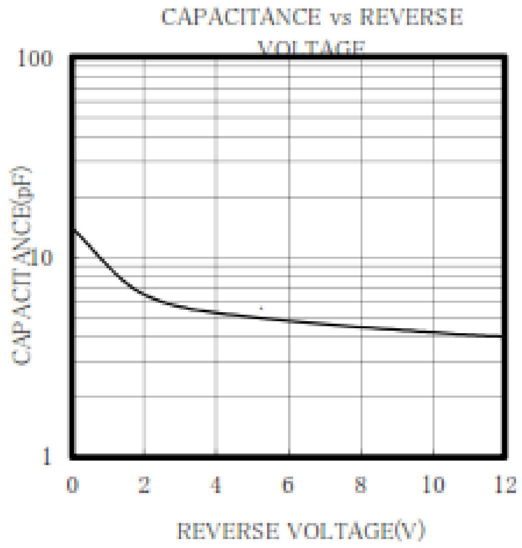
Electrical & Optical Characteristics (Ta = 25°C)

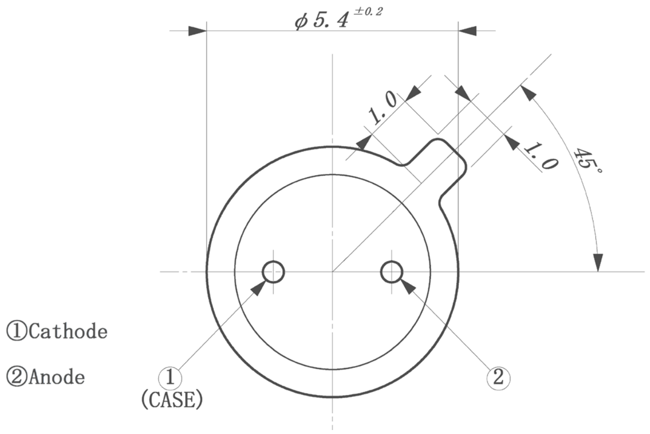
ITEMS	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Light Current	IL	*1, *2	--	30	--	µA
Dark Current	ID	VR=10V	--	--	10	nA
Junction Capacitance	Cj	at 1MHz, V=2.5V	--	6	12	pF
Spectral Sensitivity	λ	--	--	400~1060	--	nm
Peak Sensitivity Wavelength	λp	--	--	940	--	nm
Responsivity	Rt	VR=0V, λ=900nm	--	0.58	--	A/W

*1: Color Temperature=2870^{O}K Stardard Tungsten Lamp, *2: VR=10V, Ee=5mW/cm^2.

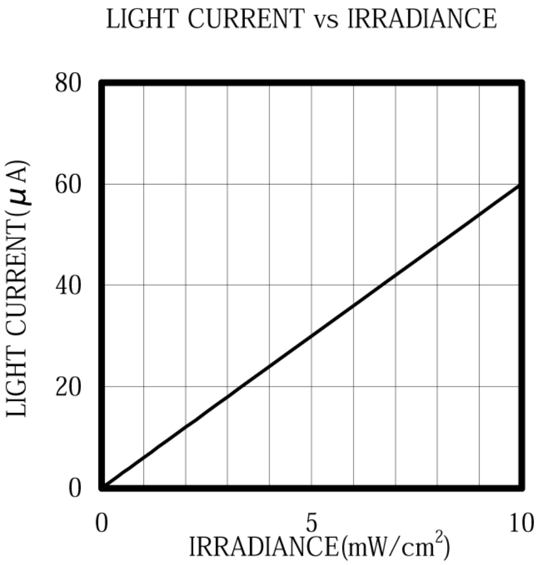
2020-07-06





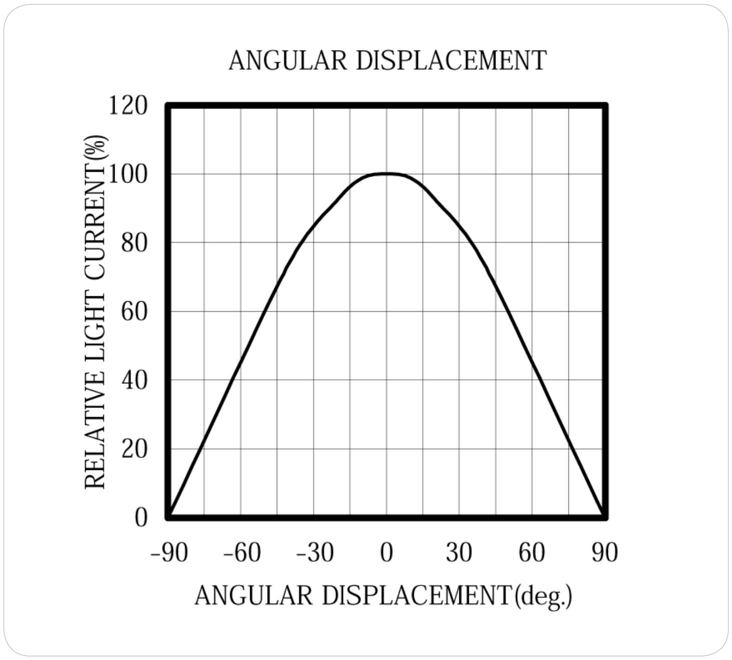


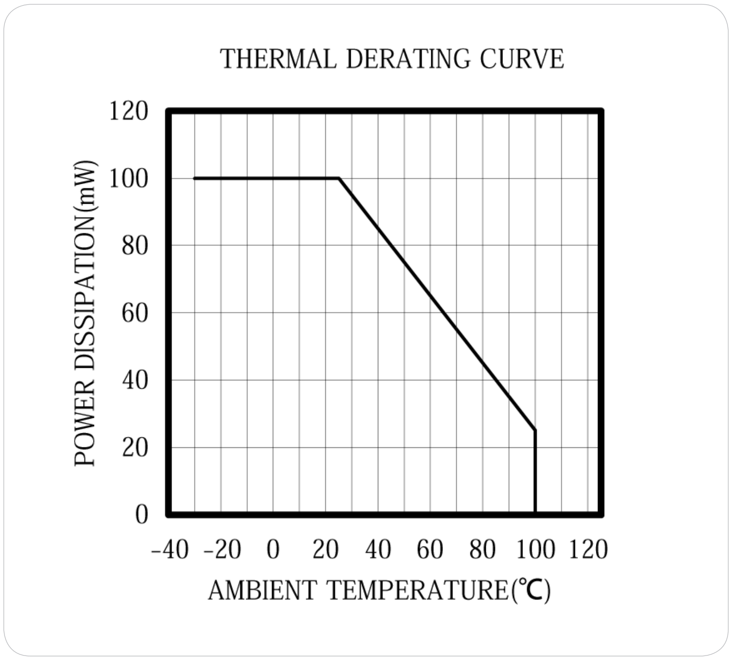
Weight: 0.25g per pc (TYP)

