

# Subminiature Plastic Infrared Emitting Diode

## QEB363

### Features

- T-3/4 (2 mm) Surface Mount Package
- Lead Form Options: Gullwing, Yoke, Z-Bend
- Narrow Emission Angle, 24°
- Wavelength = 940 nm, GaAs
- Clear Water Lens
- Matched Photosensor: QSB363
- High Radiant Intensity
- This is a Pb-Free and Halide Free Device

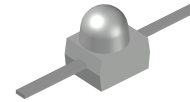
### MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

| Symbol      | Parameter                                       | Value        | Unit             |
|-------------|-------------------------------------------------|--------------|------------------|
| $T_{OPR}$   | Operating Temperature                           | -40 to +100  | $^\circ\text{C}$ |
| $T_{STG}$   | Storage Temperature                             | -40 to +100  | $^\circ\text{C}$ |
| $T_{SOL-I}$ | Soldering Temperature (Iron)<br>(Notes 2, 3, 4) | 240 for 5 s  | $^\circ\text{C}$ |
| $T_{SOL-F}$ | Soldering Temperature (Flow)<br>(Notes 2, 3)    | 260 for 10 s | $^\circ\text{C}$ |
| $I_F$       | Continuous Forward Current                      | 50           | mA               |
| $V_R$       | Reverse Voltage                                 | 5            | V                |
| $P_D$       | Power Dissipation (Note 1)                      | 100          | mW               |

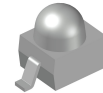
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

#### NOTES:

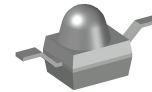
1. Derate power dissipation linearly 1.33 mW/ $^\circ\text{C}$  above  $25^\circ\text{C}$ .
2. RMA flux is recommended.
3. Methanol or isopropyl alcohols are recommended as cleaning agents.
4. Soldering iron 1/16" (1.6 mm) minimum from housing.



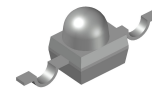
T-3/4, 2.50 × 2.00  
CASE 100CA



T-3/4, 2.50 × 2.00  
CASE 100CV

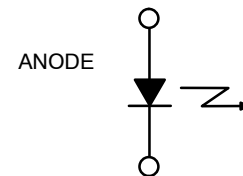


T-3/4, 2.50 × 2.00  
CASE 100CW



T-3/4 2.50 × 2.00  
CASE 100ED

### SCHEMATIC



### ORDERING INFORMATION

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

### ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ )

| Symbol      | Parameter                | Test Conditions                                | Min | Typ      | Max | Unit          |
|-------------|--------------------------|------------------------------------------------|-----|----------|-----|---------------|
| $\lambda_P$ | Peak Emission Wavelength | $I_F = 100 \text{ mA}$                         | –   | 940      | –   | nm            |
| $\Theta$    | Emission Angle           | $I_F = 100 \text{ mA}$                         | –   | $\pm 12$ | –   | $^\circ$      |
| $V_F$       | Forward Voltage          | $I_F = 100 \text{ mA}$ , $t_p = 20 \text{ ms}$ | –   | –        | 1.6 | V             |
| $I_R$       | Reverse Current          | $V_R = 5 \text{ V}$                            | –   | –        | 100 | $\mu\text{A}$ |
| $I_e$       | Radiant Intensity        | $I_F = 100 \text{ mA}$ , $t_p = 20 \text{ ms}$ | 8   | –        | –   | mW/sr         |
| $t_r$       | Rise Time                | $I_F = 100 \text{ mA}$                         | –   | 1        | –   | $\mu\text{s}$ |
| $t_f$       | Fall Time                | $t_p = 20 \text{ ms}$                          | –   | 1        | –   | $\mu\text{s}$ |

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.

