

Silicon Photodetector

Series 1

BLUE AND UV SENSITIVE

Series 1 photodiodes offer a broadband spectral response extending into the UV region. The series is particularly intended for applications from 250 to 430 nm where high levels of illumination occur.

The detectors may be operated with reverse bias up to 10 volts or in the photovoltaic mode for best signal to noise performance. And are particularly suitable for monitoring the operation of UV lamps.

ABSOLUTE MAXIMUM RATINGS

	Max. Rating
DC Reverse Voltage	12V
Peak Pulse Current (1 μ s, 1% duty cycle)	200mA
Peak DC Current	10mA
Storage Temperature Range Except for: LD20-1, LD35-1, MD25-1, MD100-1	-45°C to + 100°C -25°C to + 80°C
Operating Temperature Range Except for: LD20-1, LD35-1, MD25-1, MD100-1	-25°C to + 75°C 0°C to + 75°C
Soldering Temperature for 5 seconds max.	200°C

Series 1 – Typical Spectral Response

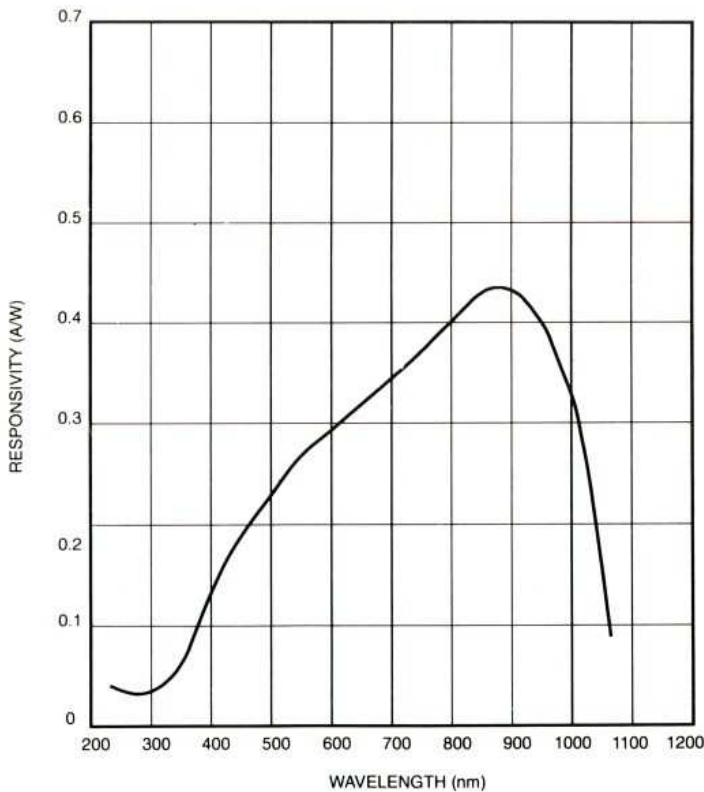


Fig. 15 Series 1 – Typical Spectral Response

Series 1 – Typical Capacitance versus Bias Voltage and Active Area

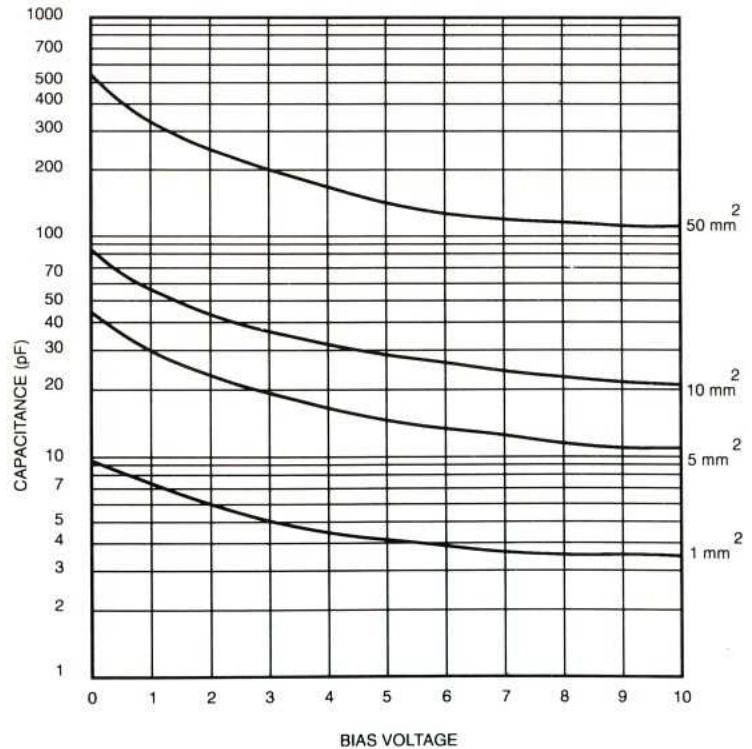


Fig 16 Series 1 – Typical Capacitance versus Bias Voltage for a given Detector Area

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Electrical / Optical Specifications

Characteristics measured at 22°C (±2) ambient, and a reverse bias of 10 volts, unless otherwise stated.

