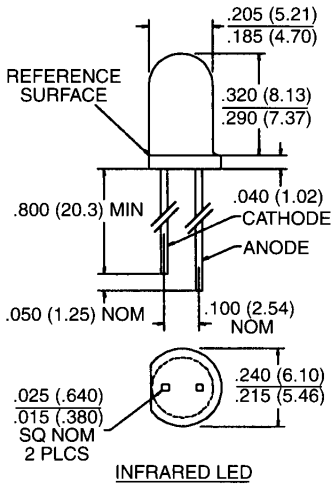
FAIRCHILD
SEMICONDUCTOR™

PLASTIC T-1¾ PAIR

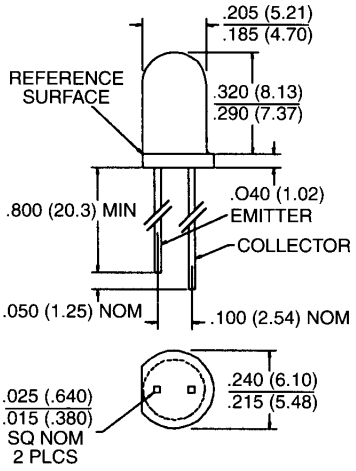
QPD1223

PACKAGE DIMENSIONS



INFRARED LED

ST2169



PHOTOTRANSISTOR

ST2169

NOTES:
1. DIMENSIONS ARE IN INCHES (mm).
2. TOLERANCE IS ±.010 (.25) UNLESS OTHERWISE SPECIFIED.

DESCRIPTION

The QPD1223 consists of an 880 nm AlGaAs LED and a silicon phototransistor mounted in plastic T-1¾ 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.

FAIRCHILD
SEMICONDUCTOR™

PLASTIC T-1¾ PAIR

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C Unless Otherwise Specified)

Storage Temperature	−40°C to + 100°C
Operating Temperature	−40°C to + 100°C
Soldering:	
Lead Temperature (Iron)	240°C for 5 sec. [2,3,5]
Lead Temperature (Flow)	260°C for 10 sec. [2,5]
INPUT DIODE	
Continuous Forward Current	100 mA
Reverse Voltage	5.0 Volts
Power Dissipation	200 mW[1]
OUTPUT TRANSISTOR	
Collector-Emitter Voltage	30 Volts
Emitter-Collector Voltage	5.0 Volts
Power Dissipation	100 mW[1]

ELECTRICAL CHARACTERISTICS (T_A = 25°C Unless Otherwise Specified)
(All measurements made under pulse conditions.)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNITS	TEST CONDITIONS
INPUT DIODE						
Forward Voltage	V_F	—		1.70	V	I_F = 20 mA
Reverse Leakage Current	I_R	—		100	μA	V_R = 5.0 V
OUTPUT TRANSISTOR						
Collector-Emitter Breakdown	BV_{CEO}	30		—	V	I_F = 1.0 mA, Ee = 0
Collector-Emitter Leakage	I_{CEO}	—		100	nA	V_{CE} = 10.0 V, Ee = 0
COUPLED						
On-State Collector Current						
QPD1223	$I_{C(ON)}$	10.0		—	mA	I_F = 20mA, V_{CC} = 5.0V, D = .250"[4]

NOTES

1. *Derate power dissipation linearly 2.67 mW/°C above 25°C for LED and 1.33 mW/°C for sensor.*
2. *RMA flux is recommended.*
3. *Soldering iron tip 1/16" (1.6mm) minimum from case.*
4. *D is the distance from lens tip to lens tip.*
5. *As long as leads are not under any stress or spring tension.*

FAIRCHILD
SEMICONDUCTOR™

PLASTIC T-1¾ PAIR

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C Unless Otherwise Specified)

Storage Temperature	−40°C to + 100°C
Operating Temperature	−40°C to + 100°C
Soldering:	
Lead Temperature (Iron)	240°C for 5 sec. [2,3,5]
Lead Temperature (Flow)	260°C for 10 sec. [2,5]
INPUT DIODE	
Continuous Forward Current	100 mA
Reverse Voltage	5.0 Volts
Power Dissipation	200 mW[1]
OUTPUT TRANSISTOR	
Collector-Emitter Voltage	30 Volts
Emitter-Collector Voltage	5.0 Volts
Power Dissipation	100 mW[1]

ELECTRICAL CHARACTERISTICS (T_A = 25°C Unless Otherwise Specified)
(All measurements made under pulse conditions.)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNITS	TEST CONDITIONS
INPUT DIODE						
Forward Voltage	V_F	—		1.70	V	I_F = 20 mA
Reverse Leakage Current	I_R	—		100	μA	V_R = 5.0 V
OUTPUT TRANSISTOR						
Collector-Emitter Breakdown	BV_{CEO}	30		—	V	I_F = 1.0 mA, Ee = 0
Collector-Emitter Leakage	I_{CEO}	—		100	nA	V_{CE} = 10.0 V, Ee = 0
COUPLED						
On-State Collector Current						
QPD1223	$I_{C(ON)}$	10.0		—	mA	I_F = 20mA, V_{CC} = 5.0V, D = .250"[4]

NOTES

1. *Derate power dissipation linearly 2.67 mW/°C above 25°C for LED and 1.33 mW/°C for sensor.*
2. *RMA flux is recommended.*
3. *Soldering iron tip 1/16" (1.6mm) minimum from case.*
4. *D is the distance from lens tip to lens tip.*
5. *As long as leads are not under any stress or spring tension.*

DISCLAIMER

FAIRCHILD SEMICONDUCTOR RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION OR DESIGN. FAIRCHILD DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICENSE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS.

LIFE SUPPORT POLICY

FAIRCHILD'S PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS WRITTEN APPROVAL OF THE PRESIDENT OF FAIRCHILD SEMICONDUCTOR CORPORATION. As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury of the user.
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.