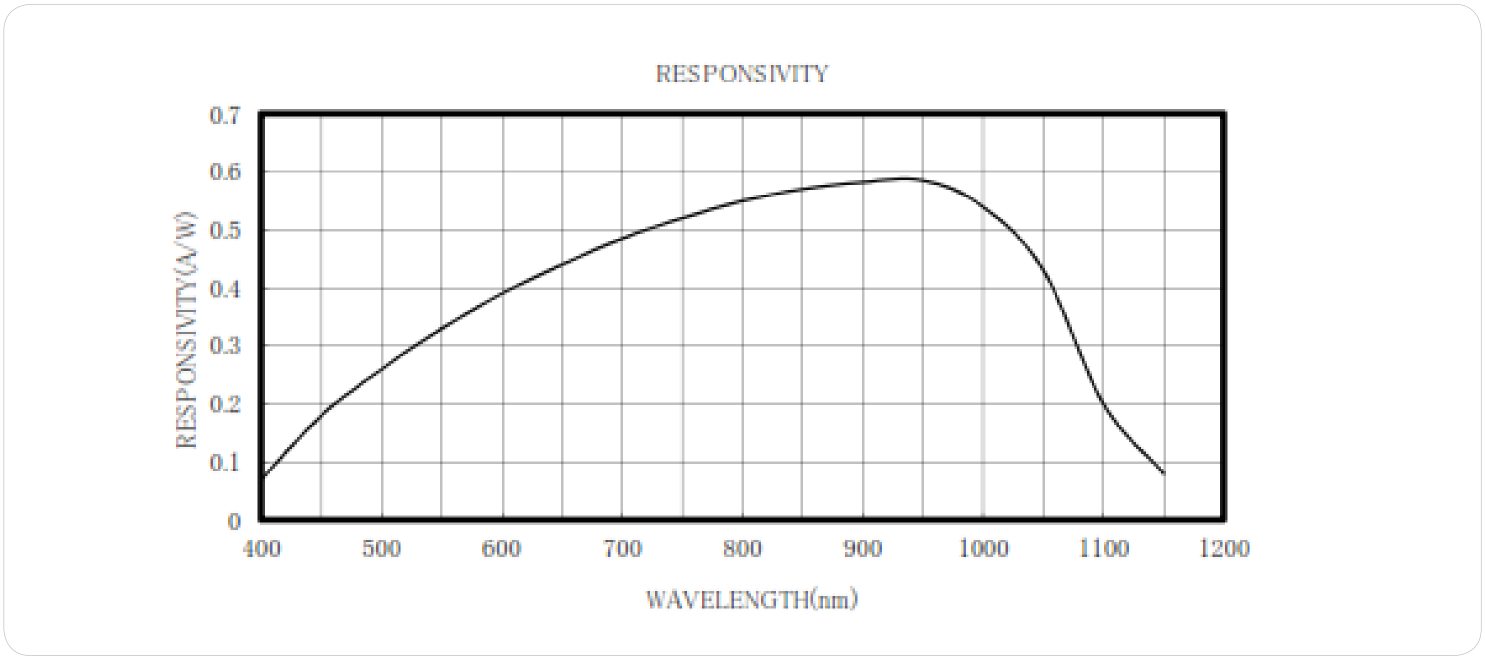


Unit: mm, Tolerance: ±0.2

2020-07-06


ANGULAR DISPLACEMENT
RELATIVE LIGHT CURRENT(%)
120
100
80
60
40
20
0
-90
-60
-30
0
30
60
90
ANGULAR DISPLACEMENT(deg.)

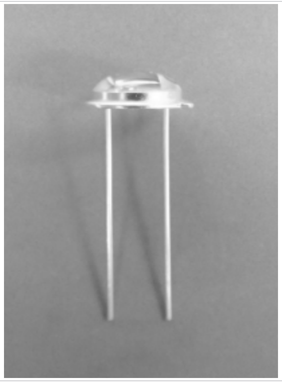

THERMAL DERATING CURVE
POWER DISSIPATION(mW)
120
100
80
60
40
20
0
-40
-20
0
20
40
60
80
100
120
AMBIENT TEMPERATURE(℃)


RESPONSIVITY
RESPONSIVITY(A/W)
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
400
500
600
700
800
900
1000
1100
1200
WAVELENGTH(nm)

2020-07-06

Peak Sensitivity Wavelength: 950nm

The MTD5032M8 is a photo diode in a metal can package. It is well suited for high reliability and high speed applications.



FEATURES

- > Ultra High Speed
- > Low Dark Current / Metal Can Package
- > Wide Angular Response
- > High Reliability

APPLICATIONS

- > Optical Switches
- > Edge Sensing
- > Smoke Detectors

Absolute Maximum Ratings (Ta=25°C)

Pb lead-free RoHS

ITEMS	SYMBOL	RATINGS	UNIT
Reverse Voltage	VR	30	V
Power Dissipation	PD	100	mW
Operating Temperature Range	Topr	-25 ~ +100	ºC
Storage Temperature Range	Tstg	-30 ~ +125	ºC
Lead Soldering Temperature*1	Tls	260	ºC

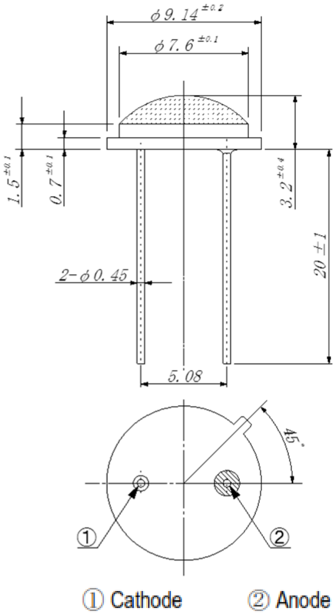
*1: Time 5 Sec max, Position: Up to 3mm from the body.

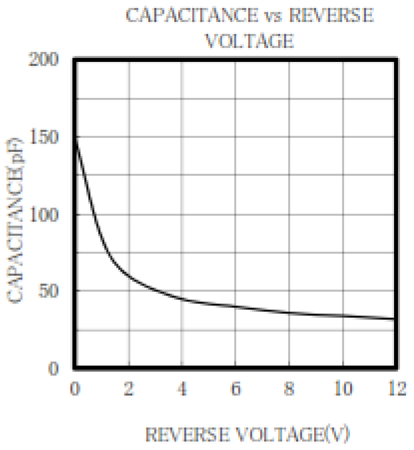
Electrical & Optical Characteristics (Ta = 25°C)

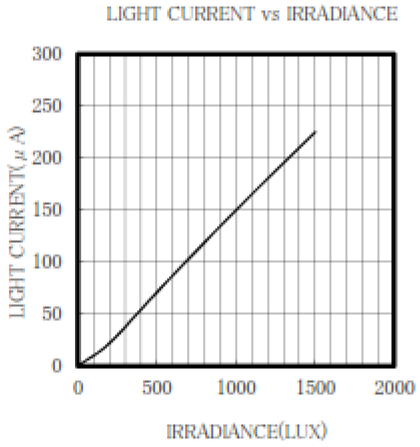
ITEMS	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Light Current	IL	VR=10V,L=1000Lux	--	150	--	μA
Dark Current	ID	VR=10V	--	--	10	nA
Spectral Sensitivity	λ	--	--	400~1100	--	nm
Peak Sensitivity Wavelength	λp	--	--	950	--	nm
Switching Time (Rise Time)	Tr	RL=50Ω, Vr=0V	--	--	100	nS
Switching Time (Fall Time)	Tf	RL=50Ω, Vr=0V	--	--	100	nS
Junction Capacitance	Cj	VR=10V	--	--	50	pF

* Color Temperature=2870^{O}K Stardard Tungsten Lamp

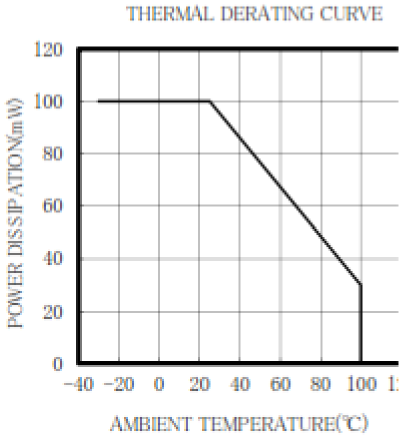
2021-02-16

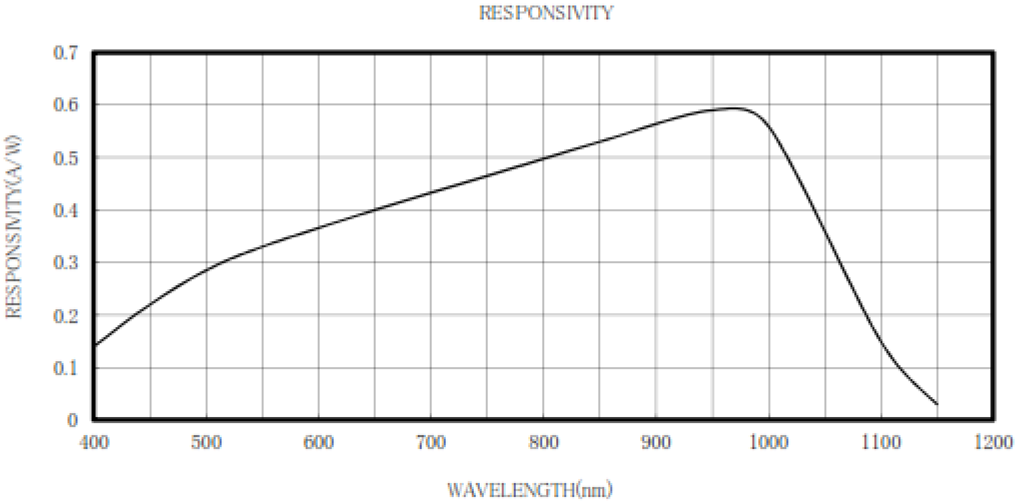






Unit: mm, Tolerance: ±0.2


THERMAL DERATING CURVE
POWER DISSIPATION(mW)
120
100
80
60
40
20
0
−40
−20
0
20
40
60
80
100
AMBIENT TEMPERATURE(℃)


