



High Speed 2.5Gbps 850nm VCSEL TO-46 Metal Can with Monitor Photodiode, 0 to 85°C

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

Features

- Multi-mode 850nm VCSEL
- 1.25/2.5Gbps data rate operation
- Low drive current and voltage
- Ball lens type TO-46 can package
- Packaged with attenuating coating and back monitor photodiode



Applications

- High speed Data communications
- Gigabit ethernet
- Fiber channel

Specifications

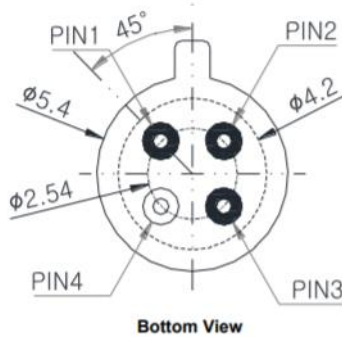
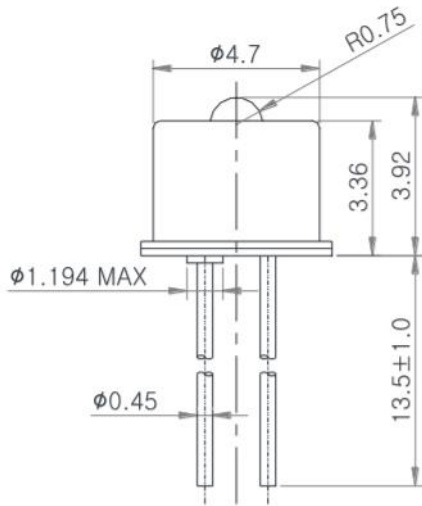
| Absolute Maximum Ratings | | | | | |
|----------------------------|------|------|------|------------|--|
| Parameters | Min. | Max. | Unit | Conditions | |
| Storage Temperature | -40 | 100 | °C | | |
| Operating Temperature | 0 | 85 | °C | | |
| Lead Solder Temperature | | 260 | °C | 10 seconds | |
| Continuous Forward Current | | 12 | mA | | |
| Continuous Reverse Voltage | | 5 | V | 10uA | |

| Electro-Optical Characteristics (T _a =25°C unless otherwise stated) | | | | | | |
|--|-------------------|------|------|------|------|---|
| Parameters | Symbol | Min. | Typ. | Max. | Unit | Conditions |
| Threshold Current | I _{th} | | 1.5 | 3 | mA | CW |
| Slope Efficiency | η | 0.08 | 0.15 | 0.25 | W/A | I _f =7mA |
| Optical Output Power | P _o | | 0.8 | | mW | I _f =7mA |
| Peak Wavelength | λ | 840 | 850 | 860 | nm | I _f =7mA |
| Spectral Bandwidth (RMS) | Δλ | | | 0.85 | nm | I _f =7mA |
| Operating Voltage | V _f | | 1.8 | 2.2 | V | I _f =7mA |
| Breakdown Voltage | V _b | | -10 | | V | |
| Rise and Fall Times | t _r | | | 130 | ps | Prebias above threshold, 20%~80% |
| | t _f | | | 150 | | |
| Series Resistance | R _s | 20 | 35 | 55 | Ohm | I _f =7mA |
| Focal Length | F _D | | 2.5 | | mm | |
| Monitor Current | I _{PD} | 0.1 | | 1.0 | mA | P _o =0.8mW |
| Dark Current | I _D | | | 10 | nA | P _o =0mW, V _R =5V |
| PD Reverse Voltage | BV _{RPD} | 40 | | | V | P _o =0mW, I _R =10uA |
| PD Capacitance | C | | | 50 | pF | V _R =0V, f=1MHz |
| | | | | 20 | | V _R =5V, f=1MHz |

| Thermal Characteristics | | | | | | |
|--|----------------------|------|-------|------|--------|--|
| Parameters | Symbol | Min. | Typ. | Max. | Unit | Conditions |
| I _{th} Temperature Variation | ΔI _{th} | | 1.5 | | mA | T _a =0 to 85°C |
| η Temperature Coefficient | Δη/ΔT | | -0.5 | | %/°C | T _a =0 to 85°C, I _f =7mA |
| λ Temperature Coefficient | Δλ/ΔT | | 0.06 | | nm/°C | T _a =0 to 85°C, I _f =7mA |
| R _s Temperature Coefficient | ΔR _s /ΔT | | -3000 | | PPM/°C | |
| I _{PD} Temperature Variation | ΔI _{PD} /ΔT | | 0.2 | | %/°C | P _o =0.8mW |



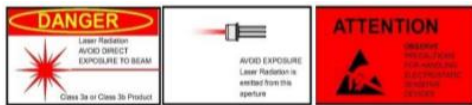
Outline Dimensions (unit: mm)



Pin Configuration

| VCT-A85A41-3C | | VCT-A85A42-3C | |
|---------------|--|---------------|--|
| Number | Function | Number | Function |
| 1 | A _{VCSEL} | 1 | K _{VCSEL} |
| 2 | K _{VCSEL} , A _{m-PD} | 2 | A _{VCSEL} , K _{m-PD} |
| 3 | K _{m-PD} | 3 | A _{m-PD} |
| 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.