

FEATURES

- **SURFACE MOUNTABLE BY I.R. REFLOW SOLDER**
- **SMALL SIZE FLAT CERAMIC PACKAGE:**
7.6 x 12.7 x 3 mm
- **OPTICAL OUTPUT POWER:**
P_f = 1 mW
- **PEAK WAVELENGTH:**
λ_c = 1310 nm
- **WIDE OPERATING TEMPERATURE RANGE:**
-40 to +85°C
- **INTERNAL InGaAs MONITOR PD**
- **DETACHABLE PIGTAIL INTERFACE**

DESCRIPTION

The OD-8310N is a new surface mount low cost 1310 nm LD module. This device can achieve stable operation over a wide temperature range of -40 to +85°C. An InGaAs PIN monitor photodiode is built in for APC (Automatic Power Control) circuit. This module has a detachable pigtail interface and is packaged in an 8 pin surface mount package, allowing the module to be soldered like an ordinary IC by the standard I.R. reflow soldering process. OD-8310N can be operated at speeds up to 622 Mb/s and is especially suitable for the use of the subscriber loop, SONET and FITL.

APPLICATIONS

- **SUBSCRIBER LOOP**
- **TELECOMMUNICATIONS**
- **DATA COMMUNICATIONS**
- **LOCAL AREA NETWORKS**

ELECTRO-OPTICAL CHARACTERISTICS (T_c = +25°C, unless otherwise specified)

PART NUMBER			OD-8310N		
SYMBOLS	PARAMETERS AND CONDITIONS ¹	UNITS	MIN	TYP	MAX
P _f	Optical Output Power from Fiber Pigtail End, CW, T _c = -40 to +85°C	mW	1	–	–
I _{TH}	Threshold Current, T _c = +25°C T _c = -40 to +85°C	mA	3 1	8 –	15 40
I _{MOD}	Modulation Current, T _c = +25°C T _c = -40 to +85°C	mA	10 8	17 –	25 50
P _{TH}	Threshold Output Power at CW, I _F = I _{TH} ²	μW	–	–	25
V _{OP}	Forward Voltage, CW, P _f = 1 mW	V	–	1.2	1.5
S _e	Slope Efficiency, T _c = +25°C T _c = -40 to +85°C	mW/mA	0.040 0.020	0.060 –	0.100 0.120
λ _c	Central Wavelength, CW, P _f = 1 mW, RMS (-20 dB) T _c = -40 to +85°C	nm	1295 1270	1310 –	1320 1345
Δλ/ΔT	Temperature Dependency of Central Wavelength, T _c = -40 to +85°C	nm/°C	–	0.4	0.5
σ	Spectral Width, CW, P _f = 1 mW, RMS (-20 dB) T _c = -40 to +85°C	nm	– –	1 –	2.5 4
f _c	Cut-off Frequency at -3dB	GHz	–	2.0	–
t _r	Rise Time, I _B = I _{TH} , 10-90% nsec	–	0.2	0.5	–
t _f	Fall Time, I _B = I _{TH} 90-10% nsec	–	0.3	0.5	–
I _M	Monitor Current (PD) CW, P _f = 1 mW, V _R = 5 V	μA	200	700	1800
I _D	Dark Current (PD), V _R = 5 V μA	–	0.001	0.1	–
C _t	Capacitance (PD), V _R = 5 V, f = 1 MHz	pF	–	6	20
E _r	Tracking Error ³ , I _m = const, T _c = -40 to +85°C	dB	0	0.4	1.0

Notes:

1. Connected with single mode fiber pigtail (OD-S524 Series).
2. I_F: Forward Current of LD.

$$3. E_r = \left| 10 \cdot \log \frac{P_f(T_c)}{P_f(25^\circ\text{C})} \right| \text{ max.}$$

ABSOLUTE MAXIMUM RATINGS¹

(T_A = 25°C, unless otherwise specified)

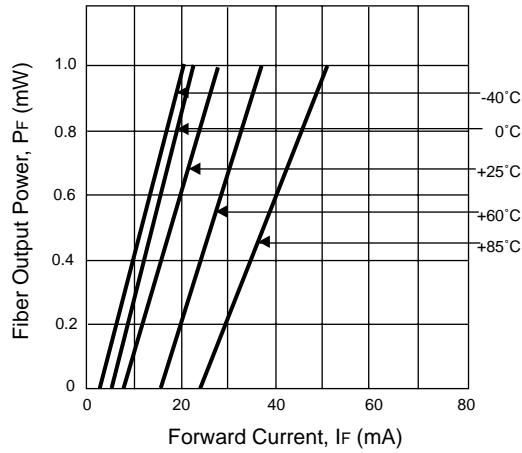
SYMBOLS	PARAMETERS	UNITS	RATINGS
P _I	Fiber Output Power	mW	2
V _R (LD)	Laser Reverse Voltage	V	2.0
I _F (PD)	Monitor Forward Current	mA	2.0
V _R (PD)	Monitor Reverse Voltage	V	20
T _{OP}	Operating Temperature	°C	-40 to +85
T _{STG}	Storage Temperature	°C	-40 to +85
T _{SOL}	Lead Soldering Temperature ²	°C	230

Notes:

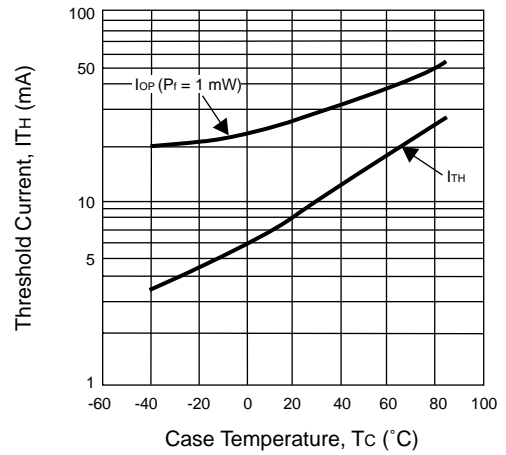
1. Operation in excess of any one of these parameters may result in permanent damage.
2. 30 seconds, reflow soldering.

