

PRELIMINARY



OPTOELECTRONICS  
FU-64SLD-30

# 1.55μm LD Module with Singlemode Fiber Pigtail

## GENERAL

Module type FU-64SLD-30 has been developed for coupling a singlemode optical fiber and a 1.3μm wavelength InGaAsP LD (Laser diode). The package is incorporated with dual-in-line pins for electrical connection.

This module is the optimum light source for use in high-speed long haul digital optical communication systems and in fiber optic measurement instruments.

## FEATURES

- High-speed response
- High optical output
- Emission wavelength in the 1.3μm band
- Low threshold current (20mA typ.)
- Built-in thermal electric cooler
- Dual-in-line package
- With photodiodes for optical output monitoring
- Diodes are hermetically sealed for high reliability

## ABSOLUTE MAXIMUM RATINGS (T<sub>LD</sub> = 25°C)

| Symbol           | Items                      |             | Conditions     | Ratings  | Unit |
|------------------|----------------------------|-------------|----------------|----------|------|
| V <sub>RL</sub>  | Reverse voltage            | Laser diode | —              | 2        | V    |
| I <sub>F</sub>   | Forward current            |             | Pulse (note 1) | 1.1      | A    |
| T <sub>C</sub>   | Operating case temperature |             | —              | −15 ~ 65 | °C   |
| T <sub>stg</sub> | Storage temperature        |             | —              | −40 ~ 70 | °C   |

Note 1: Pulse condition = Pulse width ≤ 1μs. Duty ratio ≤ 1%

## CHARACTERISTICS (T<sub>LD</sub> = 25°C, unless otherwise noted)

| Symbol          | Items                               | Test Conditions                                      | Min. | Typ. | Max. | Unit |
|-----------------|-------------------------------------|------------------------------------------------------|------|------|------|------|
| I <sub>th</sub> | Threshold current                   | CW                                                   | —    | 20   | 50   | mA   |
| I <sub>op</sub> | Operating current                   | Pulse (Note 1)                                       | —    | —    | 900  | mA   |
| V <sub>op</sub> | Operating voltage                   | I <sub>op</sub> = 900 mA Pulse (Note 1)              | —    | —    | 5    | V    |
| P <sub>F</sub>  | Optical output power from fiber end | Pulse (Note 1)                                       | 30   | —    | —    | mW   |
| λ <sub>c</sub>  | Central wavelength                  | I <sub>op</sub> = 900 mA Pulse (Note 1)              | 1530 | 1550 | 1570 | nm   |
| Δλ              | Spectral width                      | I <sub>op</sub> = 900 mA Pulse (Note 1)              | —    | —    | 30   | nm   |
| tr, tf          | Rise and fall time                  | I <sub>B</sub> = I <sub>th</sub> , 10 ~ 90% (Note 2) | —    | 1    | —    | ns   |
| Er              | Tracking error (Note 3)             | T <sub>c</sub> = −15 ~ 65°C, APC, ATC                | —    | 0.3  | —    | dB   |

Note 1: Pulse condition = Pulse width ≤ 1μs. Duty ratio ≤ 1%

Note 2: I<sub>B</sub> = Bias current (LD)

Note 3: Er = MAX | 10 • log  $\frac{P_F}{P_F(25^\circ\text{C})}$  |

Optoelectronics



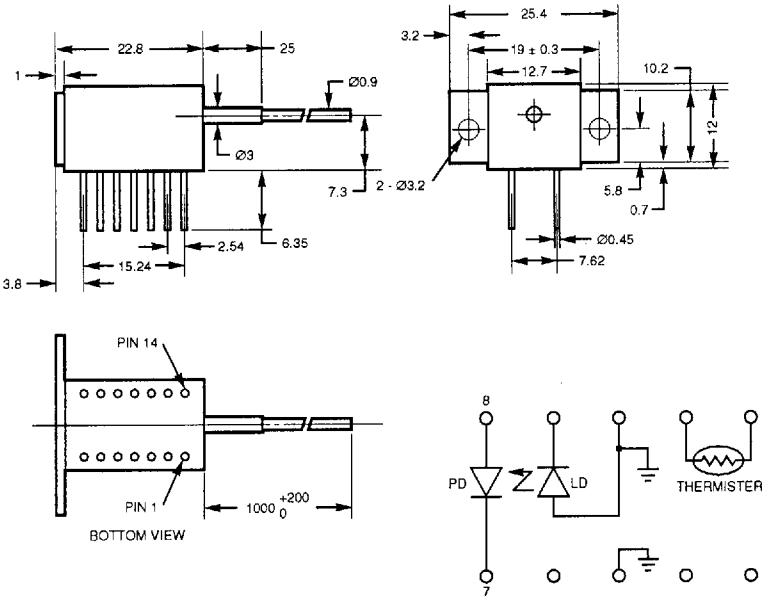
THERMAL CHARACTERISTICS (T<sub>LD</sub> = 25°C, T<sub>C</sub> = -15 ~ 65°C)

| Symbol          | Items                               | Conditions             | Min. | Typ. | Max. | Unit |
|-----------------|-------------------------------------|------------------------|------|------|------|------|
| R <sub>th</sub> | Thermister resistance               | T <sub>LD</sub> = 25°C | 9.5  | 10   | 10.5 | KΩ   |
| B               | B constant of thermister resistance | —                      | —    | 3250 | —    | K    |
| ΔT              | Cooling capacity                    | T <sub>c</sub> = 65°C  | 40   | —    | —    | °C   |
| I <sub>pe</sub> | Cooler current                      | ΔT = 40°C              | —    | 0.6  | 1    | A    |
| V <sub>pe</sub> | Cooler voltage                      | ΔT = 40°C              | —    | 1.6  | 2    | V    |

FIBER PIGTAIL SPECIFICATIONS

| Items           | Specifications | Units |
|-----------------|----------------|-------|
| Type            | SM             | —     |
| Mode-field dia. | 10 ± 1         | μm    |
| Cladding dia.   | 125 ± 2        | μm    |
| Jacket dia.     | 0.9            | mm    |

OUTLINE DRAWING    Unit (mm)



| PIN | FUNCTION                 |
|-----|--------------------------|
| 1   | COOLER ANODE             |
| 2   | NC                       |
| 3   | NC                       |
| 4   | NC                       |
| 5   | CASE GROUND, LASER ANODE |
| 6   | NC                       |
| 7   | DETECTOR CATHODE         |
| 8   | DETECTOR ANODE           |
| 9   | LASER CATHODE            |
| 10  | CASE GROUND, LASER ANODE |
| 11  | THERMISTER               |
| 12  | THERMISTER               |
| 13  | NC                       |
| 14  | COOLER CATHODE           |