

## **Excellent Integrated System Limited**

Stocking Distributor

Click to view price, real time Inventory, Delivery & Lifecycle Information:

[Panasonic Electronic Components](#)  
[CNB13020R](#)

For any questions, you can email us directly:

[sales@integrated-circuit.com](mailto:sales@integrated-circuit.com)

## Reflective Photosensors (Photo Reflectors)



# CNB1302

## Reflective Photosensor

### Overview

CNB1302 is a small, thin reflective photosensor consisting of a high efficiency GaAs infrared light emitting diode which is integrated with a high sensitivity Si phototransistor in a single resin package.

### Features

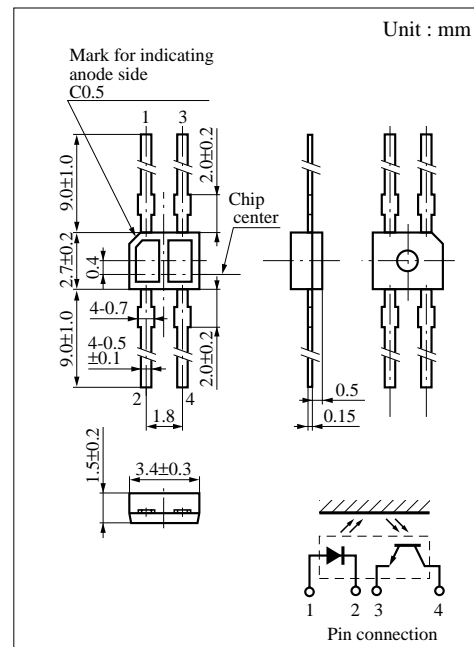
- Ultraminiature, thin type : 2.7 × 3.4 mm (height : 1.5 mm)
- Visible light cutoff resin is used
- Fast response :  $t_r, t_f = 20\mu s$  (typ.)
- Easy interface for control circuit

### Applications

- Control of motor and other rotary units
- Detection of position and edge
- Detection of paper, film and cloth
- Start, end mark detection of magnetic tape

### Absolute Maximum Ratings ( $T_a = 25^\circ C$ )

Parameter		Symbol	Ratings	Unit
Input (Light emitting diode)	Reverse voltage (DC)	$V_R$	3	V
	Forward current (DC)	$I_F$	50	mA
	Power dissipation	$P_D^{*1}$	75	mW
Output (Photo transistor)	Collector current	$I_C$	20	mA
	Collector to emitter voltage	$V_{CEO}$	30	V
	Emitter to collector voltage	$V_{ECO}$	5	V
Temperature	Collector power dissipation	$P_C^{*2}$	50	mW
	Operating ambient temperature	$T_{opr}$	-25 to +85	$^\circ C$
	Storage temperature	$T_{stg}$	-30 to +100	$^\circ C$



\*1 Input power derating ratio is 1.0 mW/ $^\circ C$  at  $T_a \geq 25^\circ C$ .

\*2 Output power derating ratio is 0.67 mW/ $^\circ C$  at  $T_a \geq 25^\circ C$ .

### Electrical Characteristics ( $T_a = 25^\circ C$ )

Parameter		Symbol	Conditions	min	typ	max	Unit
Input characteristics	Forward voltage (DC)	$V_F$	$I_F = 50mA$		1.3	1.5	V
	Reverse current (DC)	$I_R$	$V_R = 3V$		0.01	10	$\mu A$
	Capacitance between terminals	$C_t$	$V_R = 0V, f = 1MHz$		30		pF
Output characteristics	Collector cutoff current	$I_{CEO}$	$V_{CE} = 10V$			200	nA
Transfer characteristics	Collector current	$I_C^{*1, *2}$	$V_{CC} = 5V, I_F = 10mA, R_L = 100\Omega, d = 1mm$	90		880	$\mu A$
	Leakage current	$I_D$	$V_{CC} = 5V, I_F = 10mA, R_L = 100\Omega$			200	nA
	Response time	$t_r^{*3}, t_f^{*4}$	$V_{CC} = 5V, I_C = 0.1mA, R_L = 100\Omega$		20		$\mu s$
	Collector to emitter saturation voltage	$V_{CE(sat)}$	$I_F = 20mA, I_C = 0.1mA$			0.4	V

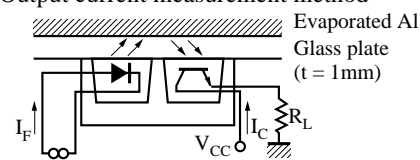
\*1  $I_C$  classifications

Class	Q	R	S
$I_C (\mu A)$	90 to 220	180 to 440	360 to 880

\*3 Time required for the output current to increase from 10% to 90% of its final value

\*4 Time required for the output current to decrease from 90% to 10% of its initial value

\*2 Output current measurement method



CNB1302

Reflective Photosensors (Photo Reflectors)

