

10Gb/s DFB Laser Module (Preliminary)

Description

The direct-modulated laser(DML) module is a cost-effective solution for 10 Gbits/s digital transmission using conventional intracity SMF28 single-mode fiber links. The package contains a high-speed DFB laser chip, thermoelectric cooler, thermistor, optical isolator, and a rear-facet monitor photodiode, which allows external optical control.

Characteristics

(T_c=25°C)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Threshold Current	I _{th}	CW	-	10	25	mA
Operating Current	I _{op}	CW	-	-	50	mA
Operating Voltage	V _{op}	CW	-	1.3	1.8	V
Input Impedance	Z _{in}	P _F =2mW	-	50	-	Ω
Monitor Operating Current	I _m	-	10	-	200	μ A/mW
Thermistor Resistance	R _T	@+25°C	9	10	11	K Ω
Thermistor Temp. Coeff.	-	@+25°C	-	-4.8	-	%/°C
Center Wavelength	λ _c	CW, I _F =I _{op}	1290	-	1330	nm
Optical Output Power From Fiber End	P _F	CW, I _F =I _{op}	2	-	-	mW
Side Mode Suppression Ratio	SMSR	CW, I _F =I _{op}	30	-	-	dB
Optical Isolation	-	-	30	-	-	dB
Cut off Frequency (-3dB)	f _c	P _F =2mW	10	-	-	GHz
Rise And Fall Time (10%~90%)	t _r , t _f	-	-	-	50	ps
Tracking Error	E _r	T _c =-20~+65°C, APC, ATC	-	-	0.5	dB
Relative Intensity Noise	N _r	CW, P _F =2mW, 0.5~3GHz	-	-155	-145	dB/Hz

Features

- Direct modulated 1310nm laser module
- Input impedance is 50Ω
- Emission wavelength is in 1.31 μm band
- Application to 10Gb/s
- Built-in optical isolator
- Built-in thermoelectric cooler
- GPO RF connector
- With photodiode for optical output monitor

Absolute Maximum Ratings

Parameter	Symbol	Test Condition	Ratings	Unit
Storage Temperature	T _{stg}	-	-40 ~ +70	°C
Operating Temperature	T _{op}	-	-20 ~ +65	°C
TE Cooler Current	I _c	@+65°C	1.5	A

Applications

- High speed transmission systems(~10Gb/s)