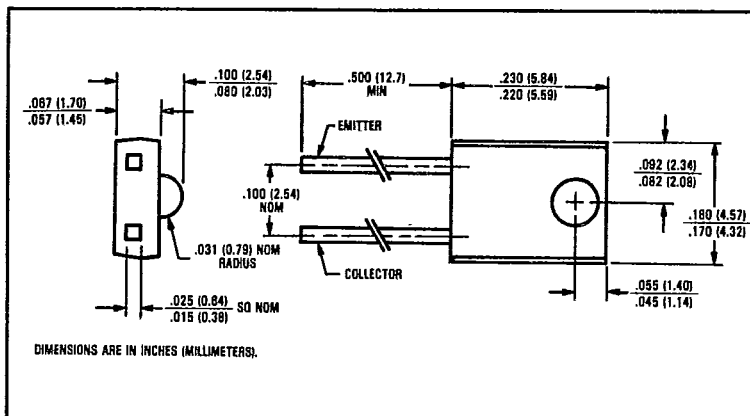
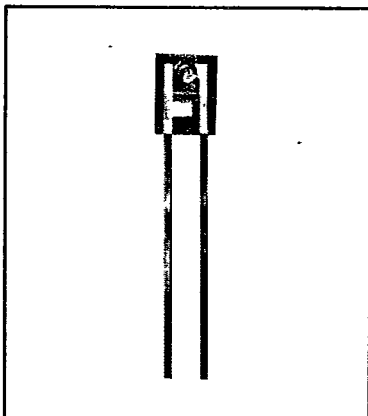


NPN Silicon Phototransistors

Types OP550, OP550SLD, OP550SLC, OP550SLB, OP550SLA



Features

- Wide range of collector currents
- Lensed for high sensitivity
- Low cost plastic package

Description

The OP550 and OP550SLD through SLA each consist of an NPN silicon phototransistor mounted in a lensed, clear plastic, side looking package. The lensing effect of the package allows an acceptance half angle of 28° measured from the optical axis to the half power point. This series is mechanically and spectrally matched to the OP140SL and OP240SL series of infrared emitting diodes.

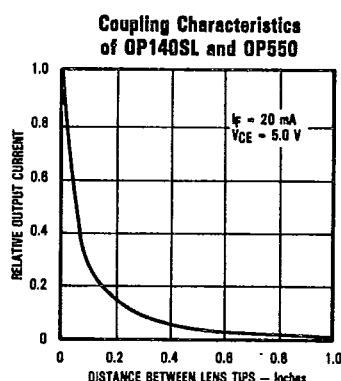
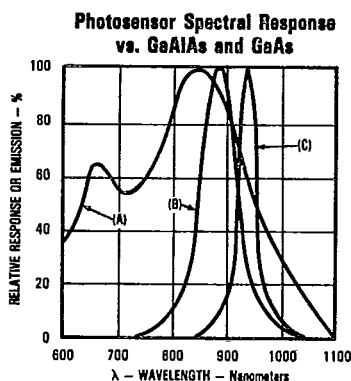
Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Collector-Emitter Voltage	30 V
Emitter-Collector Voltage	5.0 V
Storage and Operating Temperature Range	-40°C to +100°C
Lead Soldering Temperature (1/16 inch [1.6 mm] from case for 5 sec. with soldering iron) ⁽¹⁾	240°C
Power Dissipation	100 mW ⁽²⁾

Notes:

- (1) RMA flux is recommended. Duration can be extended to 10 sec. max. when wave soldering.
- (2) Derate linearly 1.00 mW/°C above 25°C.
- (3) Junction temperature maintained at 25°C.
- (4) Light source is an unfiltered tungsten bulb operating at $T_J = 2870^\circ\text{K}$ or equivalent infrared source.
- (5) To calculate typical collector dark current in μA , use the formula $I_{CDO} = 10^{10} e^{40} T_A^{-3.4}$ where T_A is ambient temperature in °C.