TYPICAL PERFORMANCE CURVES

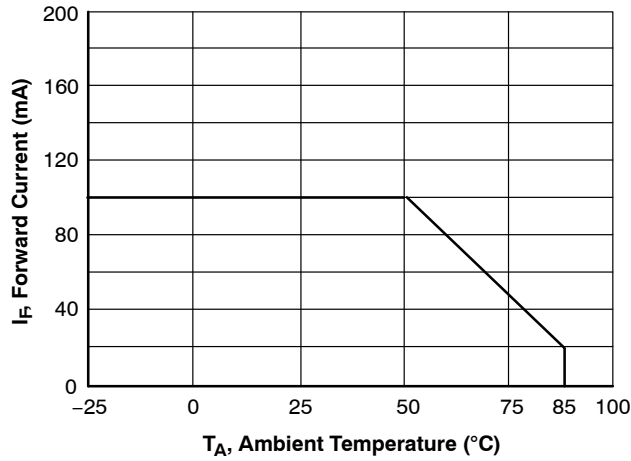


Figure 1. Maximum Forward Current vs. Temperature

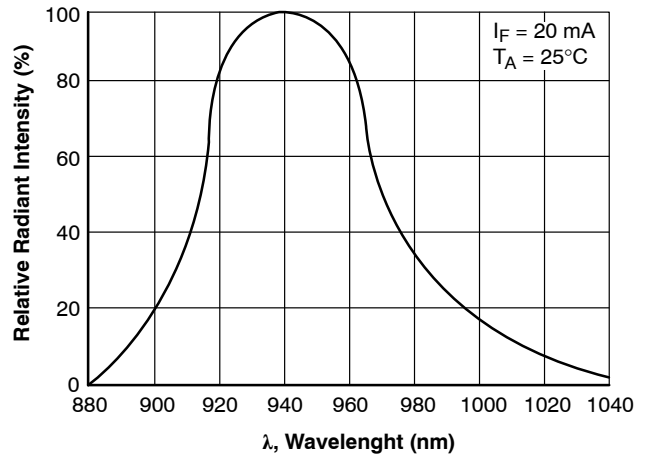


Figure 2. Relative Radiant Intensity vs. Wavelength

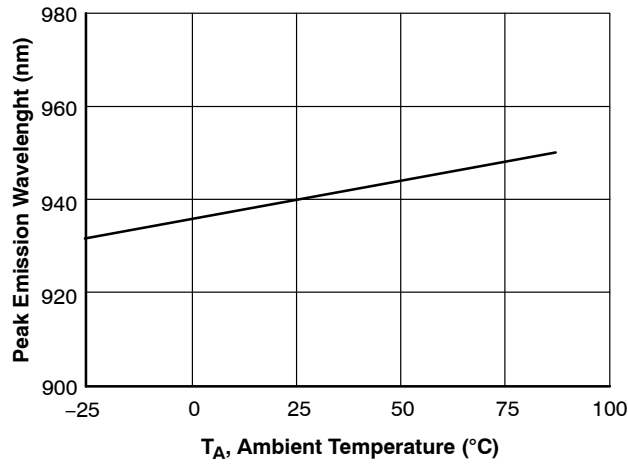


Figure 3. Peak Emission Wavelength vs. Ambient Temperature

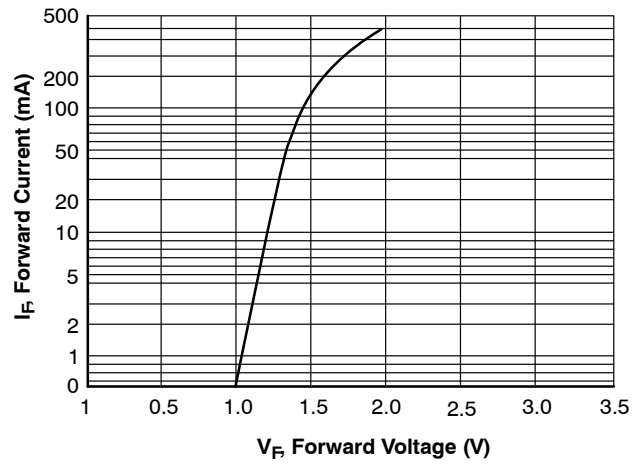


Figure 4. Forward Current vs. Forward Voltage

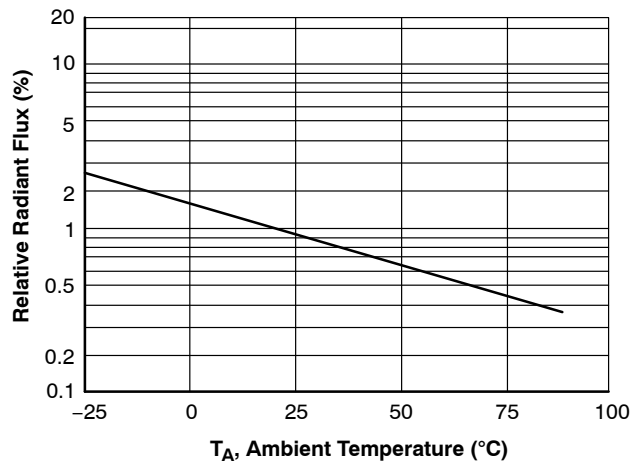


Figure 5. Transfer Characteristics

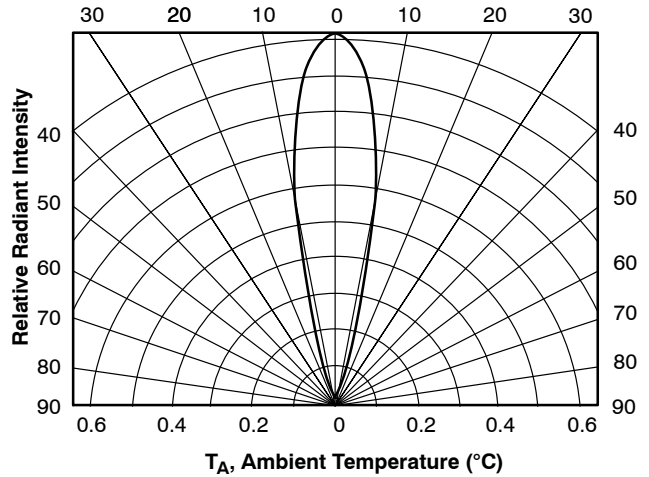


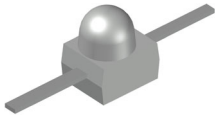
Figure 6. Relative Radiant Intensity vs. Angular Displacement