RESPONSIVITY
RESPONSIVITY(A/W)
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
400
500
600
700
800
900
1000
1100
1200
WAVELENGTH(nm)

2021-02-16

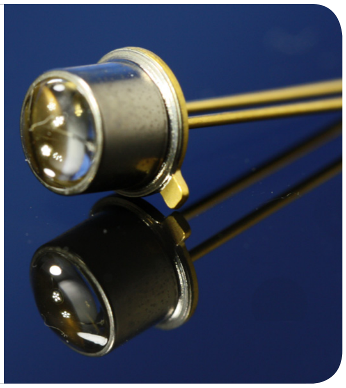
Marktech
Optoelectronics

Photo Diode

Product No: **MTD5052N**

Peak Sensitivity Wavelength: 525nm

Visible Photo Diode enhanced for the Blue/Green Spectrum



FEATURES

- > Chip Active Area 0.57mm^2
- > Hermetically Sealed TO-18
- > Gold Plated Dome Lens Can
- > High Reliability
- > Narrow Angular Response

APPLICATIONS

- > Optical Analytics
- > Optical Switches
- > Light Barriers
- > Currency Validation

Absolute Maximum Ratings (Ta=25°C)

Pb lead-free RoHS

ITEMS	SYMBOL	RATINGS	UNIT
Reverse Voltage	VR	5	V
Operating Temperature Range	Topr	-20 ~ +85	℃
Storage Temperature Range	Tstg	-30 ~ +100	℃
Lead Soldering Temperature	Tls	260	℃

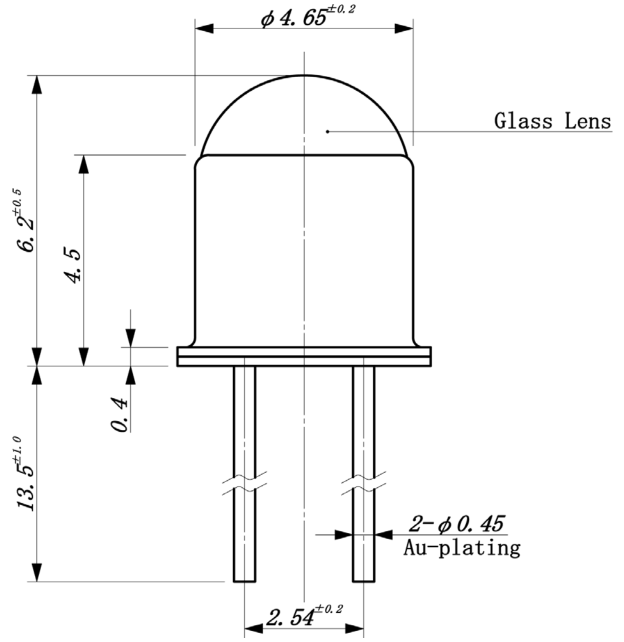
*1: Time 5 Sec max, Position: Up to 3mm from the body.

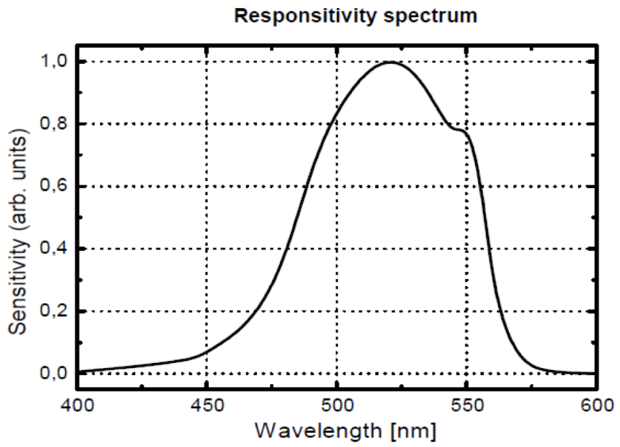
Electrical & Optical Characteristics (Ta = 25°C)

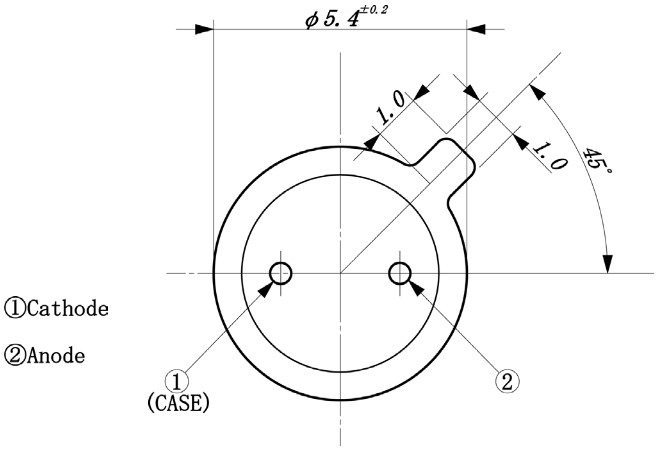
ITEMS	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Light Current	IL	*1	2.5	4.5	--	μA
Dark Current	ID	VR=5V	--	5	30	pA
Spectral Sensitivity	λ	--	--	410--580	--	nm
Peak Sensitivity Wavelength	λp	--	--	525	--	nm
Responsivity	S	*2	--	0.3	--	A/W
Angular Response	ϴ	--	--	±12	--	deg
Shunt Resistance		VR=10mV	--	350G	--	ohm
Capacitance		VR=0V	--	100	--	pf
Switching Time	Tr, Tf	Vr=5V, RL=50Ω	--	1/60	--	ns

*1: VR=5V, λ=525nm, Ee=1mW/cm^2, *2: VR=0V, λ=525nm.

2021-03-29







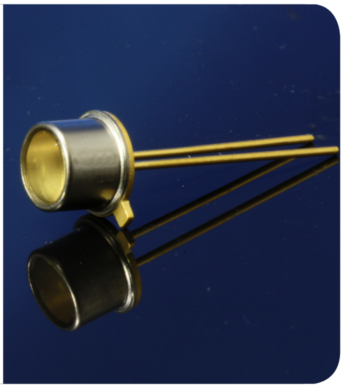
Unit: mm, Tolerance: ±0.2

Photo Diode

Product No: **MTD5052W**

Peak Sensitivity Wavelength: 525nm

Visible Photo Diode enhanced for the Blue/Green Spectrum



FEATURES

- > Chip Active Area 0.57mm^2
- > Hermetically Sealed TO-18
- > Gold Plated Flat Top Can
- > High Reliability
- > Wide Angular Response

APPLICATIONS

- > Optical Analytics
- > Optical Switches
- > Light Barriers
- > Currency Validation

Absolute Maximum Ratings (Ta=25°C)

Pb lead-free ✓ RoHS

ITEMS	SYMBOL	RATINGS	UNIT
Reverse Voltage	VR	5	V
Operating Temperature Range	Topr	-20 ~ +85	°C
Storage Temperature Range	Tstg	-30 ~ +100	°C
Lead Soldering Temperature	Tls	260	°C

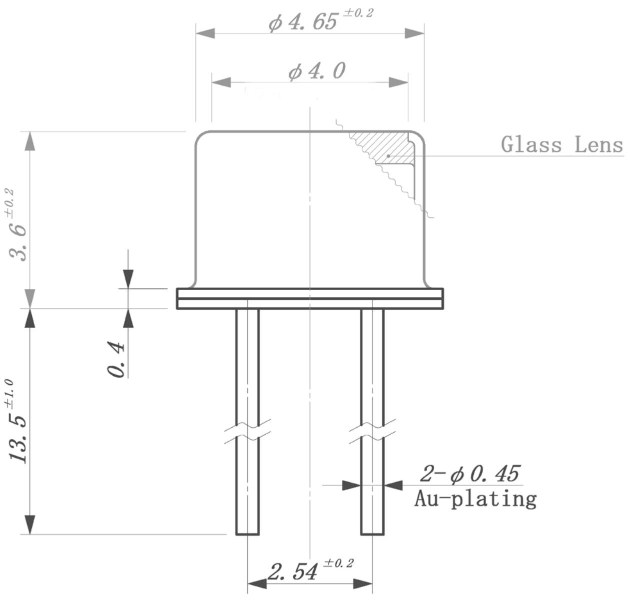
*1: Time 5 Sec max, Position: Up to 3mm from the body.

