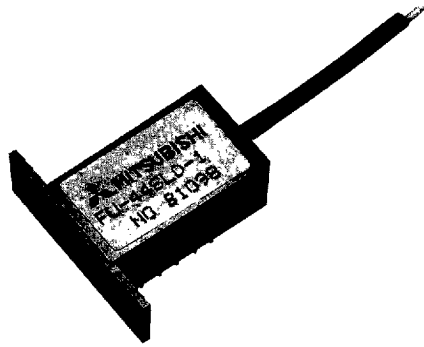


Module type FU-44SLD-1 has been developed for coupling a singlemode optical fiber and a 1.3 μm wavelength InGaAsP LD (Laser diode). The package is incorporated with dual-in-line pins for electrical connection.

This module is suitable to light source for use in high-speed long haul digital optical communication systems and use in measuring instruments.

FEATURES

- High-speed response
- Emission wavelength is in 1.3 μm band
- Low threshold current (10mA typ.)
- Built-in thermal electric cooler
- Dual-in-line package
- With photodiode for optical output monitor
- Diodes are hermetically sealed



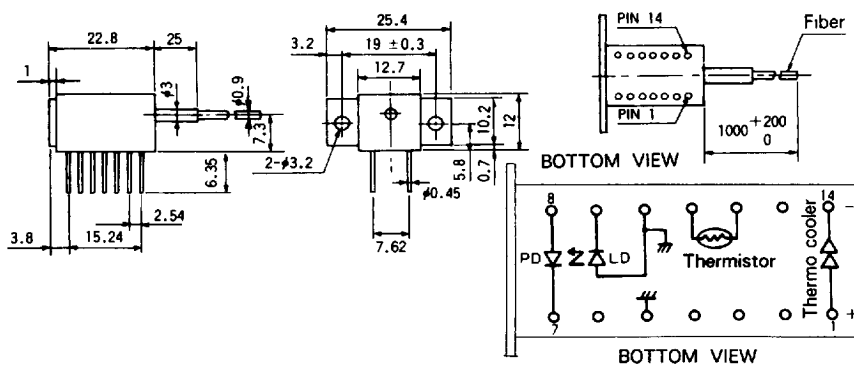
FU-44SLD-1

ABSOLUTE MAXIMUM RATINGS (T_{LD}=25 °C)

Items		Symbols	Conditions	Ratings	Units
Laser diode	Optical output power from fiber end	P _F	CW	3	mW
			Pulse (Note 1)	6	
	Reverse Voltage	V _{RL}	-	2	V
Photodiode for monitoring	Reverse Voltage	V _{RD}	-	15	V
	Forward Current	I _{FD}	-	2	mA
Operating case temperature		T _C	-	-20~65	°C
Storage temperature		T _{stg}	-	-40~70	°C

Note 1) Pulse condition : Pulse width ≤ 1 μs, Duty ratio ≤ 50 %

OUTLINE DRAWINGS Unit (mm)



PIN	FUNCTION
1	COOLER ANODE
2	NC
3	NC
4	NC
5	LD ANODE, GND
6	NC
7	PD CATHODE
8	PD ANODE
9	LD CATHODE
10	LD ANODE, GND
11	THERMISTOR
12	THERMISTOR
13	NC
14	COOLER CATHODE

FU-44SLD-1



1.3 μm LD Module with Singlemode Fiber Pigtail

CHARACTERISTICS (T_c=25 °C, T_{LD}=25 °C, unless otherwise noted)

Items	Symbols	Conditions	Min.	Typ.	Max.	Units
Threshold current	I _{th}	CW	—	10	30	mA
Operating current	I _{op}	CW	—	25	45	mA
Operating voltage	V _{op}	CW, I _F = I _{op} (Note 1)	—	1.2	1.6	V
Optical output power from fiber end	P _F	CW, I _F = I _{op}	1	2	—	mW
Central wavelength	λ _c	CW, I _F = I _{op}	1270	1300	1330	nm
Spectral bandwidth (RMS) (Note 3)	Δλ	CW, I _F = I _{op}	—	1.4	—	nm
Rise and fall times	t _r , t _f	I _B = I _{th} , 10~90% (Note 2)	—	0.3	—	ns
Tracking error (Note 4)	E _r	T _C = -20~65 °C, APC, ATC	—	0.2	—	dB
Differential efficiency	η	—	—	0.13	—	mW/mA
Monitor current	I _{mon}	CW, I _F = I _{op} , V _{RD} = 5V	0.1	0.6	—	mA
Dark current (Photodiode)	I _D	V _{RD} = 5V	—	0.1	1	μA
Capacitance (Photodiode)	C _t	V _{RD} = 5V, f = 1MHz	—	10	—	pF

Note 1) I_F : Forward current (LD)

Note 2) I_B : Bias current (LD)

Note 3)
$$\Delta\lambda = \sqrt{\frac{\sum a_i (\lambda_i - \lambda_c)^2}{\sum a_i}}$$

 (a_i ≥ a_{ap} × 0.01)

a_i : Relative intensity of laser spectral emission modes
 a_p : Peak of laser spectral emission modes

Note 4)
$$E_r = \text{MAX} \left| 10 \cdot \log \frac{P_F}{P_F(25^\circ\text{C})} \right|$$

THERMAL CHARACTERISTICS (T_{LD}=25 °C T_c= -20 °C~65 °C)

Items	Symbols	Conditions	Min.	Typ.	Max.	Units
Thermistor resistance	R _{th}	T _{LD} = 25 °C	9.5	10	10.5	kΩ
B constant of thermistor resistance	B	—	—	3250	—	K
Cooling capacity	ΔT	T _c = 65 °C	40	—	—	°C
Cooler current	I _{pe}	ΔT = 40 °C	—	0.6	1	A
Cooler voltage	V _{pc}	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



1.3 μm LD Module with Singlemode Fiber Pigtail

EXAMPLE OF CHARACTERISTICS

