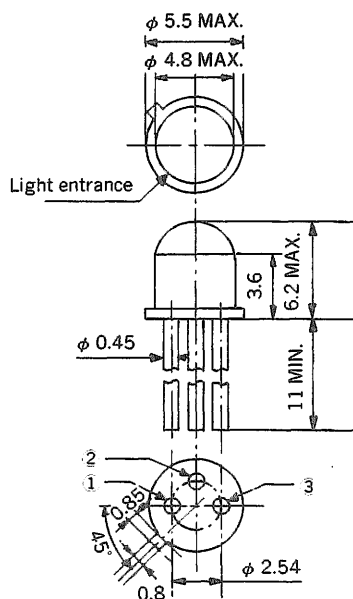


**NPN EPITAXIAL TYPE SILICON PHOTO TRANSISTOR**
**PACKAGE DIMENSIONS**  
 (Unit: mm)


1. Emitter
2. Base
3. Collector

**Precautions for handling:**

1. When the device is soldered, each lead should be soldered with a length of 1.5 mm or more, at a temperature of 260 °C or less, in a soldering time of 5 sec. or less.

PT8L is an NPN epitaxial type silicon transistor using TO-18 metal stem and glass lens.

Since this device has high mechanical strength and high environmental resistance, it can be used as a high reliability light receiving device.

**FEATURES**

- High response speed
- Wide range of operating temperature
- Good linearity between light input and electric output
- Good conformity of peak value of light receiving sensitivity with the spectrum of infrared ray emitting device (SE301A)

**QUALITY GRADE**

Standard

Please refer to "Quality grade on NEC Semiconductor Devices" (Document number IEI-1209) published by NEC Corporation to know the specification of quality grade on the devices and its recommended applications.

**APPLICATIONS**

- Various photoelectric switches
- Light receiving blocks of photocouplers and photo interrupters
- Optical choppers

**ABSOLUTE MAXIMUM RATINGS ( $T_a = 25^\circ\text{C}$ )**

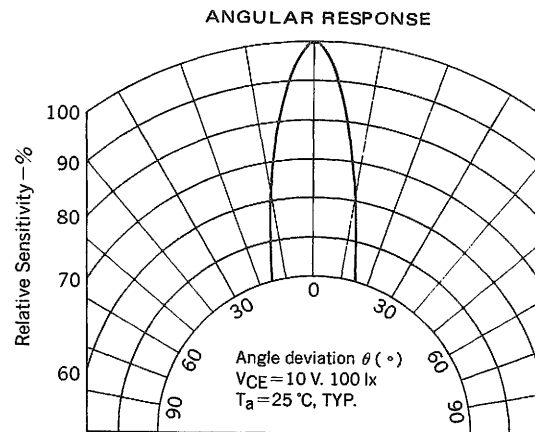
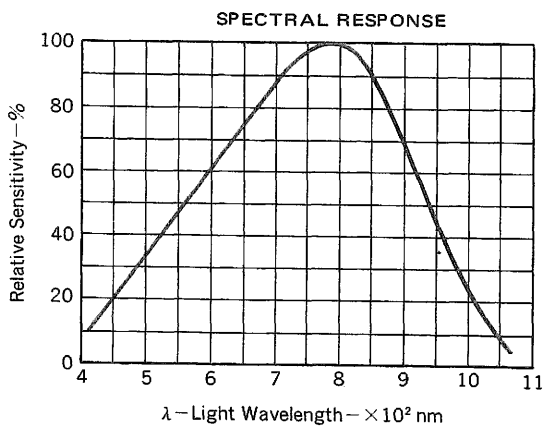
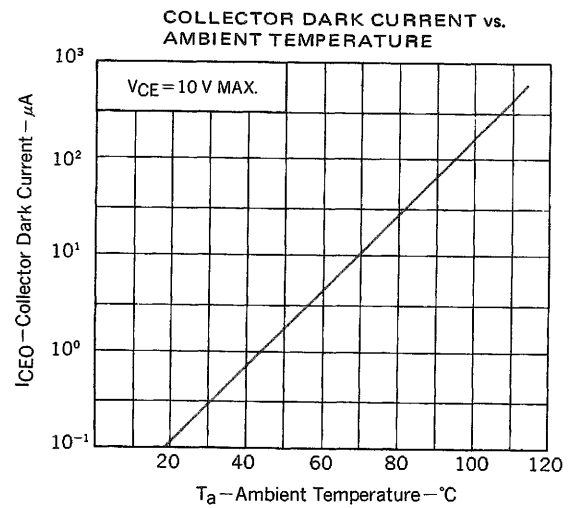
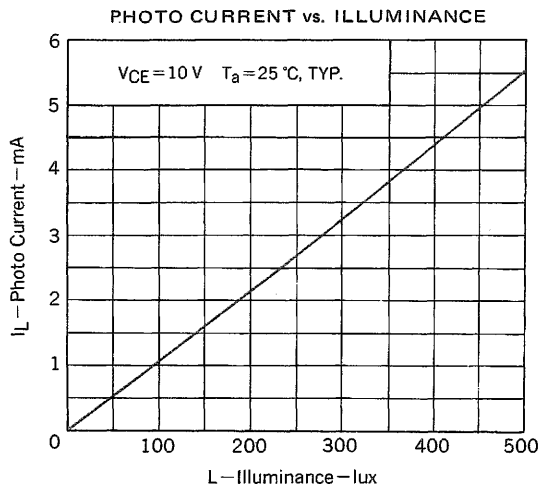
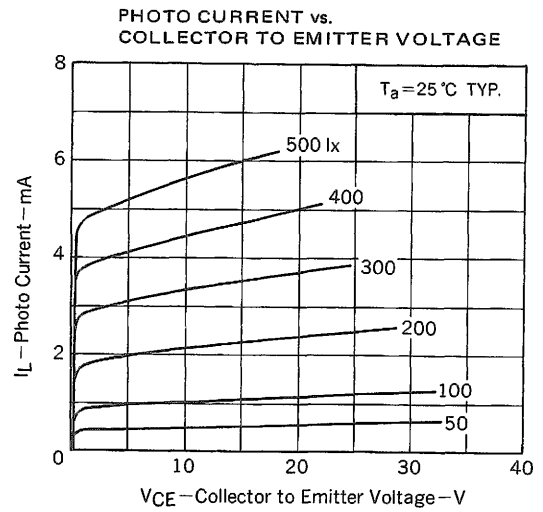
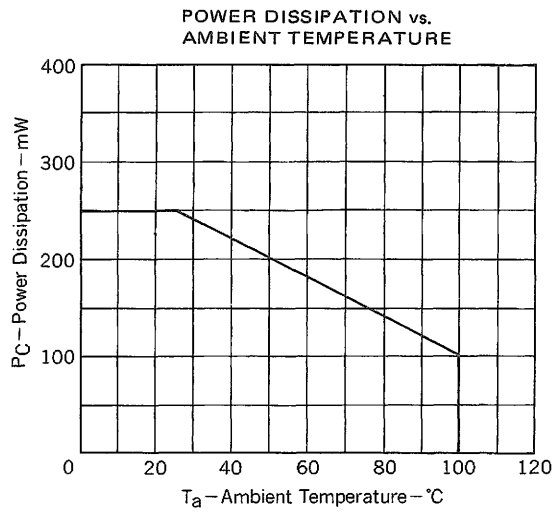
Collector to Emitter Voltage	$V_{CE0}$	30	V
Collector to Base Voltage	$V_{CBO}$	30	V
Emitter to Base Voltage	$V_{EBO}$	5	V
Collector Current	$I_C$	30	mA
Power Dissipation	$P_C$	250	mW
Junction Temperature	$T_j$	150	$^\circ\text{C}$
Operating Temperature	$T_{opt}$	-20 to +100	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-40 to +150	$^\circ\text{C}$

