



VCT-A85A4x-3

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

Description

The Lasermate VCT-A85A4x-3 is an 850nm wavelength, Vertical Cavity Surface Emitting Laser (VCSEL) diode in TO46 package with cap lens designed for use in 2.5Gbps datacom applications.



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
- Common cathode or common anode pin

Applications

- Designed for 1.25/2.5 Gbps data rate operation

Product Overview

The following table lists the available part numbers, as well as the package type of each of the part numbers.

| Part Number | Description |
|--------------|---|
| VCT-A85A41-3 | 2.5Gbps 850nm VCSEL TO-46, Cap Lens, Common Cathode Pin |
| VCT-A85A42-3 | 2.5Gbps 850nm VCSEL TO-46, Cap Lens, Common Anode Pin |



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 |

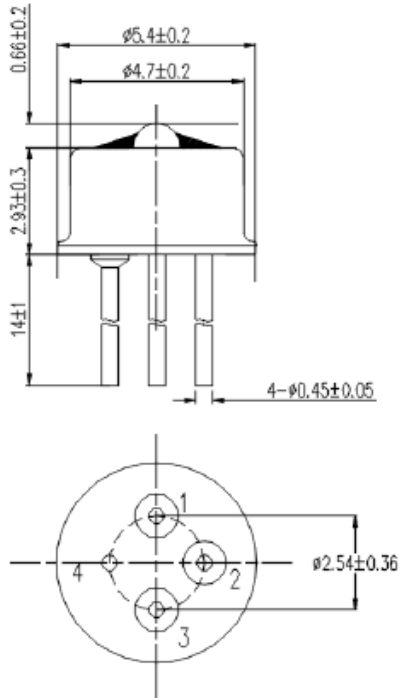
| Electro-Optical Characteristics | | | | | | |
|---------------------------------|-----------------|------|------|------|----------|---------------------------|
| Parameters | Symbol | Min. | Typ. | Max. | Unit | Conditions |
| Threshold Current | I_{th} | | 2 | 2.75 | mA | |
| Slope Efficiency | η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

Notes:

1. All parameters except mentioned are measured at $I_F=6$ 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 | $T_A=0\sim 70^\circ\text{C}$, $I_F=6$ mA |
| η Temperature Coefficient | $\Delta\eta/\Delta T$ | -0.6 | | | %/°C | $T_A=0\sim 70^\circ\text{C}$, $I_F=6$ mA |
| λ_p Temperature Coefficient | $\Delta\lambda_p/\Delta T$ | | 0.06 | | nm/°C | $T_A=0\sim 70^\circ\text{C}$, $I_F=6$ 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.
- Specifications are subject to change without notice.