



FTR-02V-8L4-148/248

Connectorized high speed VCSEL with monitor PD

FEATURES:

- Pre-aligned LC-type receptacle for 50/125um multi-mode fiber communication.
- Design for small form factor transceivers.
- Data rate operation from DC to 2.5Gbps.
- Wide operation temperature range -40°C ~ 85°C.
- Common cathode(-148), common anode(-248)



ELECTRO-OPTICAL CHARACTERISTICS:

PARAMETERS	SYMBOL	MIN	TYP	MAX	UNIT	TEST CONDITIONS
Threshold Current	I_{th}		1.5	2.75	mA	
Forward Voltage	V_F	1.6	1.8	2.1	V	$I_F=6\text{ mA}$
Series Resistance	R_S	30	45	60	Ω	$I_F=6\text{ mA}$
Slope Efficiency	η	0.05	0.08	0.12	mW/mA	$I_F=6\text{ mA}$
Wavelength	λ_p	830	850	860	nm	$I_F=6\text{ mA}$ ⁽³⁾
Rise/Fall Time	tr/ta			0.15	ns	$I_F=6\text{ mA}$
Spectral width (RMS)	$\Delta\lambda$			0.85	nm	$I_F=6\text{ mA}$
Relative Intensity Noise	RIN		-130	-120	dB/Hz	$I@6\text{mA}, f=1\text{GHz}$
PD Monitor Current	I_M	200		800	μA	$V_R=5\text{ V}, P_{OC}=350\mu\text{W}$ ⁽²⁾
PD Dark Current	I_d			20	nA	$V_r=5\text{V}$
PD Capacitance	C_M		12		pF	$V_{rm}=0\text{V}$

Notes:

1. All parameters except mentioned are measured at $I_F=6\text{mA}$, 25°C, CW.
2. P_{OC} =Coupled Optical Power, be measured with a multi-mode 50/125 μm fiber and ambient temperature 25°C.
3. Minimum and Maximum values are valid over the entire ambient temperature range.

THERMAL CHARACTERISTICS:

PARAMETERS	SYMBOL	MIN	TYP	MAX	UNIT	TEST CONDITIONS
I_{th} Temperature Variation	ΔI_{th}			2.0	mA	$T_A=0\sim 70^\circ\text{C}$
				2.0		$T_A=25\sim 85^\circ\text{C}$
			-0.6			$T_A=-40\sim 25^\circ\text{C}$
η Temperature Coefficient	$\Delta\eta/\Delta T$	-0.7	-0.5		%/ $^\circ\text{C}$	$T_A=25\sim 85^\circ\text{C}$
				0.35		$T_A=-40\sim 25^\circ\text{C}$
Series Resistance	R_S			65	Ω	$T_A=-40^\circ\text{C}, I_F=6\text{ mA}$
		30				$T_A=85^\circ\text{C}, I_F=6\text{ mA}$
PD Monitor Current Coefficient	ΔI_M			0.15	%/ $^\circ\text{C}$	$T_A=25\sim 85^\circ\text{C}$
				-0.15		$T_A=-40\sim 25^\circ\text{C}$
λ_p Temperature Coefficient	$\Delta\lambda_p/\Delta T$		0.06		nm/ $^\circ\text{C}$	$T_A=0\sim 70^\circ\text{C}, I_F=6\text{ mA}$

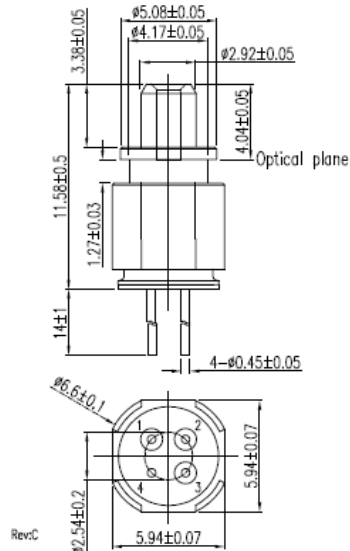
ABSOLUTE MAXIMUM RATINGS:

PARAMETERS	MIN	MAX	UNIT	TEST CONDITIONS
Storage Temperature	-40	100	$^\circ\text{C}$	
Operating Temperature	-40	85	$^\circ\text{C}$	
Lead Solder Temperature		260	$^\circ\text{C}$	10 seconds
Continuous Forward Current		20	mA	
Continuous Reverse Voltage		10	V	



OUTLINE DIMENSIONS:

• Unit: mm

**Pinout:**

Pin Number	TTR-1F43-148	TTR-1F43-248
	Function	Function
1	VCSEL Anode	VCSEL Cathode
2	VCSEL Cathode/ PD Anode	VCSEL Anode/ PD Cathode
3	PD Cathode	PD Anode
4	Case	Case

**WARNING:**

The VCSEL is a class 1M laser in the safety standard ANSI Z136.1 and should be treated as a potential eye hazard.