



# High Speed 10Gbps 850nm VCSEL in TO-46 Metal Can with Monitor Photodiode, -10 to 85°C

Part No. VCT-F85A54-10

## Features

- Industry TO-46 package of flat window for multi-mode fiber communication
- Packaged with monitoring PD
- High coupling efficiency for multi-mode fibers
- Support from DC to 10.3125Gbps data rate operation
- Isolation pin-out configuration



## Specifications

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

Electro-Optical Characteristics						
Parameters	Symbol	Min.	Typ.	Max.	Unit	Conditions
Threshold Current	$I_{th}$		1.2	2.0	mA	$T_A=25^\circ\text{C}$
			2.0	3.0		$T_A=85^\circ\text{C}$
Slope Efficiency	$\eta$	0.09		0.2	mW/mA	$I_F=6\text{ mA}$
Wavelength	$\lambda_P$	840	850	860	nm	$I_F=6\text{ mA}^{(2)}$
Forward Voltage	$V_F$	1.6		2.4	V	$I_F=6\text{ mA}$
Rise Time/Fall Time (20%-80%)	$T_r$		50		ps	$I_F=6\text{ mA}$ , ER=5 dB
PD Dark Current	$I_d$			20	nA	$V_R=5\text{ V}$ , $T_A=25^\circ\text{C}$
PD Capacitance	$C_{PD}$		12		pF	$V_R=3\text{ V}$ @1MHz
Spectral width (RMS)	$\Delta\lambda$			0.45	nm	$I_F=6\text{ mA}$ , $T_A=-10\sim 85^\circ\text{C}$
Relative Intensity Noise	RIN			-128	dB/Hz	$I_F=6\text{ mA}$ , f=1GHz
Monitor Current	$I_M$	20		500	uA	$V_R=5\text{ V}$ , $P_{oc}=600\text{ uW}^{(3)}$
Series Resistance	$R_s$		70	85	$\Omega$	$T_A=25^\circ\text{C}$ , $I_F=6\text{ mA}$
			60			$T_A=85^\circ\text{C}$ , $I_F=6\text{ mA}$

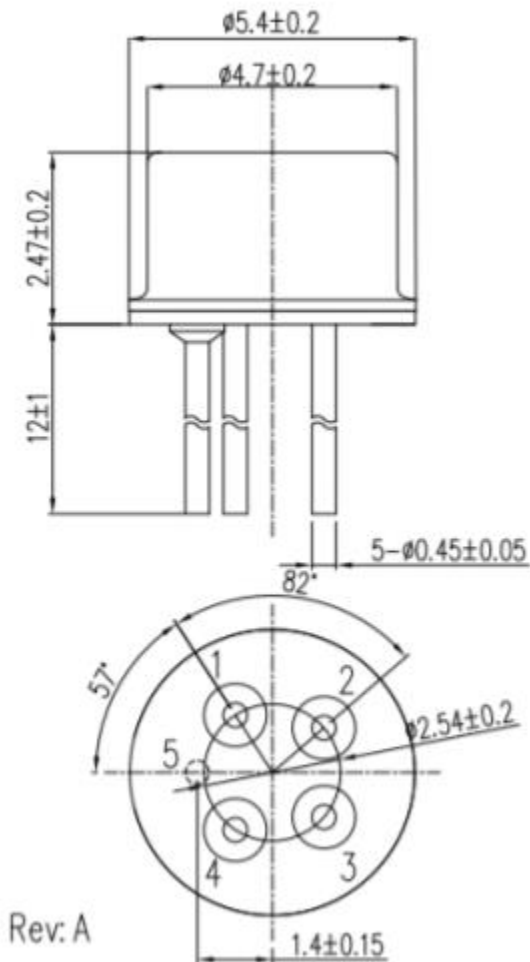
### Notes:

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

Thermal Characteristics						
Parameters	Symbol	Min.	Typ.	Max.	Unit	Conditions
$I_{th}$ Temperature Variation	$\Delta I_{th}$	-1.5		1.5	mA	$T_A=-10\sim 85^\circ\text{C}$
$\eta$ Temperature Coefficient	$\Delta\eta/\Delta T$		-0.4		%/°C	$T_A=-10\sim 85^\circ\text{C}$ , $I_F=6\text{ mA}$
$\lambda_P$ Temperature Coefficient	$\Delta\lambda_P/\Delta T$		0.07		nm/°C	$T_A=-10\sim 85^\circ\text{C}$ , $I_F=6\text{ mA}$
$I_{th}$ Temperature Variation	$\Delta I_{th}$	-1.5		1.5	mA	$T_A=-10\sim 85^\circ\text{C}$



**Outline Dimensions (unit: mm)**



**Pin Configuration**

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

**Additional Notes**

The inherent design of this component causes it to be sensitive to electrostatic discharge (ESD). To prevent ESD-induced damage and/or degradation to equipment, take normal ESD precautions when handling this product.

Note: Specifications are subject to change without notice.