4x50G PD Array

PD4045-16M3-250T is a 4x50GBd Germanium photodetector array fabricated on silicon substrate, which is operating at wavelength range from 1260nm to 1360nm. 4 channels with 250um pitch are integrated in one chip with 1130μm×360μm chip size. All G-S-G pads are on top side, the top-illumination make the device easy to assembly.

FEATURES

- 4-channel PD Array with 250μm Pitch
- Top-illuminated Device for Ease of Assembly
- G-S-G Pads on Top Side
- Operating at Wavelength Range from 1260nm to 1360nm
- AR Coating Optimized for Specified Wavelength
- Operating Temperature Range: -40 to 85°C

APPLICATIONS

- 400GBASE-DR4/FR4

KEY SPECIFICATIONS

Table 1. Key Specifications

Parameter	Symbol	Condition (T = 25℃,unless noted otherwise)	Rating			Unit
			Min.	Typ.	Max.	
Active Diameter	D	-	-	16	-	μm
Responsivity	R	V_R = 3.0V, λ=1310nm	0.7	0.8	-	A/W
Dark Current	I_d	V_R = 3.0V, 25℃	-	120	300	nA
		V_R = 3.0V, 85℃	-	-	3000	
Breakdown Voltage	V_{br}	I_d = 100μA	10	–	-	V
Capacitance	C	V_R = 3.0V, f = 1MHz	-	80	100	fF
Linear Response saturation power	-	V_R = 3.0V, λ=1310nm	10	-	-	dBm
3dB Bandwidth	BW	V_R = 3.0V, R_L= 50ohm	26	28	-	GHz

ABSOLUTE MAXIMUM RATINGS

The table below provides maximum and/or minimum limits of critical parameters, limits listed in the table are stress limits only, and do not imply functional operation within these limits. Stresses beyond the limits may cause permanent damage. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

Table 2. Absolute Maximum Rating

Parameter	Symbol	Min	Max	Unit
Forward Bias Current	I_F	-	50	mA
Reverse Bias Voltage	V_R	-	10	V
Optical Input Power	P_{in}	-	10	dBm
Reverse Optical Current	I_R	-	10	mA
Storage Temperature	T_{stg}	-40	100	°C

RECOMMENDED OPERATING CONDITIONS

Table 3. Recommended Operating Conditions

Parameter	Symbol	Value	Unit
Operating Temperature	T_{op}	-40 ~ 85	°C
Operating Voltage	V_{op}	3	V
Wavelength Range	λ	1260 ~ 1340	nm
Baud Rate	B	53	GBaud
Optical Input Power	P_{IN}	-10 ~ 5	dBm

LAYOUT SCHEMATIC

1. Both P (Anode) and N (Cathode) bonding pads on the top side
2. Bonding pad size: 70μm × 70μm
3. Die size: 1130±20μm (width) × 360±20μm (length) × 160±15μm (thickness)
4. Channel pitch: 250μm

Fig.1 Layout Schematic of PD4045-16M3-250T

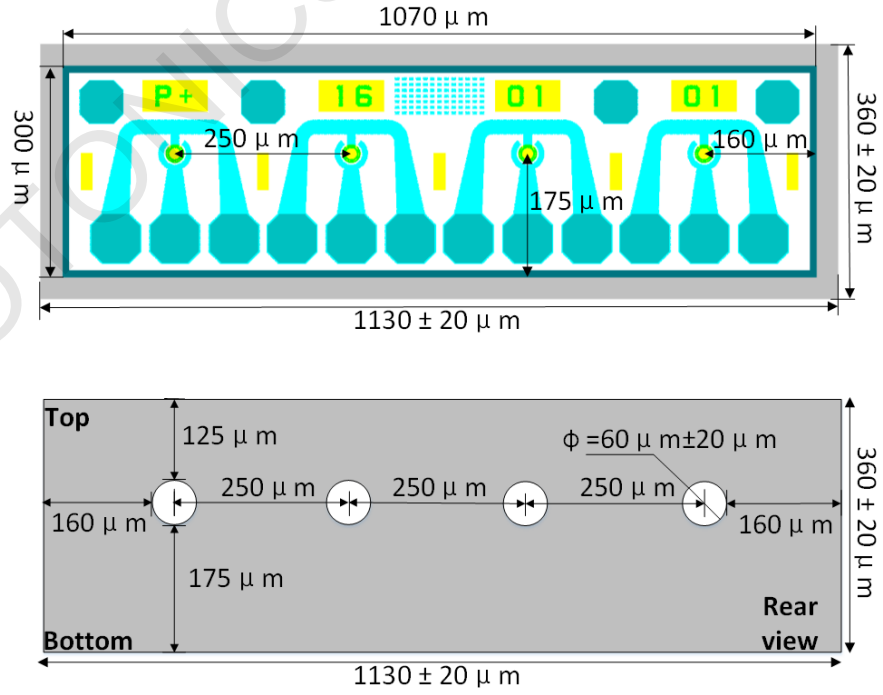
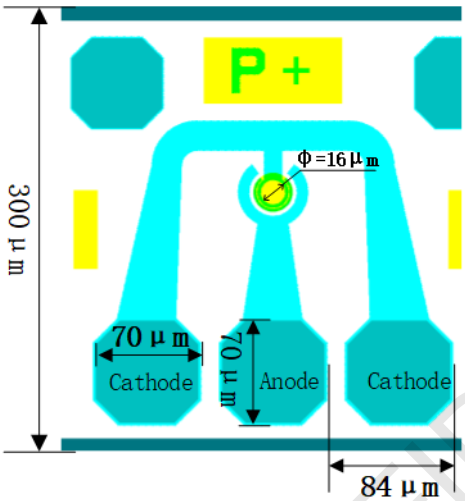


Fig.2 Aperture and Pad Layout Schematic



HANDLING PRECAUTIONS

1. This device is susceptible to damage as a result of electrostatic discharge, need take proper precautions during both handling and testing to avoid ESD damage and/or degradation.
2. Recommend to use a vacuum tip with a flat surface to handle this device, don't use tweezers to avoid any chip edge and/or pad broken.

REVISION HISTORY

Date	Revision	Changes
12/08/2021	1.0	Initial Version

SiFotonics Technologies Co., Ltd.

USA - Boston
400 Trade Center, Suite 4950
Woburn, MA 01801, USA
Tel: +1 (781) 935-8820

China - Beijing
4-1, 4/F, Eastern 20th Bldg, Yongyou Industrial Park, No.9, Yongfeng Rd.,Haidian District, Beijing, 100094, China
Tel: +86 (10) 6267-2130

China - Shanghai
Suite 405, Unit 15, Lotus Building
159 Tianzhou Road
Shanghai, 200233 CHINA
Tel: +86 (21) 5445-3399

China - Hong Kong
SIFOTONICS TECHNOLOGIES (ASIA) LTD.
Unit 17-18, 28/F, One Midtown,
No.11 Hoi Shing Road, Tsuen Wan,
New Territories, Hong Kong.
Tel: +852 2389-7983

China – Nanjing
7F, Block A, Powerise Building, No. 17
Xinghuo Rd, Nanjing High-Tech Zone Jiangsu Province, China, 211800
Tel: +86-25-58867692

www.sifotonics.com