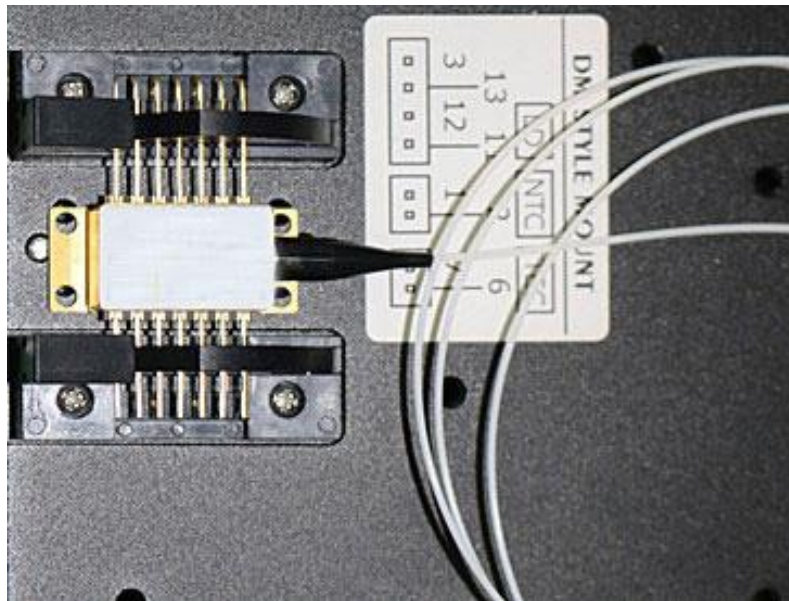


## 1550nm 10mW single mode DFB laser



### ● Product Description

With optimized optical properties, 1550nm single-mode DFB is an ideal choice for demanding sensing system applications. The innovative chip design has suppressed high-order longitudinal and transverse modes while maintaining linear polarization stability. The laser has high output power, narrow line width and good consistency and is currently favored by domestic scientific research customers. At present, our existing inventory wavelengths cover 1000-2400nm. For some specific application areas of customers, we can provide customers with customized chip screening services.

## ● Product features

Ultra-high output power、 Narrow linewidth、 Internal TEC and thermistor 、  
 2 nm TEC tunability

