

# KOI-6001C

## Features

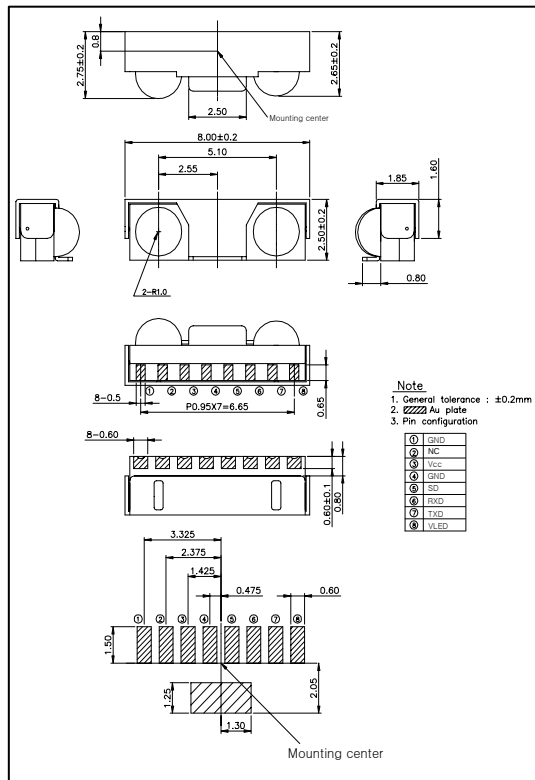
- Compliant to IrDA 1.4 Low Power Standard
- Wide Voltage Operation : 2.7 ~ 5.5V
- Compact Package Integrated Transmitter and Receiver (8.0L x 2.75W x 2.5T)
- Complete Power Down Mode for the Current Consumption.
- Shielded Package for Preventing EMI
- LED Stuck-high Protection
- Lead-free & High reliability package

## Applications

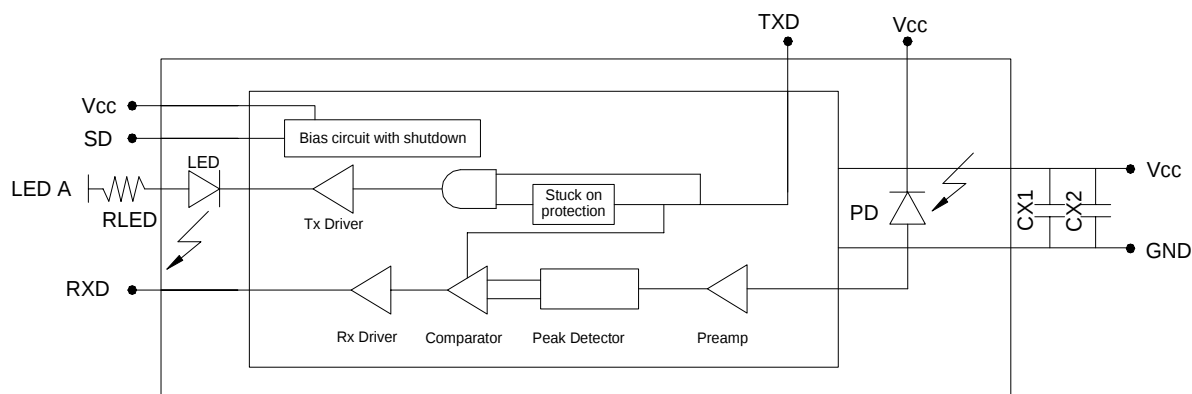
- Cellular Phone
- Personal Computer(Desk-top PC, Lap-top PC)
- Printers, Vending Machine, ATM
- Personal Digital Assistants.(PDA)

## Dimensions

(Unit : mm)



## Block Diagram



RLED  $6.8\Omega \pm 5\%$ , 0.25 Watt, LED A = 2.7V  
 RLED  $10\Omega \pm 5\%$ , 0.25 Watt, LED A = 3.0V  
 RLED  $12\Omega \pm 5\%$ , 0.25 Watt, LED A = 3.6V  
 RLED  $16\Omega \pm 5\%$ , 0.25 Watt, LED A = 4.2V  
 CX1  $0.47\mu\text{F} \pm 20\%$ , Ceramic : CX2  $4.7\mu\text{F} \pm 20\%$ , Tantalum  
 CX1, CX2 must be placed 7mm of the KOI-6001C