## QEB363

### ORDERING INFORMATION

| Part Number | Package                                      | Shipping <sup>†</sup> |
|-------------|----------------------------------------------|-----------------------|
| QEB363      | T-3/4, 2.50 × 2.00 (Case 100CA)<br>(Pb-Free) | 1000 Units / Bulk     |
| QEB363GR    | T-3/4, 2.50 × 2.00 (Case 100CV)<br>(Pb-Free) | 1000 / Tape & Reel    |
| QEB363YR    | T-3/4, 2.50 × 2.00 (Case 100ED)<br>(Pb-Free) | 1000 / Tape & Reel    |
| QEB363ZR    | T-3/4, 2.50 × 2.00 (Case 100CW)<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](#).

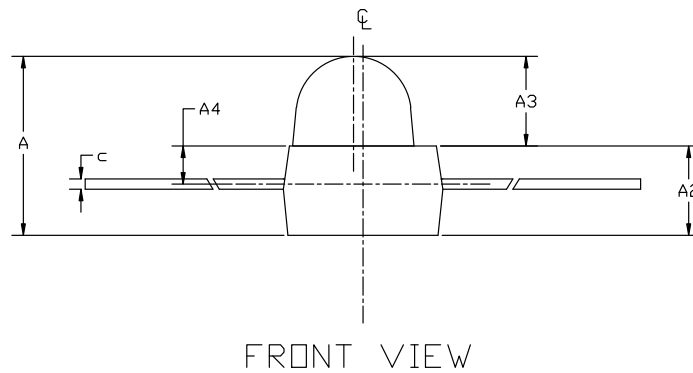
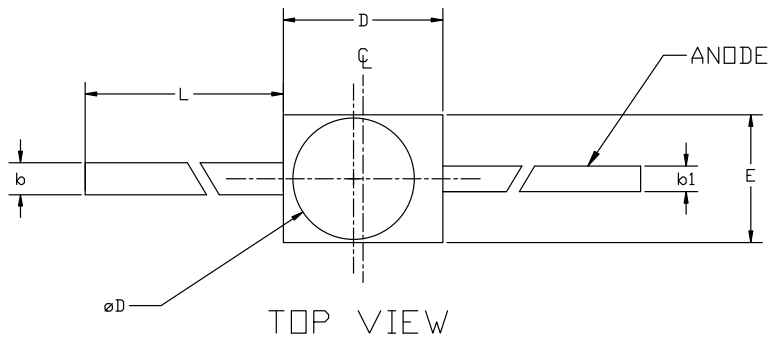


