

Silicon Photodetectors

Series 3

Near IR Sensitive, High Speed

The Series 3 photodetectors are designed for high speed and maximum responsivity in the near infra-red region. They are particularly suited to high speed pulsed applications in the region of 900nm and for other applications where the low capacitance obtained at 100 volts reverse bias is advantageous.

ABSOLUTE MAXIMUM RATINGS

	Max. Rating	Unit
DC Reverse Voltage	120	V
Peak Pulse Current (1 μ S, 1% duty cycle)	200	mA
Peak DC Current	10	mA
Storage Temperature Range Except for: LD20-3, MD25-3, MD100-3	-45 to +100 -25 to +80	degree C
Operating Temperature Range Except for: LD20-3, LD25-3, MD25-3, MD100-3	-25 to +75 0 to +75	degree C
Soldering Temperature for 5 seconds max.	200	degree C

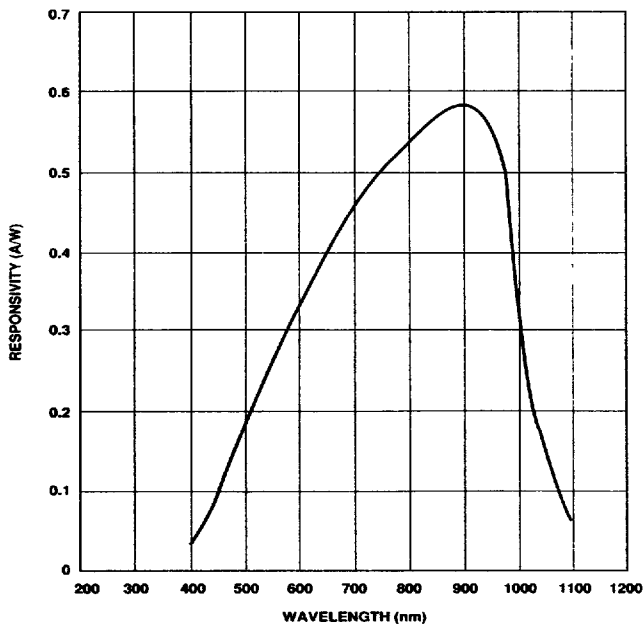


Fig 17 SERIES 3 - TYPICAL SPECTRAL RESPONSE

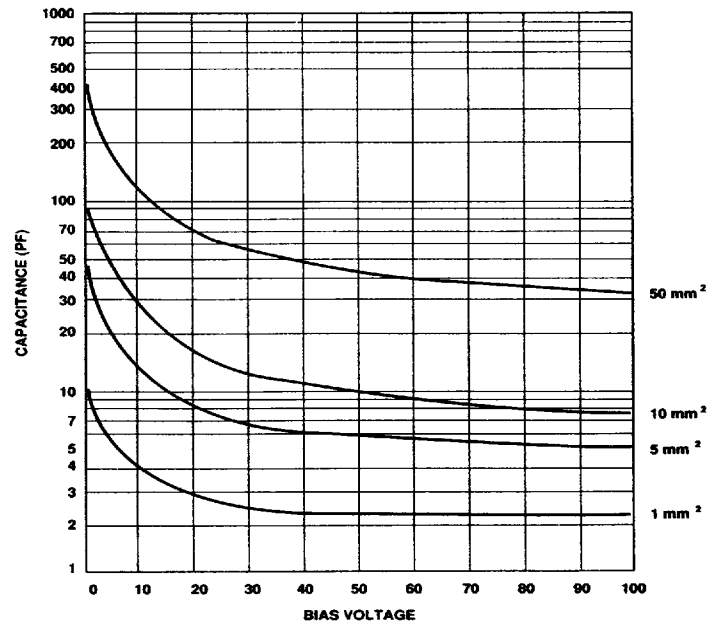


Fig 18 SERIES 3 - TYPICAL CAPACITANCE VERSUS BIAS VOLTAGE FOR A GIVEN DETECTOR AREA

Series 3

Electrical / Optical Specifications

Characteristics measured at 22° C (±2) ambient, and a reverse bias of 100 volts, unless otherwise stated.