## ● Part Number

MP-DFB-1550-10-A81-14BF-SA

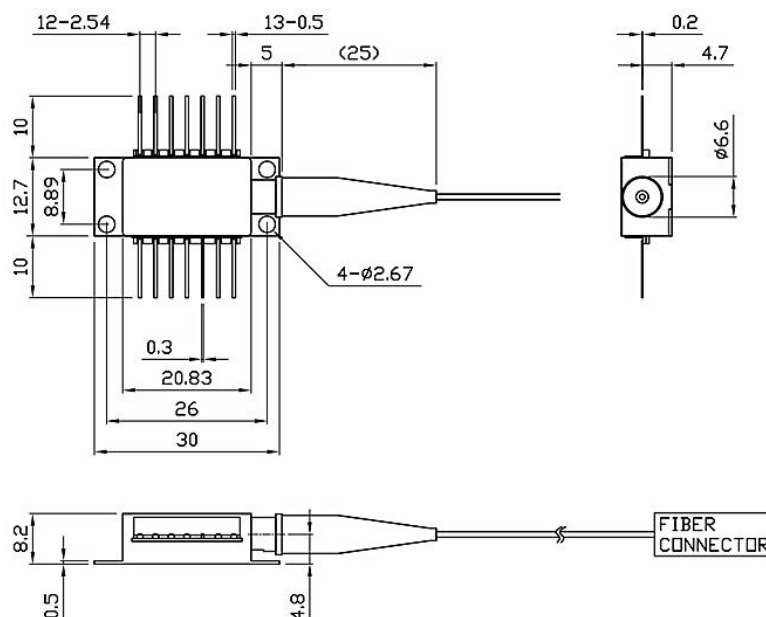
## ● Application area

Fiber optic communication、 Seed source

## ● Core parameters

Wavelength	Output Power	Bandwidth
1550nm	10mW	3MHz

## ● Dimension Drawing





## ● General Parameters

### Parameter

Parameter	Symbol	Min.	Typical	Max.	Unit	Note
Incident wavelength	$\lambda_R$	1549	1550.1 2	1551	nm	T = 20°C, I <sub>TEC</sub> = 0, P <sub>OP</sub> = 20mw
Threshold current	I <sub>TH</sub>		10	35	mA	T = 20°C
Output power	P <sub>opt</sub>	20	30	40	mW	T = 0 ... 50°C
Threshold voltage	U <sub>TH</sub>		1.80		V	
Laser current	I <sub>OP</sub>			200	mA	P <sub>opt</sub> = 20mw
Laser voltage	U <sub>OP</sub>		2.0		V	P <sub>opt</sub> = 20mw
Electro-optical conversion ratio	$\eta_{WP}$		12		%	P <sub>opt</sub> = 20mw
Slope efficiency	$\eta_s$		0.74		W/A	T = 20°C
3dB modulation bandwidth	v3dB	0.10			GHz	P <sub>opt</sub> = 20mw (F or ESD protection diodes)
Relative noise intensity	RIN		-130	-120	dB/Hz	P <sub>opt</sub> = 0.3 mW @ 1 GHz
Wavelength tuning current			0.01		nm/m	



					A	
Wavelength tuning temperature			0.1		nm/de g	
Thermistor	$R_{\text{thermal}}$	3		5	K/mW	
Side mode suppression		30			dB	
Beam divergence	$\theta$	10		25	°	$P_{\text{opt}} =$ 20mwFull $1/e^2$ bandwidth h
Spectral bandwidth	$\Delta\nu$		3		MHz	$P_{\text{opt}} = 20\text{mw}$
TEC current	$I_{\text{TEC}}$			1000	mA	Proper heat sink required
NTC Thermistors		9.5	10.0	10.5	k $\Omega$	T= 25°C
NTC temperature dependence		$10/\exp[3892 \cdot (1/298$ $K-1/T_{\text{OP}})]$			k $\Omega$	

