

TTF-1F59-327/ TTF-1F59-427

10Gbps LC Connectorized 850nm VCSEL plus Monitor PD with FPC

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.



ELECTRO-OPTICAL CHARACTERISTICS:

PARAMETERS	SYMBOL	MIN	TYP	MAX	UNIT	TEST CONDITIONS ⁽¹⁾
Threshold Current	I_{th}		0.8	1.5	mA	$T_A=25^{\circ}\text{C}$
			1.3	1.85		$T_A=85^{\circ}\text{C}$
Slope Efficiency	η	0.09		0.17	mW/mA	$I_F=6\text{mA}$
Forward Voltage	V_F	1.5		2.6	V	$I_F=6\text{mA}$
Series Resistance	R_S		100		Ω	$I_F=6\text{mA}, T_A=25^{\circ}\text{C}$
Wavelength	λ_P	840	850	860	nm	$I_F=6\text{mA}^{(2)}$
Spectral width (RMS)	$\Delta\lambda$			0.45	nm	$I_F=6\text{mA}, T_A=25^{\circ}\text{C}$
Rise / Fall Time(20 % ~ 80 %)	T_r / T_f			50	ps	$I_F=6\text{mA}, \text{ER}=4.5\text{dB}$
Monitor Current	I_M	100		900	μA	$V_R=5\text{V}, P_{oc}=600\mu\text{W}^{(3)}$
PD Dark Current	I_d			20	nA	$V_R=5\text{V}, T_A=25^{\circ}\text{C}$
PD Capacitance	C_M		12		pF	$V_R=3\text{V}, f=1\text{MHz}$

THERMAL CHARACTERISTICS:

PARAMETERS	SYMBOL	MIN	TYP	MAX	UNIT	TEST CONDITIONS
I_{th} Temperature Variation	ΔI_{th}			1.5	mA	$T_A=-10\sim 85^{\circ}\text{C}$
η Temperature Coefficient	$\Delta\eta/\Delta T$		-0.5		%/ $^{\circ}\text{C}$	$T_A=-10\sim 85^{\circ}\text{C}, I_F=6\text{mA}$
λ_P Temperature Coefficient	$\Delta\lambda_P/\Delta T$		0.07		nm/ $^{\circ}\text{C}$	$T_A=-10\sim 85^{\circ}\text{C}, I_F=6\text{mA}$
Tracking Error	TE	-1.5		1.5	dB	$T_A=-10\sim 85^{\circ}\text{C}^{(4)}$

Notes:

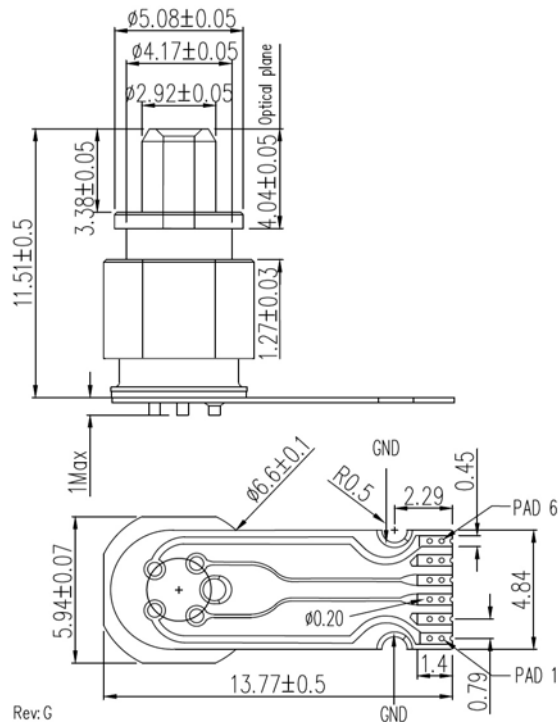
1. All parameters are measured at $I_F=6\text{mA}$, 25°C unless otherwise stated.
2. Minimum and Maximum values are valid over the entire ambient temperature range.
3. P_{oc} =Coupled Optical Power, be measured with a multi-mode 50/125 μm fiber and ambient temperature 25°C .
4. CW, I_M = Constant (@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

ABSOLUTE MAXIMUM RATINGS:

PARAMETERS	MIN	MAX	UNIT	CONDITIONS
Storage Temperature	-40	100	$^{\circ}\text{C}$	
Operating Temperature	-10	85	$^{\circ}\text{C}$	
Lead Solder Temperature		260	$^{\circ}\text{C}$	10 seconds
Peak Continuous Forward Current		10	mA	
Laser Reverse Voltage		10	V	

OUTLINE DIMENSIONS:

- Unit: mm



Pinout:

Pin Number	TTF-1F59-327	TTF-1F59-427
	Function	Function
1	PD Cathode	PD Cathode
2	Case/Gnd	Case/Gnd
3	VCSEL Cathode	VCSEL Anode
4	VCSEL Anode	VCSEL Cathode
5	Case/Gnd	Case/Gnd
6	PD Anode	PD Anode

The VCSEL Laser is a class 1 laser in the safety standard IEC60825-1:2014.

