

ON Semiconductor

Is Now

onsemi™

To learn more about onsemi™, please visit our website at
www.onsemi.com

onsemi and **onsemi** and other names, marks, and brands are registered and/or common law trademarks of Semiconductor Components Industries, LLC dba "**onsemi**" or its affiliates and/or subsidiaries in the United States and/or other countries. **onsemi** owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of **onsemi** product/patent coverage may be accessed at www.onsemi.com/site/pdf/Patent-Marking.pdf. **onsemi** reserves the right to make changes at any time to any products or information herein, without notice. The information herein is provided "as-is" and **onsemi** makes no warranty, representation or guarantee regarding the accuracy of the information, product features, availability, functionality, or suitability of its products for any particular purpose, nor does **onsemi** assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. Buyer is responsible for its products and applications using **onsemi** products, including compliance with all laws, regulations and safety requirements or standards, regardless of any support or applications information provided by **onsemi**. "Typical" parameters which may be provided in **onsemi** data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. **onsemi** does not convey any license under any of its intellectual property rights nor the rights of others. **onsemi** products are not designed, intended, or authorized for use as a critical component in life support systems or any FDA Class 3 medical devices or medical devices with a same or similar classification in a foreign jurisdiction or any devices intended for implantation in the human body. Should Buyer purchase or use **onsemi** products for any such unintended or unauthorized application, Buyer shall indemnify and hold **onsemi** and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that **onsemi** was negligent regarding the design or manufacture of the part. **onsemi** is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner. Other names and brands may be claimed as the property of others.



ON Semiconductor®

QED234 Plastic Infrared Light Emitting Diode

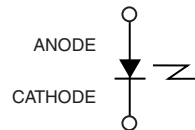
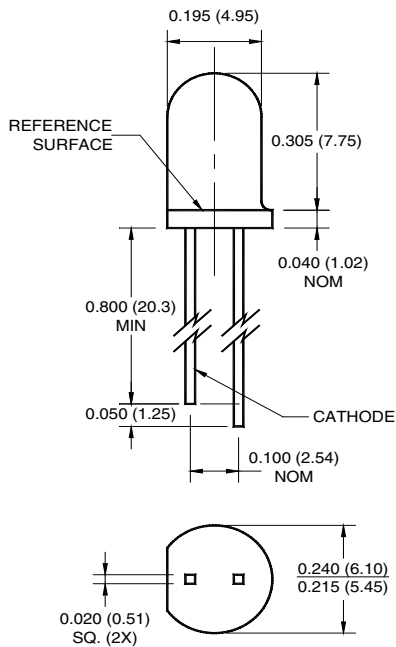
Features

- $\lambda = 940$ nm
- Chip Material = GaAs with AlGaAs Window
- Package Type: T-1 3/4 (5 mm lens diameter)
- Matched Photosensor: QSD123/124
- Medium Emission Angle, 40°
- High Output Power
- Package Material and Color: Clear, Untinted, Plastic
- Ideal for Remote Control Applications

Description

The QED234 is a 940 nm GaAs / AlGaAs LED encapsulated in a clear untinted, plastic T-1 3/4 package.

Package Dimensions^(1, 2)



Notes:

1. Dimensions for all drawings are in inches (mm).
2. Tolerance of ± 0.010 (0.25) on all non-nominal dimensions unless otherwise specified.

Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at $T_A = 25^\circ\text{C}$ unless otherwise noted.

| Symbol | Parameter | Value | Unit |
|--------------------|---|----------------|------------------|
| T_{OPR} | Operating Temperature | -40 to +100 | $^\circ\text{C}$ |
| T_{STG} | Storage Temperature | -40 to +100 | $^\circ\text{C}$ |
| $T_{\text{SOL-I}}$ | Soldering Temperature (Iron) ^(4, 5, 6) | 240 for 5 sec | $^\circ\text{C}$ |
| $T_{\text{SOL-F}}$ | Soldering Temperature (Flow) ^(4, 5) | 260 for 10 sec | $^\circ\text{C}$ |
| I_F | Continuous Forward Current | 100 | mA |
| V_R | Reverse Voltage | 5 | V |
| P_D | Power Dissipation ⁽³⁾ | 200 | mW |
| I_{FP} | Peak Forward Current | 1.5 | A |

