

Silicon Photodetectors

T-41-51

T-41-47

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 where sensitivity in the range from 250 to 430 nm is important.

The detectors may be operated with reverse bias up to 10 volts or in the photovoltaic mode for best signal to noise performance.

ABSOLUTE MAXIMUM RATINGS

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

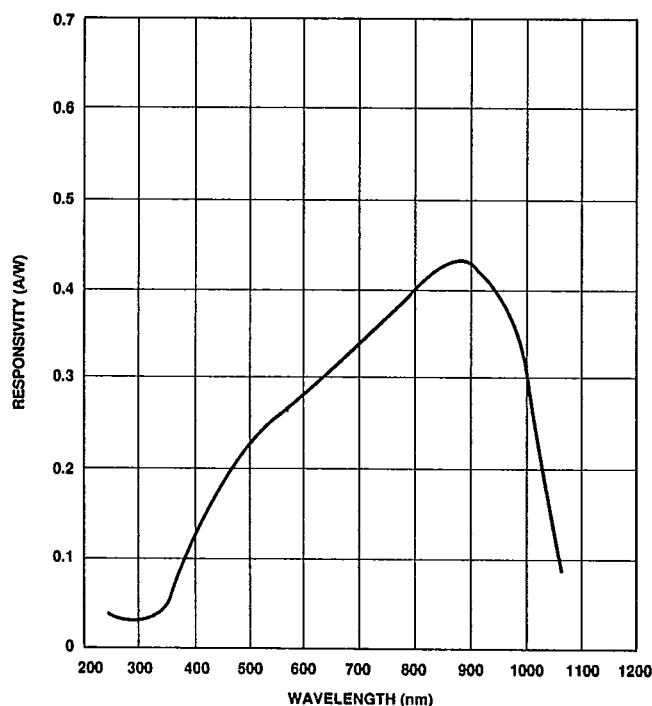


Fig.15 SERIES 1 - TYPICAL SPECTRAL RESPONSE

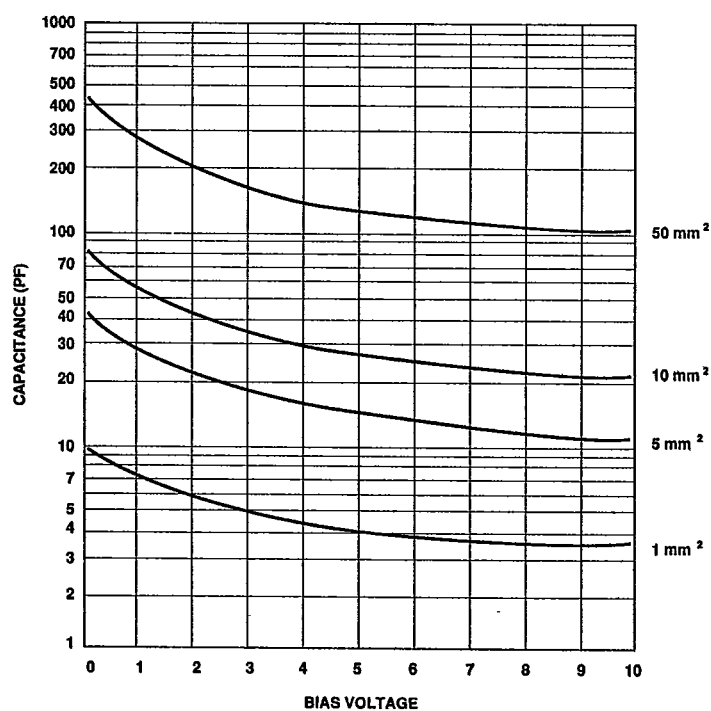


Fig.16 SERIES 1 - TYPICAL CAPACITANCE VERSUS BIAS VOLTAGE FOR A GIVEN DETECTOR AREA

Series 1

T-41-47

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 μ A		NEP $\text{WHz}^{-1/2}$ L = 250 nm	Capacitance pF		Package
	mm ²	mm	L = 250 nm		L = 438 nm		Max.	Typ.	Typ.	V _r = 0V Max.	V _r = 10V Max.	
OSD1-1	1	1.13 dia	0.03	0.04	0.12	0.16	0.2	0.02	4.0×10^{-12}	12	4	1
OSD5-1	5	2.52 dia	0.03	0.04	0.12	0.16	0.4	0.02	4.0×10^{-12}	52	12	3
OSD15-1	15	3.8 x 3.8	0.03	0.04	0.12	0.16	1.2	0.1	8.9×10^{-12}	150	35	3
OSD50-1	50	7.98 dia	0.03	0.04	0.12	0.16	4.0	0.2	1.3×10^{-11}	500	110	9
OSD60-1	62	7.9 x 7.9	0.03	0.04	0.12	0.16	5.0	0.3	1.5×10^{-11}	600	130	9
OSD100-1	100	11.3 dia	0.03	0.04	0.12	0.16	6.0	0.6	2.2×10^{-11}	1000	220	13
OSD200-1	200	15.96 dia	0.03	0.04	0.12	0.16	8.0	1.0	2.8×10^{-11}	2000	420	13
OSD300-1	300	19.54 dia	0.03	0.04	0.12	0.16	10.0	1.5	3.5×10^{-11}	3000	630	15

Quadrants

(Values given are per element unless otherwise stated)

Type No.	Active Area (Total)			Responsivity A/W				Dark Current μ A		NEP $\text{WHz}^{-1/2}$ L = 250 nm	Capacitance pF		Crosstalk % L = 250 nm		Package
