

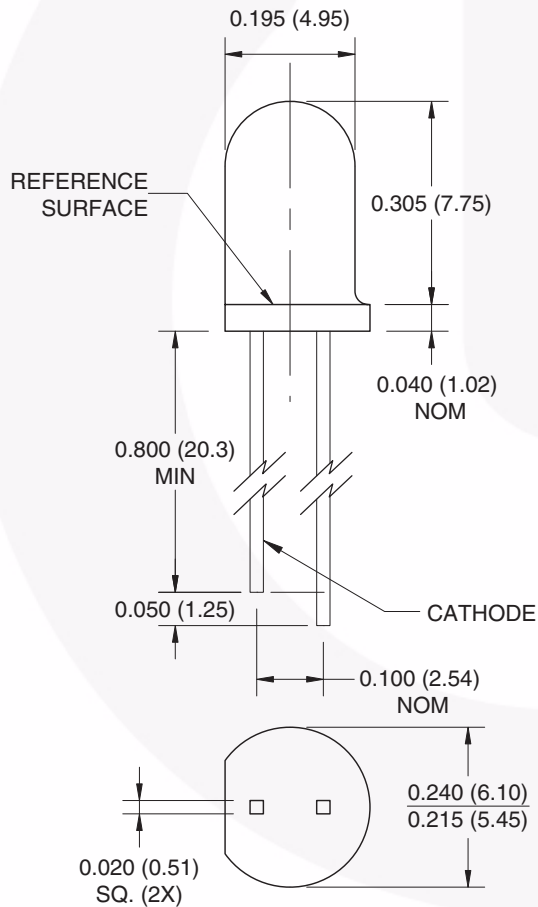
QSD2030F

Plastic Silicon Photodiode

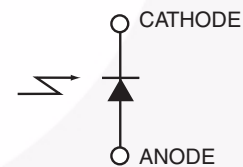
Features

- PIN photodiode
- Package type: T-1 3/4 (5mm 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: 1.245mm x 1.245mm

Package Dimensions



Schematic



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 ($T_A = 25^\circ\text{C}$ unless otherwise specified)

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.

Symbol	Parameter	Rating	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) ^(2,3,4)	240 for 5 sec	$^\circ\text{C}$
$T_{\text{SOL-F}}$	Soldering Temperature (Flow) ^(2,3)	260 for 10 sec	$^\circ\text{C}$
V_{BR}	Reverse Breakdown Voltage	50	V
P_{D}	Power Dissipation ⁽¹⁾	100	mW

Notes:

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

Electrical/Optical Characteristics ($T_A = 25^\circ\text{C}$)

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		$^\circ$
V_{F}	Forward Voltage	$I_{\text{F}} = 80\text{mA}$		1.3		V
I_{D}	Reverse Dark Current	$V_{\text{R}} = 10\text{V}$, $E_{\text{e}} = 0$			10	nA
I_{L}	Reverse Light Current	$E_{\text{e}} = 0.5\text{mW}/\text{cm}^2$, $V_{\text{R}} = 5\text{V}$, $\lambda = 950\text{nm}$	15	25		μA
V_{O}	Open Circuit Voltage	$E_{\text{e}} = 0.5\text{mW}/\text{cm}^2$, $\lambda = 880\text{nm}$		420		mV
TC_V	Temperature Coefficient of V_{O}			+0.6		mV / K
I_{SC}	Short Circuit Current	$E_{\text{e}} = 0.5\text{mW}/\text{cm}^2$, $\lambda = 880\text{nm}$		50		μA
TC_I	Temperature Coefficient of I_{SC}			+0.3		% / K
C	Capacitance	$V_{\text{R}} = 0$, $f = 1\text{MHz}$, $E_{\text{e}} = 0$		60		pF
t_{r}	Rise Time	$V_{\text{R}} = 5\text{V}$, $R_{\text{L}} = 50\Omega$, $\lambda = 950\text{nm}$		5		ns
t_{f}	Fall Time			5		

Typical Performance Characteristics

Figure 1. Reverse Light Current vs. Emitter Output Power

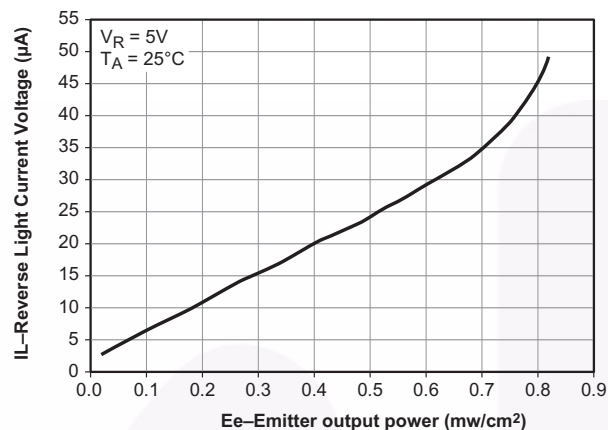


Figure 2. Angular Response

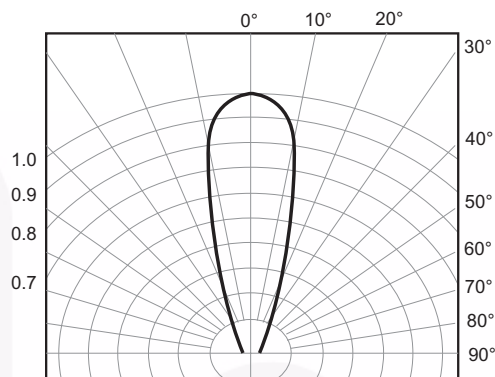


Figure 3. Capacitance vs. Reverse Voltage

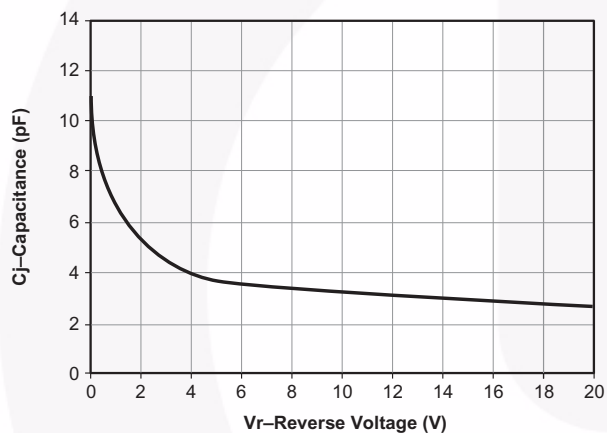
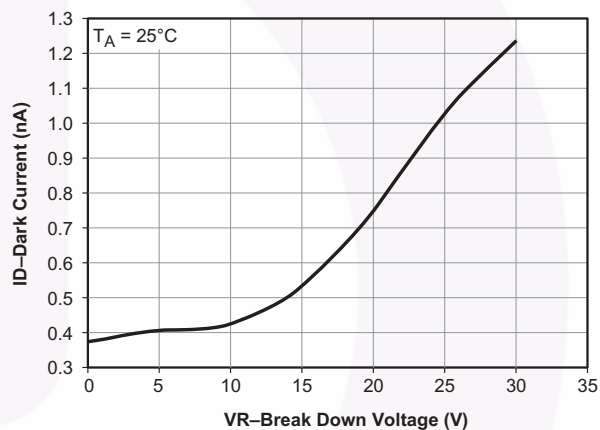


Figure 4. Dark Current vs. Reverse Voltage





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