Notes:

3. Derate power dissipation linearly 2.67 mW/ $^\circ\text{C}$ above 25 $^\circ\text{C}$.
4. RMA flux is recommended.
5. Methanol or isopropyl alcohols are recommended as cleaning agents.
6. Soldering iron 1/16" (1.6mm) minimum from housing.
7. Pulse conditions; $t_p = 100 \mu\text{s}$, $T = 10 \text{ ms}$

Electrical / Optical Characteristics

Values are at $T_A = 25^\circ\text{C}$ unless otherwise noted.

| Symbol | Parameter | Conditions | Min. | Typ. | Max. | Unit |
|-----------------------|--|--|------|------|------|---------------|
| λ_{PE} | Peak Emission Wavelength | $I_F = 20 \text{ mA}$ | | 940 | | nm |
| - | Spectral Bandwidth | $I_F = 20 \text{ mA}$ | 50 | | | nm |
| TC_λ | Temp. Coefficient of λ_{PE} | $I_F = 100 \text{ mA}$ | | 0.2 | | nm/K |
| $2\theta_{1/2}$ | Emission Angle | $I_F = 100 \text{ mA}$ | | 40 | | $^\circ$ |
| V_F | Forward Voltage | $I_F = 100 \text{ mA}$, $t_p = 20 \text{ ms}$ | | | 1.6 | V |
| TC_V | Temp. Coefficient of V_F | $I_F = 100 \text{ mA}$ | | -1.5 | | mV/K |
| I_R | Reverse Current | $V_R = 5 \text{ V}$ | | | 10 | μA |
| I_E | Radiant Intensity | $I_F = 100 \text{ mA}$, $t_p = 20 \text{ ms}$ | 27 | | | mW/sr |
| TC_I | Temp. Coefficient of IE | $I_F = 20 \text{ mA}$ | | -0.6 | | %/K |
| t_r | Rise Time | $I_F = 100 \text{ mA}$ | | 1000 | | ns |
| t_f | Fall Time | | | 1000 | | ns |

