

# CND0102A

## Optical Transceiver Module for IrDA

### Overview

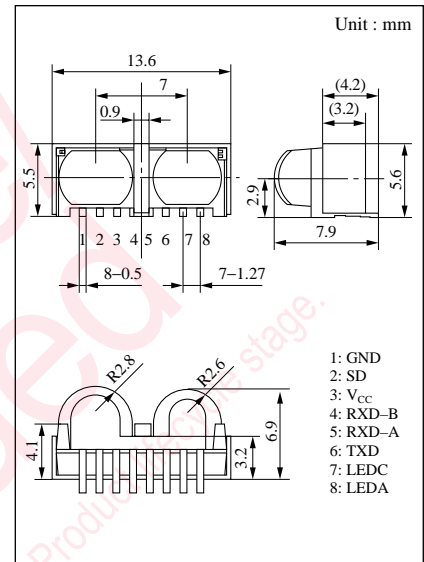
CND0102A is a high speed response, high reliability infrared data link device. It consists of a high speed GaAlAs infrared light emitting diode, a high speed PIN photodiode and a post processing IC, and they are housed in a single package.

### Features

- Conformable to IrDA 1.1 (max. 4 Mbps)
- Small size package
- Compatible with reflow soldering process
- High electromagnetic noise immunity
- Includes shutdown function

### Applications

- Notebook computers
- Peripheral devices for personal computers
- Digital still cameras



### Absolute Maximum Ratings (T<sub>a</sub> = 25°C)

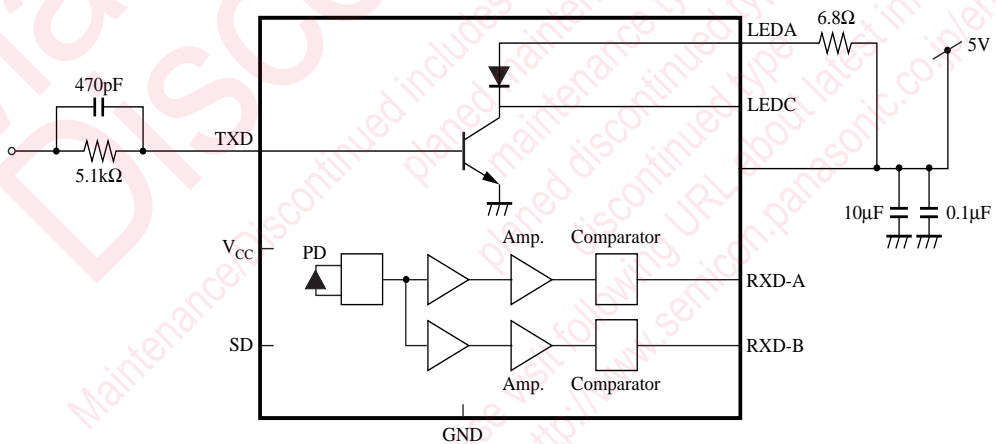
	Parameter	Symbol	Ratings	Unit
Transmitter TX	LED Peak forward current	I <sub>FP</sub> *1	500	mA
	Data input voltage	V <sub>I</sub>	-0.5 to V <sub>CC</sub> +0.5	V
Receiver RX	Supply voltage	V <sub>CC</sub>	- 0.5 to +7	V
	Output sinking current	I <sub>OL</sub>	10	mA
	Data output voltage	V <sub>O</sub>	-0.5 to V <sub>CC</sub> +0.5	V
Temperature	Operating ambient temperature	T <sub>opr</sub>	0 to +70	°C
	Storage temperature	T <sub>stg</sub>	-20 to +85	°C

\*1 Duty ratio ≤ 20%, pulse width ≤ 90 μs

■ Electro-Optical Characteristics (Ta = 25°C, VCC = 5V)

Parameter		Symbol	Conditions	min	typ	max	Unit	
Operating supply voltage		V <sub>CC</sub>		4.5	5.0	5.5	V	
Supply current (Receiver)		I <sub>CC</sub>	V <sub>CC</sub> = 5V, V <sub>I</sub> = 0.3V, V <sub>SD</sub> ≤ 0.5V (light shut off)		10.0	15.0	mA	
Supply current (shut down)		I <sub>CCSD</sub>	V <sub>CC</sub> = 5V, V <sub>CC</sub> ≥ V <sub>SD</sub> ≥ V <sub>CC</sub> - 0.3V V <sub>I</sub> = 0.3V (light shut off)		0.07	0.1	mA	
Data rates			RXD - A ≤ 115.2kbps, RXD - B > 115.2kbps	9.6k		4M	bps	
Peak emission wavelength		λ <sub>p</sub>		850	870	900	nm	
TX	LED Peak current	I <sub>FP</sub>	V <sub>CC</sub> = 5V, V <sub>SD</sub> ≤ 0.5V		400	450	mA	
	Radiant intensity	“H” Level	I <sub>eH</sub>	V <sub>CC</sub> = 5V, V <sub>I</sub> = 2.5V, V <sub>SD</sub> ≤ 0.5V	100		300	mW/sr
		“L” Level	I <sub>eL</sub>	V <sub>CC</sub> = 5V, V <sub>I</sub> ≤ 0.5V, V <sub>SD</sub> ≤ 0.5V			0.3	μW/sr
	High level input voltage	V <sub>IH</sub>	V <sub>CC</sub> = 5V, V <sub>SD</sub> ≤ 0.5V	2.5		V <sub>CC</sub>	V	
	Low level input voltage	V <sub>IL</sub>	V <sub>CC</sub> = 5V, V <sub>SD</sub> ≤ 0.5V	0		0.5	V	
	Half angle	α		15		30	deg.	
	Rise time, fall time	t <sub>r</sub> , t <sub>f</sub>	V <sub>CC</sub> = 5V, Pulse width t <sub>w</sub> = 1.6μs			40	ns	
RX	Maximum transfer distance	L <sub>max</sub>	V <sub>CC</sub> = 5V, R <sub>LED</sub> = 6.8Ω	1			m	
	High level output voltage	V <sub>OH</sub>	I <sub>OH</sub> ≤ 20μA, V <sub>SD</sub> ≤ 0.5V (light shut off)	2.4			V	
	Low level output voltage	V <sub>OL</sub>	I <sub>OL</sub> ≤ 1mA, V <sub>SD</sub> ≤ 0.5V			0.5	V	

■ Block Diagram



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