**ELECTRICAL CHARACTERISTICS ( $T_a = 25^\circ\text{C}$ )**

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Dark Current	$I_{CE01}$			200	nA	$V_{CE} = 10\text{ V}$ , $L = 0\text{ lx}$
Collector Dark Current	$I_{CE02}$			200	$\mu\text{A}$	$T_a = 100^\circ\text{C}$ , $V_{CE} = 10\text{ V}$ , $L = 0\text{ lx}$
Photo Current	$I_L$	250			$\mu\text{A}$	$V_{CE} = 10\text{ V}$ , $L^* = 200\text{ lx}$
Collector Saturation Voltage	$V_{CE(sat)}$			0.3	V	$I_C = 0.1\text{ mA}$ , $L^* = 500\text{ lx}$
Rise Time	$t_r$		5		$\mu\text{s}$	$V_{CC} = 10\text{ V}$ , $I_C = 2\text{ mA}$ , $R_L = 100\ \Omega$
Fall Time	$t_f$		5		$\mu\text{s}$	$V_{CC} = 10\text{ V}$ , $I_C = 2\text{ mA}$ , $R_L = 100\ \Omega$
DC Current Amplification Factor	$h_{FE}$	50				$V_{CE} = 5\text{ V}$ , $I_C = 4\text{ mA}$

\* Light source color temperature = 2 854 K

TYPICAL CHARACTERISTICS ( $T_a = 25^\circ\text{C}$ )



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The devices listed in this document are not suitable for use in the field where very high reliability is required including, but not limited to, aerospace equipment, submarine cables, nuclear reactor control systems and life support systems. If customers intend to use NEC devices for above applications or those intended to use "Standard", or "Special" quality grade NEC devices for the applications not intended by NEC, please contact our sales people in advance.

Application examples recommended by NEC Corporation

Standard: Data processing and office equipment, Communication equipment (terminal, mobile). Test and Measurement equipment, Audio and Video equipment, Other consumer products, etc.

Special: Automotive and Transportation equipment, Communication equipment (trunk line), Train and Traffic control devices, industrial robots, Burning control systems, antidisaster systems, anticrime systems etc.