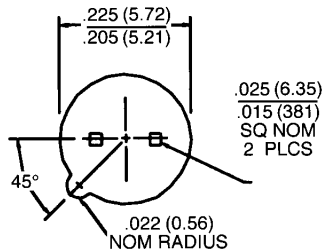
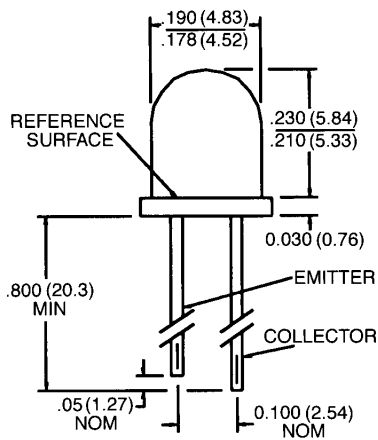


PACKAGE DIMENSIONS



ST2145

DESCRIPTION

The QSD42X is a silicon phototransistor encapsulated in an infrared transparent, black TO-18 package.

FEATURES

- Tight production distribution.
- Steel lead frames for improved reliability in solder mounting.
- Good optical-to-mechanical alignment.
- Narrow reception angle.
- Plastic package is infrared transparent black to attenuate visible light.
- Mechanically and spectrally matched to the QED423/523 LED.
- Black plastic body allows easy recognition from LED.

NOTES:

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

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ 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. ^(4,5)
Lead Temperature (Flow)	260°C for 10 sec. ^(2,5)
Collector-Emitter Breakdown Voltage	30 Volts
Emitter-Collector Breakdown Voltage	5.0 Volts
Power Dissipation	100 mW ⁽¹⁾

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ Unless Otherwise Specified) (All measurements made under pulse conditions.)						
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNITS	TEST CONDITIONS
Collector-Emitter Breakdown	BV_{CEO}	30	—	—	V	$I_C = 1.0\text{ mA}$
Emitter-Collector Breakdown	BV_{ECO}	5.0	—	—	V	$I_E = 100\ \mu\text{A}$
Collector-Emitter Leakage	I_{CEO}	—	—	100	nA	$V_{CE} = 10\text{ V}$
Reception Angle at ½ Sensitivity	θ	—	±35	—	Degrees	
On-State Collector Current QSD422	$I_{C(ON)}$	0.3	—	1.8	mA	$E_e = 0.5\text{ mW/cm}^2, V_{CE} = 5\text{V}^{(6)}$
On-State Collector Current QSD423	$I_{C(ON)}$	1.2	—	4.8	mA	$E_e = 0.5\text{ mW/cm}^2, V_{CE} = 5\text{V}^{(6)}$
On-State Collector Current QSD424	$I_{C(ON)}$	1.8	—	—	mA	$E_e = 0.5\text{ mW/cm}^2, V_{CE} = 5\text{V}^{(6)}$
Rise Time	t_r	—	8.0	—	μS	$I_C = .2\text{ mA}, V_{CC} = 5\text{ V}, R_L = 100\Omega$
Fall Time	t_f	—	8.0	—	μS	$I_C = .2\text{ mA}, V_{CC} = 5\text{ V}, R_L = 100\Omega$
Saturation Voltage	$V_{CE(SAT)}$	—	—	0.40	V	$I_C = 0.15\text{ mA}, E_e = 0.5\text{ mW/cm}^2^{(6)}$

NOTES
1. Derate power dissipation linearly 1.33 mW/°C above 25°C.
2. RMA flux is recommended.
3. Methanol or Isopropyl alcohols are recommended as cleaning agents.
4. Soldering iron tip 1/16" (1.6 mm) minimum from housing.
5. As long as leads are not under any stress or spring tension.
6. Light source is an AlGaAs LED emitting light at a peak wavelength of 880 nm.



PLASTIC SILICON PHOTOTRANSISTOR

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.