



THE DATASHEET OF QSD2030F



Plastic Silicon Photodiode

QSD2030F

Features

- PIN Photodiode
- Package Type: T-1 3/4 (5 mm Lens Diameter)
- Wide Reception Angle, 40°
- Daylight Filter
- Package Material and Color: Black Epoxy
- High Sensitivity
- Peak Sensitivity $\lambda = 880 \text{ nm}$
- Radiant Sensitive Area: 1.245 mm x 1.245 mm
- This is a Pb-Free Device

ABSOLUTE 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) (Note 1), (Note 2), (Note 3) | 240 for 5 s | $^\circ\text{C}$ |
| T_{SOL-F} | Soldering Temperature (Flow) (Note 1), (Note 2) | 260 for 10 s | $^\circ\text{C}$ |
| V_{BR} | Reverse Breakdown Voltage | 50 | V |
| P_D | Power Dissipation (Note 4) | 150 | 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.

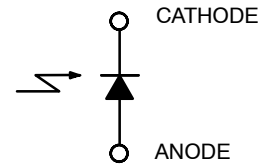
1. RMA flux is recommended
2. Methanol or isopropyl alcohols are recommended as cleaning agents.
3. Soldering iron tip 1/16 inch (1.6 mm) minimum from housing..
4. Derate power dissipation linearly 1.33 mW/ $^\circ\text{C}$ above 25 $^\circ\text{C}$.

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

| Symbol | Parameter | Test Conditions | Min | Typ | Max | Unit |
|----------------|-------------------------------------|--|-----|----------|------|---------------|
| λ_{PS} | Peak Sensitivity Wavelength | | - | 880 | - | nm |
| λ_{SR} | Wavelength Sensitivity Range | | 700 | - | 1100 | nm |
| Θ | Reception Angle | | - | ± 20 | - | $^\circ$ |
| V_F | Forward Voltage | $I_F = 80 \text{ mA}$ | - | 1.3 | - | V |
| I_D | Reverse Dark Current | $V_R = 10 \text{ V}, E_e = 0$ | - | - | 10 | nA |
| I_L | Reverse Light Current | $E_e = 0.5 \text{ mW/cm}^2, V_R = 5 \text{ V}, \lambda = 950 \text{ nm}$ | 15 | 25 | - | μA |
| V_O | Open Circuit Voltage | $E_e = 0.5 \text{ mW/cm}^2, \lambda = 880 \text{ nm}$ | - | 420 | - | mV |
| TC_V | Temperature Coefficient of V_O | | - | +0.6 | - | mV / K |
| I_{SC} | Short Circuit Current | $E_e = 0.5 \text{ mW/cm}^2, \lambda = 880 \text{ nm}$ | - | 50 | - | μA |
| TC_I | Temperature Coefficient of I_{SC} | | - | +0.3 | - | % / K |
| C | Capacitance | $V_R = 0, f = 1 \text{ MHz}, E_e = 0$ | - | 15 | - | pF |
| t_r | Rise Time | $V_R = 5 \text{ V}, R_L = 50 \Omega, \lambda = 950 \text{ nm}$ | - | 5 | - | ns |
| t_f | Fall Time | | - | 5 | - | |

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.

SCHEMATIC



T-1 3/4, 5MM PHOTODIODE
CASE 100CF

ORDERING INFORMATION

| Device | Package | Shipping |
|----------|---|-------------------|
| QSD2030F | T-1 3/4, 5MM PHOTODIODE (Pb-Free) | 250 / Bulk Bag |

