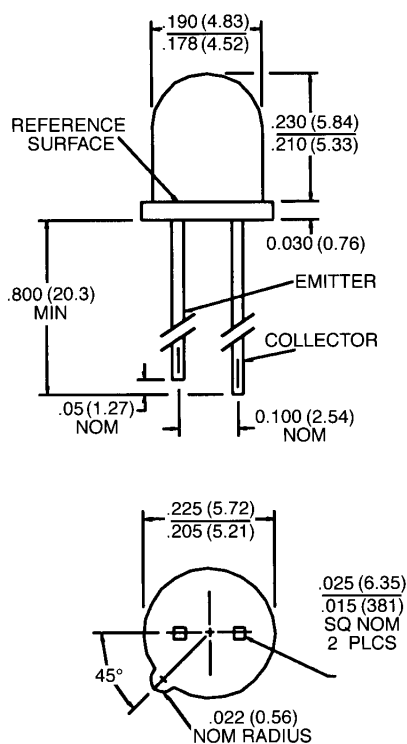




PLASTIC SILICON PHOTOTRANSISTOR

QSD422/423/424

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.



PLASTIC SILICON PHOTOTRANSISTOR

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ Unless Otherwise Specified)

Storage Temperature	-40°C to $+100^\circ\text{C}$
Operating Temperature	-40°C to $+100^\circ\text{C}$
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	$I_E = 100\text{ }\mu\text{A}$
Collector-Emitter Leakage	I_{CEO}	—		100	nA	$V_{CE} = 10\text{ V}$
Reception Angle at $\frac{1}{2}$ 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/ $^\circ\text{C}$ above 25°C .
2. RMA flux is recommended.
3. Methanol or Isopropyl alcohols are recommended as cleaning agents.
4. Soldering iron tip $\frac{1}{16}$ " (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.