

# Subminiature Plastic Infrared Emitting Diode

## QEB373

### Features

- T-3/4 (2 mm) Surface Mount Package
- Lead Form Options: Gullwing, Yoke, Z-Bend
- Narrow Emission Angle, 24°
- Wavelength = 875 nm, AlGaAs
- Clear Lens
- Matched Photosensor: QSB363
- High Radiant Intensity
- This is a Pb-Free and Halide Free Device

### MAXIMUM RATINGS (T<sub>A</sub> = 25°C unless otherwise noted)

| Symbol             | Parameter                                       | Value        | Unit |
|--------------------|---|--------------|------|
| T <sub>OPR</sub>   | Operating Temperature                           | -40 to +100  | °C   |
| T <sub>STG</sub>   | Storage Temperature                             | -40 to +100  | °C   |
| T <sub>SOL-I</sub> | Soldering Temperature (Iron)<br>(Notes 2, 3, 4) | 240 for 5 s  | °C   |
| T <sub>SOL-F</sub> | Soldering Temperature (Flow)<br>(Notes 2, 3)    | 260 for 10 s | °C   |
| I <sub>F</sub>     | Continuous Forward Current                      | 50           | mA   |
| V <sub>R</sub>     | Reverse Voltage                                 | 5            | V    |
| P <sub>D</sub>     | Power Dissipation (Note 1)                      | 100          | mW   |

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

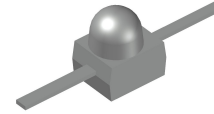
#### NOTES:

1. Derate power dissipation linearly 1.33 mW/°C above 25°C.
2. RMA flux is recommended.
3. Methanol or isopropyl alcohols are recommended as cleaning agents.
4. Soldering iron 1/16" (1.6 mm) minimum from housing.

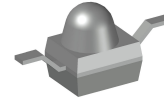
### ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C)

| Symbol         | Parameter                | Test Conditions                                 | Min | Typ | Max | Unit  |
|----------------|--------------------------|---|-----|-----|-----|-------|
| λ <sub>P</sub> | Peak Emission Wavelength | I <sub>F</sub> = 100 mA                         | -   | 875 | -   | nm    |
| Θ              | Emission Angle           | I <sub>F</sub> = 100 mA                         | -   | ±12 | -   | °     |
| V <sub>F</sub> | Forward Voltage          | I <sub>F</sub> = 100 mA, t <sub>p</sub> = 20 ms | -   | -   | 1.7 | V     |
| I <sub>R</sub> | Reverse Current          | V <sub>R</sub> = 5 V                            | -   | -   | 100 | μA    |
| I <sub>e</sub> | Radiant Intensity        | I <sub>F</sub> = 100 mA, t <sub>p</sub> = 20 ms | 16  | -   | -   | mW/sr |
| t <sub>r</sub> | Rise Time                | I <sub>F</sub> = 100 mA                         | -   | 800 | -   | ns    |
| t <sub>f</sub> | Fall Time                | t <sub>p</sub> = 20 ms                          | -   | 800 | -   | ns    |

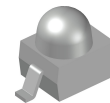
Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.



T-3/4, 2.50 × 2.00  
CASE 100EE

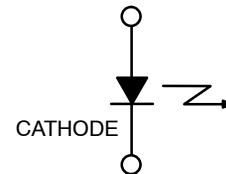


T-3/4, 2.50 × 2.00  
CASE 100EG



T-3/4, 2.50 × 2.00  
CASE 100EF

### SCHEMATIC



### ORDERING INFORMATION

See detailed ordering and shipping information on page 3 of this data sheet.