TYPICAL PERFORMANCE CHARACTERISTICS

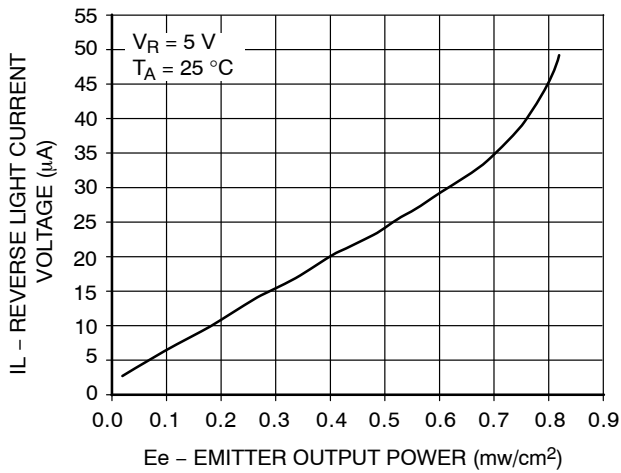


Figure 1. Reverse Light Current vs. Emitter Output Power

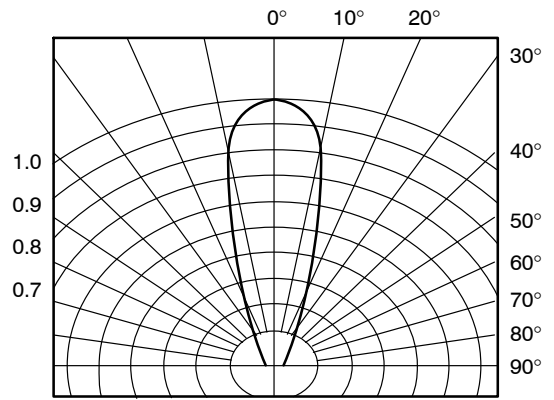


Figure 2. Angular Response

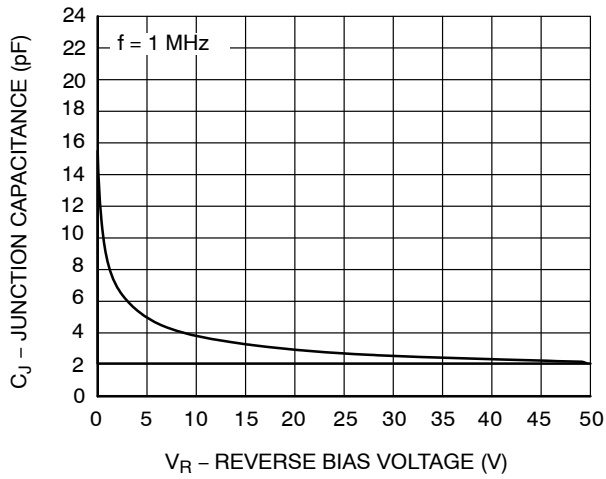


Figure 3. Capacitance vs. Reverse Voltage

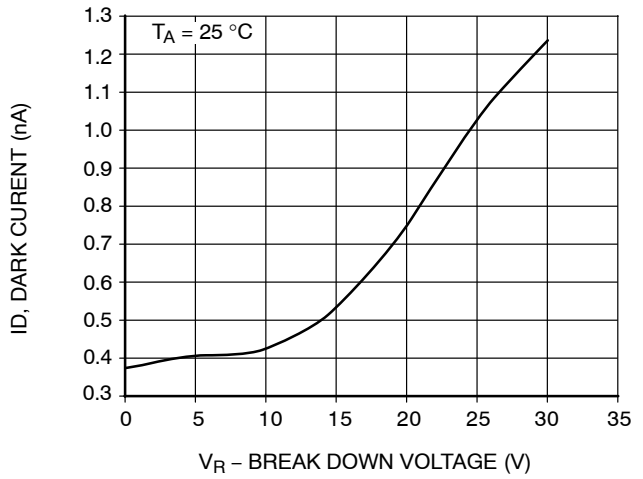
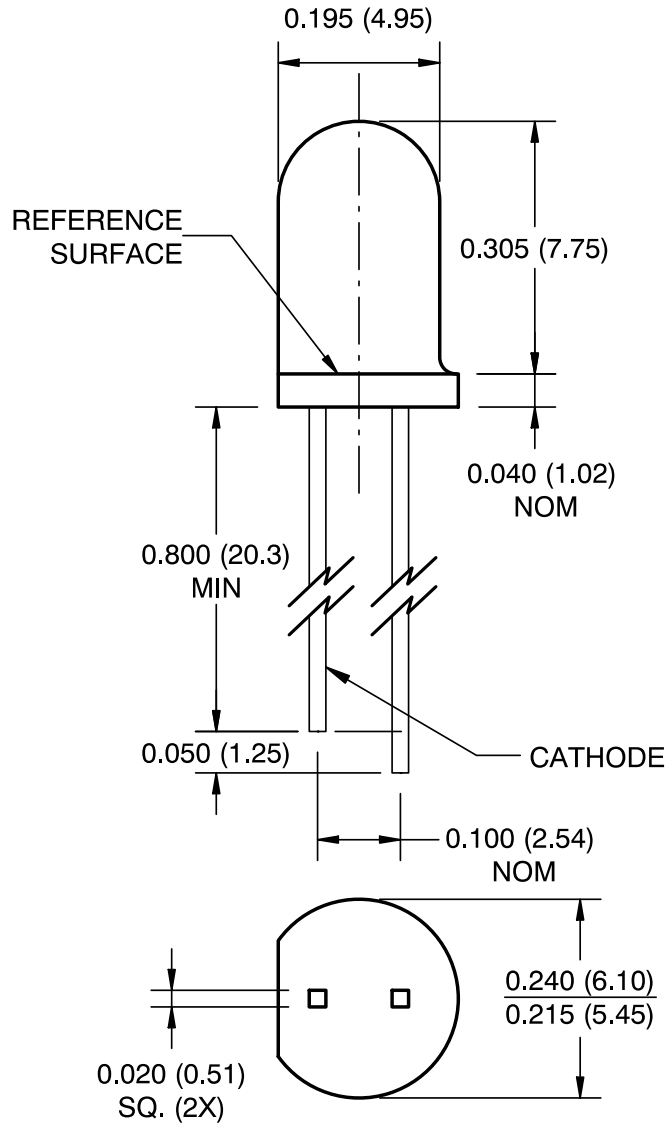


Figure 4. Dark Current vs. Reverse Voltage

T-1 3/4, 5MM PHOTODIODE
CASE 100CF
ISSUE 0


DATE 30 NOV 2016



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.

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|-------------------------|--------------------------------|--|
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| DESCRIPTION: | T-1 3/4, 5MM PHOTODIODE | PAGE 1 OF 1 |

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