

Silicon Photodetectors

Series 5T

Blue Sensitive, Biased or Photovoltaic Operation

The Series 5T are a range of low cost detectors offering high blue sensitivity coupled with high shunt resistance and low dark leakage current.

They are particularly suited to low light level applications throughout the spectral range 430 to 900 nm and for applications where the highest signal to noise ratio is important.

The detectors may be operated in the photovoltaic mode or with reverse bias to achieve a lower capacitance. They provide the most economic solution for all applications where high speed of responses above 800 nm is not critical.

ABSOLUTE MAXIMUM RATINGS

	Max. Rating	Unit
DC Reverse Voltage	15	V
Peak Pulse Current (1 μ S, 1% duty cycle)	200	mA
Peak DC Current	10	mA
Storage Temperature Range	-45 to +100	degree C
Operating Temperature Range	-25 to +75	degree C
Soldering Temperature for 5 seconds max.	200	degree C

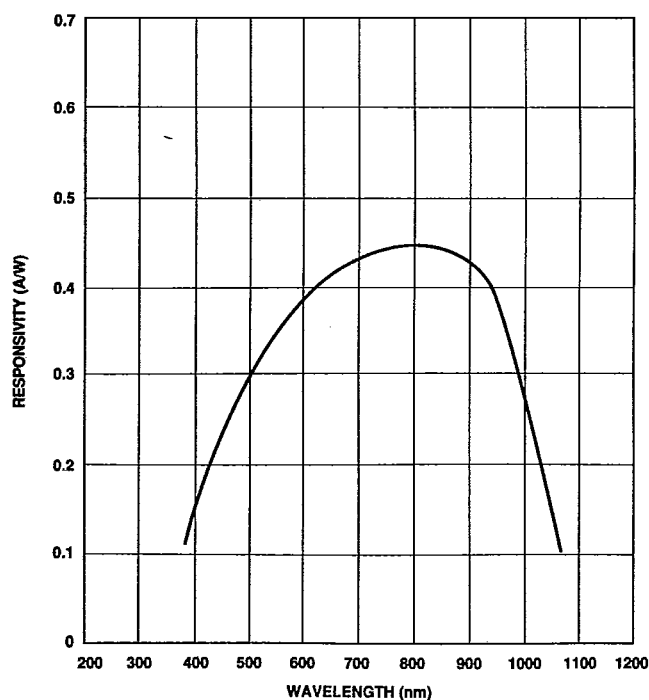


Fig.26 SERIES 5T - TYPICAL SPECTRAL RESPONSE

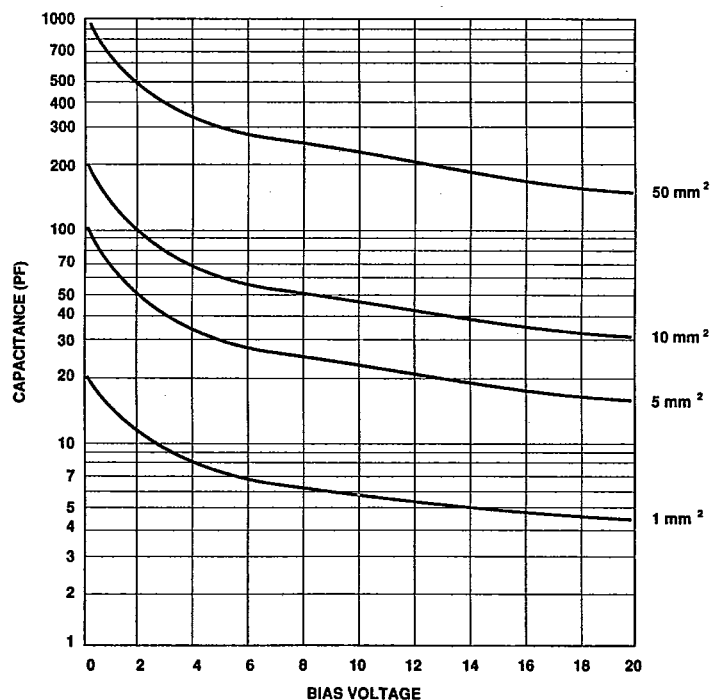


Fig.27 SERIES 5T - TYPICAL CAPACITANCE VERSUS BIAS VOLTAGE FOR A GIVEN DETECTOR AREA

Series 5T

Electrical / Optical Specification

Characteristics measured at 22° C (±2) ambient, and a reverse bias of 12 volts, unless otherwise stated.
Shunt Resistance measured at +/- 10mV.

