

MITSUBISHI (OPTICAL DEVICES)  
**FU-427SLD-F1**

**1.3  $\mu\text{m}$  LD MODULE WITH SINGLEMODE FIBER PIGTAIL**

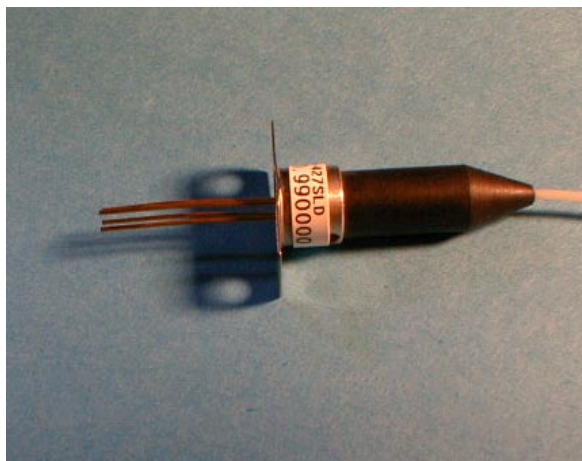
**DESCRIPTION**

Module type FU-427SLD-F1 has been developed for coupling a singlemode optical fiber and a 1.3  $\mu\text{m}$  wavelength InGaAsP LD (Laser diode).

FU-427SLD-F1 is suitable to light source for high-speed long haul digital optical communication systems and measuring instruments.

**FEATURES**

- High-speed response
  - Emission wavelength is in 1.3 $\mu\text{m}$  band
  - Low threshold current (7mA typ.)
  - With photodiode for optical output monitor
  - MQW\* active layer
  - FSBH\*\* structure fabricated by all MOCVD process
- \*Multiple quantum well  
 \*\*Facet selective-growth buried heterostructure



**APPLICATION**

Trunk Line, FitL

**ABSOLUTE MAXIMUM RATINGS** ( $T_c=25^\circ\text{C}$ )

| Parameter                  |                                     | Symbol | Conditions | Rating  | Unit             |
|----------------------------|-------------------------------------|--------|------------|---------|------------------|
| Laser diode                | Optical output power from fiber end | Pf     | CW         | 3       | mW               |
|                            | Reverse voltage                     | Vrl    | -          | 2       | V                |
| Photodiode for monitoring  | Reverse voltage                     | Vrd    | -          | 15      | V                |
|                            | Forward current                     | Ild    | -          | 2       | mA               |
| Operating case temperature |                                     | Tc     | -          | -20~+75 | $^\circ\text{C}$ |
| Storage temperature        |                                     | Tstg   | -          | -40~+85 | $^\circ\text{C}$ |

**MITSUBISHI (OPTICAL DEVICES)**  
**FU-427SLD-F1**

**1.3 μm LD MODULE WITH SINGLEMODE FIBER PIGTAIL**

**ELECTRICAL/OPTICAL CHARACTERISTICS** (Tc=25°C, unless otherwise noted)

| Parameter                            | Symbol                          | Test Conditions   | Limits |      |      | Unit  |
|--------------------------------------|---------------------------------|---|--------|------|------|-------|
|                                      |                                 |   | Min.   | Typ. | Max. |       |
| Threshold current                    | I <sub>th</sub>                 | CW  | 3      | 7    | 15   | mA    |
| Operating current                    | I <sub>op</sub>                 | CW  | -      | 20   | 40   | mA    |
| Operating Voltage                    | V <sub>op</sub>                 | CW, I <sub>f</sub> =I <sub>op</sub> (Note 1)              | -      | 1.1  | 1.5  | V     |
| Optical output power from fiber end  | P <sub>f</sub>                  | CW, I <sub>f</sub> =I <sub>op</sub>                       | 1.0    | 2    | -    | mW    |
| Center wavelength                    | λ <sub>c</sub>                  | CW, I <sub>f</sub> =I <sub>op</sub>                       | 1285   | 1300 | 1330 | nm    |
| Spectral bandwidth (RMS)<br>(Note 3) | Δλ                              | CW, I <sub>f</sub> =I <sub>op</sub>                       | -      | 1.2  | 4    | nm    |
| Rise and fall times                  | t <sub>r</sub> , t <sub>f</sub> | I <sub>b</sub> =I <sub>th</sub> , 10~90% (Note 2)         | -      | 0.3  | 1    | ns    |
| Tracking error (Note 4)              | E <sub>r</sub>                  | T <sub>c</sub> =0~75°C, APC                               | -      | 0.4  | 1.5  | dB    |
| Differential efficiency              | η                               | -   | -      | 0.15 | -    | mW/mA |
| Monitor current                      | I <sub>mon</sub>                | CW, I <sub>f</sub> =I <sub>op</sub> , V <sub>rd</sub> =3V | 0.1    | 0.6  | -    | mA    |
| Dark current (Photodiode)            | I <sub>d</sub>                  | V <sub>rd</sub> =5V                                       | -      | 0.1  | 0.5  | μA    |
| Capacitance (Photodiode)             | C <sub>t</sub>                  | V <sub>rd</sub> =5V, f=1MHz                               | -      | -    | 20   | pF    |

