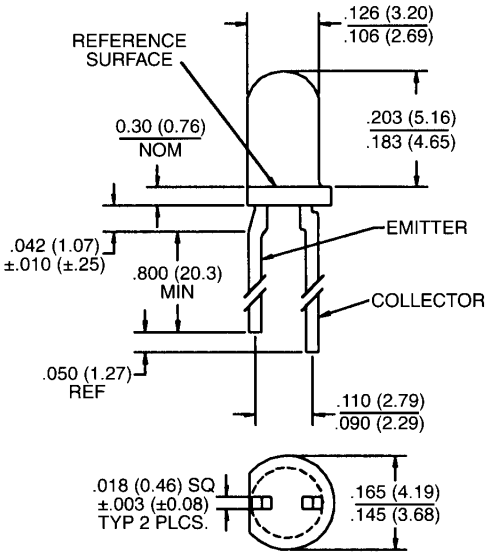
OPTOELECTRONICS

PLASTIC SILICON PHOTOTRANSISTOR

QSC112/113/114

PACKAGE DIMENSIONS



ST2142

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

DESCRIPTION

The QSC11X is a silicon phototransistor encapsulated in an infrared transparent, black T-1 package.

FEATURES

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

QT OPTOELECTRONICS

PLASTIC SILICON PHOTOTRANSISTOR

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. [2,3,4,5]
Lead Temperature (Flow)	260°C for 10 sec. [2,3,5]
Collector-Emitter Breakdown Voltage	30 Volts
Emitter-Collector Breakdown 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
Collector-Emitter Breakdown	BV_{CEO}	30		—	V	I_C = 1.0 mA
Emitter-Collector Breakdown	BV_{ECO}	5.0		—	V	I_E = 100 μA
Collector-Emitter Leakage	I_{CEO}	—		100	nA	V_{CE} = 10 V
Reception Angle at ½ Sensitivity	θ	—	± 8	—	Degrees	
On-State Collector Current QSC112	$I_{C(ON)}$	1.0		4.0	mA	Ee = 0.5 mW/cm², V_{CE} = 5V[6]
On-State Collector Current QSC113	$I_{C(ON)}$	2.4		9.6	mA	Ee = 0.5 mW/cm², V_{CE} = 5V[6]
On-State Collector Current QSC114	$I_{C(ON)}$	4.0		—	mA	Ee = 0.5 mW/cm², V_{CE} = 5V[6]
Rise Time	t_r	—	5.0	—	μS	I_C = 2 mA, V_{CC} = 5 V, R_L = 100Ω
Fall Time	t_f	—	5.0	—	μS	I_C = 2 mA, V_{CC} = 5 V, R_L = 100Ω
Saturation Voltage	$V_{CE(SAT)}$	—		0.40	V	I_C = 0.50 mA, Ee = 0.5 mW/cm²[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.*