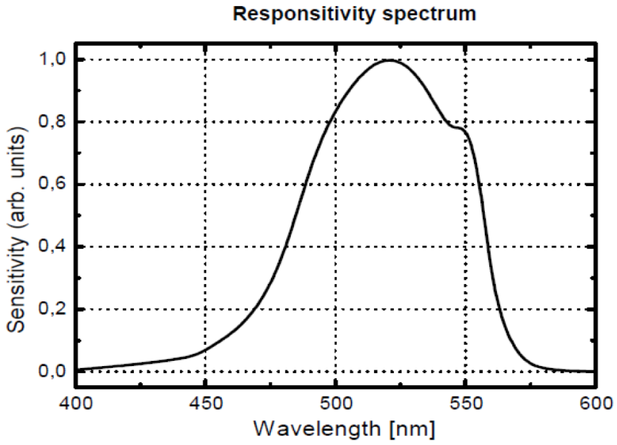
Electrical & Optical Characteristics (Ta = 25°C)

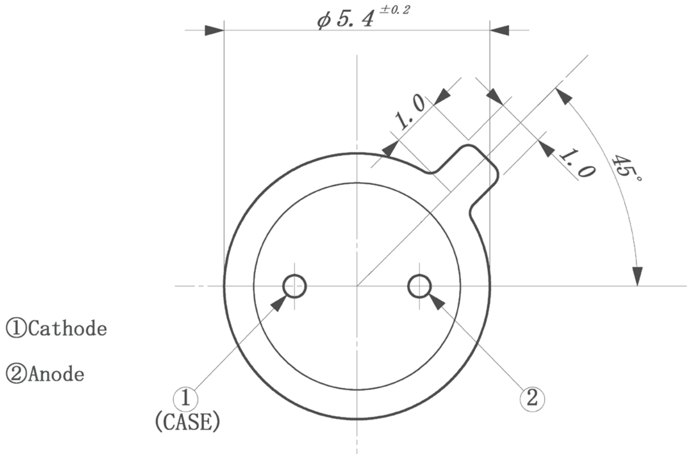
ITEMS	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Light Current	IL	*1	2.5	4.0	--	μA
Dark Current	ID	VR=5V	--	5	30	pA
Spectral Sensitivity	λ	--	--	410--580	--	nm
Peak Sensitivity Wavelength	λp	--	--	525	--	nm
Responsivity	S	*2	--	0.3	--	A/W
Angular Response	ϴ	--	--	±55	--	deg
Switching Time	Tr, Tf	Vr=5V, RL=50Ω	--	1/60	--	ns
Junction Capacitance	Cj	VR=5V	--	500-700	--	pF

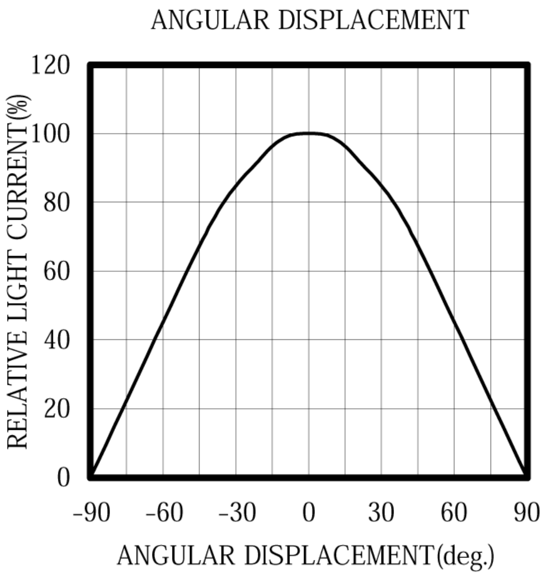
*1: VR=5V, λ=525nm, Ee=1mW/cm^2, *2: VR=0V, λ=525nm.

2021-03-29









Unit: mm, Tolerance: ±0.2

The information contained herein is subject to change without notice.

2021-03-29

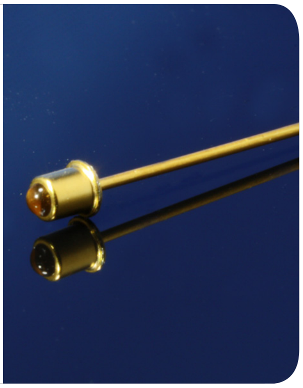
Marktech
Optoelectronics

Photo Diode

Product No: **MTD6100PT**

Peak Sensitivity Wavelength: 880nm

The MTD6100PT is a photo diode in a hermetically sealed pigtail package. It is well suited for high reliability and high sensitivity applications.



FEATURES

- > Linearity of Ee vs IL
- > Low Dark Current / Metal Can Package
- > Narrow Angular Response
- > High Reliability in Demanding Environments

APPLICATIONS

- > Optical Switches
- > Edge Sensing
- > Fiber Optical Communications
- > Smoke Detectors

Absolute Maximum Ratings (Ta=25°C)

ITEMS	SYMBOL	RATINGS	UNIT
Reverse Voltage	VR	30	V
Power Dissipation	PD	100	mW
Operating Temperature Range	Topr	-30 ~ +100	°C
Storage Temperature Range	Tstg	-40 ~ +125	°C
Junction Temperature	Tj	125	°C
Lead Soldering Temperature*1	Tls	260	°C

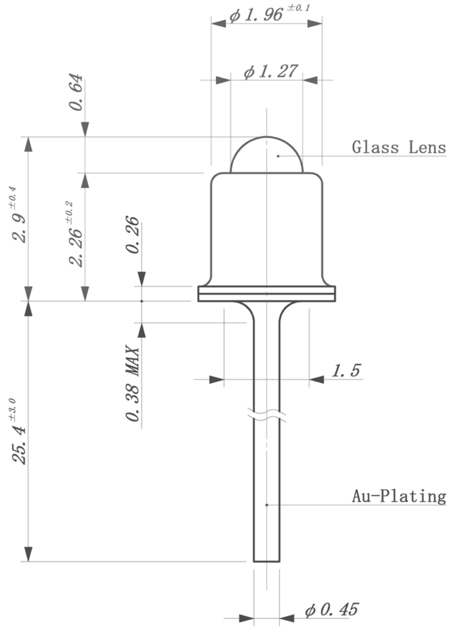
*1: Time 5 Sec max, Position: Up to 3mm from the body.

