

1550 nm DFB 2.5G Analog Laser Diode Module With Pigtail Connection and FC/APC

Data Sheet

OLD3468-F4-AFC

Features

- Uncooled
- Single Isolator
- Type A laser
- Low threshold current
- Horizontal flange
- Power Output: 2 mW
- 1550nm InGaAsP/ InP DFB laser diode
- High speed InGaAs monitor PIN photodiode
- Singlemode fiber with FC/APC connector
- Operating Temperature: -20 ~ +85° C

Applications

- Wireless (CDMA, GSM, PCS) fiber-optic repeaters
- Analog Transmission

Description

The OLD3468-F4-AFC is a hermetically sealed InGaAsP/ InP DFB laser diode module in a small coaxial type package, including a high speed InGaAs PIN monitor photodiode and singlemode fiber pigtail connection with a FC/APC interface. It comes with a single isolator and a horizontal flange.

The laser diode is designed for use in Wireless (CDMA, GSM, PCS) fiber-optic repeaters and Analog Transmission over singlemode fiber, and can operate in temperatures of -20° C to +85° C. The laser diode module transmits emission power to the monitor photodiode in the rear, which ensures highly stable emission at a wavelength of 1550nm.

Safety

Radiation emitted by laser diode devices can be dangerous to the eyes. Avoid direct or scattered radiation exposure to the eyes or skin. Device contains gallium arsenide (GaAs) which can be hazardous to your health. Please embrace all customary precautions and discretion while handling this device. Observe governmental laws and regulations when discarding this device.

Performance Specifications

Absolute Maximum Ratings

Stresses in excess of the absolute maximum ratings can cause damage to the optical device. Operations of the optical device are suggested to remain within the recommended operating conditions. Exposure to the absolute maximum ratings for extended periods can adversely affect device reliability.

Parameter	Symbol	Value	Unit
Storage Temperature	T_{stg}	-40 to +85	°C
Operating Case Temperature	T_{op}	-20 to +85	°C
Peak Optical Output Power	P_o	8	mW
Forward Current (LD)	I_{FLD}	150	mA
Reverse Voltage (LD)	V_{RLD}	2	V
Reverse Current (PD)	I_{RPD}	5	mA
Reverse Voltage (PD)	V_{RPD}	20	V
Soldering Temperature	S_{temp}	260	°C
Soldering Time	S_{time}	10	sec

Electrical and Optical Characteristics ($T_c=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Threshold Current	I_{th}	CW	-	8	15	mA
		CW, $T_c=-20\sim 85^\circ\text{C}$	-	-	50	
Operating Voltage	V_{op}	CW, Pop, $T_c=-20\sim 85^\circ\text{C}$	-	1.1	1.5	V
Operating Current	I_{op}	Pop=2.0mW	-	25	50	mA
Peak Wavelength	λ_p	Pop=2.0mW, $T_c=-20\sim 85^\circ\text{C}$	1530	1550	1570	nm
Side-mode Suppression Ratio	SMSR	Pop=2.0mW, $T_c=-20\sim 85^\circ\text{C}$	30	-	-	dB
Wavelength Temp. Coefficient	$\Delta\lambda/\Delta T$		-	0.09	-	nm
Rise Time/ Fall Time	T_r/T_f	$I_b=I_{th}$, 20%~ 80%	-	-	0.20	ns
Monitor Current	I_m	Pop, $V_{rp}=5V$	50	-	1500	uA
Monitor Dark Current	I_d	$V_{rp}=5V$	-	-	100	nA
Monitor Capacitance	C	$V_{rp}=5V$, $f=1\text{MHz}$	-	-	10	pF
Tracking Error	-	APC, $-20\sim 85^\circ\text{C}$	-	-	± 1.0	dB
Optical Isolation	ISO		30	-	-	dB

RF Characteristics (T_c=25 °C)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Relative Intensity Noise	RIN	CW, Pop, f=2200 MHz	-	-154	-145	dB/Hz
Third-Order Distortion	IMD3	Pop, OMI=20% tone, Two-tone test, f1=2200 MHz, f2=2202.5 MHz	-	-	-56	dBc
Cut-off Frequency	Fc	Pop	-	3	-	GHz

Fiber Pigtail Specifications

Parameter	Symbol	Min	Typ	Max	Unit
Fiber Type	Singlemode Fiber (Flame Retardant Hytrel Coating)				
Cladding Diameter	Dcl	122	125	128	μm
Mode Field Diameter	Dmf	-	10	-	μm
Coating Diameter	Dbc	-	0.9	1	mm
Pigtail Length ¹	L	0.9	1.0	1.1	m
Bending Radius	Rb	30	-	-	mm
Connector Type	FC/APC				

Note:

1. From the ferrule-end to the bottom of the TO-header.

Additional Data (T_c=25 °C)

Parameter	Symbol	Condition	Unit
Threshold Current	I _{th}	CW	mA
Operating Current	I _{op}	Pop=2mW, CW	mA
Operating Voltage	V _{op}	Pop=2mW	V
Monitor Current	I _m	Pop=2mW	μA
Peak Wavelength	λ _p	Pop=2mW	nm
Side-mode Suppression Ratio	SMSR	Pop=2mW	dB

