

# Photo-IC PCC4330

## General Purpose Photo-IC



PCC4330 is an integrated photo-IC which has been moulded into a small clear plastic package. PCC4330 incorporates a high sensitive photodiode, TIA, controllable gain amplifier (CGA) and a comparator into a single chip which can discriminate the input light pulse from external disturbance light before the output.

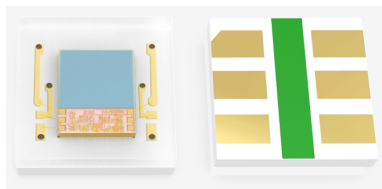
By using CGA, it allows the design of short to long range photoelectric sensors from a few millimeters up to tens of meters. The device can be applied in various applications, like light barriers and through beam and diffuse type FA sensors.

### FEATURES

- Center frequency: 200 kHz
- Short burst response
- Large PD size and gain adjustable amplifier
- Ambient light suppression
- Light reserve output
- Both digital and analog outputs
- Small surface mounting type

### TYPICAL APPLICATIONS

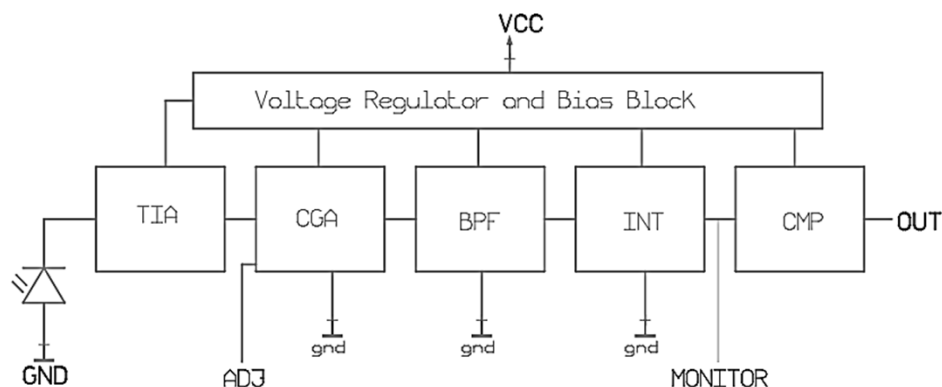
- Photoelectric sensors  
(Through Beam and Diffuse Type)
- Light curtains and light barriers
- Remote data communication



### KEY CHARACTERISTICS

Parameter	Value	Unit
Photodiode size	1,2 x 1,2	mm
Peak wavelength	850	nm
Center frequency	200	kHz

### BLOCK DIAGRAM



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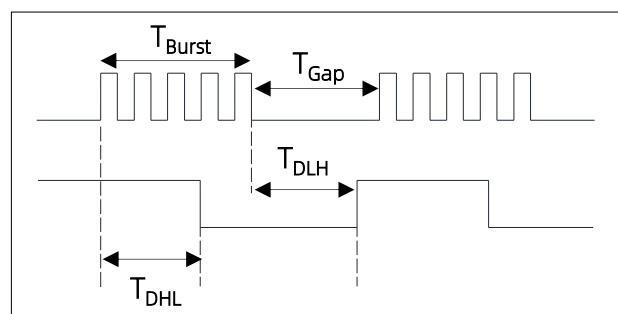
### ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

Parameter	Symbol	Min	Max	Unit
Soldering temperature	$T_{sol}$		260	°C
Storage Temperature	$T_{stg}$	-30	90	°C
Operating Temperature	$T_{opr}$	-20	80	°C

