

OL5150M

Preliminary

1550 nm 10 Gb/s EA Modulator Integrated DFB Laser

1. DESCRIPTION

OL5150M is a 1550-nm DFB laser diode monolithically integrated with an electro-absorption (EA) modulator for 10 Gb/s operation in a 7-pin package with a K-connector.

2. FEATURES

- Low dispersion penalty over 40 km (800 ps/nm/km) for 10 Gb/s operation
- Low modulation voltage : < 2.5 Vpp
- Large dynamic extinction ratio : > 10 dB
- Fiber output power : > 3 dBm (CW)
- 7-pin package with a K-connector RF input

3. APPLICATION

- 10 Gb/s (OC-192) intermediate reach transmission
- High-speed data communication

4. OPTICAL AND ELECTRICAL CHARACTERISTICS

(T_{LD} = 25°C, T_c = 0 to 65°C, unless otherwise specified)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Fiber Output Power	P _o	CW, V _m = 0V	3	---	---	dBm
Operation Current	I _{op}	P _o = 3dBm, CW, V _m = 0V	---	---	100	mA
Threshold Current	I _{th}	-----	---	---	35	mA
Peak Wavelength	λ _p	P _o = 3dBm	1530	---	1565	nm
Side Mode Suppression Ratio	SMSR	P _o = 3dBm	30	---	---	dB
LD Forward Voltage	V _f	P _o = 3dBm, CW, V _m = 0V	---	---	2.0	V
Monitor Current	I _m	P _o = 3dBm, CW	50	---	1000	uA
Bandwidth	f _c	- 3dB(electrical), V _m = -1V	10	---	---	GHz
Dynamic Extinction Ratio	DER	2 to 2.5 Vpp, 10 Gb/s	10	---	---	dB
RF Return Loss (0 to 5 GHz)	S ₁₁	P _o = 3dBm, V _m = -1V	8	---	---	dB
RF Return Loss (5 to 10 GHz)	S ₁₁	P _o = 3dBm, V _m = -1V	5	---	---	dB
Dispersion Penalty	DP	800 ps/nm, BER=10 ⁻¹⁰	---	---	2	dB
TEC Current	I _{pe}	ΔT = 40°C, P _o = 3dBm	---	---	1.2	A
TEC Voltage	V _{pe}	ΔT = 40°C, P _o = 3dBm	---	---	3	V
Thermistor Resistance	R _{th}	-----	9.5	---	10.5	kΩ
Thermistor B Value	B _{th}	25°C/50°C	---	3450	---	K

5. ABSOLUTE MAXIMUM RATING

(Tc = 25 °C, unless otherwise specified)

