Silicon Photodetectors T-41-45 Series 3T

Extended IR Response, High Speed

Series 3T photodetectors are specifically designed for high speed infra-red laser pulse detection.
The detector structure which is designed to achieve full depletion at 60 volts reverse bias, makes use of ultra high resistivity silicon to achieve a very low capacitance.
The detectors offer an extremely high responsivity in the range 800 to 1000 nm and are also ideally suited to longer wavelength pulsed applications where the speed of response is more important than the maximum absolute responsivity.

ABSOLUTE MAXIMUM RATINGS

	Max. Rating	Unit
DC Reverse Voltage	70	V
Peak Pulse Current (1 µS, 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

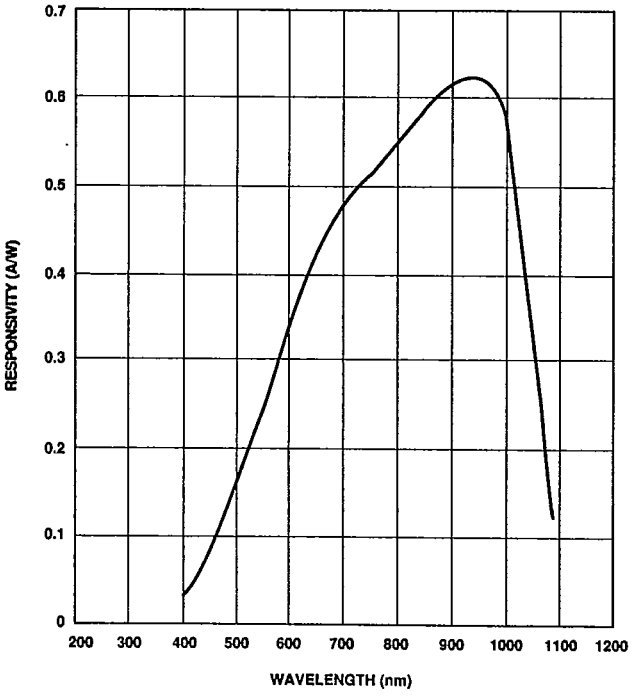

Fig.19 SERIES 3T - TYPICAL SPECTRAL RESPONSE

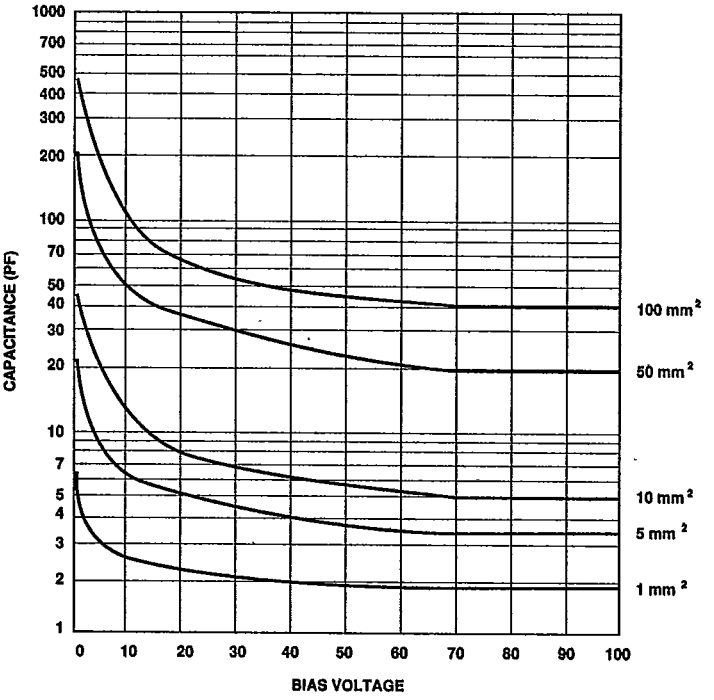

Fig.20 SERIES 3T - TYPICAL CAPACITANCE VERSUS BIAS VOLTAGE FOR A GIVEN DETECTOR AREA

Electrical / Optical Specifications

Characteristics measured at 22° C (±2) ambient, and a reverse bias of 60 volts, unless otherwise stated.

Single Elements

Type No.	Active Area		Responsivity A/W L = 900 nm		Dark Current nA		NEP $WHz^{-1/2}$ L = 900 nm	Capacitance pF		Risetime ns L = 900 nm R_L = 50 Ω	Package
	mm^2	mm	Min.	Typ.	Max.	Typ.	Typ.	Vr = 0V Max.	Vr = 60V Max.	Typ.	
OSD1-3T	1	1.13 dia	0.54	0.61	200	4	1.2×10^{-13}	7	1.5	12	1
OSD5-3T	5	2.52 dia	0.54	0.61	300	7	1.6×10^{-13}	25	4	12	3
OSD15-3T	15	3.8 x 3.8	0.54	0.61	400	10	1.9×10^{-13}	71	9	12	3
OSD50-3T	50	7.98 dia	0.54	0.61	600	100	5.9×10^{-13}	230	25	12	9
OSD60-3T	62	7.9 x 7.9	0.54	0.61	750	200	8.3×10^{-13}	278	30	12	9
OSD100-3T	100	11.3 dia	0.54	0.61	1200	300	1.0×10^{-12}	460	47	13	13

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	Crosstalk % L = 900 nm		Package
	mm^2	mm	Sep. mm	Min.	Typ.	Max.	Typ.	Typ.	Vr = 0V Max.	Vr = 60V Max.	Typ.	Max.	Typ.	
QD50-3T	50	7.98 dia	0.2	0.54	0.58	1.0	0.07	4.9×10^{-13}	57	7	12	5	1	10
QD100-3T	100	11.3 dia	0.2	0.54	0.58	2.0	0.15	7.2×10^{-13}	117	14	12	5	1	12
QD320-3T	320	20.2 dia	0.3	0.47	0.54	5.0	0.5	1.3×10^{-12}	370	38	12	5	1	14

Note: Recommended operating voltage range 0 to 60 volts, for all Series 3T Detectors.