

FEATURES

- **SURFACE MOUNTABLE BY I.R. REFLOW SOLDER**
- **SMALL SIZE FLAT CERAMIC PACKAGE:**
7.6 x 12.7 x 3 mm
- **OPTICAL OUTPUT POWER:**
 $P_f = 0.2 \text{ mW}$
- **PEAK WAVELENGTH:**
 $\lambda_c = 1310 \text{ nm}$
- **WIDE OPERATING TEMPERATURE RANGE:**
-40 to +85°C
- **INTERNAL InGaAs MONITOR PD**
- **DETACHABLE PIGTAIL INTERFACE**

DESCRIPTION

The OD-8306N 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-8306N 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 ($T_c = +25^\circ\text{C}$, unless otherwise specified)

PART NUMBER			OD-8306N		
SYMBOLS	PARAMETERS AND CONDITIONS ¹	UNITS	MIN	TYP	MAX
P_f	Optical Output Power from Fiber Pigtail End, CW, $T_c = -40$ to $+85^\circ\text{C}$	mW	0.2		
I_{TH}	Threshold Current $T_c = -40$ to $+85^\circ\text{C}$	mA	3 1	8 —	15 40
I_{MOD}	Modulation Current $T_c = -40$ to $+85^\circ\text{C}$	mA	5 4	13 —	20 40
P_{TH}	Threshold Output Power at CW, $I_f = I_{TH}^2$	μW	—	—	8
V_{OP}	Forward Voltage, CW, $P_f = 0.2 \text{ mW}$	V	—	1.2	1.5
S_e	Slope Efficiency $T_c = -40$ to $+85^\circ\text{C}$	mW/mA	0.010 0.005	0.015 —	0.040 0.050
λ_c	Central Wavelength, CW, $P_f = 0.2 \text{ mW}$, RMS (-20 dB) $T_c = -40$ to $+85^\circ\text{C}$	nm	1290 1260	1310 —	1330 1360
$\Delta\lambda/\Delta T$	Temperature Dependency of Central Wavelength, $T_c = -40$ to $+85^\circ\text{C}$	nm/ $^\circ\text{C}$	—	0.4	0.5
σ	Spectral Width, CW, $P_f = 0.2 \text{ mW}$, RMS (-20 dB) $T_c = -40$ to $+85^\circ\text{C}$	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, $P_f = 0.2 \text{ mW}$, $V_R = 5 \text{ V}$	μA	200	700	1600
I_D	Dark Current (PD) $V_R = 5 \text{ V}$	μA	—	0.001	0.1
C_t	Capacitance (PD) $V_R = 5 \text{ V}$, $f = 1 \text{ MHz}$	pF	—	6	20
E_r	Tracking Error ³ $I_m = \text{const}$, $T_c = -40$ to $+85^\circ\text{C}$	dB	0	0.5	1.5

Notes:

1. Connected with multimode (G150) 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	0.4
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:

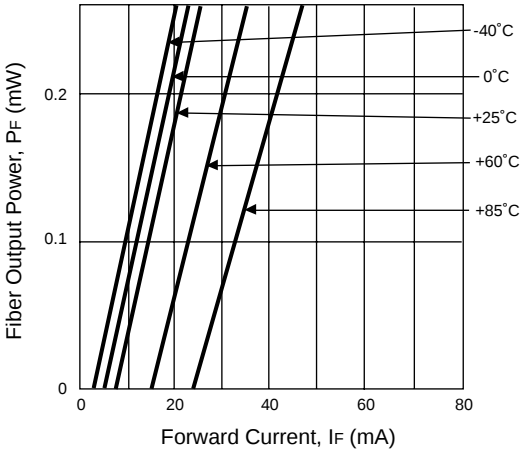
1. Operation in excess of any one of these parameters may result in permanent damage.
2. 30 seconds, reflow soldering.

