

Four Quadrant Photodiode PR5460



Four photodiodes with current output

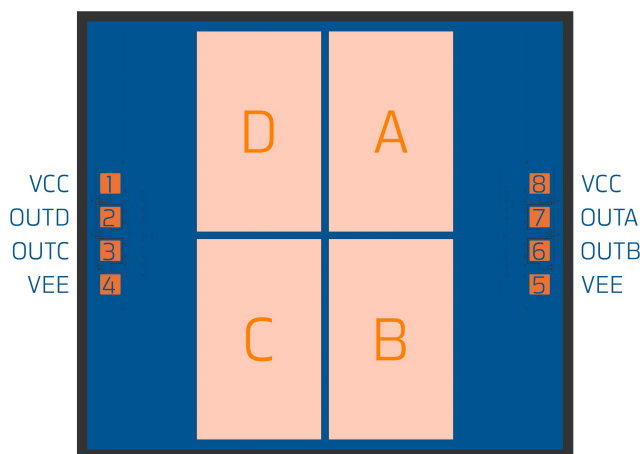
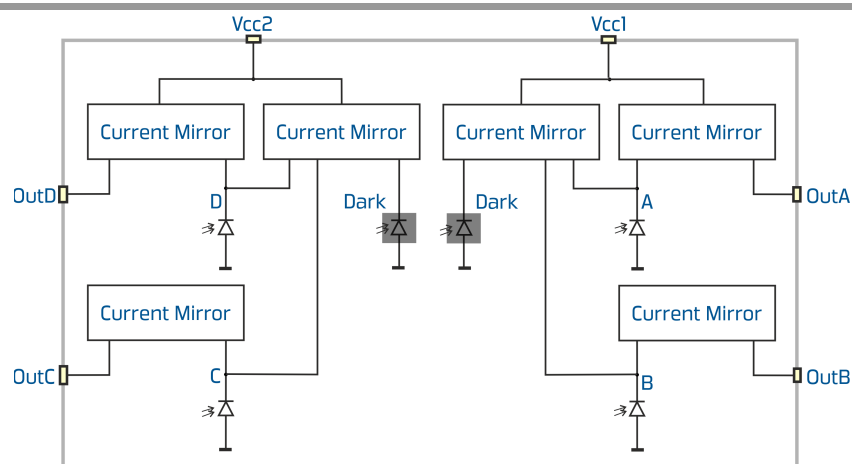
PR5460 consists of four photodiodes placed in opposite quadrants. The circuit transfers the input current to an amplified output current. The output current can be converted into a voltage by appropriate load resistances (12.5k).

For use a wide temperature range, Integrated dark current compensation diodes allow the output current to be unaffected by the leakage currents of the illuminated diodes.

APPLICATIONS

- Light beam alignment
- Ray tracking

BLOCK DIAGRAM

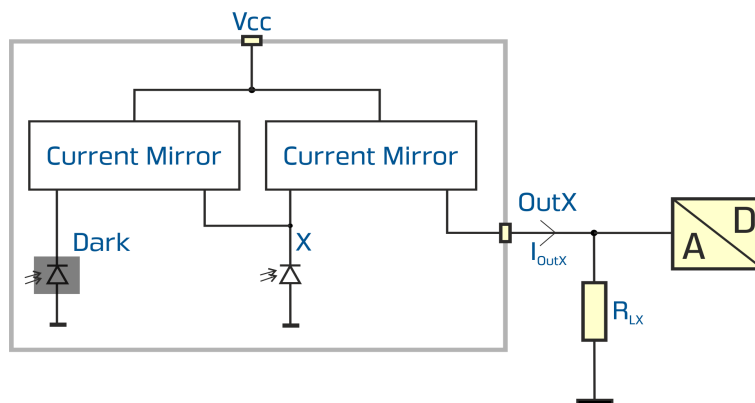


Light orange: photodiodes (each 750umx1200um)

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Application Circuit



The outputs is usually connected to a load resistance and an analog-digital converter.

