

Phototransistor T1 Plastic Package

STPT 3091

Description

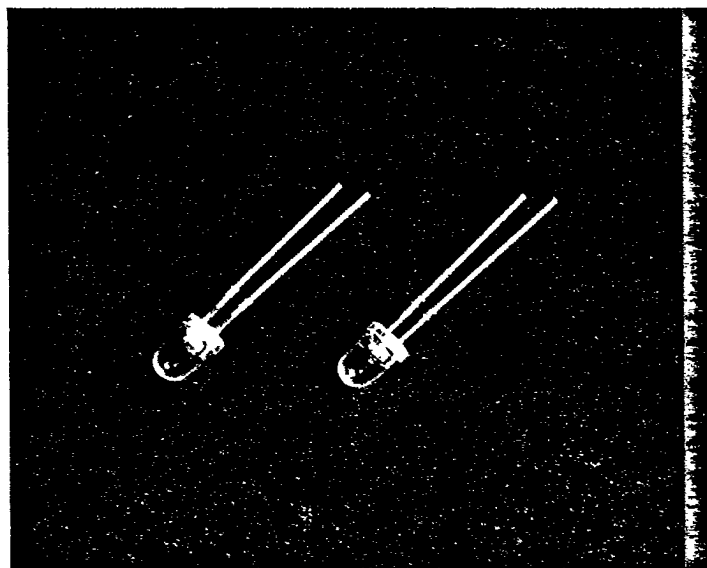
The STPT-3091 is a silicon NPN planar phototransistor mounted in a clear epoxy-resin compound package. The superior lens design produces a $\pm 15^\circ$ angular response.

Features

- Low cost, plastic end-looking package.
- Mechanically and optically matched to the STLD 3081 LED

Applications

- Keyboard/CRT communications
- Game Machines
- EOT/BOT
- Optical switches



Electrical and Optical Specifications

Absolute Maximum Ratings at $T_a = 25^\circ\text{C}$

Operating Temperature.....	-20° to $+70^\circ\text{C}$
Storage Temperature.....	-20° to $+80^\circ\text{C}$
Lead Soldering Temperature (5 sec).....	260°
Collector-Emitter Voltage BV_{CE} ...	20 V
Emitter-Collector Voltage BV_{EC} ...	5 V
Power Dissipation, P_d	75 mW (derate 1.35 mW/°C above 25°C)

Optical Characteristics

Response angle, $\Delta\theta$	$\pm 15^\circ$
Spectral Response.....	500~1000 nm
Peak Spectral Response.....	~850 nm

Electro-Optical Characteristics ($T_a = 25^\circ\text{C}$)

Output Current, I_o	See Chart Below
@ $V_{CE} = 3\text{ V}$, $*H = 5\text{ mW/cm}^2$	
Collector Dark Current, I_d	100 nA Max.
@ $V_{CE} = 10\text{ V}$, $H = 0$	

Saturation Voltage, $V_{CE(\text{Sat})}$	0.2 V TYP,
@ $I_L = 0.2\text{ mA}$, $*H = 10\text{ mW/cm}^2$	0.4 V Max.

Collector-Emitter Breakdown Voltage, BV_{CE} @ $I_c = 1.0\text{ mA}$..	20 V min.
Emitter-Collector Breakdown Voltage, BV_{EC} @ $I_E = 100\mu\text{A}$..	5 V Min.

**Switching Speeds

On Time, t_{on} @ $V_{CC} = 30\text{ V}$, $I_c = 0.8\text{ mA}$, $R_L = 1\text{ k}\Omega$	3 μs TYP
Off Time, t_{off} @ $V_{CC} = 30\text{ V}$, $I_c = 0.8\text{ mA}$, $R_L = 1\text{ k}\Omega$	3 μs TYP

STPT 3091 Output Current Ranges (mA)