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### Absolute Maximum Ratings

[Ta = 25°C]

| Parameter                      | Symbol                | Conditions                            | Min. | Max.                 | Unit   |
|--------------------------------|-----------------------|---------------------------------------|------|----------------------|--------|
| Supply Voltage                 | V <sub>CC</sub>       | -                                     | 0    | 6.5                  | V      |
| LED Supply Voltage             | V <sub>LED</sub>      | -                                     | 0    | 6.0                  | V      |
| Operating Temperature          | T <sub>opr.</sub>     | -                                     | -20  | 85                   | °C     |
| Storage Temperature            | T <sub>stg.</sub>     | -                                     | -40  | 100                  | °C     |
| DC LED Transmit Current        | I <sub>LED</sub> (DC) | -                                     | -    | 50                   | mA     |
| Peak LED Transmit Current      | I <sub>LED</sub> (PK) | <90μs pulse width,<br><20% duty cycle | -    | 200                  | mA     |
| Receiver Data Output Voltage   | V <sub>RxD</sub>      | -                                     | -0.5 | V <sub>CC</sub> +0.5 | V      |
| Transmitter Data Input Voltage | V <sub>TxD</sub>      | -                                     | -0.5 | V <sub>CC</sub> +0.5 | V      |
| Data Rate                      | BR                    | -                                     | 9.6  | 115.2                | kbit/s |

### 4. Electro-Optical Characteristics

[Ta=25°C, V<sub>CC</sub>=3.3V]

| Parameter      |                             | Symbol             | Conditions                     | Min.                | Typ. | Max.                | Unit |
|----------------|-----------------------------|--------------------|--------------------------------|---------------------|------|---------------------|------|
| Supply Current |                             | I <sub>cc1</sub>   | Shutdown                       | -                   | -    | 1                   | μA   |
|                |                             | I <sub>cc2</sub>   | Idle                           | -                   | 110  | 200                 | μA   |
| Transmitter    | Transmitter Wakeup Time     | T <sub>tw</sub>    |                                | -                   | 30   | 200                 | μs   |
|                | Viewing Angle               | 2Θ <sub>1/2</sub>  | -                              | 30                  | -    | 60                  | deg. |
|                | Data Output Pulse Width     | T <sub>stp</sub> w | tpw(RxD)=1.63μs at 115.2kbit/s | 1.5                 | 1.7  | 1.9                 | μs   |
|                | Rise Time                   | t <sub>r</sub>     | BR=115.2kbit/s                 | -                   | 80   | 600                 | ns   |
|                | Fall Time                   | t <sub>f</sub>     |                                | -                   | 80   | 600                 | ns   |
|                | Peak Emission Wavelength    | λ <sub>p</sub>     | -                              | -                   | 875  | -                   | nm   |
|                | Spectral Bandwidth          | Δλ                 | -                              | -                   | 45   | -                   | nm   |
| Receiver       | Viewing Angle               | 2Θ <sub>1/2</sub>  | -                              | 30                  | -    | -                   | deg. |
|                | Peak Sensitivity Wavelength | λ <sub>p</sub>     | -                              | -                   | 875  | -                   | nm   |
|                | High Level Output Voltage   | V <sub>OH</sub>    | I <sub>OH</sub> =-200 μA       | 2/3 V <sub>CC</sub> | -    | -                   | V    |
|                | Low Level Output Voltage    | V <sub>OL</sub>    | I <sub>OL</sub> =200 μA        | -                   | -    | 1/3 V <sub>CC</sub> | V    |
|                | Rx SIR Pulse Width          | T <sub>srp</sub> w | tpw(RxD)=1.63μs at 115.2kbit/s | 1.5                 | 2.3  | 4.0                 | μs   |
|                | Rise Time                   | t <sub>r</sub>     | BR=115.2kbit/s                 | -                   | 85   | 600                 | ns   |
|                | Fall Time                   | t <sub>f</sub>     |                                | -                   | 85   | 600                 | ns   |
|                | Communication Distance      | D                  |                                | 20                  | 80   | -                   | cm   |
|                | Receiver Latency Time       | TL                 |                                | -                   | 100  | 150                 | μs   |
|                | Receiver Wakeup Time        | T <sub>rw</sub>    |                                | -                   | 150  | 200                 | μs   |