

SGD Series

T-41-53

Features

- Planar Diffused Structure
- Oxide Passivated
- Guard Ring Construction
- Wide Spectral Range
- Wide Dynamic Range
- Low Noise
- Large Area
- Fast Rise Time
- High Responsivity

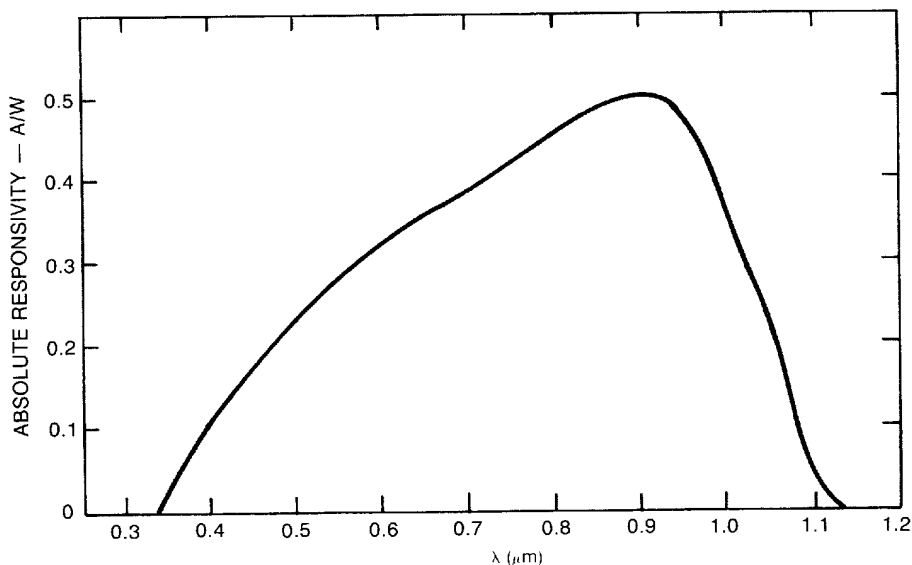
Operating Data and Specifications at 23°C: Typical Performance at 100 V Bias

Characteristic	SGD-040 A,B and L	SGD-100A	SGD-200	SGD-444	Units
Active Area	0.81	5.1	20.0	100	Sq. mm
Spectral Range	400-1150				nm
Responsivity	>0.5	>0.5	>0.5	>0.5	A/W
Bandwidth	26	45	45	45	MHz into 50 ohms
Rise Time	3	5	8	10	nS into 50 ohms
Operating Voltage	0-180	0-180	0-180	0-180	V
Breakdown Voltage ¹	>200	>200	>200	>200	V
Capacitance	1.2	4.0	14	70	pF
Dark Current	<3	<10	<100	<200	nA
Channel Resistance	>25	>3.0	>1.5	>1.0	Megohms
Series Resistance	5000	300	200	50	ohms
Noise Current	4	9	20	30	10^{-14} A/Hz ^{1/2}
NEP (900,10 MHz,1)	8	18	40	60	10^{-14} W/Hz ^{1/2}
Response Linearity	<1%				Over 7 decades
Operating Temperature	-55 to +125				°C
Package Style	TO-18 or TO-5 ²	TO-5	TO-8	TO-36	

Notes

- Breakdown voltage measured at 100 microamps dark current
- SGD-040A TO-5
SGD-040L Lensed TO-5
SGD-040B TO-18

Typical Spectral Response



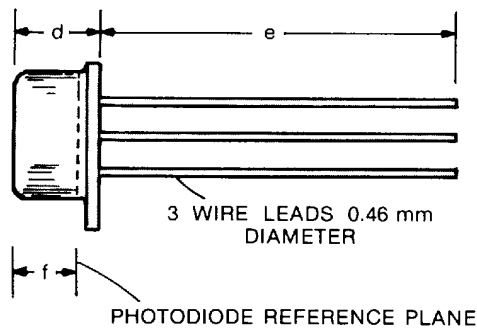
Responsivity/Temperature Coefficient-SGD Series at 90 Volts

Wavelength	Temperature Coefficient
Nanometers	%/°C
400	-0.14
450	-0.06
500	-0.003
550	-0.002
600	-0.001
650	0
700	0
750	+0.003
800	+0.010
850	+0.015
900	+0.03
950	+0.06
1000	+0.30
1060	+1.01

High Speed, General Purpose

Mechanical Data and Pin Configurations

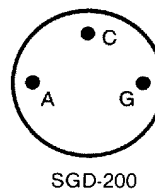
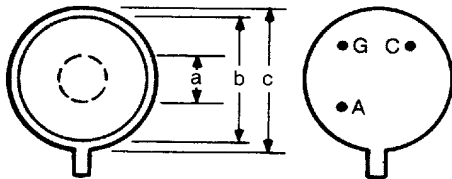
SGD-040, 100, 200 Series



Dimension (mm)	SGD-040A SGD-040L	SGD-040B	SGD-100A	SGD-200
a (Active Dia.)	1.0	1.0	2.5	5.08
b	8.4	4.6	8.4	12.6
c	9.1	6.2	9.1	14.6
d	4.2	5.1	4.2	5.9
e	>19.0	>19.0	>19.0	>19.0
f	2.3	3.7	2.3	3.5
Pin Circle Radius	2.5	1.3	2.5	5.3
Window Thickness	1.3 *	0.9	1.3	1.3
Window Diameter	6.1	3.5	6.1	9.65

Gold plated Kovar leads, base and cap.
Window — Corning 7052 glass.

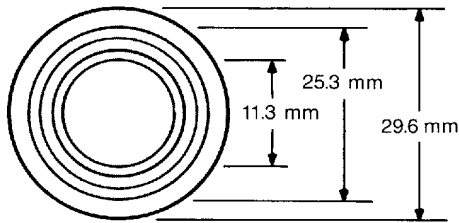
*SGD-040L has lensed cap for ~20X optical gain



NOTE:

SGD-200 Package Does Not
Have a Tab.

SGD-444 Series

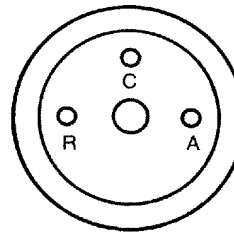
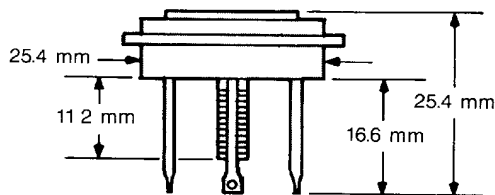


Package:

Goldplated copper base and cap.
Goldplate steel pins.
Pin radius 8.76 mm
No. 10-32 Stud and case electrically
isolated

Window Aperture:

11.6 mm dia., 1.0 mm thick, quartz
Distance, outer window to active
surface: 3.8 mm nominal.



SGD-444 Pin Location

C — Common Anode
A — Active Cathode
R — Guard Ring Cathode

Guaranteed Environmental Performance

Document	Inspection	Method	Test Condition
MIL-STD-750B	Vibration	2056	20 g Amplitude
	Shock	2016	1500 g Half Sinusoidal
	Thermal-Temp Cycling	1056.1 B	0°C to 100°C, 5 Cycles
	Constant Acceleration	2006	5000 g
MIL-STD-202D	Moisture Resistance	106	25-65°C; 90-98% RH



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