RECOMMENDED
OPERATING CONDITIONS (T_C = 25°C)

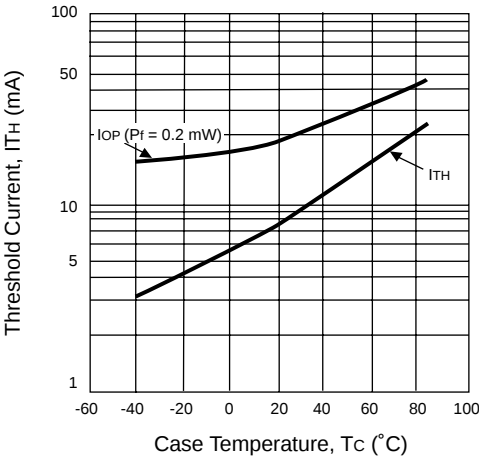
SYMBOL	PARAMETER	UNIT	MIN	TYP	MAX
P _O	Optical Output Power	mW			5.0

TYPICAL PERFORMANCE CURVES

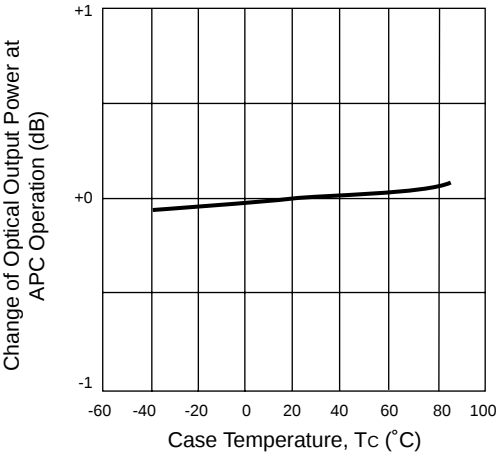
FIBER OUTPUT POWER vs.
FORWARD CURRENT



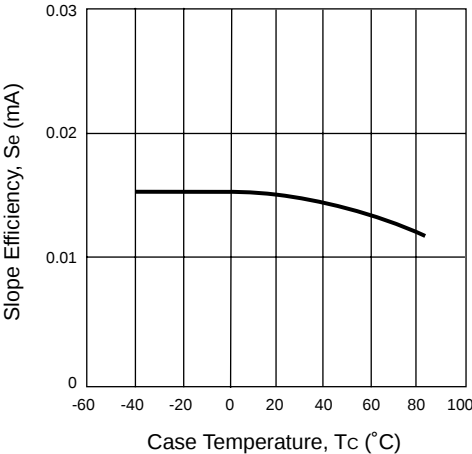
THRESHOLD CURRENT vs.
CASE TEMPERATURE



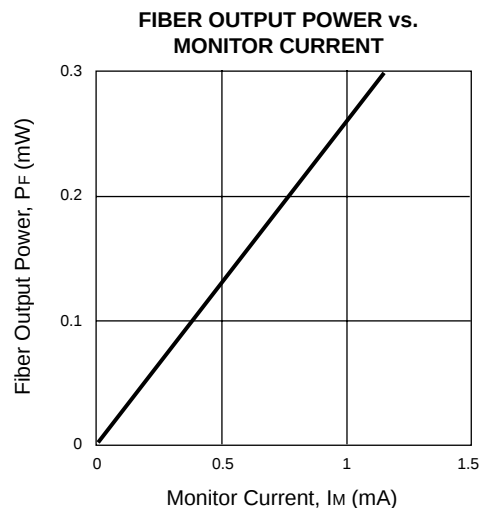
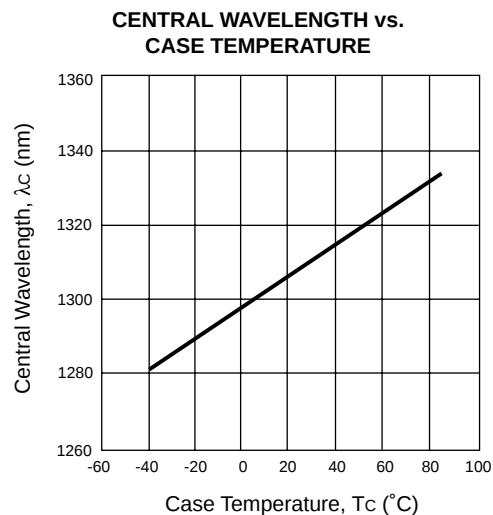
TRACKING ERROR CHARACTERISTICS



SLOPE EFFICIENCY vs.
CASE TEMPERATURE



TYPICAL PERFORMANCE CURVES



OUTLINE DIMENSIONS (Units in mm)