TYPICAL PERFORMANCE CURVES

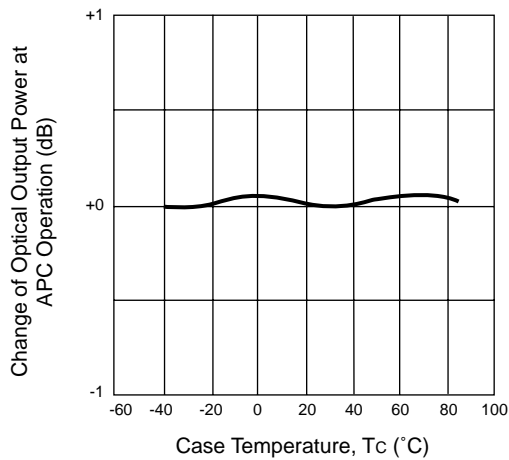
FIBER OUTPUT POWER vs. FORWARD CURRENT



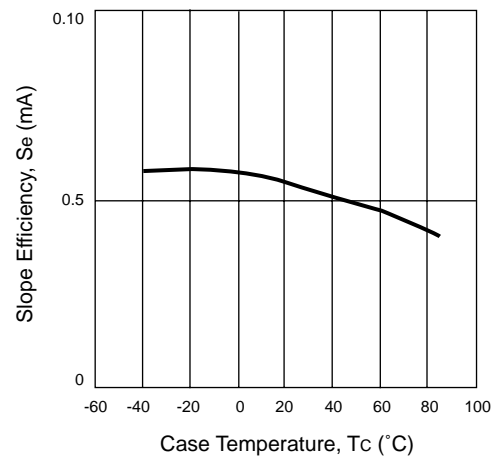
THRESHOLD CURRENT vs. CASE TEMPERATURE



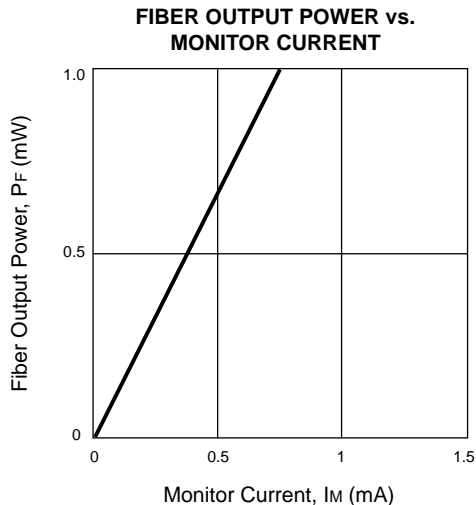
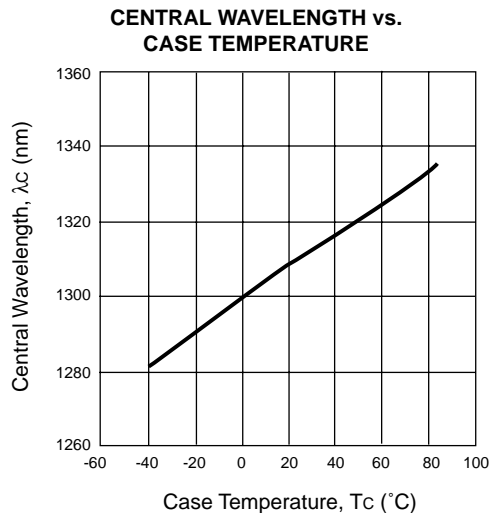
TRACKING ERROR CHARACTERISTICS



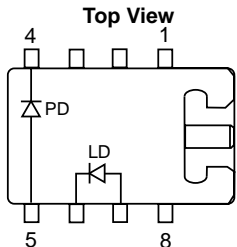
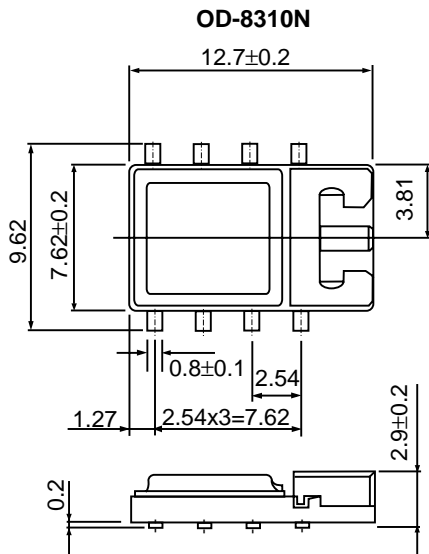
SLOPE EFFICIENCY vs. CASE TEMPERATURE



TYPICAL PERFORMANCE CURVES



OUTLINE DIMENSIONS (Units in mm)



PIN	FUNCTION
1	NC
2	Package Ground
3	NC
4	PD Cathode
5	PD Anode
6	LD Cathode
7	LD Anode
8	NC

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