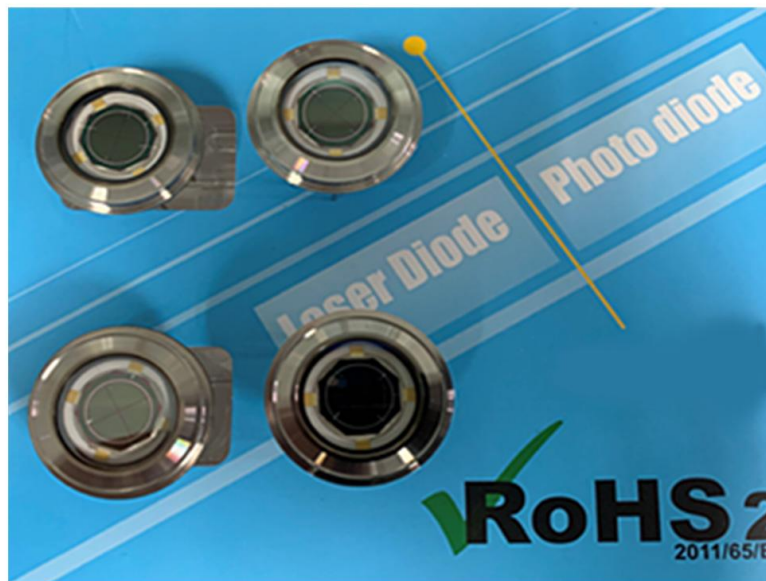


400-1100nm Four-quadrant Si photodetector (N-type silicon quadrant detector, photosensitive surface diameter 10mm, DC responsivity 0.3A/W)



● Product Description

The device is an N-type silicon quadrant detector. When the radiation flux of light radiating to each quadrant of the device is equal, the photocurrent output of each quadrant is equal. When the target is offset, the change of radiation flux between quadrants causes the change of output photocurrent



of each quadrant, thereby measuring the direction of the object, thus playing the role of tracking and guiding.

● Product features

Low dark current、 High uniformity and symmetry、 High reliability、 Small blind spot

● Part Number

MP-QPD-B-S-4G10

● Application area

Laser aiming, guidance, tracking and exploration device 、 Precision measurement system such as laser micro-positioning and displacement monitoring

● Core parameters

Wavelength Range	Active area	Responsivity (DC) (quadrant)
400-1100nm	10mm	0.3A/W



● General Parameters

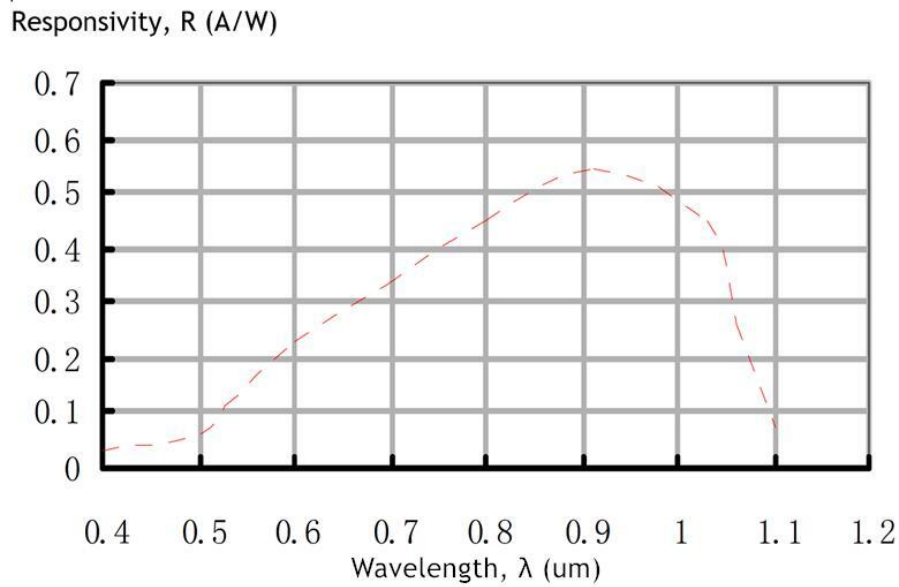
Parameter

Parameter	Sym bol	Test condition		Value			Unit
		(Unless otherwise specified, $T_A = 22^\circ\text{C} \pm 3^\circ\text{C}$)		Min.	Typic al	Max.	
Responsivity (AC) (quadrant)	S_{pi}	$\lambda=1.064$ μm	Pulse width 20 ns、 $P_{in}=2$ mW	0.25	-	-	A/W
Responsivity (DC) (quadrant)	R_{ei}		DC、 $P_{in}=1\mu$ w	0.3	-	-	
Responsivity (AC) (quadrant)a	ΔR_{ei}	$V_R=135$ V	$T_A=-45^\circ\text{C}$ $\pm 2^\circ\text{C}$	-	-	50	%
Responsivity (DC) (quadrant)a							
Dark current (quadrant)	I_{Di}	$V_R=135\text{V}$	$T_A=22^\circ\text{C} \pm$ 3°C	-	-	1	μA
			$T_A=70^\circ\text{C} \pm$ 3°C	-	-	10	
Dark current (ring)	I_D	$P_{in}=0\mu\text{w}$	$T_A=22^\circ\text{C} \pm$	-	-	10	