**T-3/4 2.50x2.00**  
**CASE 100CA**  
**ISSUE A**

DATE 14 SEP 2023

**NOTES:**

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



| 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        | ---  | ---  |
| $\phi D$ | 1.70        | 1.90 | 2.10 |

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**DESCRIPTION:** T-3/4 2.50x2.00

**PAGE 1 OF 1**

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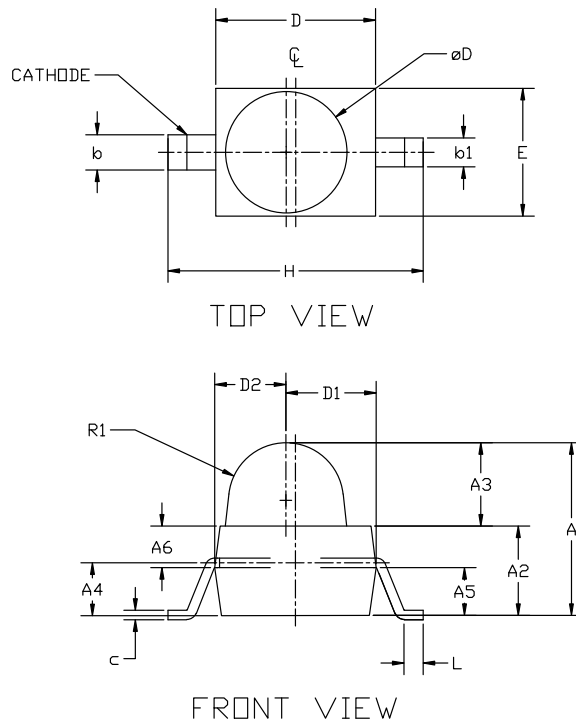


**T-3/4, 2.50x2.00**  
CASE 100CV  
ISSUE A

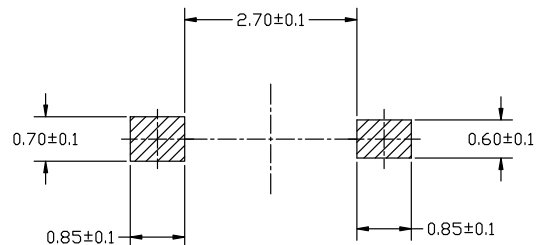
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### NOTES:

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



| 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 |
| ØD  | 1.70        | 1.90 | 2.10 |
| R1  | 0.70        | 0.80 | 0.90 |



### LAND PATTERN RECOMMENDATION

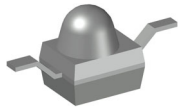
\* For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERM/D.

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# MECHANICAL CASE OUTLINE

## PACKAGE DIMENSIONS

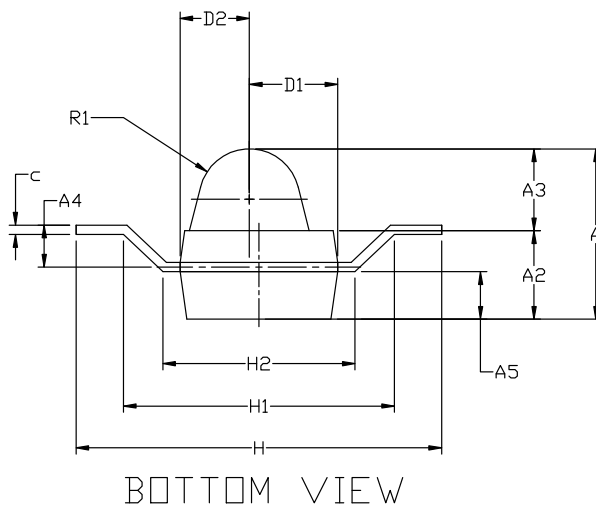
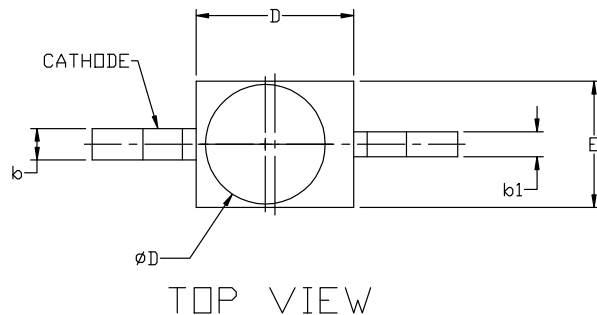