### ELECTRO-OPTICAL CHARACTERISTICS (Ta=25°C)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$V_{cc}$	Supply voltage		3.0	-	5.5	V
$I_{cc}$	Supply current		-	-	500	μA
$f_c$	B.P.F center frequency		-	200	-	kHz
$f_{bw}$	B.P.F. bandwith	-3dB	-	80	-	kHz
$G_{var}$	CGA dynamic range		-	85	-	dB
$G_{max}$	CGA max Gain		-	38	-	dB
$V_{adj}$	Gain control voltage adjustable range		0.5	-	1.6	V
$I_{th}$	Threshold of $I_{pd}$	CGA max Gain	-	5	-	nA
$A_{pd}$	Photodiode area		1,2 mm x 1,2 mm			
$T_{DHL}$	Propagation delay time "High" to "Low"		-	-	40	μs
$T_{DLH}$	Propagation delay time "Low" to "High"		-	-	20	μs
$T_{burst}$	Pulse burst width		25	-	-	μs
$T_{gap}$	Pulse gap width		20	-	-	μs
$\lambda$	Spectral response sensitivity		400		1100	nm
$\lambda_{peak}$	Peak sensitivity wavelength			850		nm
-	Ambient disturbing light		-	5,000	-	lx
$\Delta\theta$	Half angle			60		deg

### Measuring diagram

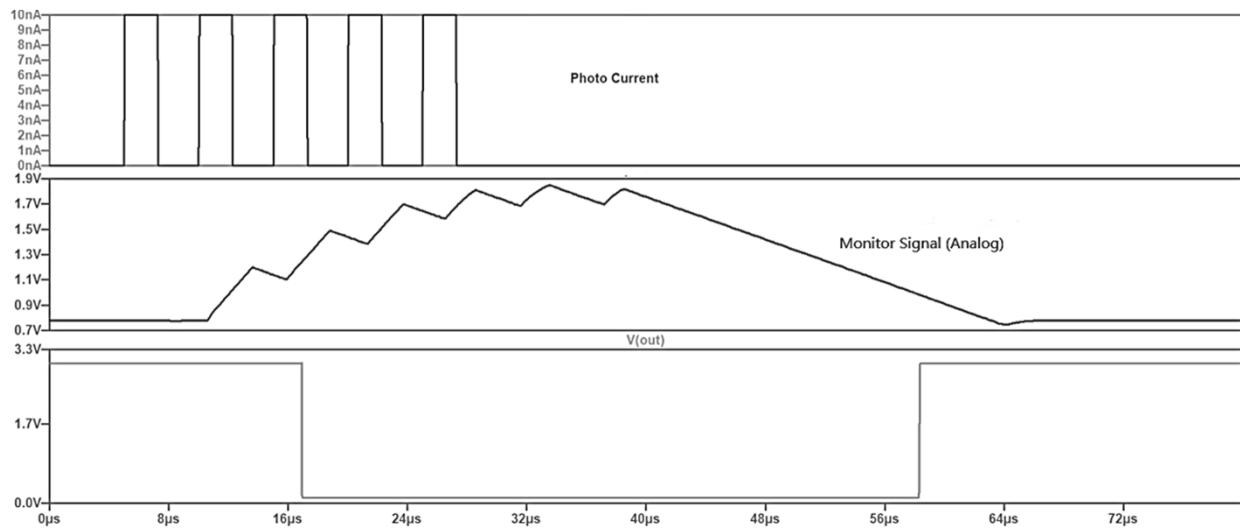


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### Signal response example diagrams