Single Elements

Type No.	Active Area		Responsivity A/W L = 900 nm		Dark Current μA		NEP WHz ^{-1/2} L = 900 nm	Capacitance pF		Risetime ns L = 900 nm R _L = 50 Ω Typ.	Package
	mm ²	mm	Min.	Typ.	Max.	Typ.	Typ.	V _r = 0V Max.	V _r = 100V Max.		
OSD1-3	1	1.13 dia	0.54	0.57	0.2	0.02	2.8 x 10 ⁻¹³	12	3	6	1
OSD5-3*	5	2.52 dia	0.54	0.57	0.4	0.07	5.3 x 10 ⁻¹³	50	5	5	4
OSD50-3	50	7.98 dia	0.54	0.57	0.6	0.1	6.3 x 10 ⁻¹³	500	37	7	9
OSD100-3*	100	11.3 dia	0.54	0.57	5.0	0.2	8.9 x 10 ⁻¹³	1000	75	10	13
OSD200-3*	200	15.96 dia	0.54	0.57	8.0	0.4	1.3 x 10 ⁻¹²	2000	145	17	13
OSD300-3*	300	19.54 dia	0.54	0.57	10.0	0.6	1.5 x 10 ⁻¹²	3000	210	24	15

Quadrants

(Values given are per element unless otherwise stated)

Type No.	Active Area (Total)			Responsivity A/W L = 900 nm		Dark Current μA		NEP WHz ^{-1/2} L = 900 nm	Capacitance pF		Risetime ns L = 900 nm R _L = 50 Ω Typ.	Crosstalk % L = 900 nm		Package
	mm ²	mm	Sep. mm	Min.	Typ.	Max.	Typ.	Typ.	V _r = 0V Max.	V _r = 100V Max.	Max.	Typ.		
QD100-3*	100	11.3 dia	0.2	0.54	0.57	2.5	0.15	7.7 x 10 ⁻¹³	250	20	6	5	1	12
QD320-3*	320	20.2 dia	0.3	0.54	0.57	5.0	0.20	8.9 x 10 ⁻¹³	800	60	9	5	1	14

Linear Arrays

(Values given are per element unless otherwise stated)

Type No.	No. of Elements	Array Dimensions				Responsivity A/W L = 900 nm		Dark Current μA		NEP WHz ^{-1/2} L = 900 nm	Capacitance pF		Risetime ns L = 900 nm R _L = 50 Ω Typ.	Package
		Area mm ²	Width mm	Lgth. mm	Sep. mm	Min.	Typ.	Max.	Typ.	Typ.	V _r = 0V Max.	V _r = 100V Max.		
LD20-3*	20	3.6	4.0	0.9	0.05	0.54	0.57	2.0	0.25	9.9 x 10 ⁻¹³	38	4	5	16

Matrix Arrays

(Values given are per element unless otherwise stated)

Type No.	No. of Elements	Array Dimensions				Responsivity A/W L = 900 nm		Dark Current μA		NEP WHz ^{-1/2} L = 900 nm	Capacitance pF		Risetime ns L = 900 nm R _L = 50 Ω Typ.	Package
		Area mm ²	Width mm	Lgth. mm	Sep. mm	Min.	Typ.	Max.	Typ.	Typ.	V _r = 0V Max.	V _r = 100V Max.		
MD25-3*	5 x 5	7.29	2.7	2.7	0.1	0.54	0.57	1.0	0.08	5.6 x 10 ⁻¹³	92	6	6	18
MD100-3*	10 x 10	1.96	1.4	1.4	0.1	0.54	0.57	0.4	0.05	4.4 x 10 ⁻¹³	22	3	6	19

* Supplied with optional guard ring connected.

Note: Recommended operating voltage range 0 to 100 volts, for all Series 3 Detectors.