



### Connectorized 10Gbps 850nm VCSEL plus Monitor PD with FPC, -40~85°C

Part No.TLC-P85A646-10M

#### Features

- LC-type optical sub-module with flexible circuit attached.
- Optimized for fiber optic application.
- Support up to 10.3125Gbps data rate operation.
- Isolated pinout between LD and monitor PD.
- Operating temperature -40 to 85 °C



#### Specifications

Absolute Maximum Ratings				
Parameters	Min.	Max.	Unit	Conditions
Storage Temperature	-40	100	°C	
Operating Temperature	-40	85	°C	
Lead Solder Temperature		260	°C	10 seconds
Continuous Forward Current		10	mA	
Continuous Reverse Voltage		10	V	

Electro-Optical Characteristics						
Parameters	Symbol	Min.	Typ.	Max.	Unit	Conditions
Threshold Current	$I_{th}$		1.0	1.5	mA	$T_A=25\text{ }^\circ\text{C}$
			2.0	2.5		$T_A=85\text{ }^\circ\text{C}$
Slope Efficiency	$\eta$	0.09		0.17	mW/mA	$I_F=6\text{ mA}$
Wavelength	$\lambda_P$	840	850	860	nm	$I_F=6\text{ mA}^{(2)}$
Forward Voltage	$V_F$	1.7		2.4	V	$I_F=6\text{ mA}$
Rise Time / Fall Time	$T_r / T_f$		50		ps	$I_F=6\text{ mA}$ , ER= 5 dB
Relative Intensity Noise	RIN			-128	dB/Hz	$I_F=6\text{ mA}$ , f= 1GHz
Spectral width (RMS)	$\Delta\lambda$			0.45	nm	$I_F=6\text{ mA}$ , $T_A= -10\sim 85\text{ }^\circ\text{C}$
Monitor Current	$I_M$	30		500	uA	$V_R=5\text{ V}$ , $P_{OC}=600\text{ uW}^{(3)}$
PD Dark Current	$I_d$			20	nA	$V_R=5\text{ V}$ , $T_A=25\text{ }^\circ\text{C}$
PD Capacitance	$C_M$		12		pF	$V_R=3\text{ V}$ , f= 1MHz

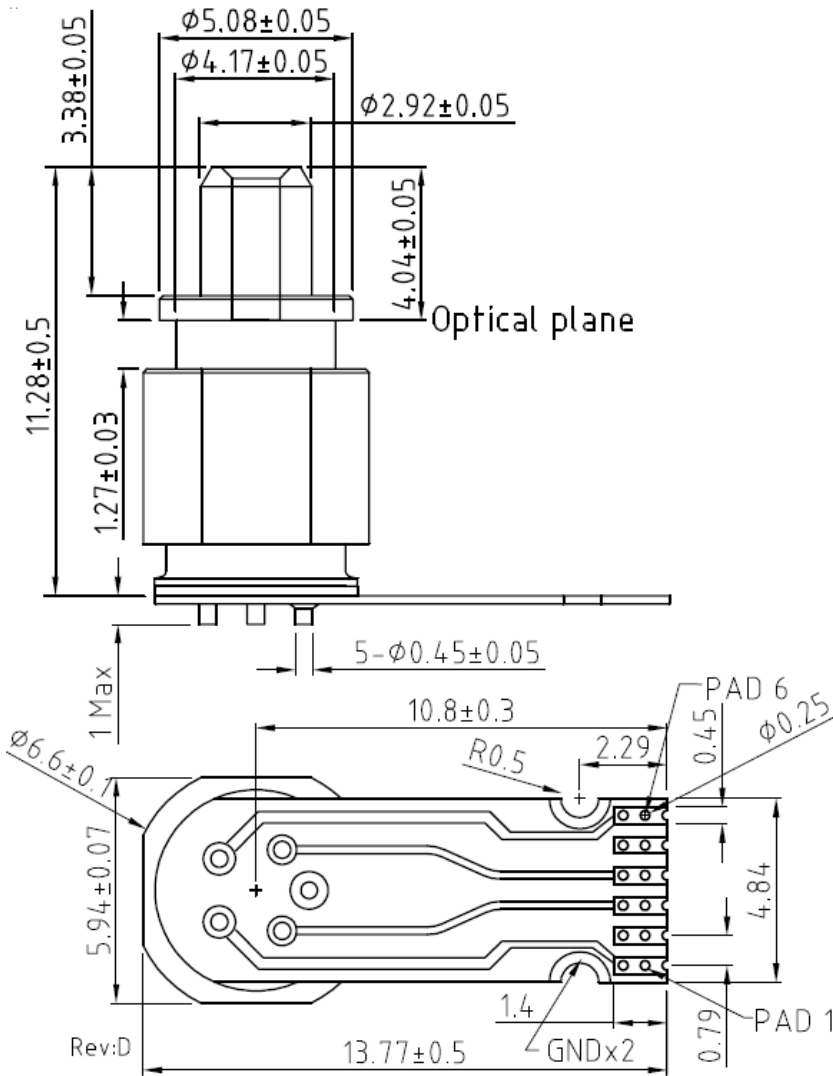
Thermal Characteristics						
Parameters	Symbol	Min.	Typ.	Max.	Unit	Conditions
$I_{th}$ Temperature Variation	$\Delta I_{th}$			1.5	mA	$T_a=-40\sim 85\text{ }^\circ\text{C}$
$\eta$ Temperature Coefficient	$\Delta\eta/\Delta T$		-0.4		%/°C	$T_a=-40\sim 85\text{ }^\circ\text{C}$ , $I_F=6\text{ mA}$
$\lambda_P$ Temperature Coefficient	$\Delta P/\Delta T$		0.07		nm/°C	$T_a=-40\sim 85\text{ }^\circ\text{C}$ , $I_F=6\text{ mA}$
Tracking Error	TE	-1.5		1.5	dB	$T_a=-40\sim 85\text{ }^\circ\text{C}^{(4)}$
Series Resistance	$R_s$		70	85	Ohm	$T_a=25\text{ }^\circ\text{C}$ , $I_F=6\text{ mA}$
			60			$T_a=85\text{ }^\circ\text{C}$ , $I_F=6\text{ mA}$

#### Notes:

1. All parameters except mentioned are measured at  $I_F=6\text{ mA}$ ,  $25\text{ }^\circ\text{C}$ , unless otherwise stated.
2. Minimum and Maximum values are valid over the entire ambient temperature range.
3.  $P_{OC}$ =Coupled Optical Power, be measured with a multi-mode 50/125 $\mu\text{m}$  fiber and ambient temperature  $25\text{ }^\circ\text{C}$ .
4. CW,  $I_M = \text{Constant}$  (@ $P_o = I_{th}+4\text{ mA}$ ,  $25\text{ }^\circ\text{C}$ ),  $TE=10\log[(P_o@T_a)/(P_o@25\text{ }^\circ\text{C})]$



**Outline Dimensions (unit: mm)**



**Pin Configuration**

Number	Function
1	PD Cathode
2	Case / Gnd
3	VCSEL Anode
4	VCSEL Cathode
5	Case / Gnd
6	PD Anode

Note: Specifications are subject to change without notice.