Single Elements

Type No.	Active Area		Responsivity A/W				Dark Current nA		NEP WHz ^{-1/2}	Capacitance pF		Package
	mm ²	mm	λ = 250 nm		λ = 436 nm		Max.	Typ.	λ = 250 nm Typ.	Vr = 0 V Max.	Vr = 10V Max.	
OSD1-1	1	1.13 dia	0.03	0.04	0.12	0.16	10	1	6.0 x 10 ⁻¹³	12	4	TO18
OSD5-1	5	2.52 dia	0.03	0.04	0.12	0.16	20	5	1.3 x 10 ⁻¹²	52	12	TO5
OSD15-1	15	3.8 x 3.8	0.03	0.04	0.12	0.16	60	20	2.7 x 10 ⁻¹²	150	35	TO5
OSD50-1	50	7.98 dia	0.03	0.04	0.12	0.16	500	100	6.0 x 10 ⁻¹²	500	110	TO8
OSD100-1	100	11.3 dia	0.03	0.04	0.12	0.16	1500	400	1.2 x 10 ⁻¹¹	1000	220	13

Quadrants (Values given are per element unless otherwise stated)

Type No.	Active Area			Responsivity A/W				Dark Current nA		NEP WHz ^{-1/2}	Capacitance pF		Crosstalk %		Package
	mm ²	mm	Sep. mm	λ = 250 nm		λ = 436 nm		Max.	Typ.	λ = 250 nm Typ.	Vr = 0V Max.	Vr = 10V Max.	λ = 250 nm		
QD7-1	7	2.99 dia	0.2	0.03	0.04	0.12	0.16	25	2	8.4 x 10 ⁻¹³	20	8	5	1	TO5
QD50-1	50	7.98 dia	0.2	0.03	0.04	0.12	0.16	100	20	2.7 x 10 ⁻¹²	127	28	5	1	10
QD100-1	100	11.3 dia	0.2	0.03	0.04	0.12	0.16	200	40	3.8 x 10 ⁻¹²	250	55	5	1	11

Linear Arrays (Values given are per element unless otherwise stated)

Type No.	No. of Elements	Array Dimensions				Responsivity				Dark Current nA		NEP WHz ^{-1/2}	Capacitance pF		Package
		Area Mm ²	Width. mm	Lgth. mm	Sep. mm	λ = 250 nm		λ = 436 nm		Max.	Typ.	λ = 250 nm Typ.	Vr = 0V Max.	Vr = 10V Max.	
LD2A-1	2	1.00	2.00	0.5	0.05	0.03	0.04	0.12	0.16	15	1	6.0 x 10 ⁻¹³	12	4	TO5
LD2B-1	2	2.02	1.42	1.42	0.45	0.03	0.04	0.12	0.16	20	2	8.4 x 10 ⁻¹³	22	8	TO5
LD20-1	20	3.6	4.0	0.9	0.05	0.03	0.04	0.12	0.16	50	5	1.3 X 10 ⁻¹²	38	10	16
LD35-1	35	4.42	4.6	0.96	0.03	0.03	0.04	0.12	0.16	50	5	1.3 x 10 ⁻¹²	46	15	17

Matrix Arrays (Values given are per element unless otherwise stated)

Type No.	No. of Elements	Array Dimensions				Responsivity				Dark Current nA		NEP WHz ^{-1/2}	Capacitance pF		Package
		Area mm ²	Width. mm	Lgth. mm	Sep. mm	λ = 250 nm		λ = 436 nm		Max.	Typ.	λ = 250 nm Typ.	Vr = 0V Max.	Vr = 10V Max.	
MD25-1	5 x 5	7.29	2.7	2.7	0.1	0.03	0.04	0.12	0.16	2000	20	4.0 x 10 ⁻¹²	92	15	18
MD100-1	10 x 10	1.96	1.4	1.4	0.1	0.03	0.04	0.12	0.16	600	10	2.8 x 10 ⁻¹²	22	4	17

Note: Recommended operating voltage range 0 to 10 volts, for all Series 1 Detectors.



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