

MITSUBISHI (OPTICAL DEVICES)  
**FU-423SLD-F3M31**

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

**DESCRIPTION**

Module type FU-423SLD-F3M31 has been developed for coupling a singlemode optical fiber and a 1.3μm wavelength InGaAsP LD (Laser diode).

FU-423SLD-F3M31 is suitable to light source for high-speed short haul and long haul digital optical communication systems.

**FEATURES**

- High-speed response
  - Emission wavelength is in 1.3μm 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 (Tc=25°C)**

Parameter		Symbol	Conditions	Rating	Unit
Laser diode	Optical output power from fiber end	Pf	CW Tc=-40~85°C	0.4	mW
	Reverse voltage	Vrl	-	2	V
Photodiode for monitoring	Reverse voltage	Vrd	-	20	V
	Forward current	lfd	-	2	mA
Operating case temperature		Tc	-	-40~+85	°C
Storage temperature		Tstg	-	-40~+85	°C

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**ELECTRICAL/OPTICAL CHARACTERISTICS**

Parameter	Symbol	Test Conditions	Limits			Unit
			Min.	Typ.	Max.	
Threshold current	I <sub>th</sub>	CW, T <sub>c</sub> =25°C	3	6	10	mA
		CW, T <sub>c</sub> =-40~85°C	1	-	35	
Modulation current	I <sub>mod</sub>	CW, P <sub>f</sub> =0.2mW, T <sub>c</sub> =25°C	5	6	15	mA
		CW, APC, I <sub>mon</sub> (P <sub>f</sub> (25°C)=0.2mW), T <sub>c</sub> =-40~85°C	4	-	35	
Operating Voltage	V <sub>op</sub>	CW, APC, I <sub>mon</sub> (P <sub>f</sub> (25°C)=0.2mW), T <sub>c</sub> =-40~85°C	0.8	-	1.5	V
Threshold power	P <sub>fth</sub>	CW, I <sub>f</sub> =I <sub>th</sub> , T <sub>c</sub> =-40~85°C (Note1)	-	-	10	μW
dP <sub>f</sub> /dI <sub>f</sub> linearity	η <sub>l</sub>	CW, APC, P <sub>f</sub> =0.04~0.2mW	-25	-	25	%
Center wavelength	λ <sub>c</sub>	CW, P <sub>f</sub> =0.2mW, T <sub>c</sub> =25°C	1290	-	1330	nm
		CW, APC, I <sub>mon</sub> (P <sub>f</sub> (25°C)=0.2mW), T <sub>c</sub> =-40~85°C	1260	-	1360	
Spectral width(RMS) (Note 3)	Δλ	CW, APC, I <sub>mon</sub> (P <sub>f</sub> (25°C)=0.2mW), T <sub>c</sub> =-40~85°C	-	-	2.5	nm
Rise and fall times	t <sub>r</sub> , t <sub>f</sub>	I <sub>b</sub> =I <sub>th</sub> , P <sub>fpeak</sub> =0.2mW, 10~90%, T <sub>c</sub> =25°C	-	0.3	0.5	ns
Tracking error (Note2)	E <sub>r</sub>	CW, APC, I <sub>mon</sub> (P <sub>f</sub> (25°C)=0.2mW), T <sub>c</sub> =0~70°C	0	0.4	1	dB
		CW, APC, I <sub>mon</sub> (P <sub>f</sub> (25°C)=0.2mW), T <sub>c</sub> =-40~85°C	0	0.5	1.2	
Monitor current	I <sub>mon</sub>	CW, V <sub>rd</sub> =3V, P <sub>f</sub> =0.2mW	0.08	0.5	1	mA
Dark current (Photodiode)	I <sub>d</sub>	V <sub>rd</sub> =3V	-	0.1	0.5	μA
Capacitance (Photodiode)	C <sub>t</sub>	V <sub>rd</sub> =3V, f=1MHz	-	-	15	pF

Note 1. I<sub>f</sub> is ward current of LD.

2.  $E_r = \text{MAX}\{10 \times \log(P_f(T_c)/P_f(25^\circ\text{C}))\}$

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

Where  $a_i \geq a_p \times 0.01$

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

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

**OPTICAL FIBER SPECIFICATION**

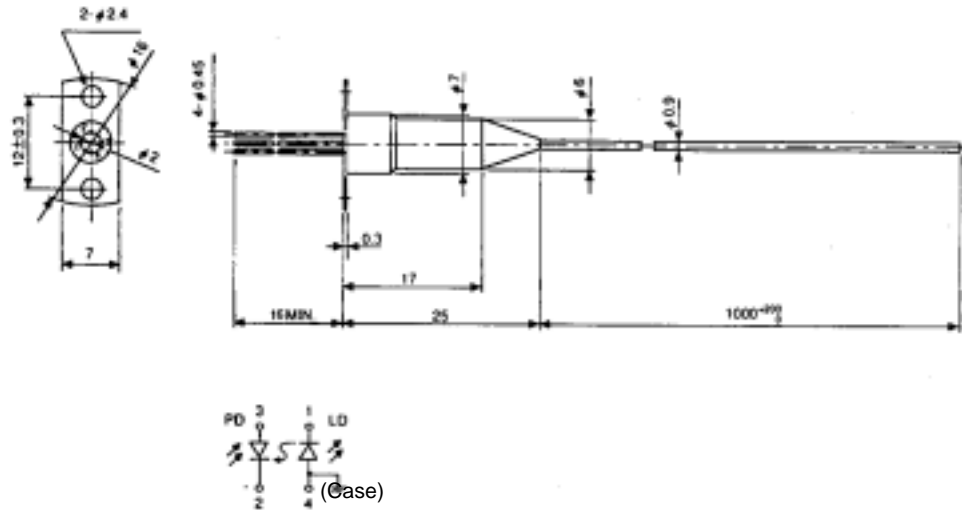
Parameter	Limits	Unit
Type	SM	-
Mode field dia.	9.5±1	μm
Cladding dia.	125±2	μm
Jacket dia.	0.9 typ.	mm

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OUTLINE DIAGRAM

(Unit : mm)



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