Electrical Characteristics

ABSOLUTE MAXIMUM RATINGS

Parameter	Min	Typ	Max	Units
V_{CC} (supply voltage)	-0.3		8	V
V_{PIN} (voltage @ other pins)	-0.3		$V_{CC}+0.3$	V
Operating Temperature	-40		125	°C
Storage Temperature Range	-55		125	°C
T_J (Junction Temperature)	-40		125	°C
Electrostatic Discharge (ESD) Protection @ all pins	4			kV

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OPERATING CHARACTERISTICS

$V_{CC} = 5.0\text{ V}$, $12.5\text{ k}\Omega$, $T_J = -40\dots125^\circ\text{C}$ (unless otherwise noted)

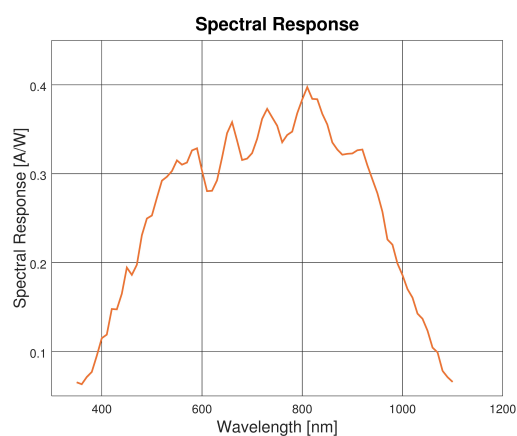
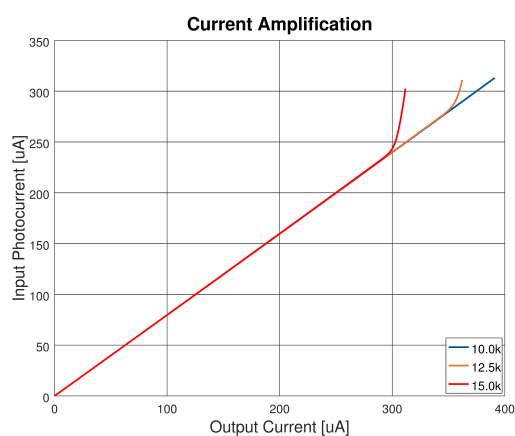
Symbol	Parameter	Conditions	Min	Typ	Max	Units
V_{CC}	Supply voltage		3.0	5.0	8.0	V
I_{CC}	Supply current (no load)		0.9		1.2	mA
F_{work}	Band width			43		kHz
CFR	Current transfer ratio		1.24	1.25	1.27	

Output characteristics

$I_{Load}(Lo)$	Output current (Out vs. GND)				0.3	mA
V_{out}	Output voltage		0.0		$V_{CC} - 1.5$	V

Photosensors

λ_{ar}	Spectral application range	$Se(\lambda_{ar})=0.25*\lambda_{peak}$	500		950	nm
λ_{peak}	Peak sensitivity			810		nm



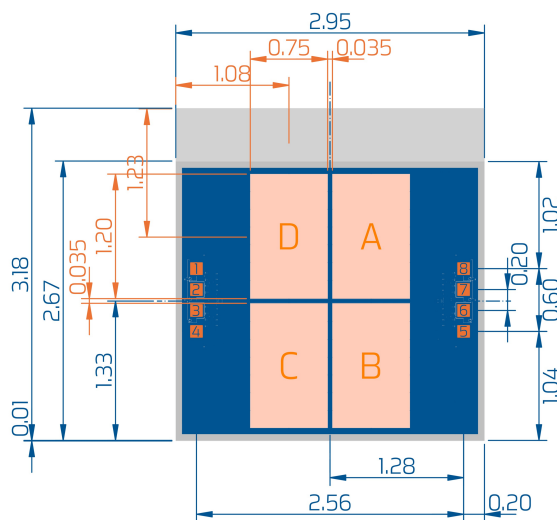
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Photodiodes – Dimensions

General dimensions:

- Die size: 2,950 μm x 3,180 μm (measured between centres of scribe lane)
- The upper 510 μm as well as the lower 5 μm are not useful and only available with this design. These areas will not exist in a series product.
- Photodiodes active area: approx. 1200 μm x 750 μm x 4
- Pad window: 120 μm x 120 μm



PIN DESCRIPTION

Pin No	Pin Name	Pin Function Description
1	Vcc2	positive supply voltage
2	OUTD	D channel output
3	OUTC	C channel output
4	Vee	negativ supply voltage
5	Vee	negativ supply voltage
6	OUTB	B channel output
7	OUTA	A channel output
8	Vcc1	positive supply voltage

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