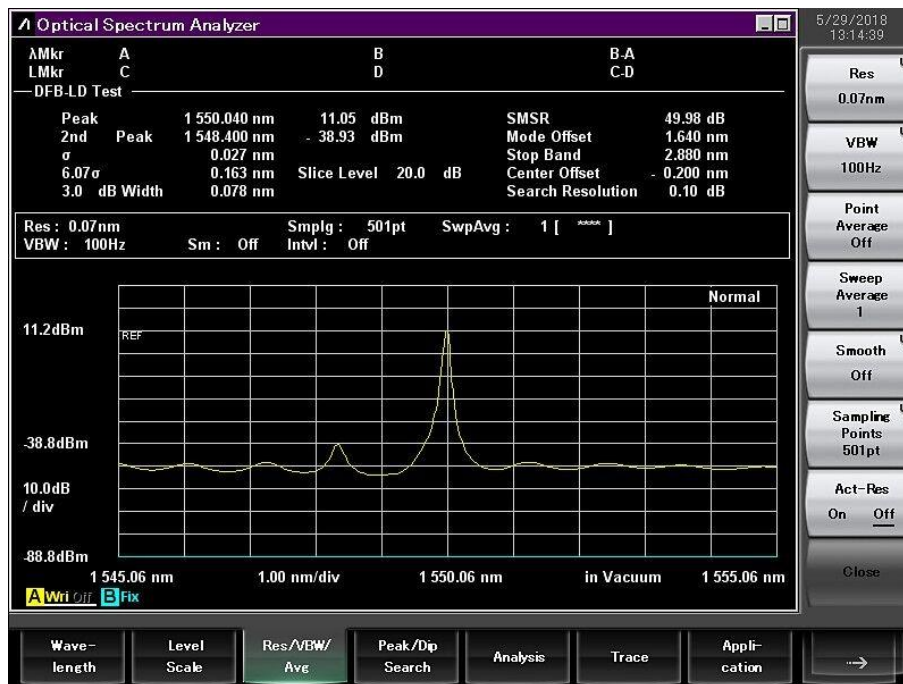




## Absolute Maximum

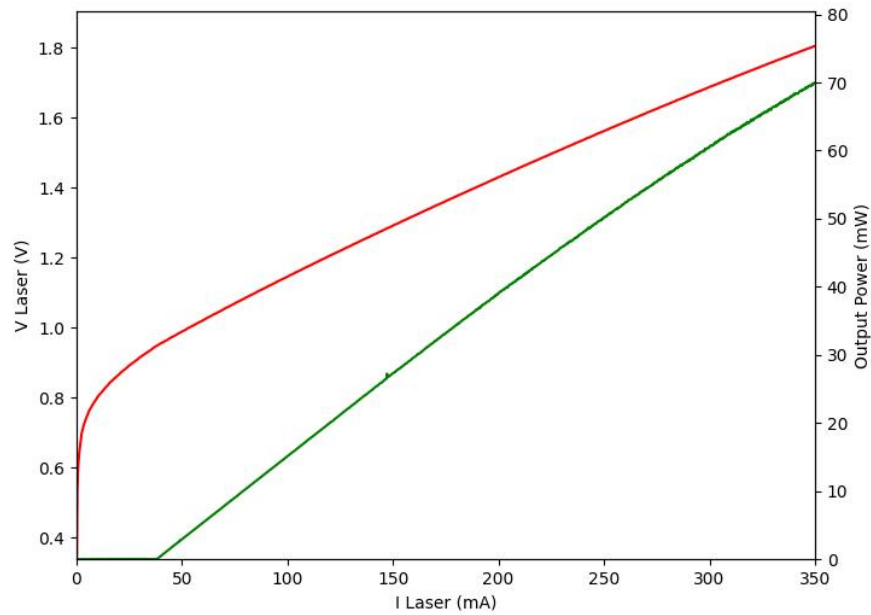
storage temperature	-40 ... 125°C
Operating temperature	-20 ... 80°C
Electric power loss	500mW
Forward laser current	2000mA
Backward current	10mA
Soldering temperature*	270C°
(*TEC temperature must be below 70°C)	

