

**Features**

- : 850nm wavelength range
- : 40mW VCSEL
- : Gaussian beam profile
- : High reliability
- : Other configurations available on request

**Description**



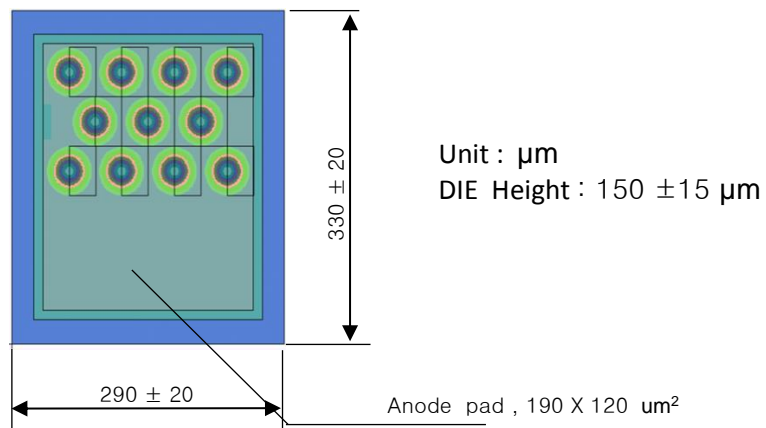
**Applications**

- : Consumer electronics
- : Safety sensor
- : Illumination light source
- : Gesture sensor light source

**Absolute Maximum Ratings**

| Parameter                  | Rating       |
|----------------------------|--------------|
| Storage Temperature        | -40 to 85 °C |
| Operating Temperature      | -10 to 70 °C |
| Continuous Forward Current | 60mA         |

**Dimensions**

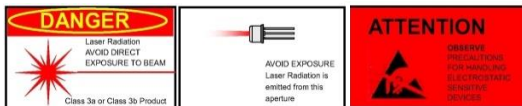


#### Electro-Optics Characteristics ( $T_a=25^\circ\text{C}$ unless otherwise stated)

| Parameters                      | Symbol                     | Specified |      |      | Unit                 | Test Conditions                           |
|---------------------------------|----------------------------|-----------|------|------|----------------------|-------------------------------------------|
|                                 |                            | Min.      | Typ. | Max. |                      |                                           |
| Threshold Current               | $I_{th}$                   |           | 7.0  |      | mA                   | CW                                        |
| $I_{th}$ Temperature Variation  | $\Delta I_{th}$            |           | 3.0  |      | mA                   | $T_a = -10$ to $70^\circ\text{C}$         |
| Slope Efficiency                | $\eta$                     |           | 1.0  |      | W/A                  | $I_f = 45$ mA                             |
| $\eta$ Temperature Variation    | $\Delta\eta / \Delta T$    |           | -0.5 |      | % / $^\circ\text{C}$ | $T_a = -10$ to $70^\circ\text{C}$ at 40mA |
| Optical Output Power            | $P_o$                      |           | 40   |      | mW                   | $I_f = 45$ mA                             |
| Peak Wavelength                 | $\lambda_p$                | 840       | 850  | 860  | nm                   | $I_f = 45$ mA                             |
| $\lambda$ Temperature Variation | $\Delta\lambda / \Delta T$ |           | 0.06 |      | nm/ $^\circ\text{C}$ | $T_a = -10$ to $70^\circ\text{C}$ at 45mA |
| Spectral Bandwidth (RMS)        | $\Delta\lambda$            |           |      | 2    | nm                   | $I_f = 45$ mA                             |
| Beam Divergence                 | $\Theta$                   |           | 13   |      | $^\circ$             | $P_o = 40$ mW (FWHM)                      |
| Operating Voltage               | $V_f$                      |           | 1.9  | 2.3  | V                    | $I_f = 45$ mA                             |
| Breakdown Voltage               | $V_b$                      | -10       |      |      | V                    |                                           |
| Dynamic Resistance              | $R_d$                      |           | 8    |      | Ohm                  | $I_f = 45$ mA                             |

#### Notes

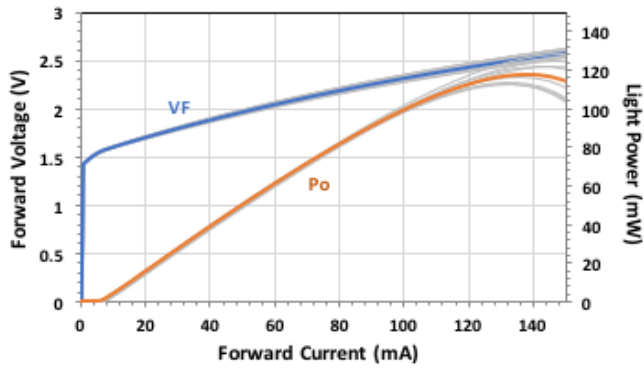
\* These specifications are subject to change without notice.



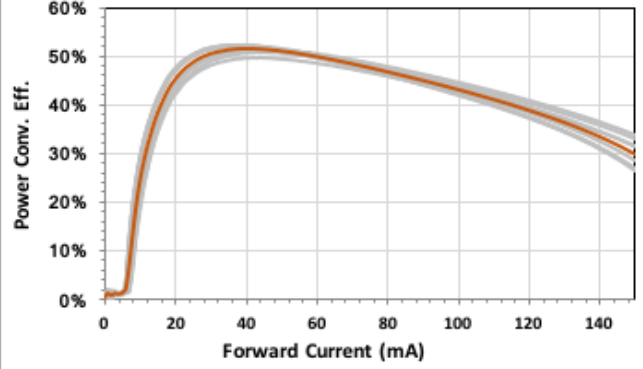
|               |                                                                                                                                                                                                                                                        |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>NOTICE</b> | 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                                 |
| <b>DANGER</b> | 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. |

Characteristics Curves

LIV Curve



Power conversion efficiency



Test PKG sample : To-Can type, To-46  
 Test condition :  
 CW Mode : IF step interval 1.0mA, Delay time 2msec

Test PKG sample : To-Can type, To-46  
 Test condition :  
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