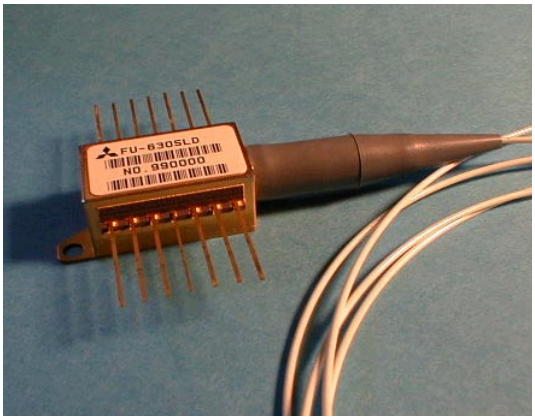
MITSUBISHI (OPTICAL DEVICES)

FU-630SLD-8M1/10M1/12M1

1.48 μm PUMP LD MODULE WITH SINGLEMODE FIBER (EDFA)

DESCRIPTION

Mitsubishi's FU-630SLD series 1480nm laser diode modules are designed as optical pumping sources for erbium-doped fiber amplifier (EDFA).This module is suitable to a light source for use in bi-directional pumped EDFA.



FEATURES

- MQW laser diode module specificaly optimized for pump laser applications
- Emission wavelength is in 1.48μm band
- Built-in optical isolator
- Built-in thermal electric cooler
- Butterfly package
- With photodiode for optical output monitor
- Diode are hermetically sealed for high reliability

APPLICATION

Optical pump source for erbium-doped fiber amplifier(EDAF)

ABSOLUTE MAXIMUM RATINGS (Tld=25°C)

Parameter		Symbol	Conditions	Rating	Unit
Laser diode	Forword current	If	CW	800	mA
	Reverse voltage	Vrl	-	2	V
Photodiode for monitoring	Reverse voltage	Vrd	-	20	V
	Forward current	Ifd	-	2	mA
Cooler (Note)	Voltage	Vpem	-	4.5	V
	Current	Ipem	-	1.8	A
Operating case temperature		Tc	-	-20~+65	°C
Storage temperature		Tstg	-	-40~+70	°C

Note. Evan if the thermo-electric cooler (TEC) is operated within the rated conditions, uncontrolled current loading or operation without heatsink may easily damage the module by exceeding the storage. Thermistor resistance should be properly monitored by the feedback circuit during TEC operation to avoid the catastrophic damage.

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

Parameter	Symbol	Test Conditions		Limits			Unit
				Min.	Typ.	Max.	
Threshold current	Ith	CW		-	30	60	mA
Operating current	Iop	CW	-8M1	-	350	600	mA
			-10M1		450	600	
			-12M1		550	600	
Operating Voltage	Vop	CW,If=Iop (Note 1)		-	1.4	2	V
Optical output power from fiber end	Pf	CW,If=Iop	-8M1	80	-	-	mW
			-10M1	100	-	-	
			-12M1	120	-	-	
Central wevelength	λ_C	CW,If=Iop		1460	1475	1490	nm
Spectral width(RMS)	$\Delta\lambda$	CW,If=Iop		-	10	20	nm
Tracking error (Note 2)	Er	Tc=-20~+65°C,APC,ATC		-	0.3	-	dB
Differential efficiency	η	-	-8M1	-	0.18	-	mW/mA
			-10M1	-	0.18	-	
			-12M1	-	0.23	-	
Monitor current	Imon	CW,If=Iop,Vrd=5V		0.05	-	2	mA
Dark current (PD)	Id	Vrd=5V		-	0.1	1	μA
Capacitance (PD)	Ct	Vrd=5V,f=1MHz		-	10	-	pF

Note 1. If: LD forword current

2. Er=MAX|10×log(Pf(Tc)/Pf(25°C))|

THERMAL CHARACTERISTICS (Tld=25°C,Tc=-20~+65°C)

Parameter	Symbol	Test Conditions		Limits			Unit
				Min.	Typ.	Max.	
Thermistor resistance	Rth	Tld=25°C		9.5	10	10.5	KΩ
B constant of thermistor resistance	B	-		-	3950	-	K
Cooling capacity	ΔT	Tc=65°C		40	-	-	°C
Cooler current	Ipe	ΔT=40°C			1	1.5	A
Cooler Voltage	Vpe	ΔT=40°C	-8M1	-	2	3	V
			-10M1	-	2	3	
			-12M1	-	3.2	3.5	

OPTICAL FIBER SPECIFICATION

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

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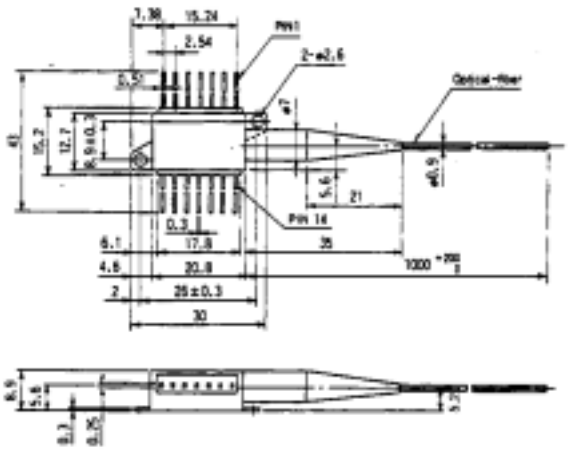
OUTLINE DIAGRAM

(Unit : mm)



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