Typical Performance Curves



Types OP550, OP550SLD, OP550SLC, OP550SLB, OP550SLA

T-41-61

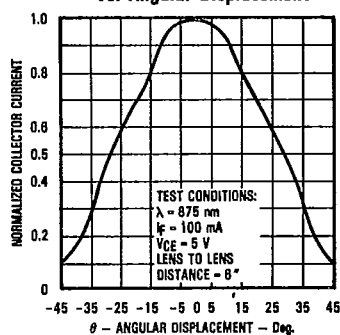
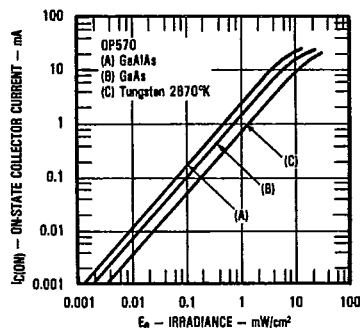
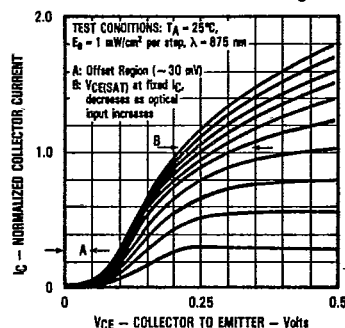
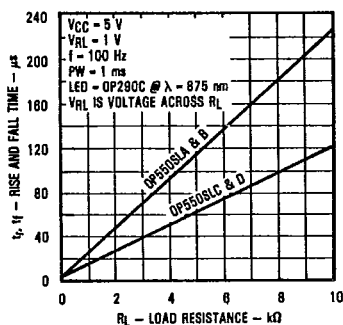
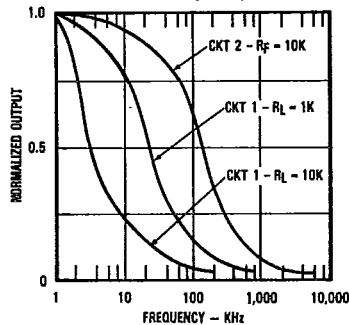
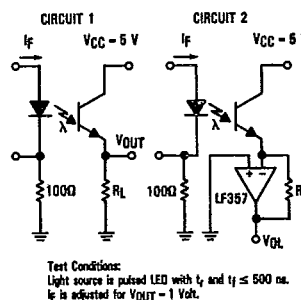
T-41-69

Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
$I_C(\text{ON})^{(1)}$	On-State Collector Current	OP550 0.50			mA	$V_{CE} = 5.0\text{ V}$, $E_0 = 20\text{ mW/cm}^2$ ⁽⁴⁾
		OP550SLD 4.5		14.5	mA	$V_{CE} = 5.0\text{ V}$, $E_0 = 20\text{ mW/cm}^2$ ⁽⁴⁾
		OP550SLC 12.0		19.0	mA	$V_{CE} = 5.0\text{ V}$, $E_0 = 20\text{ mW/cm}^2$ ⁽⁴⁾
		OP550SLB 15.0		28	mA	$V_{CE} = 5.0\text{ V}$, $E_0 = 20\text{ mW/cm}^2$ ⁽⁴⁾
		OP550SLA 22			mA	$V_{CE} = 5.0\text{ V}$, $E_0 = 20\text{ mW/cm}^2$ ⁽⁴⁾
$\Delta I_C/\Delta T$	Relative I_C Changes with Temperature		1.00		%/°C	$V_{CE} = 5.0\text{ V}$, $E_0 = 1.00\text{ mW/cm}^2$, $\lambda = 875\text{ nm}$
$I_{CE0}^{(2)}$	Collector Dark Current			100	nA	$V_{CE} = 10.0\text{ V}$, $E_0 = 0$
V_{BRICEO}	Collector-Emitter Breakdown Voltage	30			V	$I_C = 100\text{ }\mu\text{A}$
V_{BRIECO}	Emitter-Collector Breakdown Voltage	5.0			V	$I_E = 100\text{ }\mu\text{A}$
$V_{\text{CE(SAT)}}^{(3)}$	Collector-Emitter Saturation Voltage			0.40	V	$I_C = 250\text{ }\mu\text{A}$, $E_0 = 20\text{ mW/cm}^2$ ⁽⁴⁾

D

Typical Performance Curves

Normalized Collector Current
vs. Angular DisplacementOn-State Collector Current
vs. IrradianceNormalized Collector Current vs.
Collector to Emitter VoltageRise and Fall Time
vs. Load ResistanceNormalized Output
vs. FrequencySwitching Time
Test Circuit

TRW reserves the right to make changes at any time in order to improve design and to supply the best product possible.

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