Single Elements

Type No.	Active Area		Responsivity A/W L = 436 nm		Dark Current nA		NEP $\text{WHz}^{-1/2}$ L = 436 nm	Capacitance pF		Shunt Resistance Megohms		Package
	mm ²	mm	Min.	Typ.	Max.	Typ.		V _r = 0V Max.	V _r = 12V Max.	Min.	Typ.	
OSD1-5T	1	1.13 dia	0.15	0.21	5	0.5	1.2×10^{-13}	30	6	100	1000	1
OSD3-5T	3	2.16 x 1.4	0.15	0.21	20	1	1.7×10^{-13}	80	20	60	700	1
OSD5-5T	5	2.52 dia	0.15	0.21	25	2	2.4×10^{-13}	130	35	40	600	3
OSD15-5T	15	3.8 x 3.8	0.15	0.21	100	3	3.0×10^{-13}	390	80	5	80	3
OSD50-5T	50	7.98 dia	0.15	0.21	150	5	3.8×10^{-13}	1300	270	1.5	25	8
OSD60-5T	62	7.9 x 7.9	0.15	0.21	100	9	5.1×10^{-13}	1800	310	1	12	8
OSD100-5T	100	11.3 dia	0.15	0.21	200	20	7.6×10^{-13}	2500	520	1	15	12
OSD200-5T	200	15.96 dia	0.15	0.21	500	100	1.7×10^{-12}	5000	1000	0.5	7	14
OSD300-5T	300	19.54 dia	0.15	0.21	1000	250	2.7×10^{-12}	7500	1500	0.5	5	14

Quadrants

(Values given are per element unless otherwise stated)

Type No.	Active Area (Total)		Responsivity A/W L = 436 nm		Dark Current nA		NEP $\text{WHz}^{-1/2}$ L = 436 nm	Capacitance pF		Shunt Resistance Megohms		Crosstalk % L = 800 nm		Package
	mm ²	mm	Min.	Typ.	Max.	Typ.		V _r = 0V Max.	V _r = 12V Max.	Min.	Typ.	Max.	Typ.	
QD7-5T	7	2.99 dia	0.15	0.21	100	6	4.2×10^{-13}	50	15	80	1200	5	1	7
QD50-5T	50	7.98 dia	0.15	0.21	150	10	5.3×10^{-13}	330	80	5	300	5	1	9
QD100-5T	100	11.3 dia	0.15	0.21	200	15	5.6×10^{-13}	650	130	2	100	5	1	10

Linear Arrays

(Values given are per element unless otherwise stated)

Type No.	No. of Elements	Array Dimensions				Responsivity A/W L = 436 nm		Dark Current nA		NEP $\text{WHz}^{-1/2}$ L = 436 nm	Capacitance pF		Shunt Resistance Megohms		Package
		Area mm ²	Width mm	Lgth. mm	Sep. mm	Min.	Typ.	Max.	Typ.		V _r = 0V Max.	V _r = 12V Max.	Max.	Typ.	
LD2-5T	2	1.00	2.00	0.5	0.05	0.15	0.21	2	0.7	1.4×10^{-13}	30	6	100	700	4

Matrix Arrays

(Values given are per element unless otherwise stated)

Type No.	No. of Elements	Array Dimensions				Responsivity A/W L = 436 nm		Dark Current nA		NEP $\text{WHz}^{-1/2}$ L = 436 nm	Capacitance pF		Shunt Resistance Megohms		Package
		Area mm ²	Width mm	Lgth. mm	Sep. mm	Min.	Typ.	Max.	Typ.		V _r = 0V Max.	V _r = 12V Max.	Max.	Typ.	
MD25-5T	5 x 5	7.29	2.7	2.7	0.1	0.15	0.21	50	5	3.8×10^{-13}	240	47	5	200	17
MD100-5T	10 x 10	1.96	1.4	1.4	0.1	0.15	0.21	200	1	1.7×10^{-13}	55	12	1	400	18
MD144-5T	12 x 12	1.96	1.4	1.4	0.1	0.15	0.21	200	1	1.7×10^{-13}	55	12	1	400	18

Note: Recommended operating voltage range 0 to 12 volts, for all Series 5T Detectors.