### SPECTRAL SENSITIVITY

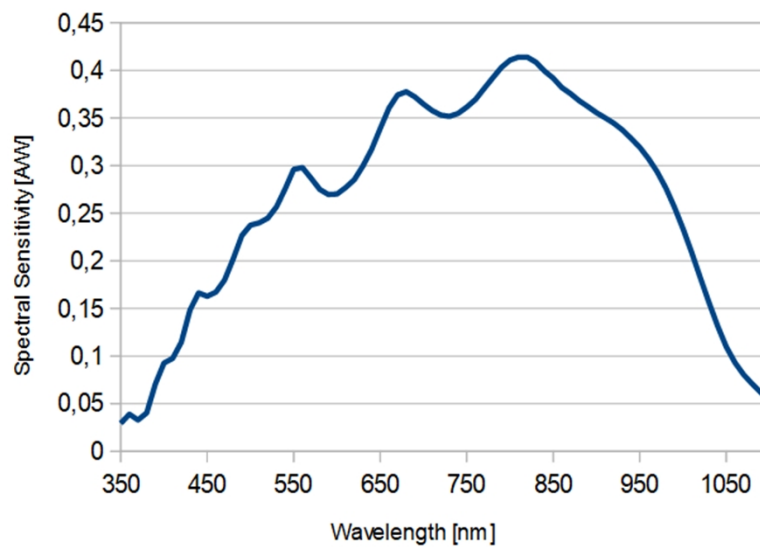
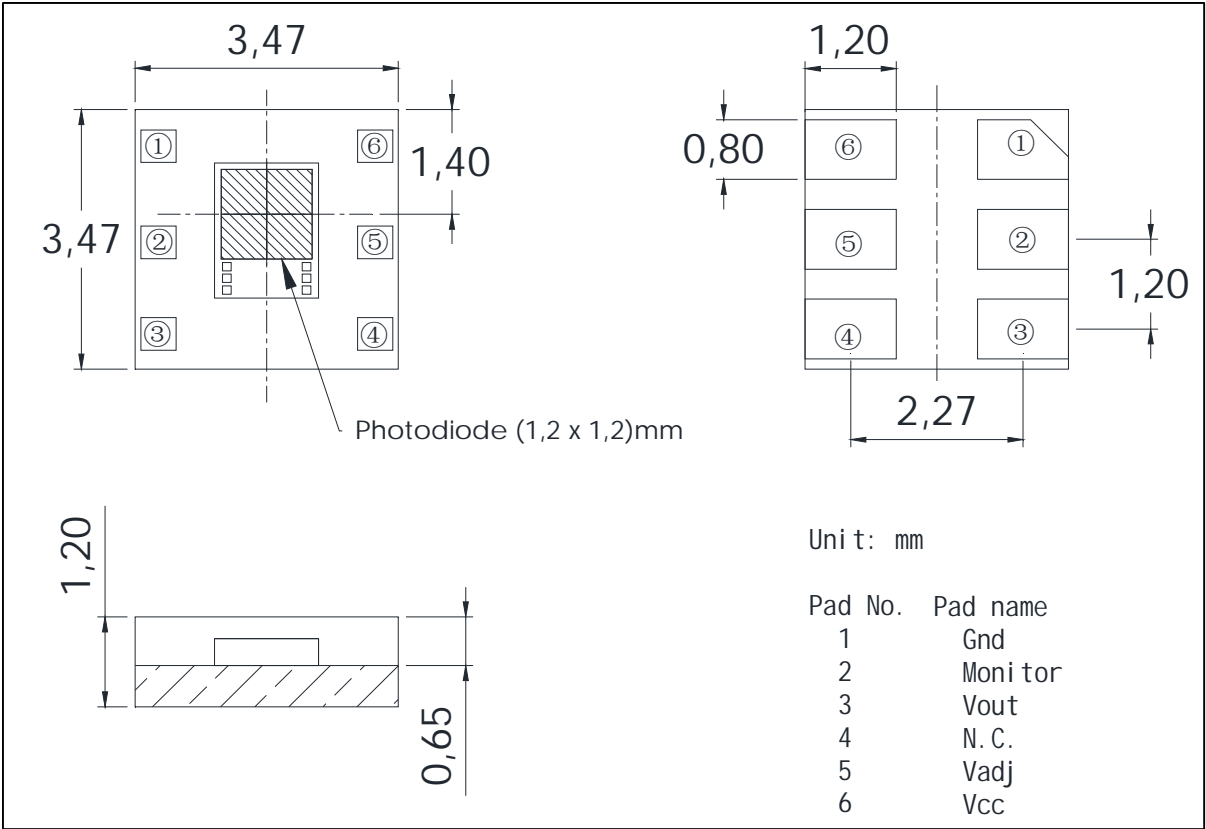


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DIMENSION



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2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

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