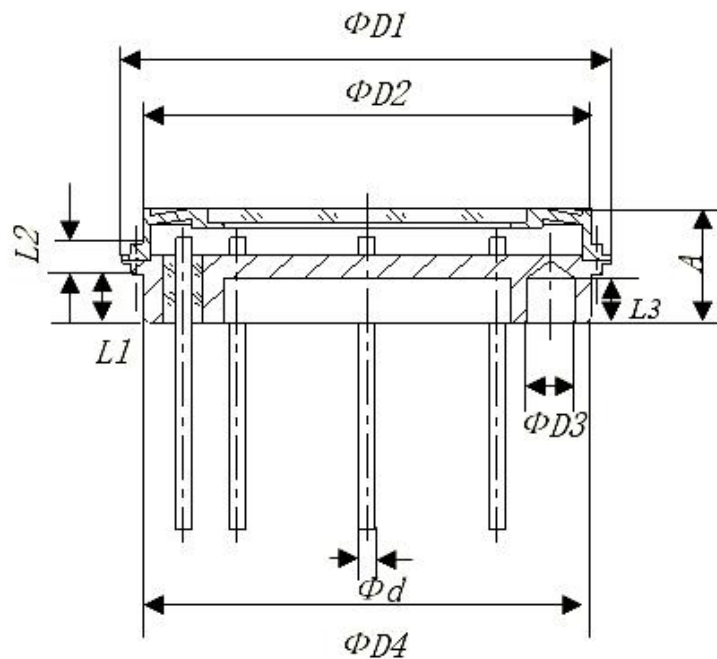
			3°C				
			T _A =70°C±	-	-	100	
			3°C				
Junction capacitance (quadrant)	C _{ji}	V _R =135V, f=1MHz	-	-	15	pF	
Active area	φ		10	-	16	mm	
Equivalent noise power	NEP _i	λ=1.064 μm, V _R =135 V, pulse width 20 ns	-	-	5 × 10 ⁻¹²	W/H Z ^{1/2}	
Breakdown voltage (quadrant, ring)	V _{BR}	I _R =10μA	200	-	-	V	
Inter-pixel sensitivity non-uniformity	R _f	λ=1.064 μm, V _R =135 V, pulse width 20 ns; P _{in} =2mW	-	-	5	%	
Intra-pixel sensitivity non-uniformity	R _{fn}	λ=1.064 μm, V _R =135 V, pulse width 20 ns; P _{in} =2mW	-	-	5	%	
Inter-pixel crosstalk factor	S _{Li}	λ=1.064 μm, V _R =135 V, pulse width 20 ns; P _{in} =2mW	-	-	5	%	
element gap	-	-	-	0.2	-	mm	

Spectrum responsivity curve



Appearance and structure

TO type airtight package. The appearance and structure are shown in Figure 1, and the dimensions are shown in Table 1.



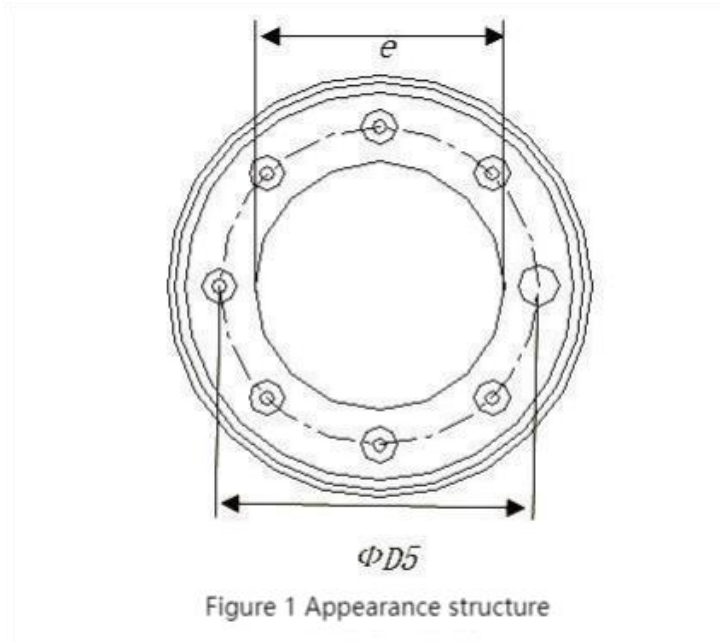


Table 1 appearance dimension (unit mm)

Dimension symbol	ΦD_1	ΦD_2	ΦD_3	ΦD_4	ΦD_5	Φd	A	L1	L2	L3	e
Min.	30.55	27.80	3.00	27.915	22.60	0.98	7.03	3.02	1.85	2.70	18.00
Max.	30.65	28.00	3.06	27.94	23.40	1.02	7.20	3.10	1.95	3.00	18.05

Pin arrangement

The pin arrangement of the device is shown in Figure 2. The pin functions should comply with the requirements of Table 2.

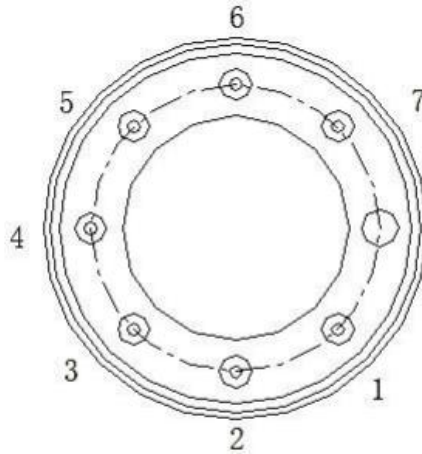


Figure 2 Pin arrangement (pin up)

Table 2 Pin Function Table

Pin	Function	Voltage polarity
1	Quadrant 1	Positive
2	Public P level	Negative
3	Quadrant 4	Positive
4	Ring level	Positive
5	Quadrant 3	Positive
6	Case	Ground
7	Quadrant 2	Positive