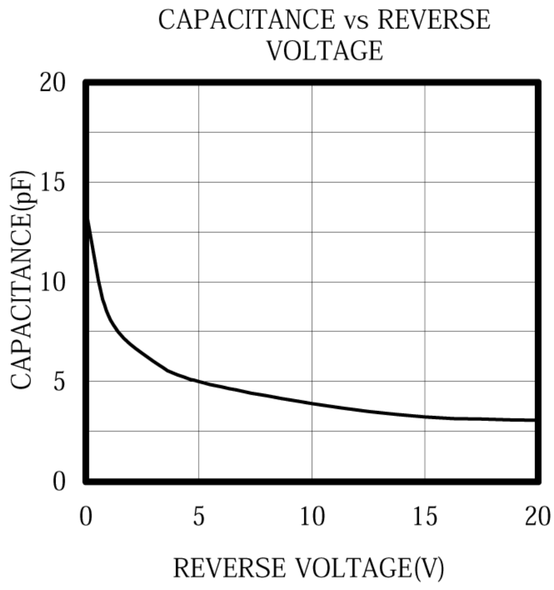
Electrical & Optical Characteristics (Ta = 25°C)

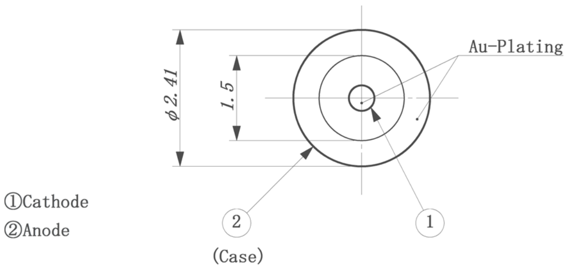
ITEMS	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Open Circuit Voltage	Voc	Ee=5mW/cm^2 *1	0.35	--	--	V
Light Current	IL	*1, *2	--	10	--	μA
Dark Current	ID	VR=10V	--	--	10	nA
Curve Factor	CF	Ee=5mW/cm^2 *1	0.55	--	--	--
Spectral Sensitivity	λ	--	--	400~1100	--	nm
Peak Sensitivity Wavelength	λp	--	--	880	--	nm
Switching Time (Rise Time)	Tr	R=1000Ω, Vr=10V	--	6	--	nS
Switching Time (Fall Time)	Tf	R=1000Ω, Vr=10V	--	6	--	nS
Angular Response	Θ	--	--	±10	--	deg
Junction Capacitance	Cj	at 1MHz, V=5V	--	5	10	pF

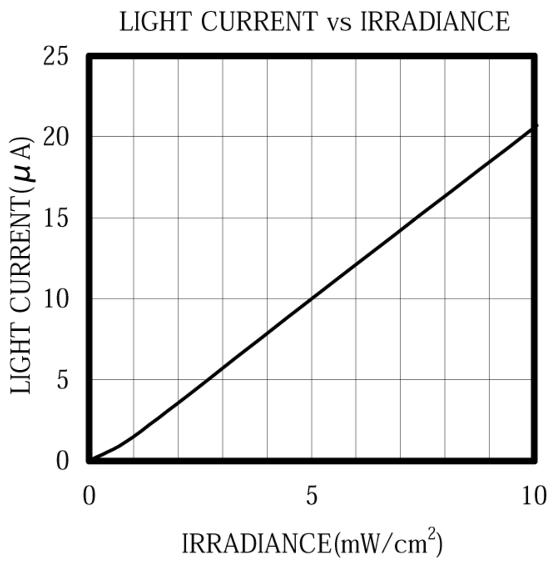
*1: Color Temperature=2870°K Stardard Tungsten Lamp, *2: VR=10V, Ee=5mW/cm^2.

2011-07-19



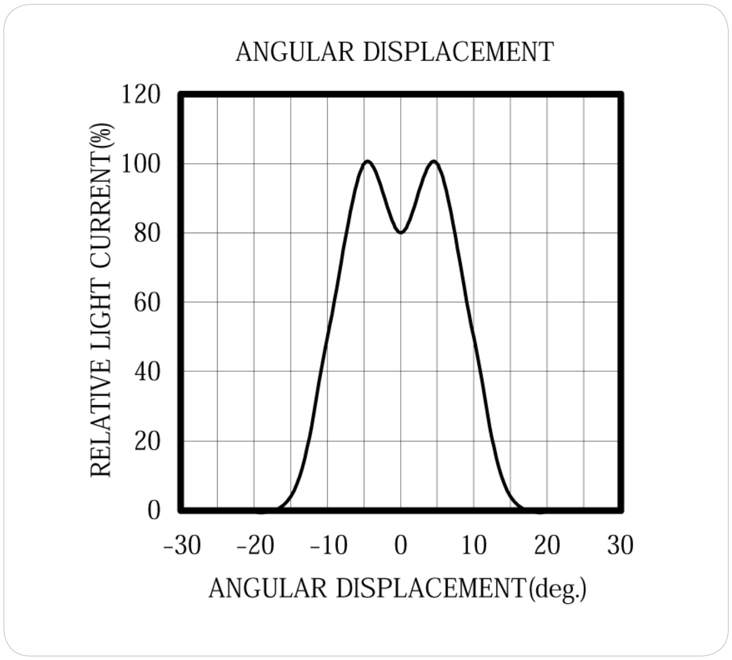


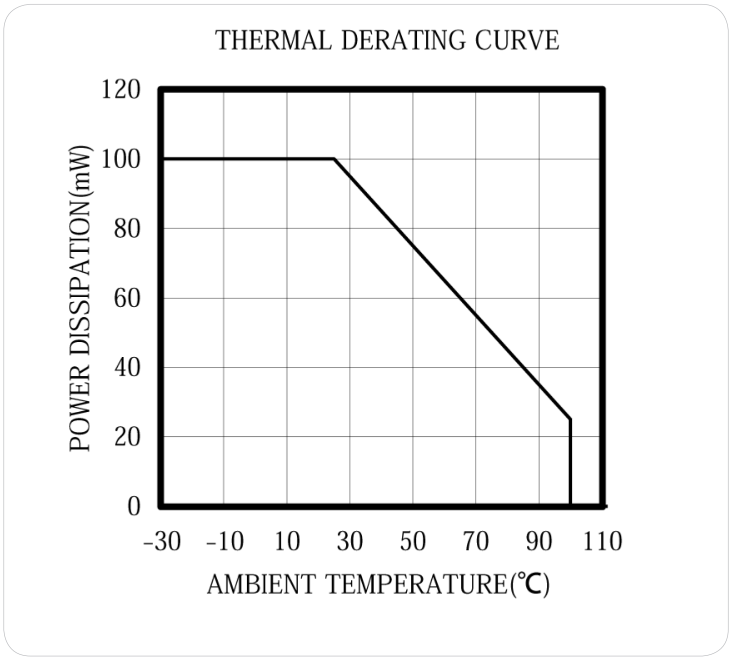


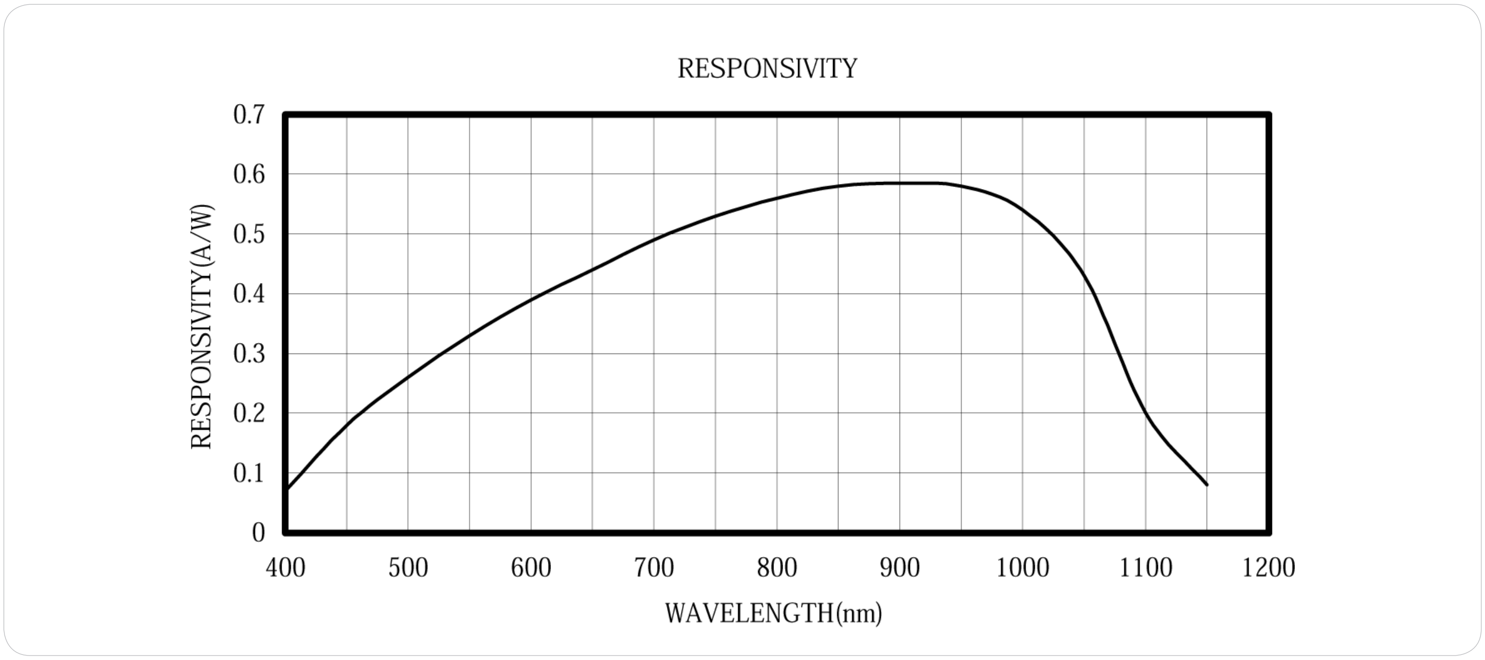


Unit: mm, Tolerance: ±0.2

2011-07-19


ANGULAR DISPLACEMENT
RELATIVE LIGHT CURRENT(%)
120
100
80
60
40
20
0
-30
-20
-10
0
10
20
30
ANGULAR DISPLACEMENT(deg.)