	mm ²	mm	Sep. mm	L = 250 nm		L = 438 nm		Max.	Typ.	Typ.	V _r = 0V Max.	V _r = 10V Max.	Max.	Typ.	
QD7-1	7	2.99 dia	0.2	0.03	0.04	0.12	0.16	0.5	0.1	8.9×10^{-12}	20	8	5	1	7
QD50-1	50	7.98 dia	0.2	0.03	0.04	0.12	0.16	4.0	0.2	1.3×10^{-11}	127	28	5	1	10
QD100-1	100	11.3 dia	0.2	0.03	0.04	0.12	0.16	4.5	0.3	1.5×10^{-11}	250	55	5	1	11
QD320-1	320	20.2 dia	0.3	0.03	0.04	0.12	0.16	5.0	1.0	2.8×10^{-11}	800	180	5	1	14

Linear Arrays

(Values given are per element unless otherwise stated)

Type No.	No. of Elements	Array Dimensions				Responsivity A/W				Dark Current nA		NEP $\text{WHz}^{-1/2}$ L = 250 nm	Capacitance pF		Package
		Area mm ²	Width mm	Lgth. mm	Sep. mm	L = 250 nm		L = 438 nm		Max.	Typ.	Typ.	V _r = 0V Max.	V _r = 10V Max.	
LD2-1A	2	1.00	2.00	0.5	0.05	0.03	0.04	0.12	0.16	200	5	2.0×10^{-12}	12	4	4
LD2-1B	2	2.02	1.42	1.42	0.45	0.03	0.04	0.12	0.16	200	7	2.4×10^{-12}	22	8	4
LD20-1	20	3.6	4.0	0.9	0.05	0.03	0.04	0.12	0.16	500	9	2.7×10^{-12}	38	10	16
LD35-1	35	4.42	4.6	0.96	0.03	0.03	0.04	0.12	0.16	500	10	2.8×10^{-12}	46	15	17

Matrix Arrays

(Values given are per element unless otherwise stated)

Type No.	No. of Elements	Array Dimensions				Responsivity A/W				Dark Current nA		NEP $\text{WHz}^{-1/2}$ L = 250 nm	Capacitance pF		Package
		Area mm ²	Width mm	Lgth. mm	Sep. mm	L = 250 nm		L = 438 nm		Max.	Typ.	Typ.	V _r = 0V Max.	V _r = 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	4.0×10^{-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	2.8×10^{-12}	22	4	19

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