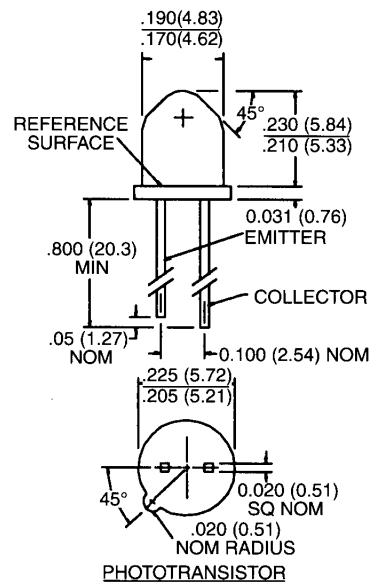
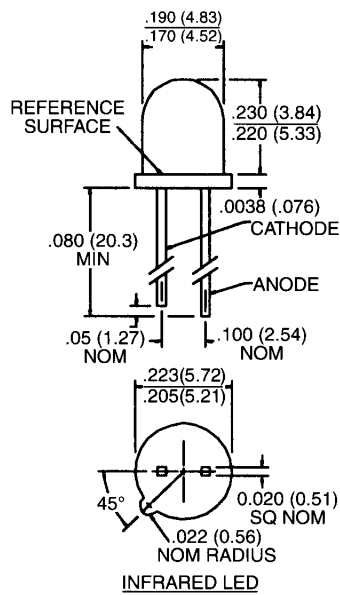


**PACKAGE DIMENSIONS**



ST2170

ST2170

NOTES:

1. DIMENSIONS ARE IN INCHES (mm).
2. TOLERANCE IS  $\pm .010$  (.25) UNLESS OTHERWISE SPECIFIED.

**DESCRIPTION**

The QPD5223 consists of an 880 nm AlGaAs LED and a silicon phototransistor mounted in plastic TO-46 (LED) and TO-18 (sensor) packages.

**FEATURE**

- Steel lead frames for improved reliability in solder mounting.
- Good optical-to-mechanical alignment.
- Narrow emission/reception angle.
- Black plastic body allows easy recognition of sensor.

<b>ABSOLUTE MAXIMUM RATINGS</b> ( $T_A = 25^\circ\text{C}$ Unless Otherwise Specified)	
Storage Temperature .....	$-40^\circ\text{C}$ to $+100^\circ\text{C}$
Operating Temperature .....	$-40^\circ\text{C}$ to $+100^\circ\text{C}$
Soldering:	
Lead Temperature (Iron) .....	$240^\circ\text{C}$ for 5 sec. <sup>(2,3,5)</sup>
Lead Temperature (Flow) .....	$260^\circ\text{C}$ for 10 sec. <sup>(2,5)</sup>
<b>INPUT DIODE</b>	
Continuous Forward Current .....	50 mA
Reverse Voltage .....	5.0 Volts
Power Dissipation .....	200 mW <sup>(1)</sup>
<b>OUTPUT TRANSISTOR</b>	
Collector-Emitter Voltage .....	30 Volts
Emitter-Collector Voltage .....	5.0 Volts
Power Dissipation .....	100 mW <sup>(1)</sup>

<b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25^\circ\text{C}$ Unless Otherwise Specified) (All measurements made under pulse conditions.)						
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNITS	TEST CONDITIONS
<b>INPUT DIODE</b>						
Forward Voltage	$V_F$	—		1.70	V	$I_F = 20\text{ mA}$
Reverse Leakage Current	$I_R$	—		100	$\mu\text{A}$	$V_R = 5.0\text{ V}$
<b>OUTPUT TRANSISTOR</b>						
Collector-Emitter Breakdown	$BV_{CEO}$	30		—	V	$I_F = 1.0\text{ mA}$ , $E_e = 0$
Collector-Emitter Leakage	$I_{CEO}$	—		100	nA	$V_{CE} = 10.0\text{ V}$ , $E_e = 0$
<b>COUPLED</b>						
On-State Collector Current						
QPD5223	$I_{C(ON)}$	7.5		—	mA	$I_F = 20\text{ mA}$ , $V_{CC} = 5.0\text{ V}$ , $D = .250^{(4)}$

<b>NOTES</b>
<ol style="list-style-type: none"> <li>Derate power dissipation linearly <math>2.67\text{ mW}/^\circ\text{C}</math> above <math>25^\circ\text{C}</math> for LED and <math>1.33\text{ mW}/^\circ\text{C}</math> for the sensor.</li> <li>RMA flux is recommended.</li> <li>Soldering iron tip <math>1/16"</math> (1.6mm) minimum from case.</li> <li>D is the distance from lens tip to lens tip.</li> <li>As long as leads are not under any stress or spring tension.</li> </ol>



## PLASTIC TO-46/TO-18 PAIR

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2. A critical component in any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.