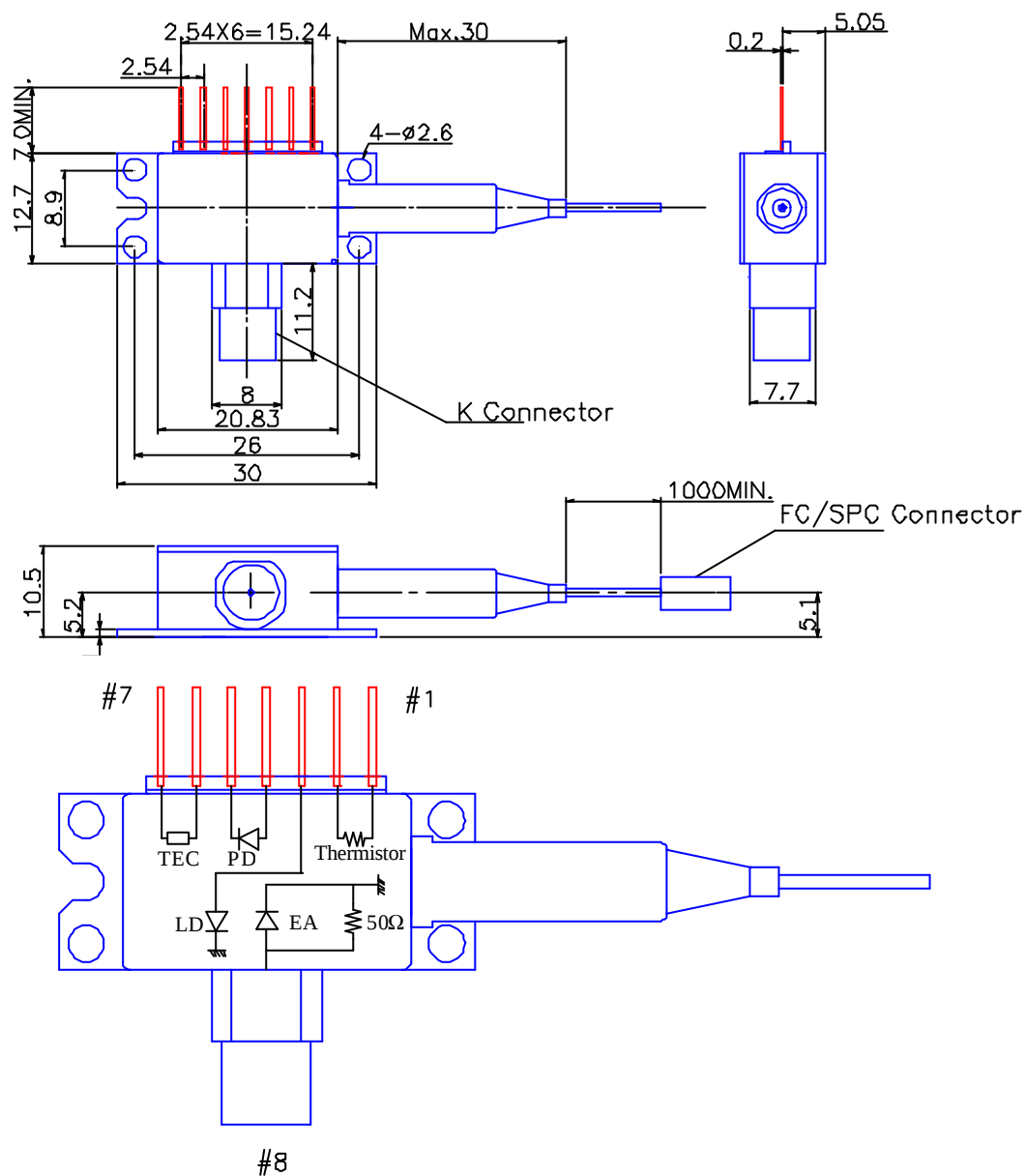
Parameter	Symbol	Rating	Unit
Operating Case Temperature	Tc	0 to +65	°C
Storage Temperature	Tstg	-40 to +85	°C
LD Forward Current	ILDF	150	mA
LD Reverse Voltage	VLDR	2	V
Modulator Voltage	V _m	-3.5 to +0.5	V
TEC Voltage	V _c	3.2	V
TEC Current	I _c	1.5	A

6. CONNECTOR AND FIBER SPECIFICATIONS

Parameter	Specifications	Unit
Type	SMF	---
Mode Field Diameter	10.5+/-1	um
Cladding Diameter	125+/- 2	um
Jacket Diameter	0.9	mm
Length	1 (min.)	m
Connector	FC/SPC	---

