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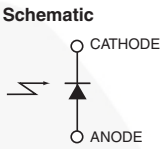
August 2016

QSD2030F
Plastic Silicon Photodiode

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 λ= 880 nm
- Radiant Sensitive Area: 1.245 mm x 1.245 mm



Ordering Information

Part Number	Operating Temperature	Package	Packing Method
QSD2030F	-40 to +100°C	T-1 3/4	Bulk

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°C unless otherwise specified.

Symbol	Parameter	Min.	Unit
T_{OPR}	Operating Temperature	-40 to +100	°C
T_{STG}	Storage Temperature	-40 to + 100	
T_{SOL-I}	Soldering Temperature (Iron)(1,2,3)	240 for 5 s	
T_{SOL-F}	Soldering Temperature (Flow)(1,2)	260 for 10 s	
V_{BR}	Reverse Breakdown Voltage	50	V
P_D	Power Dissipation(4)	100	mW

Notes:

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/°C above 25°C.

Electrical / Optical Characteristics

Values are at T_A = 25°C unless specified otherwise.

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

Typical Performance Characteristics

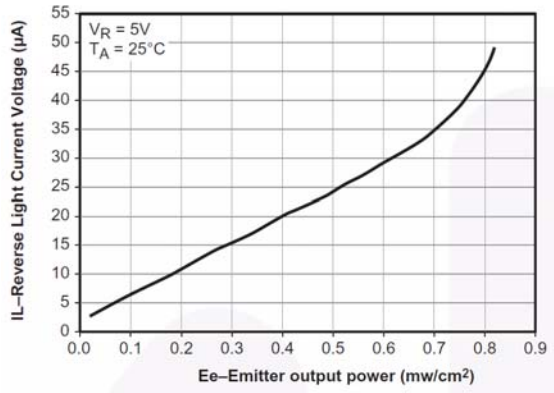


Figure 1. Reverse Light Current vs. Emitter Output Power

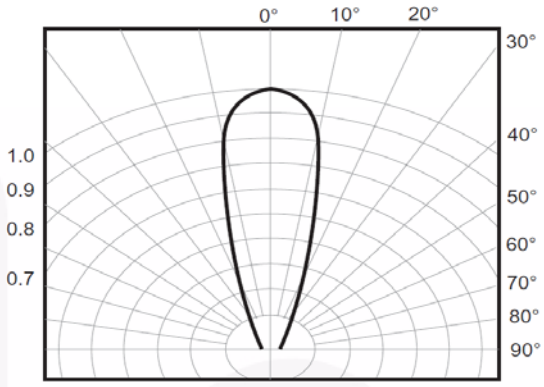


Figure 2. Angular Response

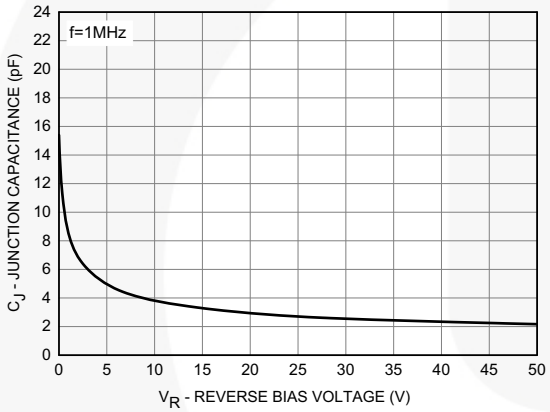


Figure 3. Capacitance vs. Reverse Voltage

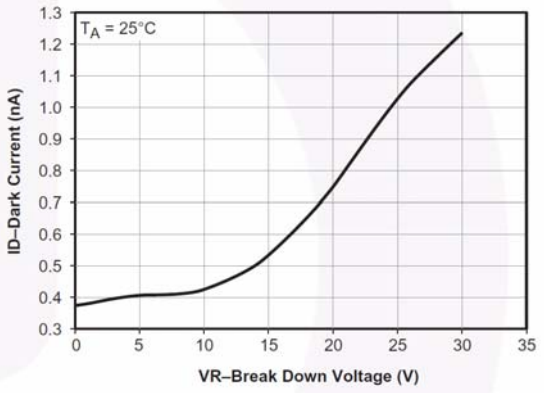
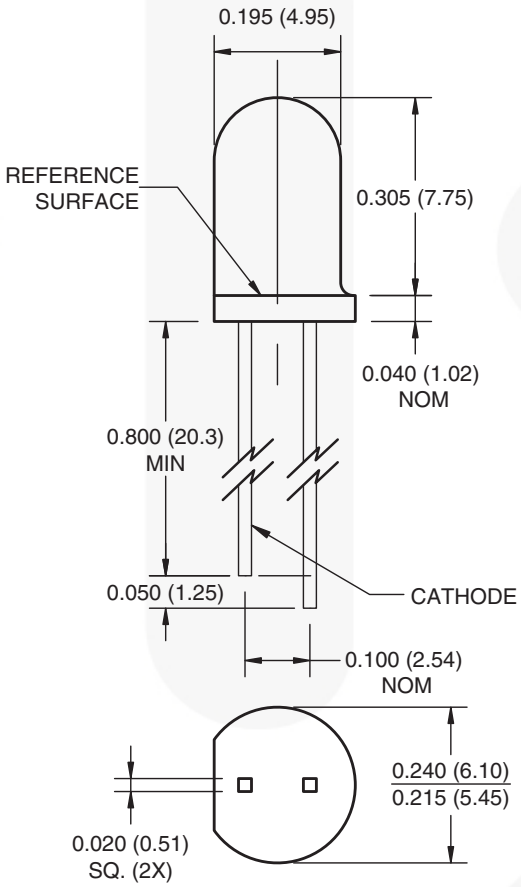


Figure 4. Dark Current vs. Reverse Voltage

Physical Dimensions

T-1 3/4



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.

Figure 5. T-1 3/4, 5 MM LED (ACTIVE)

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