**T-3/4, 2.50x2.00**  
CASE 100CW  
ISSUE A

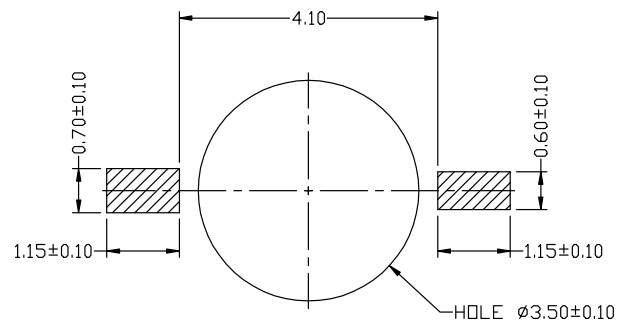
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### NOTES:

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



| 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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# MECHANICAL CASE OUTLINE PACKAGE DIMENSIONS

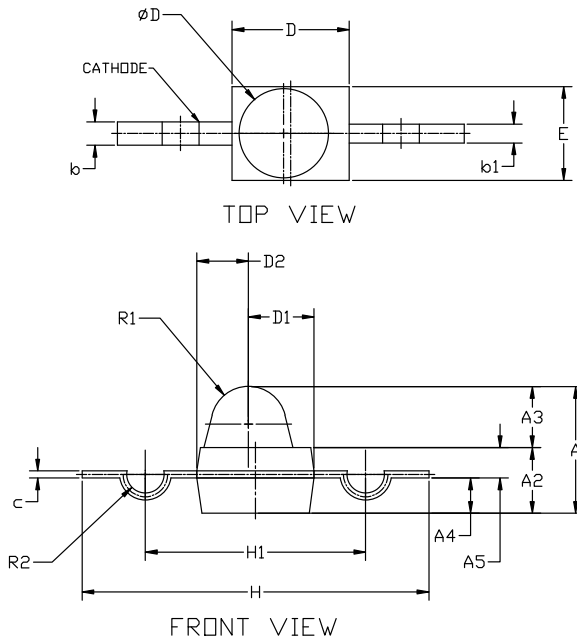


**T-3/4 2.50x2.00**  
**CASE 100ED**  
**ISSUE O**

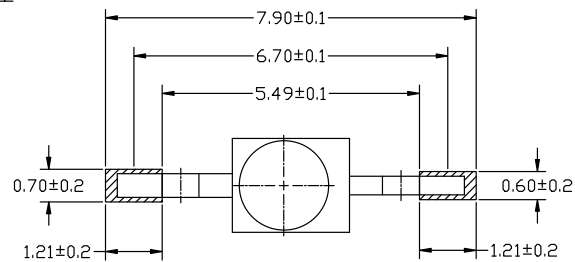
DATE 14 SEP 2023

## NOTES:

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



| 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  | 0.65        | 0.75 | 0.85 |
| 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   | 7.20        | 7.40 | 7.60 |
| H1  | 4.50        | 4.70 | 4.90 |
| ØD  | 1.70        | 1.90 | 2.10 |
| R1  | 0.70        | 0.80 | 0.90 |
| R2  | 0.30        | 0.40 | 0.50 |



## RECOMMENDED MOUNTING FOOTPRINT

- \* 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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