



High Speed 2.5Gbps 850nm VCSEL TO-46 Metal Can with Monitor Photodiode, -10 to 85°C

Part No. VCT-A85A41-3 (Common cathode) | VCT-A85A42-3 (Common anode)

Features

- Industry TO-46 package with cap lens for multimode fiber communication
- Packaged with attenuating coating and monitoring PD
- High coupling efficiency for multi-mode fibers
- High performance of noise and jitter characteristics
- Design 1.25/2.5 Gbps data rate operation
- Common cathode (41-3) or common anode pin (42-3)



Specifications

Absolute Maximum Ratings				
Parameters	Min.	Max.	Unit	Conditions
Storage Temperature	-40	125	°C	
Operating Temperature	-10	85	°C	
Lead Solder Temperature		260	°C	10 seconds
Continuous Forward Current		12	mA	
Continuous Reverse Voltage		5	V	10uA

Electro-Optical Characteristics						
Parameters	Symbol	Min.	Typ.	Max.	Unit	Conditions
Threshold Current	I_{th}		2	2.75	mA	
Slope Efficiency	η	0.08	0.12	0.16	mW/mA	$I_F=6\text{ mA}$
Optical Output Power	P_o		0.4		mW	$I_F=6\text{ mA}$
Wavelength	λ_P	830	850	860	nm	$I_F=6\text{ mA}^{(2)}$
Forward Voltage	V_F	1.6	1.8	2.1	V	$I_F=6\text{ mA}$
Breakdown Voltage	V_{BD}	5	14		V	$I_R=10\text{ uA}$
Rise Time (20%~80%)	T_r		0.10	0.15	ns	$I_{bias}=6\text{ mA}$
Fall Time (20%~80%)	T_f		0.13	0.15	ns	$I_{bias}=6\text{ mA}$
Series Resistance	R_S	30	45	60	Ω	$I_F=6\text{ mA}$
Spectral Width (RMS)	$\Delta\lambda$			0.85	nm	$I_F=6\text{ mA}$
Relative Intensity Noise	RIN		-130	-122	dB/Hz	$I_F=6\text{ mA}, f=1\text{ GHz}$
Monitor Current	I_M	200		800	μA	$P_o=500\text{ uW}$
PD Capacitance	C_{PD}		6	10	pF	$V_R=3\text{ V}, f=1\text{ MHz}$

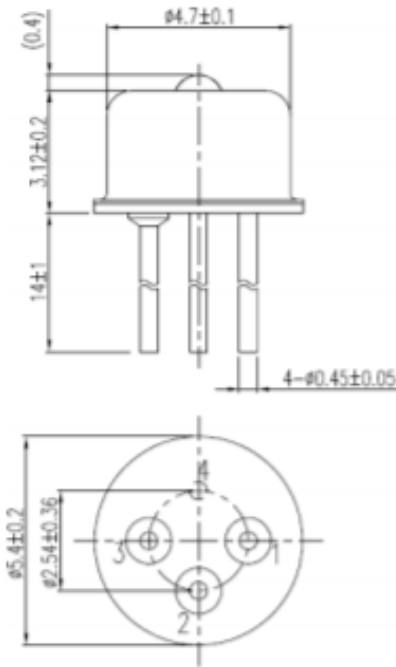
Notes:

1. All parameters except mentioned are measured at $I_F=6\text{ mA}$, 25°C, CW.
2. Minimum and Maximum values are valid over the entire ambient temperature range.

Thermal Characteristics						
Parameters	Symbol	Min.	Typ.	Max.	Unit	Conditions
I_{th} Temperature Variation	ΔI_{th}	-1.5		1.5	mA	$T_A=0\sim 70^\circ\text{C}$
V_F Temperature Coefficient	$\Delta V_F/\Delta T$		-1.5		mV/°C	$T_A=0\sim 70^\circ\text{C}, I_F=6\text{ mA}$
η Temperature Coefficient	$\Delta\eta/\Delta T$	-0.6			%/°C	$T_A=0\sim 70^\circ\text{C}, I_F=6\text{ mA}$
λ_P Temperature Coefficient	$\Delta\lambda_P/\Delta T$		0.06		nm/°C	$T_A=0\sim 70^\circ\text{C}, I_F=6\text{ mA}$



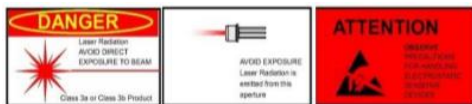
Outline Dimensions (unit: mm)



Pin Configuration

VCT-A85A41-3		VCT-A85A42-3	
Number	Function	Number	Function
1	VCSEL Anode	1	VCSEL Cathode
2	VCSEL Cathode/PD Anode	2	VCSEL Anode/PD Cathode
3	PD Cathode	3	PD Anode
4	Case	4	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.

The VCSEL is a class IIIb laser and should be treated as a potential eye hazard. Due to the size of the component, the applicable warning logotype, aperture label, and certification/identification label cannot be placed on the component itself.

Note: Specifications are subject to change without notice.