THERMAL DERATING CURVE
POWER DISSIPATION(mW)
120
100
80
60
40
20
0
-30
-10
10
30
50
70
90
110
AMBIENT TEMPERATURE(℃)


RESPONSIVITY
RESPONSIVITY(A/W)
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
400
500
600
700
800
900
1000
1100
1200
WAVELENGTH(nm)

2011-07-19

Preliminary

Marktech
Optoelectronics

High Speed InGaAs + Si PIN Photodiode

Product No: **MTPD2601SIW-100**

Sensitivity Wavelength Range: InGaAs 800-2600nm / SI 250-1100nm

The MTPD2601SIW-100 from Marktech, a high sensitivity and high reliability product series, is ideally suited for **applications requiring a wide spectral bandwidth**. Custom packaging for this is also available.

FEATURES

- > High Speed Response
- > TO-39 Hermetically Sealed Package
- > Active Area of 1.0mm Φ / High Sensitivity
- > Spectral Range Si: 250-1100 InGaAs: 800-2600nm

APPLICATIONS

- > High Speed Optical Communications
- > Industrial Controls
- > Gas/Water Analysis
- > LIDAR
- > Medical

Absolute Maximum Ratings (Ta=25°C)

ITEMS	SYMBOL	RATINGS	UNIT
Active Area	Φ	1.0	mm
Operating Temperature Range	Topr	-40 to +85	℃
Storage Temperature Range	Tstg	-40 to +125	℃

InGaAs Electrical & Optical Characteristics (Ta = 25°C)

ITEMS	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Breakdown Voltage	VR	IR=100uA	--	--	1	V
Sensitivity Range	λ	VR=0V	800	--	2600	nm
Dark Current	ID	VR=0V	--	80	--	nA
Dark Current	ID	VR=1V	--	100	--	uA
Capacitance	C	VR=0V	--	3100	--	pF
Capacitance	C	VR=1V	--	500	--	pF
Responsivity	R	λ=2400nm	--	1.24	--	A/W
Shunt Resistance	RS	VR=10mV	--	0.5	--	kΩ
Quantum Efficiency	QE	λ=1840nm	--	72	--	%

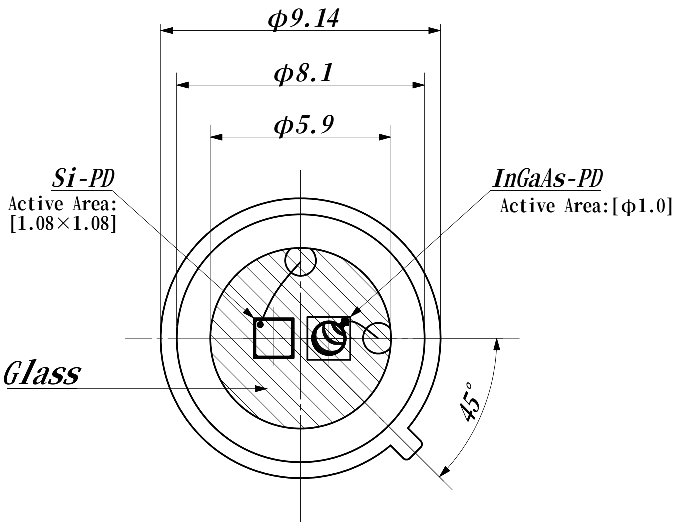
2023-01-30

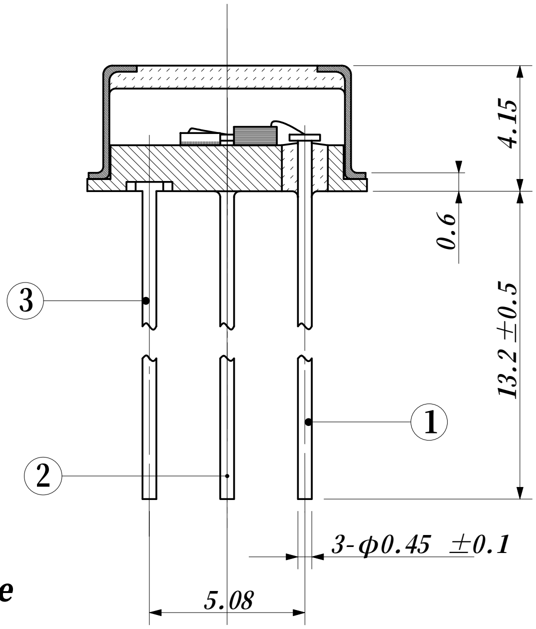
Si Electrical & Optical Characteristics (Ta = 25°C)

ITEMS	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Breakdown Voltage	VR	IR=10uA	50	--	--	V
Sensitivity Range	λ		250	--	1100	nm
Peak Sensitivity	λp		--	950	--	nm
Dark Current	ID	VR=5V	--	--	10	nA
Capacitance	C	@1MHz, VR=0V	--	20	--	pF
Capacitance	C	@1MHz, VR=5V	--	6	8	pF
Responsivity	R	VR=0V, λ=365nm	--	0.22	--	A/W
Responsivity	R	VR=0V, λ=633nm	--	0.40	--	A/W
Shunt Resistance	RS	VR=10mV	500	800	--	MΩ
Response Time @ 635nm	TR	RL=50Ω, VR=5V	--	20	--	ns

