



## 1650nm DFB Butterfly Laser Module ( 14 pins )

### Features

- High Linearity Direct Modulation DFB laser
- High Output Power 1 ~ 100mW
- Built -in Isolator , TEC, Thermistor and Monitor PD
- Hermetically Sealed 14 Pin Butterfly Package
- RoHs Compliant

### Application

- Long Reach Analog Transmission Systems
- Light Source
- Sensor
- Optical Communication
- Test equipment

### Absolute Maximum Ratings (Tc=25°C .unless otherwise specified)

Parameter	Symbol	Min.	Max.	Unit	Test Condition
Laser Chip	I <sub>FL</sub>	-	1200	mA	Forward Current
	I <sub>RL</sub>	-	2	mA	Reverse Current
Reverse Voltage (Laser diode)	V <sub>RL</sub>	-	2	V	Reverse Current <500uA
Storage Temperature	T <sub>stg</sub>	-40	+100	°C	-
Soldering Temperature/Time	-	260/10		°C/S	-

Relative Humidity	$R_H$	-	95	%	Top < 30 °C
Thermal Electric Cooler	-	-	2	V	Voltage
	-	-	1.5	A	Current
Fiber Yield Strength	-	-	30	nm	-
Fiber Bend Radius	-	-	1	kgf	-
Monitor Detector	$V_{RD}$	-	15	V	Reverse Voltage
	$I_{RD}$	-	1	mA	Reverse Photo Current
	$I_{FD}$	-	2	mA	Forward Current

## Operating Conditions

Parameter	Symbol	Min	Typ.	Max.	Unit	Test Conditions
Caser Operating Temperature Range	$T_C$	- 20	-	60	°C	-
Power Supply Voltage	$V_{CC}$	-	-	5	V	-
Relative Humidity	$R_H$	-	-	80	%	-
Bias Current	$I_D$	-	-	70	mA	-

TEC Cooler Current	I <sub>cooler</sub>	-	-	1	A	ΔT=40K
TEC Voltage	V <sub>cooler</sub>	-	-	2	V	ΔT=40K

## Specifications ( electrical & optical characteristics )

Parameter	Symbol	Min	Typ.	Max.	Unit	Test Conditions
Operating Voltage	V <sub>op</sub>	-	-	3	V	CW
Threshold Current	I <sub>th</sub>	-	10	45	mA	CW
Thermistor	R <sub>th</sub>	9.5	10	10.5	KΩ	25 °C
Thermoelectric cooler current	I <sub>cooler</sub>	-	-	1000	mA	CW, -5 °C ~ 60 °C
Monitor Current	I <sub>m</sub>	10	-	150	uA	CW, V <sub>rd</sub> = 5V
Monitor Dark Current	I <sub>d</sub>	-	-	500	nA	CW, V <sub>rd</sub> = 5V
Central Wavelength	λ <sub>c</sub>	1645	1650	1655	nm	CW, 25 °C
Output Power	P <sub>o</sub>	1	-	100	mW	CW

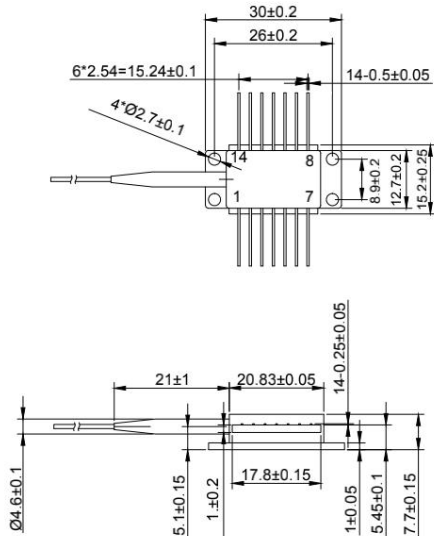
Side Mode Suppression Ratio	SMSR	30	50	-	dB	CW, $I_f = I_{th} + 20 \text{ mA}$
Slope Efficiency	$S_e$	-	0.3	-	mW/mA	CW
Spectral Width	$\Delta \lambda$	-	-	0.3	nm	CW, -20dB
Bias Current	$I_B$	-	-	70	mA	-
Tracking Error	$\Delta P_f$	-	-	0.5	dB	CW, $-5 \text{ }^\circ\text{C} \sim 60 \text{ }^\circ\text{C}$ , $I_m = I_m @ 25 \text{ }^\circ\text{C}$
Monitor PD Capacitance	C	-	-	0.5	pF	$V_{rd} = 5 \text{ V}$ , $F = 1 \text{ MHz}$
Connector Repeatability		-	-	0.3	dB	CW
Frequency Range	F	45	-	1000	MHz	-
Tracking Error	$E_r$	-	-	1	dB	$T_c = -20 \sim 65 \text{ }^\circ\text{C}$ , APC, ATC
Rise Time / Fall Time	$T_r / T_f$	-	-	2.0	ns	10-90% / 90-10%

\* CWDM DFB wavelength tolerance + - 3nm.

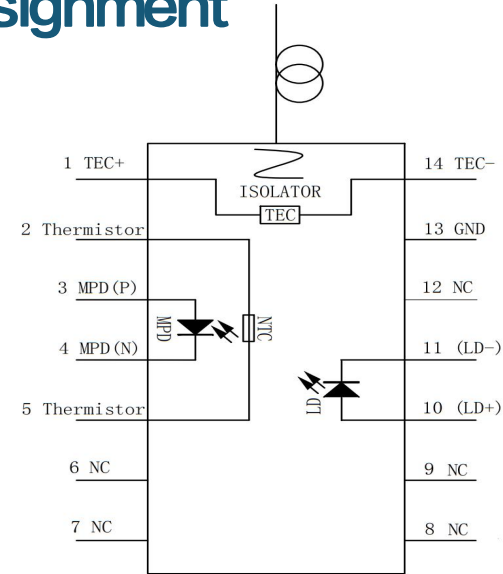
\* LAN-WDM , MWDM ,DWDM wavelength tolerance belongs to their specific properties.

\* 1625nm . 1650nm. 1654nm wavelength tolerance + - 5nm.

## Dimensions(nm)



## Pin Assignment



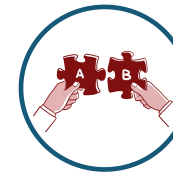
## Order Information

## GTA9012



Please let us know your request details before order.

\*\* If you have your own Pin Assignment request .  
Kindly share it with us before order .



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