Note 1. I<sub>f</sub> : Forward current (LD)

2. I<sub>b</sub> : Bias current (LD)

3.  $\Delta\lambda = ((\sum a_i * (\lambda_i - \lambda_c)^2) / \sum a_i)^{1/2}$

Where a<sub>i</sub> ≥ a<sub>p</sub> × 0.01

a<sub>i</sub>: Relative intensity of laser spectral emission modes

a<sub>p</sub>: Peak of laser spectral emission modes

4. E<sub>r</sub> = MAX|10 × log(P<sub>f</sub>(T<sub>c</sub>)/P<sub>f</sub>(25°C))|

\* Module up to 85°C in operating case temperature (T<sub>c</sub>) is also available.

Please consult with sales office about specification and so on, if necessary.

**OPTICAL FIBER SPECIFICATION**

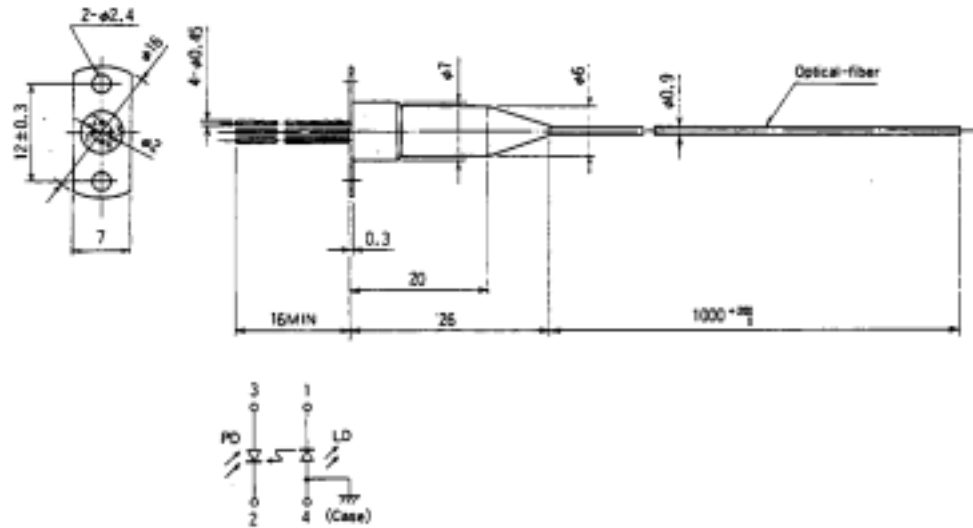
| Parameter       | Limits   | Unit |
|-----------------|----------|------|
| Type            | SM       | -    |
| Mode field dia. | 9.5±1    | μm   |
| Cladding dia.   | 125±2    | μm   |
| Jacket dia.     | 0.9 typ. | mm   |

MITSUBISHI (OPTICAL DEVICES)  
**FU-427SLD-F1**

1.3  $\mu\text{m}$  LD MODULE WITH SINGLEMODE FIBER PIGTAIL

OUTLINE DIAGRAM

(Unit : mm)



FU-427SLD-F1