TYPICAL PERFORMANCE CURVES

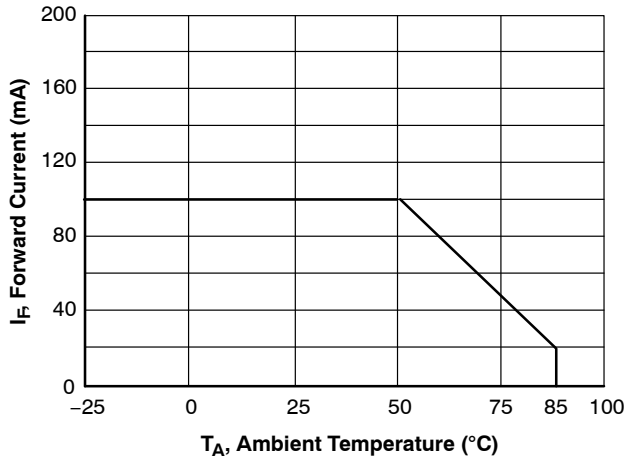


Figure 1. Maximum Forward Current vs. Temperature

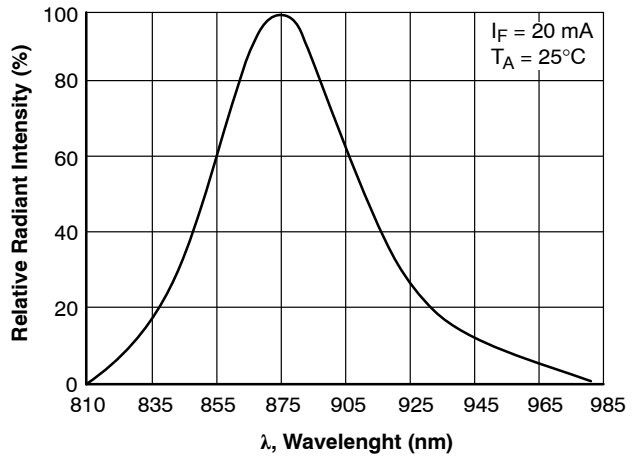


Figure 2. Relative Radiant Intensity vs. Wavelength

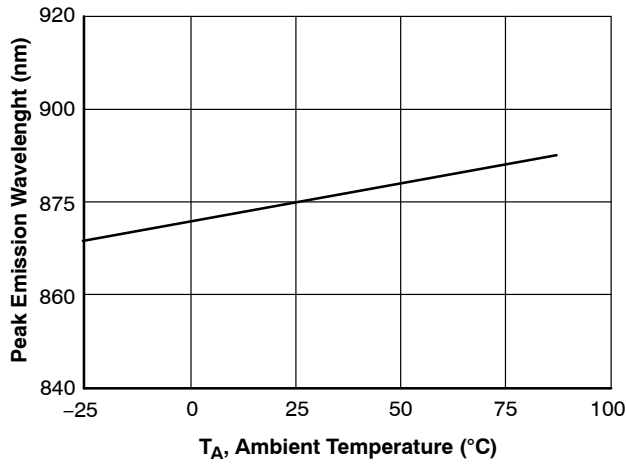


Figure 3. Peak Emission Wavelength vs. Ambient Temperature

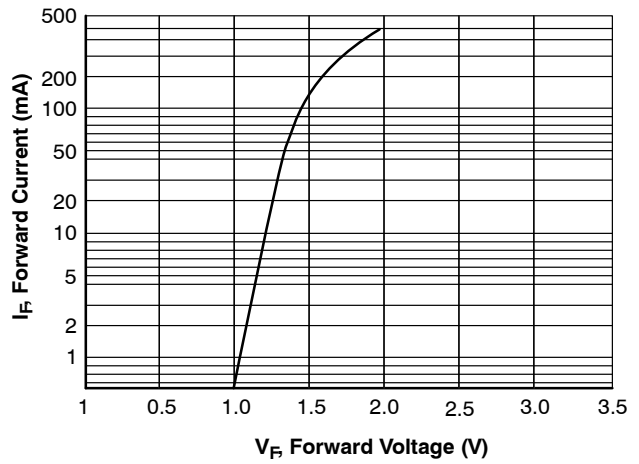


Figure 4. Forward Current vs. Forward Voltage

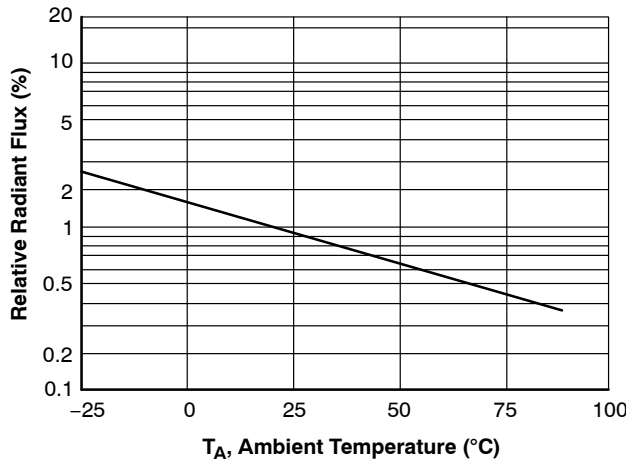


Figure 5. Relative Radiant Flux vs. Ambient Temperature

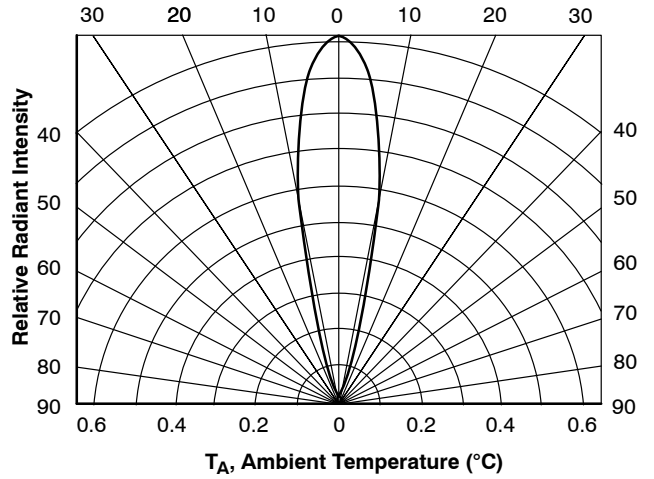


Figure 6. Relative Radiant Intensity vs. Angular Displacement

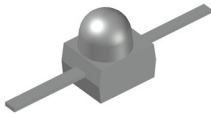