-1	-2	-3	-4
1.0-3.0	3.0-6.0	6.0-12.0	12.0 minimum

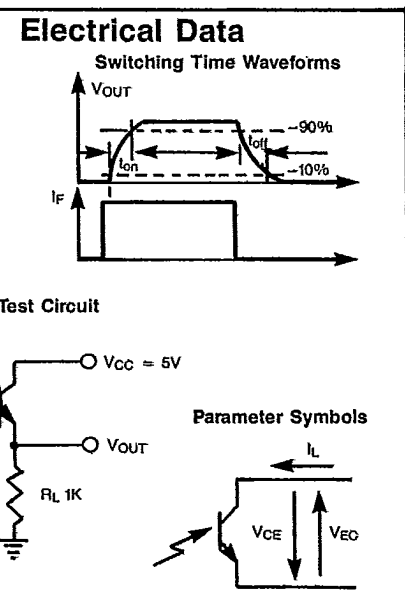
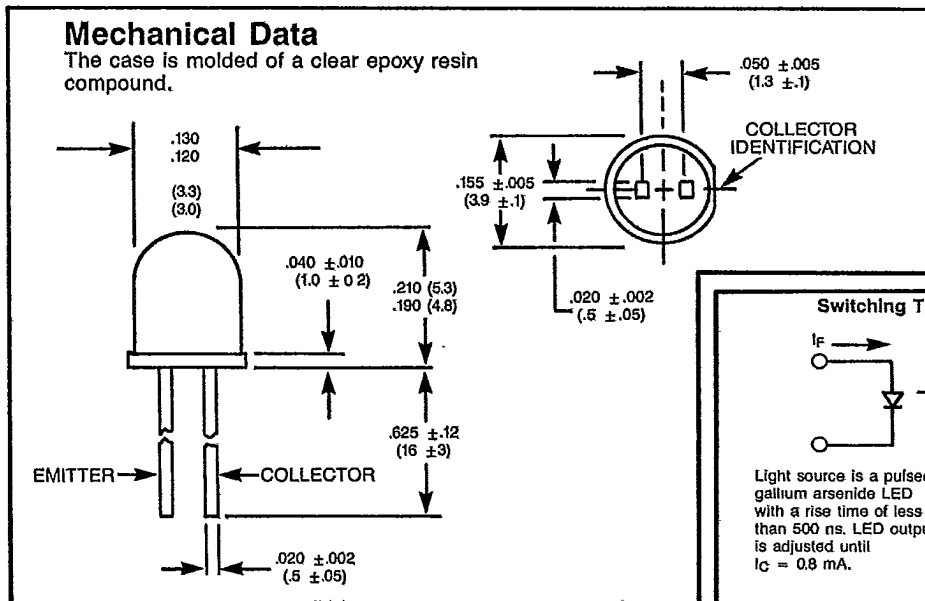
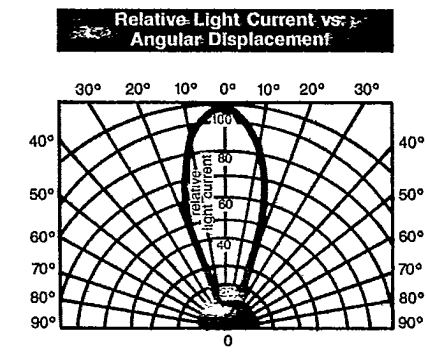
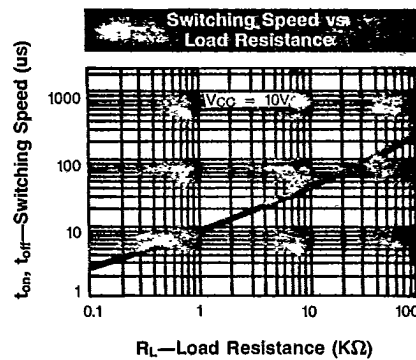
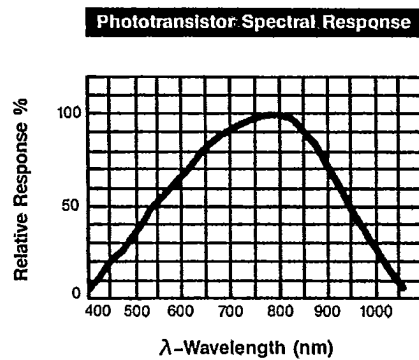
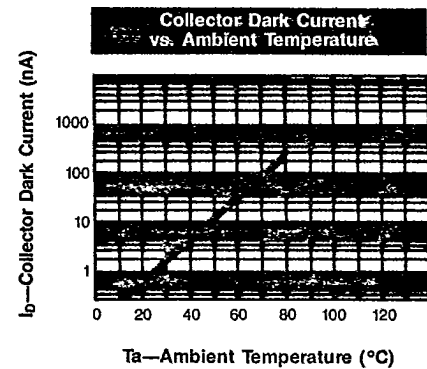
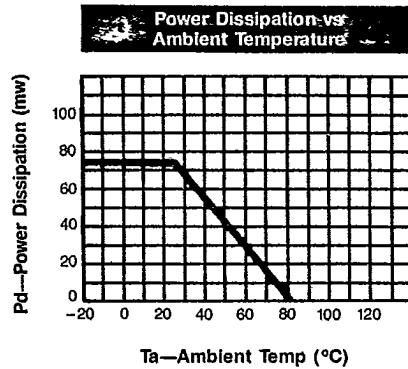
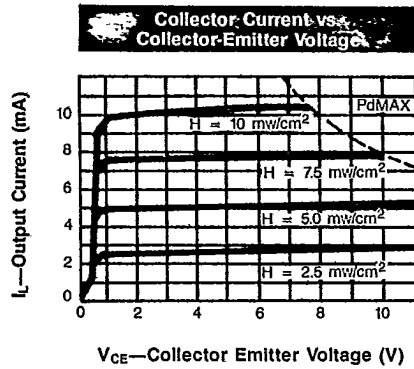
Note *1

Irradiance (H) is the radiant power per unit area incident upon a surface for this measurement. The source is an unfiltered tungsten lamp operating at 2870 K.

Note **2

See back of page for switching time test circuit and definitions of t_{on} and t_{off} .

STPT 3091 Typical Characteristics



Sensor Technology is a leading producer of optoelectronic components, encoders and a wide variety of semi-custom optoelectronic assemblies. Sensor Technology's in-depth electronic and electromechanical engineering support staff helps customers take their products from prototype development through high-volume production.

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