



## SPM650-1W-105M-PDT-9P

- Red Fiber-Coupled Laser Diode Module
- 658 nm, 1 W
- 105  $\mu\text{m}$  Multimode Fiber
- Build-in PD and TEC



### Description

**SPM650-1W-105M-PDT-9P** is a red fiber-coupled laser diode module, typically emitting at 658 nm with an output power of 1 W. It comes in a 9-pin package with 105  $\mu\text{m}$  multimode fiber and FC/PC connector, built-in TEC cooler, thermistor and photodiode.

**Additional options** like alternative fiber connector are available on request.

### Maximum Rating ( $T_{\text{CASE}} = 25^{\circ}\text{C}$ )

Parameter	Symbol	Values		Unit
		Min.	Max.	
Reverse Voltage	$V_R$		2.0	V
Operating Temperature	$T_{\text{OPR}}$	+ 10	+ 40	$^{\circ}\text{C}$
Storage Temperature	$T_{\text{STG}}$	- 20	+ 80	$^{\circ}\text{C}$
Soldering Temperature (max. 3s)	$T_{\text{SOL}}$		+ 260	$^{\circ}\text{C}$

### Electro-Optical Characteristics ( $T_{\text{CASE}} = 25^{\circ}\text{C}$ )

Parameter	Symbol	Values			Unit
		Min.	Typ.	Max.	
Peak Wavelength	$\lambda_P$	650	658	665	nm
Output Power	$P_O$		1		W
Spectral Width (FWHM)	$\Delta\lambda$		2.0		nm
Temperature Coefficient			0.25		$\text{nm}/^{\circ}\text{C}$
Operating Voltage	$V_F$		2.4	2.8	V
Threshold Current	$I_{\text{th}}$		0.4	0.6	A
Operating Current	$I_F$		1.4	1.6	A
TEC Current	$I_{\text{TEC}}$			6	A
TEC Voltage	$V_{\text{TEC}}$			9.8	V
Thermistor			10		K
Fiber	Type		Multimode		
	Core		105		$\mu\text{m}$
	Numerical Aperture		0.22		
	Connector *		FC/PC		
	Length	80			cm



\* optional: SMA905



## Electrical Connection

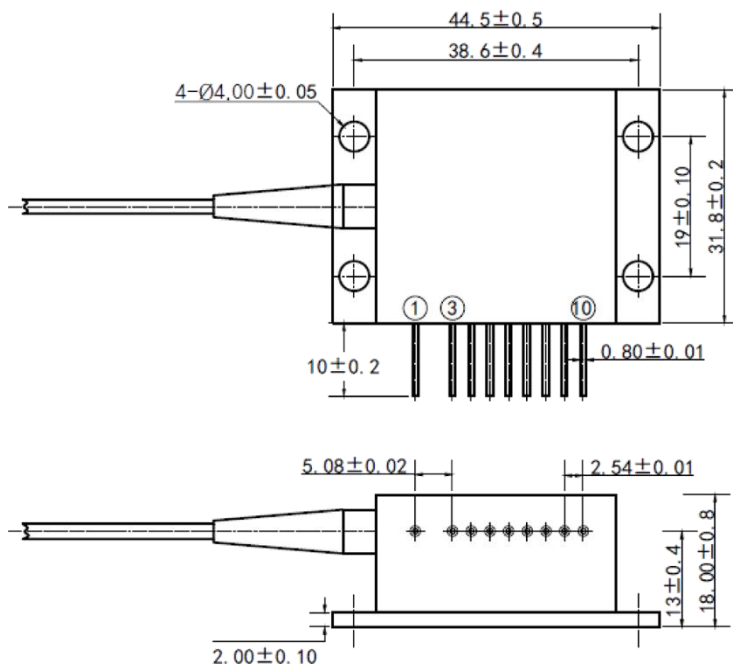
Pin Configuration\*

PIN #	Function	PIN #	Function
1	TEC -	6	Thermistor
2	-	7	LD Cathode
3	Case	8	PD Anode
4	LD Anode	9	PD Cathode
5	Thermistor	10	TEC +



\* subject to change

## Outline Dimension



All dimensions in mm



## Precautions

### Safety

**Caution:** Laser light emitted from any laser diode may be harmful to the human eye. Avoid looking directly into the laser diode's aperture when the diode is in operation.

**Note:** The use of optical lenses with this laser diode will increase eye hazard



### ESD Caution

Always do handle laser diodes with extreme care to **prevent electrostatic discharge**, the primary cause of unexpected diode failure. To prevent ESD related failures we strongly advise to always **wearing wrist straps**, and **grounding all applicable work surfaces**, when handling laser diodes



### Operating Considerations

We strongly advise to only operate this laser diode with a current source. The current of a laser diode is an exponential function of the voltage across it. **Usage of current regulated drive circuits is mandatory.**

Laser diodes may be damaged by excessive drive currents or switching transients

It is advised, to operate the laser diode at the lowest temperature possible, and to never exceed maximum specifications as outlined in the datasheet. Device degradation will accelerate with increased temperature. **Proper heat sinking will greatly enhance stability and life-time of the laser diode.**