## Spectrum

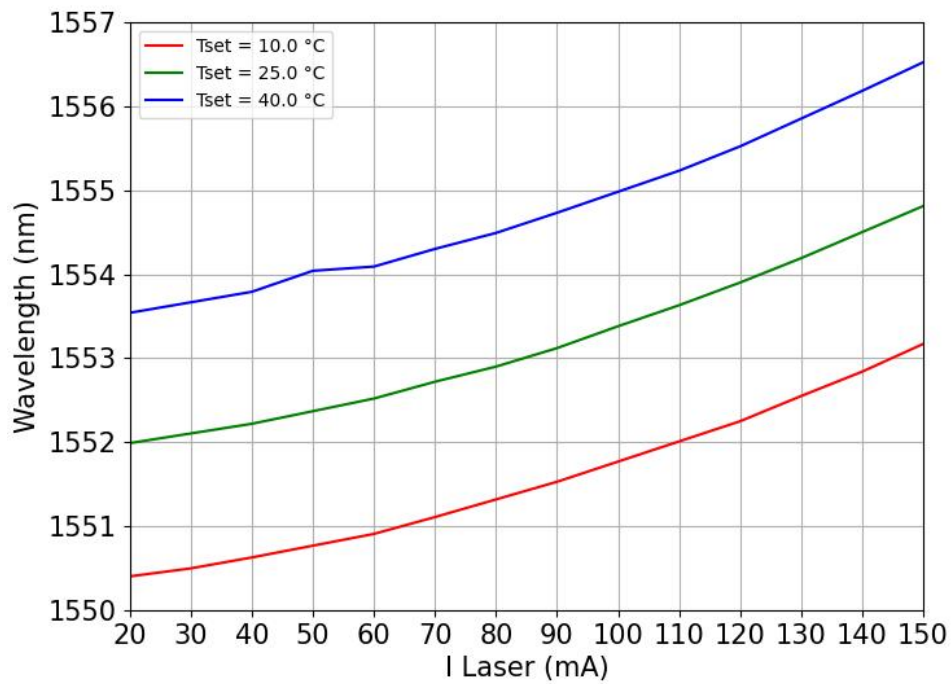




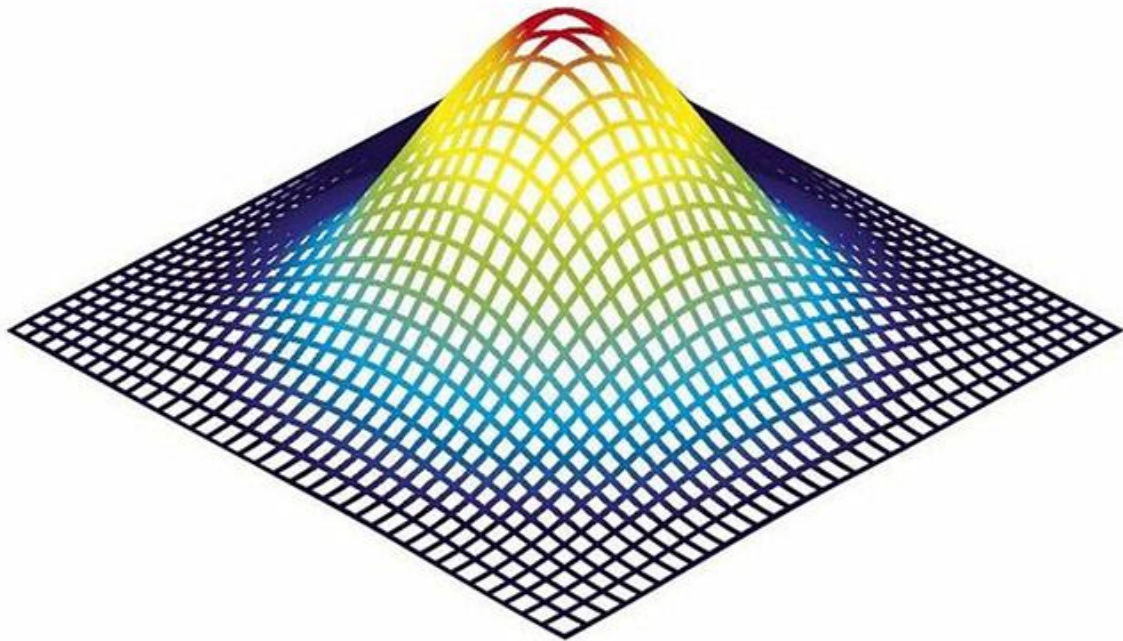
## L-I-V curve



## Temperature/wavelength tuning of TEC current

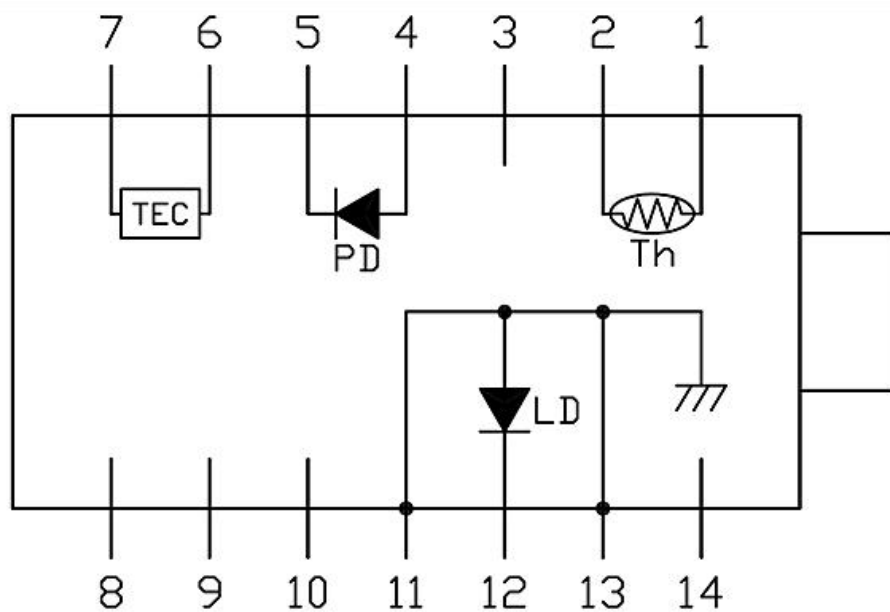


## Beam quality analysis



## Pin definition

With TEC pin configuration





<b>1</b>	<b>Thermistor</b>	<b>8</b>	<b>NC</b>
<b>2</b>	<b>Thermistor</b>	<b>9</b>	<b>NC</b>
<b>3</b>	<b>NC</b>	<b>10</b>	<b>NC</b>
<b>4</b>	<b>PD Monitor Anode (-)</b>	<b>11</b>	<b>Laser Anode (+),Case Ground</b>
<b>5</b>	<b>PD Monitor Cathode (+)</b>	<b>12</b>	<b>RF Laser Input Cathode (-)</b>
<b>6</b>	<b>Thermoelectric Cooler (+)</b>	<b>13</b>	<b>Laser Anode (+),Case Ground</b>
<b>7</b>	<b>Thermoelectric Cooler (-)</b>	<b>14</b>	<b>NC</b>