2023-01-30

Package Dimensions

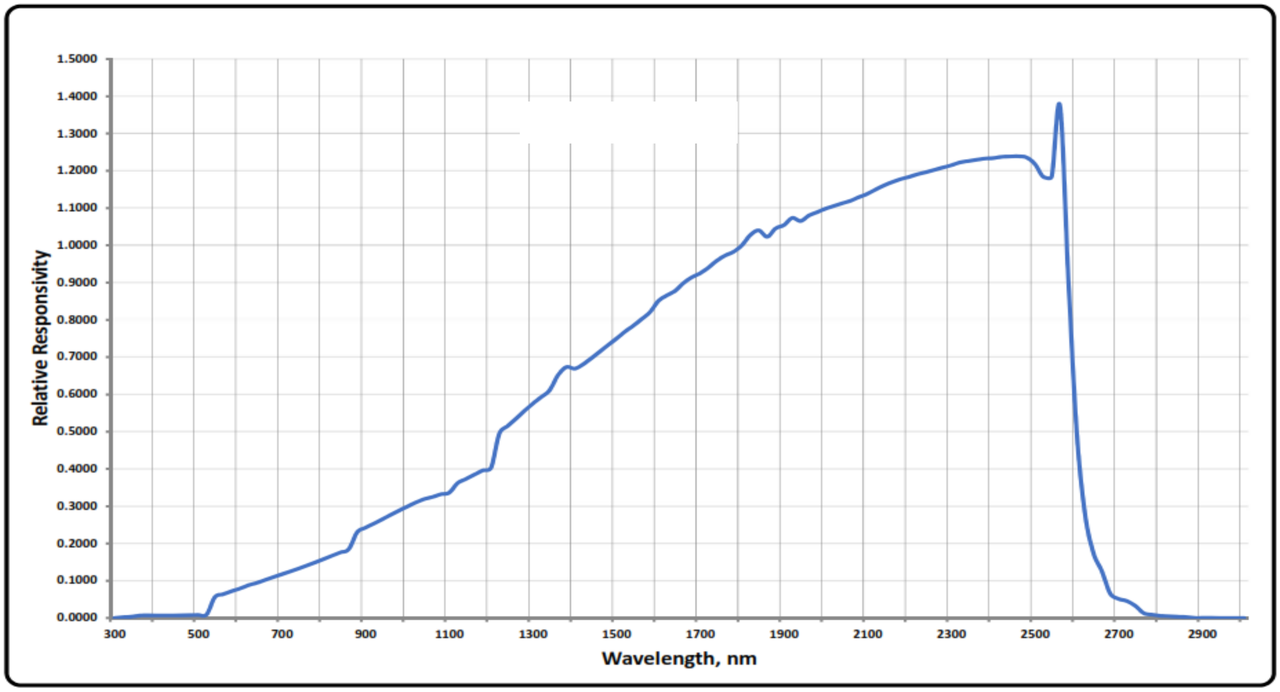




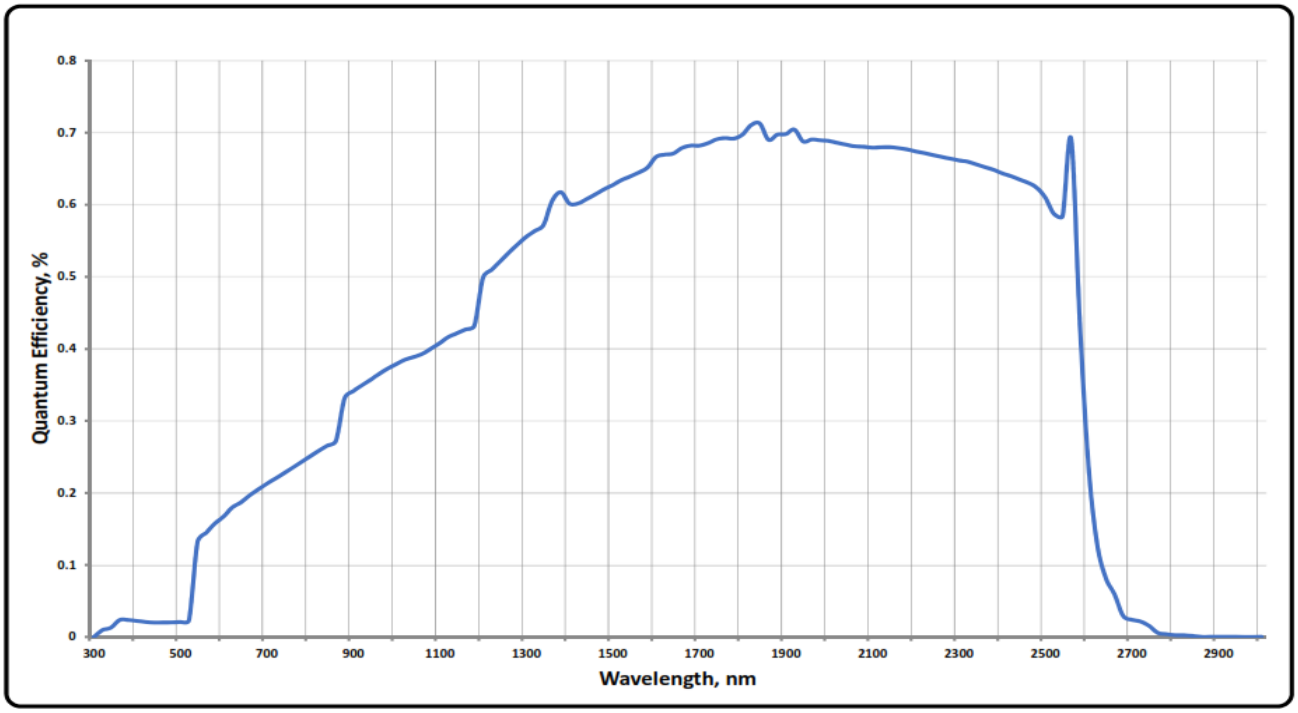
①InGaAs PD Anode
②Si PD Anode
③Cathode com(Case)