# QEB373

## ORDERING INFORMATION

| Part Number | Package                                      | Shipping <sup>†</sup> |
|-------------|--|-----------------------|
| QEB373      | T-3/4, 2.50 × 2.00 (Case 100EE)<br>(Pb-Free) | 1000 Units / Bulk     |
| QEB373GR    | T-3/4, 2.50 × 2.00 (Case 100EF)<br>(Pb-Free) | 1000 / Tape & Reel    |
| QEB373ZR    | T-3/4, 2.50 × 2.00 (Case 100EG)<br>(Pb-Free) | 1000 / Tape & Reel    |

<sup>†</sup>For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, [BRD8011/D](#).

**MECHANICAL CASE OUTLINE**  
**PACKAGE DIMENSIONS**



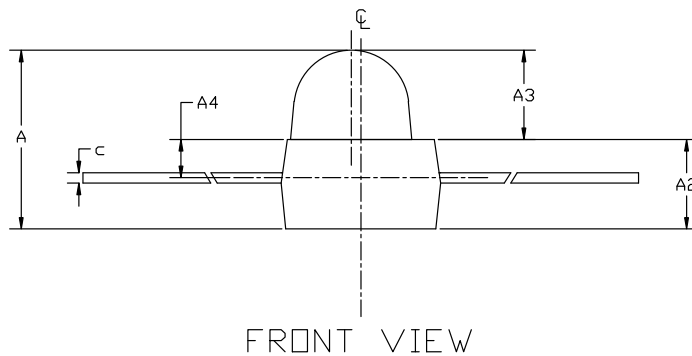
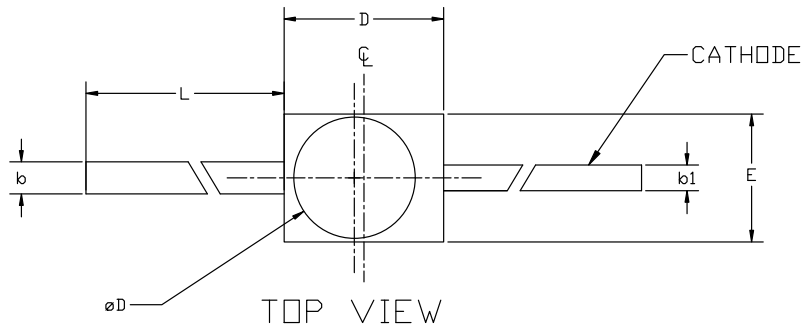
**T-3/4 2.50x2.00**  
**CASE 100EE**  
**ISSUE O**

DATE 14 SEP 2023

NOTES:

1. CONTROLLING DIMENSIONS: MILLIMETERS
2. DIMENSIONS DO NOT INCLUDE MOLD FLASH OR BURRS.
3. 2MM LED RP

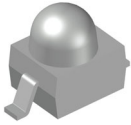
| DIM | MILLIMETERS |      |      |
|-----|-------------|------|------|
|     | MIN.        | NOM. | MAX. |
| A   | 2.50        | 2.70 | 2.90 |
| A2  | 1.30        | 1.40 | 1.50 |
| A3  | 1.30        | 1.40 | 1.50 |
| A4  | 0.60 REF    |      |      |
| b   | 0.45        | 0.55 | 0.65 |
| b1  | 0.35        | 0.45 | 0.55 |
| c   | 0.10        | 0.15 | 0.25 |
| D   | 2.30        | 2.50 | 2.70 |
| E   | 1.80        | 2.00 | 2.20 |
| L   | 7.00        | ---  | ---  |
| øD  | 1.70        | 1.90 | 2.10 |



|                         |                        |  |
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**MECHANICAL CASE OUTLINE**  
**PACKAGE DIMENSIONS**

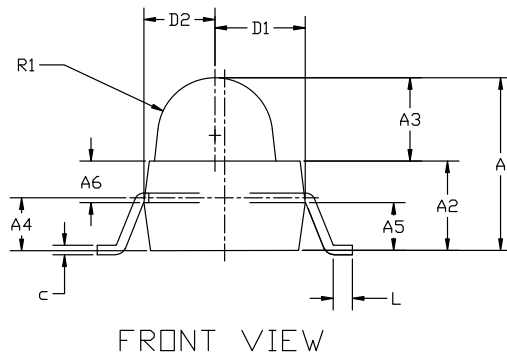
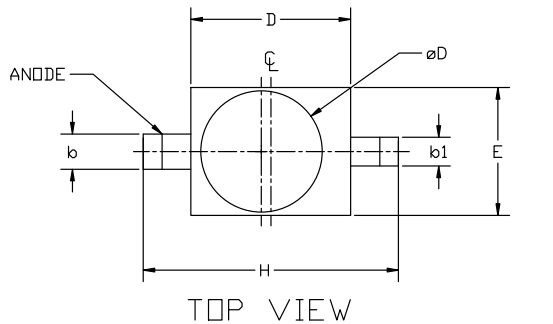


**T-3/4 2.50x2.00**  
**CASE 100EF**  
**ISSUE O**

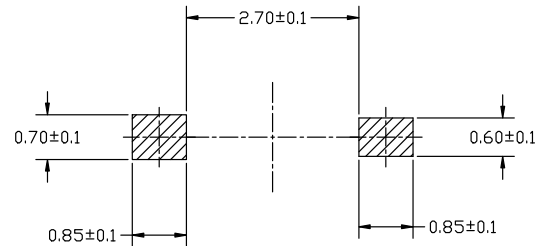
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NOTES:

1. CONTROLLING DIMENSIONS: MILLIMETERS
2. DIMENSIONS DO NOT INCLUDE MOLD FLASH OR BURRS.
3. 2MM GULLWING LED RP



| DIM | MILLIMETERS |      |      |
|-----|-------------|------|------|
|     | MIN.        | NOM. | MAX. |
| A   | 2.50        | 2.70 | 2.90 |
| A2  | 1.30        | 1.40 | 1.50 |
| A3  | 1.20        | 1.30 | 1.40 |
| A4  | 0.75        | 0.85 | 0.95 |
| A5  | 0.65        | 0.75 | 0.85 |
| A6  | 0.55        | 0.65 | 0.75 |
| b   | 0.45        | 0.55 | 0.65 |
| b1  | 0.35        | 0.45 | 0.55 |
| c   | 0.10        | 0.15 | 0.20 |
| D   | 2.30        | 2.50 | 2.70 |
| D1  | 1.20        | 1.40 | 1.60 |
| D2  | 0.90        | 1.10 | 1.30 |
| E   | 1.80        | 2.00 | 2.20 |
| H   | 3.80        | 4.00 | 4.20 |
| L   | 0.20        | 0.30 | 0.40 |
| ∅D  | 1.70        | 1.90 | 2.10 |
| R1  | 0.70        | 0.80 | 0.90 |



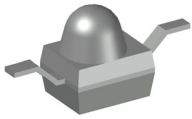
\* For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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# MECHANICAL CASE OUTLINE