Typical Performance Characteristics

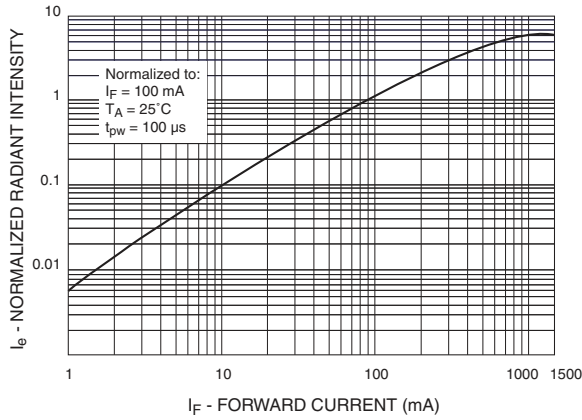


Figure 1. Normalized Radiant Intensity vs. Forward Current

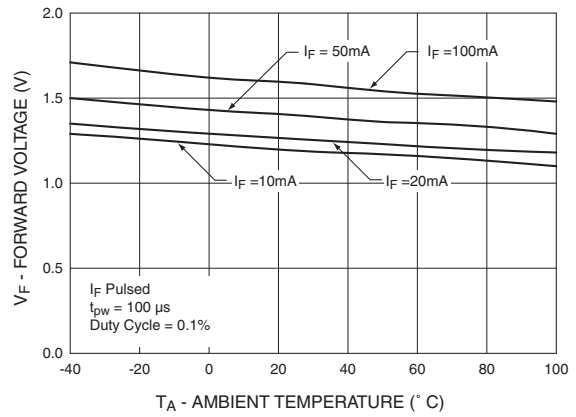


Figure 2. Forward Voltage vs. Ambient Temperature

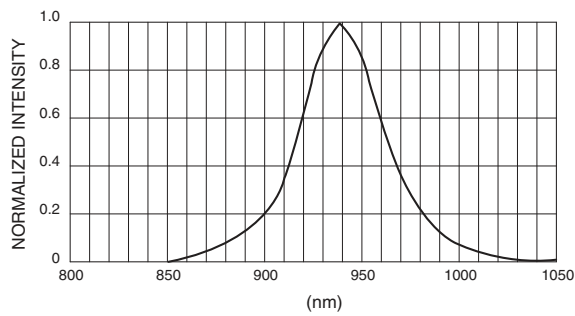


Figure 3. Normalized Radiant Intensity vs. Wavelength

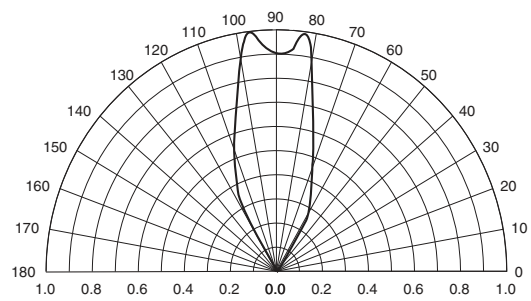


Figure 4. Radiant Diagram

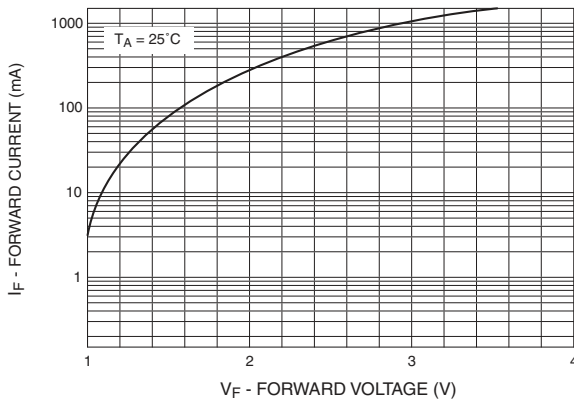



Figure 5. Forward Current vs. Forward Voltage

ON Semiconductor and  are trademarks of Semiconductor Components Industries, LLC dba ON Semiconductor or its subsidiaries in the United States and/or other countries. ON Semiconductor owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of ON Semiconductor's product/patent coverage may be accessed at www.onsemi.com/site/pdf/Patent-Marking.pdf. ON Semiconductor reserves the right to make changes without further notice to any products herein. ON Semiconductor makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does ON Semiconductor assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. Buyer is responsible for its products and applications using ON Semiconductor products, including compliance with all laws, regulations and safety requirements or standards, regardless of any support or applications information provided by ON Semiconductor. "Typical" parameters which may be provided in ON Semiconductor data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. ON Semiconductor does not convey any license under its patent rights nor the rights of others. ON Semiconductor products are not designed, intended, or authorized for use as a critical component in life support systems or any FDA Class 3 medical devices or medical devices with a same or similar classification in a foreign jurisdiction or any devices intended for implantation in the human body. Should Buyer purchase or use ON Semiconductor products for any such unintended or unauthorized application, Buyer shall indemnify and hold ON Semiconductor and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that ON Semiconductor was negligent regarding the design or manufacture of the part. ON Semiconductor is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:

Literature Distribution Center for ON Semiconductor
19521 E. 32nd Pkwy, Aurora, Colorado 80011 USA
Phone: 303-675-2175 or 800-344-3860 Toll Free USA/Canada
Fax: 303-675-2176 or 800-344-3867 Toll Free USA/Canada
Email: orderlit@onsemi.com

N. American Technical Support: 800-282-9855 Toll Free
USA/Canada
Europe, Middle East and Africa Technical Support:
Phone: 421 33 790 2910
Japan Customer Focus Center
Phone: 81-3-5817-1050

ON Semiconductor Website: www.onsemi.com
Order Literature: <http://www.onsemi.com/orderlit>
For additional information, please contact your local
Sales Representative