2023-01-30

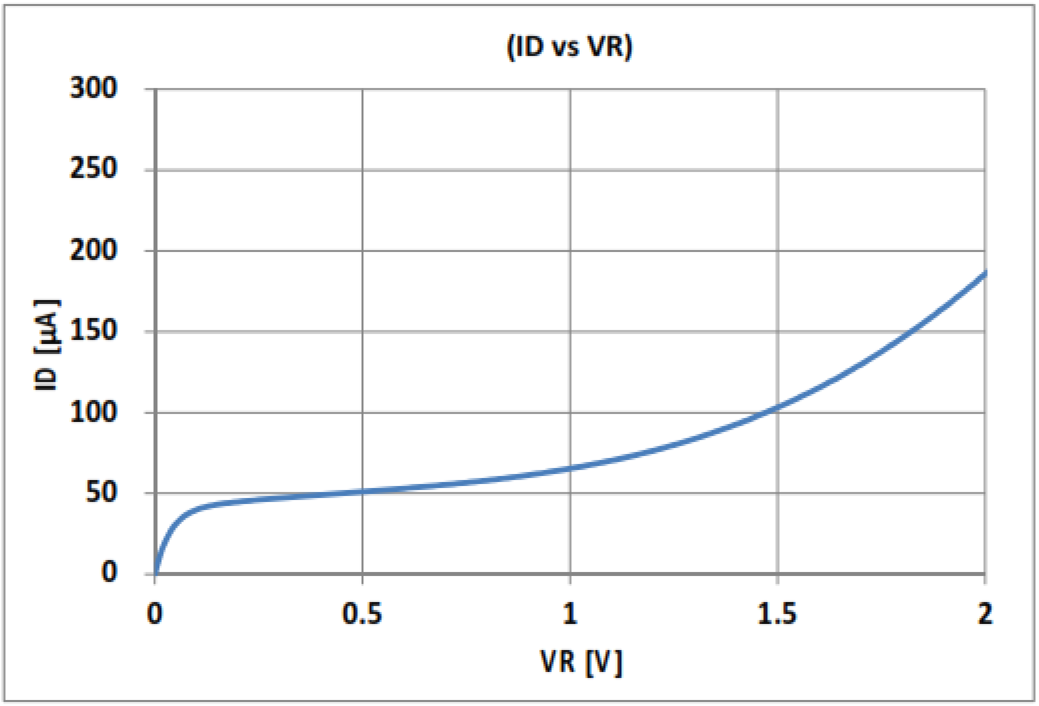
InGaAs Spectral Responsivity



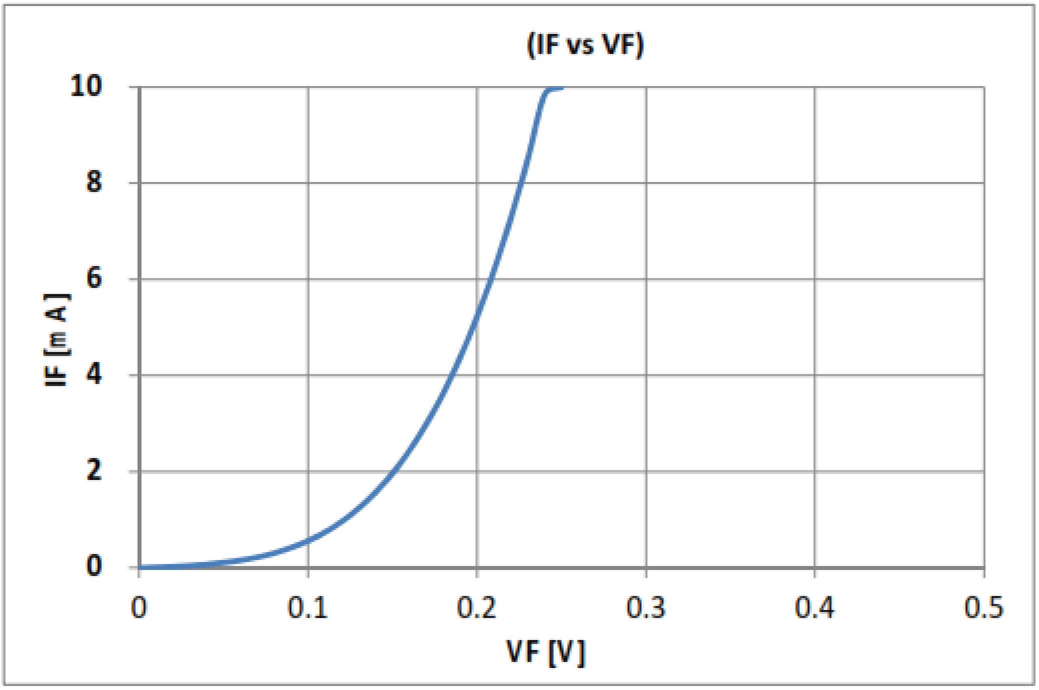
InGaAs Quantum Efficiency



InGaAs Dark Current vs Reverse Voltage



InGaAs Forward Current vs Forward Voltage



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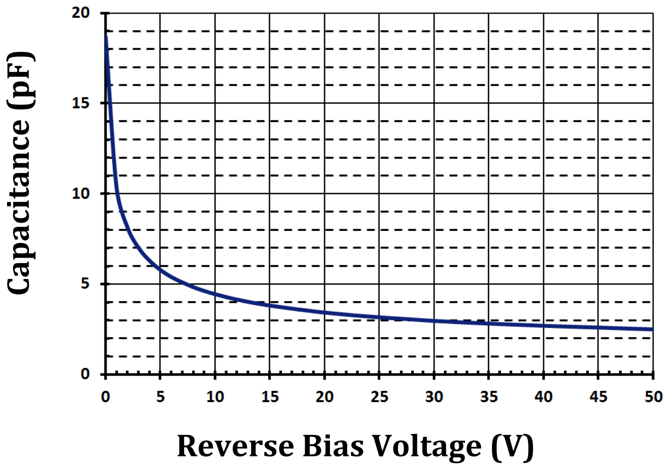
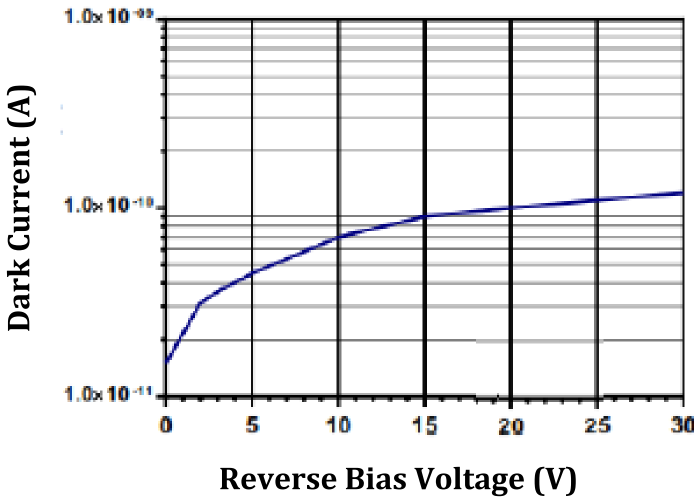
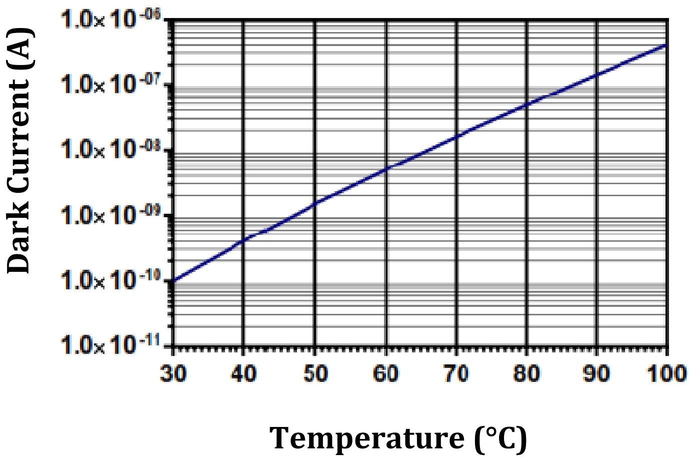
Si Capacitance vs Reverse Bias



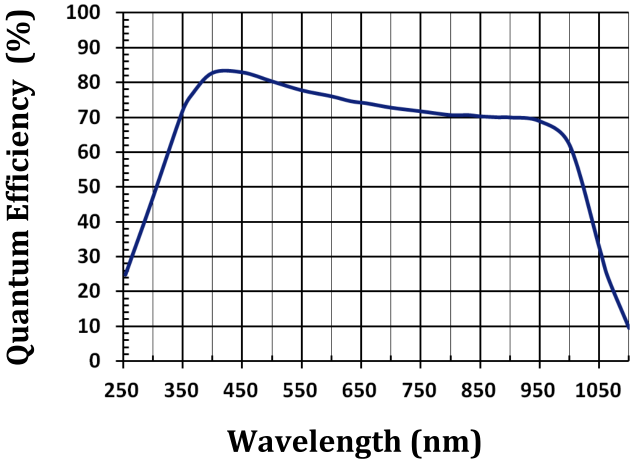
Si Dark Current vs Reverse Bias (23°C)



Si Dark Current vs Temperature (Vr=10V)

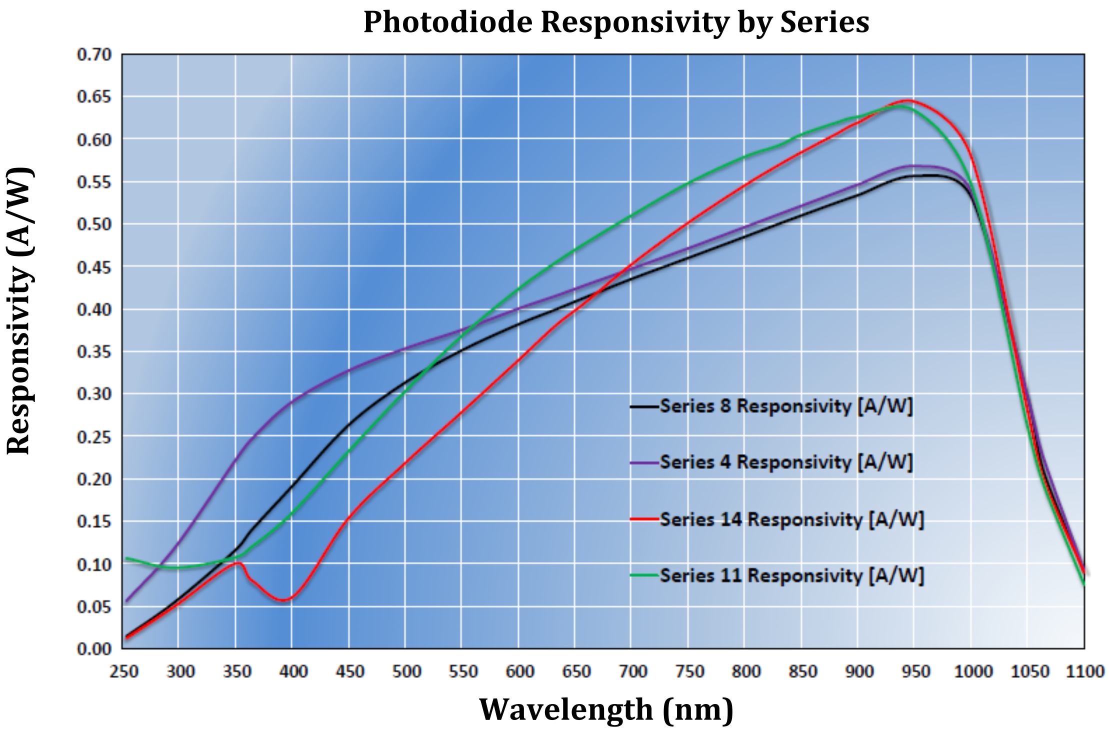


Si Quantum Efficiency (23°C)



2023-01-30

Si Series 4 Spectral Responsivity



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