7. OUTLINE DRAWING

All dimensions in millimeters, Package No. 150

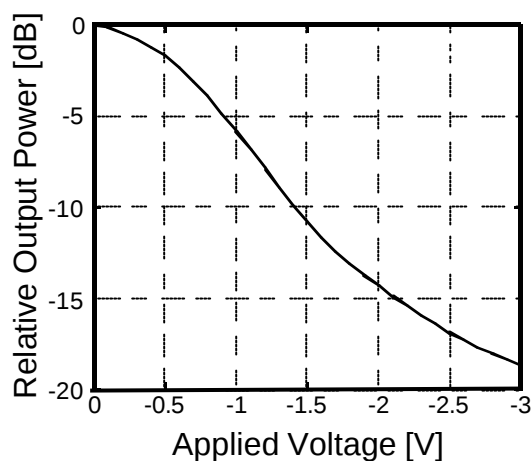
Tolerances Unless Noted ± 0.5 

Package Pinout

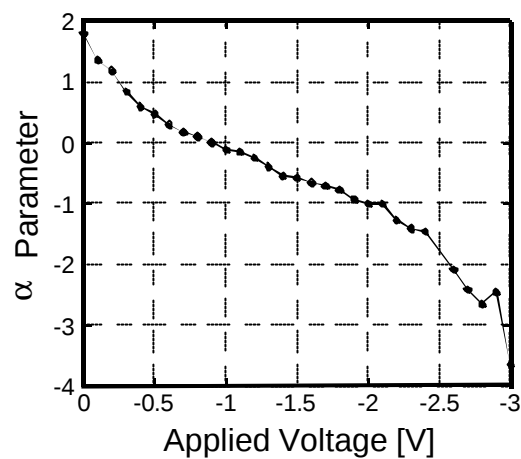
Pin No.		Pin No.	
1	Thermistor	5	Monitor Cathode
2	Thermistor	6	TEC+
3	LD Anode	7	TEC-
4	Monitor Anode	8	RF

8. Typical Characteristics

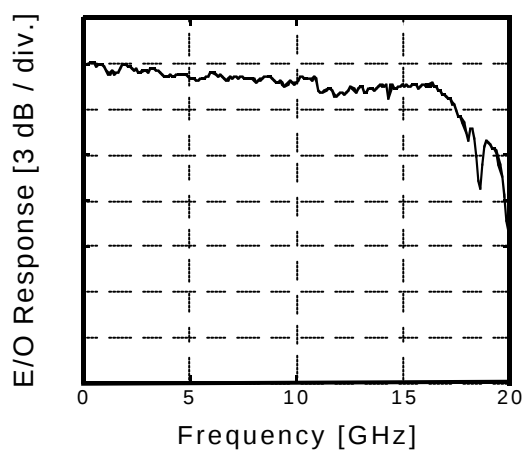
Extinction Ratio



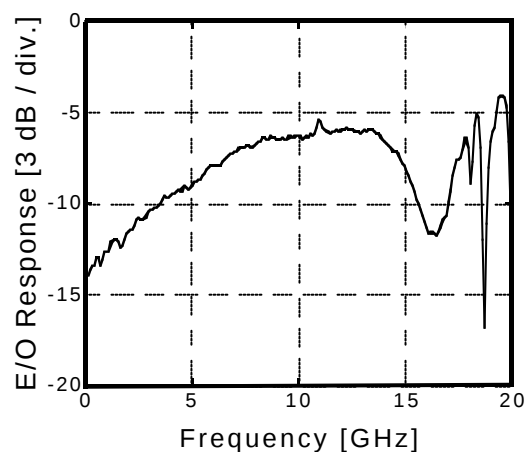
α Parameter



E/O Response

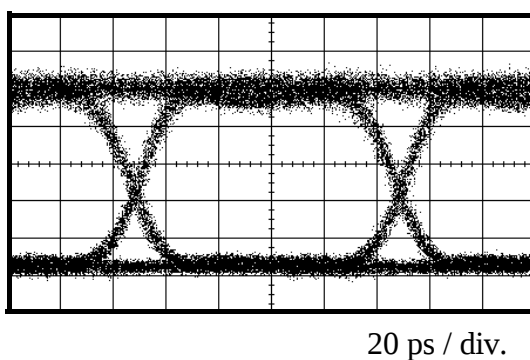


Electrical Return Loss



Eye Pattern

10 Gb/s, 2 Vp-p, Vc = -1.5 V, B-B



Bit Error Rate

