

# IS1U21 Optical Data Communication Sensor

**APPLICATIONS:**  
 OA equipment  
 Audio visual equipment  
 Home appliances  
 Telecommunication  
 equipment (terminal)  
 Measuring equipment  
 Tooling machines  
 Computers

## ABSOLUTE MAXIMUM RATINGS

| PARAMETER             | SYMBOL    | RATINGS     | UNIT | NOTE |
|-----------------------|-----------|-------------|------|------|
| Supply voltage        | $V_{CC}$  | 0 to 6.0    | V    |      |
| Operating temperature | $T_{OPR}$ | -10 to + 70 | °C   | 1    |
| Storage temperature   | $T_{STG}$ | -20 to +85  | °C   |      |
| Soldering temperature | $T_{SOL}$ | 230         | °C   | 2    |

### NOTES:

1. No dew formation.
2. Soldering reflow time 5 s.

## RECOMMENDED OPERATING CONDITIONS

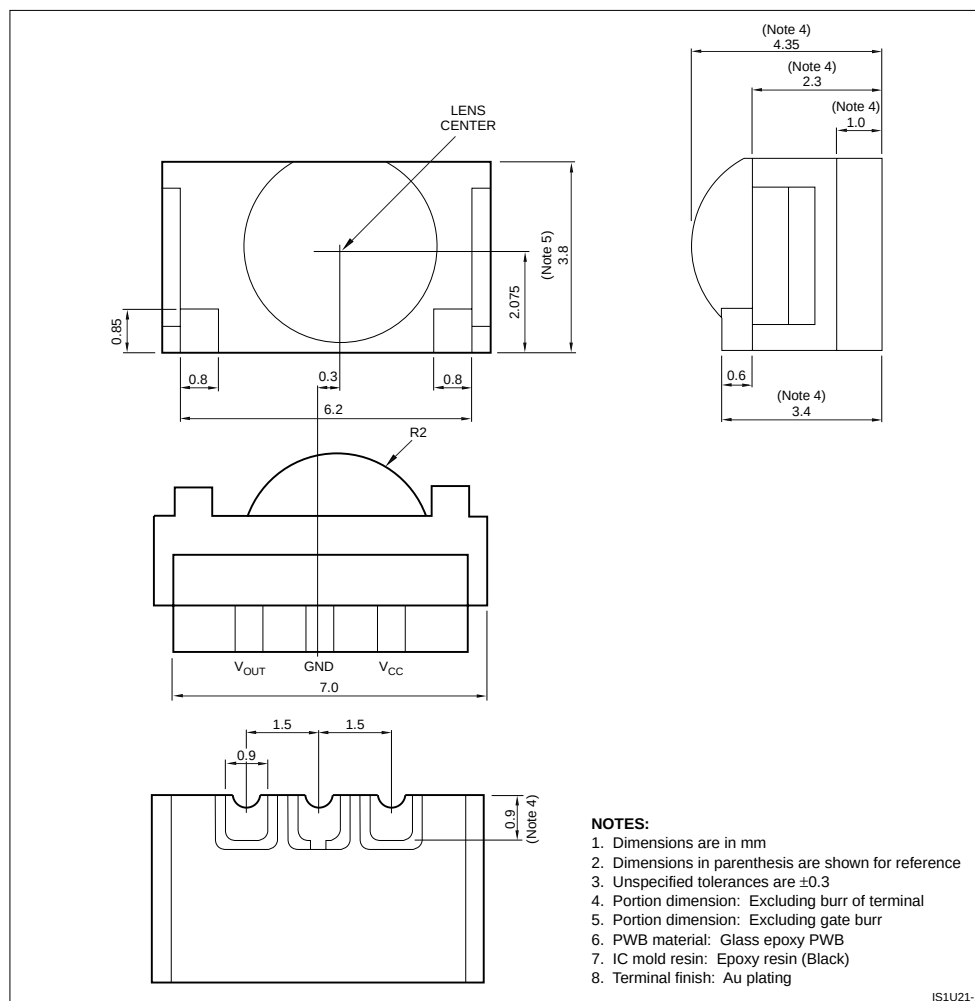
| PARAMETER      | SYMBOL   | OPERATING CONDITIONS | UNIT |
|----------------|----------|----------------------|------|
| Supply voltage | $V_{CC}$ | 2.7 to 5.5           | V    |
| Data rate      | BR       | 2.4 to 115.2         | kbps |

## ELECTRICAL CHARACTERISTICS

$T_A = 25^\circ\text{C}$

| PARAMETER                  | SYMBOL    | MIN. | TYP. | MAX. | UNIT          | REMARKS                                                                                |
|----------------------------|-----------|------|------|------|---------------|----------------------------------------------------------------------------------------|
| Current dissipation        | $I_{CC1}$ |      | 1.0  | 1.4  | mA            | $V_{CC} = 5\text{ V}$ , No input light, output terminal OPEN                           |
|                            | $I_{CC2}$ |      | 0.7  | 1.0  | mA            | $V_{CC} = 3\text{ V}$ , No input light, output terminal OPEN                           |
| High level output voltage  | $V_{OH1}$ | 4.5  |      |      | V             | $V_{CC} = 5\text{ V}$                                                                  |
|                            | $V_{OH2}$ | 2.5  |      |      | V             | $V_{CC} = 3\text{ V}$                                                                  |
| Low level output voltage   | $V_{OL1}$ |      |      | 0.4  | V             | $V_{CC} = 5\text{ V}$ , $I_{OL} = 400\text{ }\mu\text{A}$                              |
|                            | $V_{OL2}$ |      |      | 0.4  | V             | $V_{CC} = 3\text{ V}$ , $I_{OL} = 400\text{ }\mu\text{A}$                              |
| Low level pulse width      | $TW_1$    | 0.8  |      | 16.0 | $\mu\text{s}$ | BR = 2.4 kbps                                                                          |
|                            | $TW_2$    | 0.8  |      | 8.0  | $\mu\text{s}$ | BR = 115.2 kbps                                                                        |
| Rise time                  | tr        |      |      | 1.2  | $\mu\text{s}$ | BR = 115.2 kbps                                                                        |
| Fall time                  | tf        |      |      | 0.2  | $\mu\text{s}$ | BR = 115.2 kbps                                                                        |
| Maximum reception distance | L         | 1    |      |      | m             | $V_{OH}$ , $V_{OL}$ , $t_w$ , $t_r$ , $t_f$ shall be satisfied at $\phi \leq 15^\circ$ |

## MECHANICAL DIMENSIONS



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