## PACKAGE DIMENSIONS

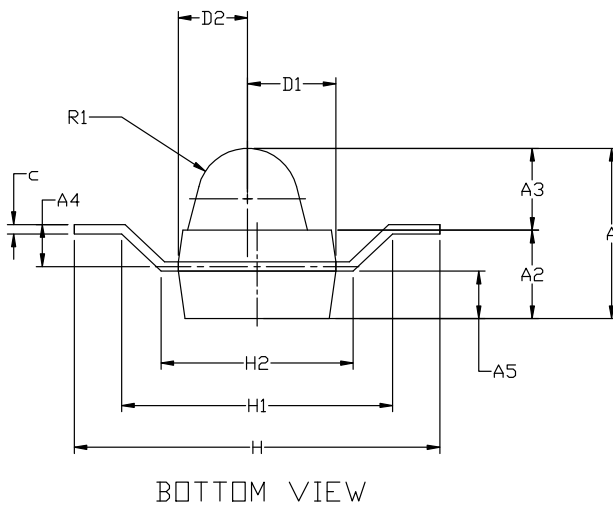
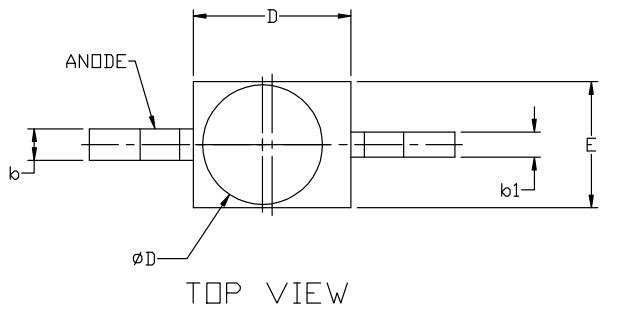


**T-3/4 2.50x2.00**  
**CASE 100EG**  
**ISSUE O**

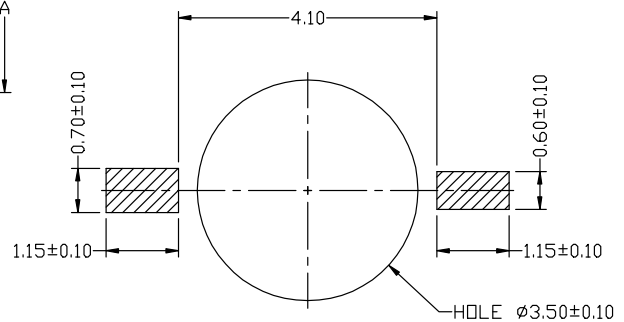
DATE 14 SEP 2023

**NOTES:**

1. CONTROLLING DIMENSIONS: MILLIMETERS
2. DIMENSIONS DO NOT INCLUDE MOLD FLASH OR BURRS.
3. 2MM ZBEND LED RP.



| DIM | MILLIMETERS |       |       |
|-----|-------------|-------|-------|
|     | MIN.        | NOM.  | MAX.  |
| A   | 2.500       | 2.700 | 2.900 |
| A2  | 1.300       | 1.400 | 1.500 |
| A3  | 1.200       | 1.300 | 1.400 |
| A4  | 0.550       | 0.650 | 0.750 |
| A5  | 0.650       | 0.750 | 0.850 |
| b   | 0.450       | 0.550 | 0.650 |
| b1  | 0.350       | 0.450 | 0.550 |
| c   | 0.100       | 0.150 | 0.200 |
| D   | 2.300       | 2.500 | 2.700 |
| D1  | 1.200       | 1.400 | 1.600 |
| D2  | 0.900       | 1.100 | 1.300 |
| E   | 1.800       | 2.000 | 2.200 |
| H   | 5.600       | 5.800 | 6.000 |
| H1  | 4.100       | 4.300 | 4.500 |
| H2  | 2.850       | 3.050 | 3.250 |
| øD  | 1.700       | 1.900 | 2.100 |
| R1  | 0.700       | 0.800 | 0.900 |



\*FOR ADDITIONAL INFORMATION ON OUR Pb-FREE STRATEGY AND SOLDERING DETAILS, PLEASE DOWNLOAD THE ON SEMICONDUCTOR SOLDERING AND MOUNTING TECHNIQUES REFERENCE MANUAL, SOLDERRM/D.

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