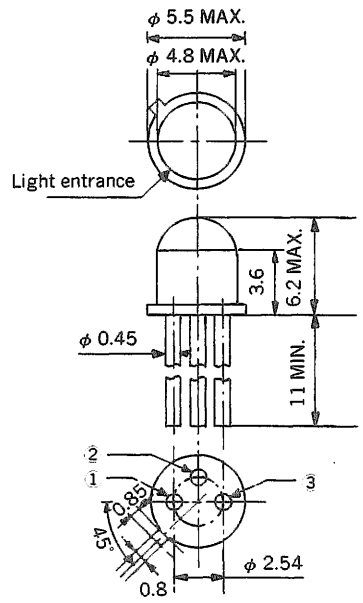
NEC
ELECTRON DEVICE

PHOTO TRANSISTOR
PT8L

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

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ABSOLUTE MAXIMUM RATINGS (T_a = 25 °C)

Collector to Emitter Voltage	V_{CEO}	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	°C
Operating Temperature	T_{opt}	−20 to +100	°C
Storage Temperature	T_{stg}	−40 to +150	°C

ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Dark Current	I_{CEO1}			200	nA	V_{CE} = 10 V, L = 0 lx
Collector Dark Current	I_{CEO2}			200	μA	T_a = 100 °C, V_{CE} = 10 V, L = 0 lx
Photo Current	I_L	250			μA	V_{CE} = 10 V, L* = 200 lx
Collector Saturation Voltage	$V_{CE(sat)}$			0.3	V	I_C = 0.1 mA, L* = 500 lx
Rise Time	t_r		5		μs	V_{CC} = 10 V, I_C = 2 mA, R_L = 100 Ω
Fall Time	t_f		5		μs	V_{CC} = 10 V, I_C = 2 mA, R_L = 100 Ω
DC Current Amplification Factor	h_{FE}	50				V_{CE} = 5 V, I_C = 4 mA

* Light source color temperature = 2 854 K

TYPICAL CHARACTERISTICS (T_a = 25 °C)

POWER DISSIPATION vs. AMBIENT TEMPERATURE

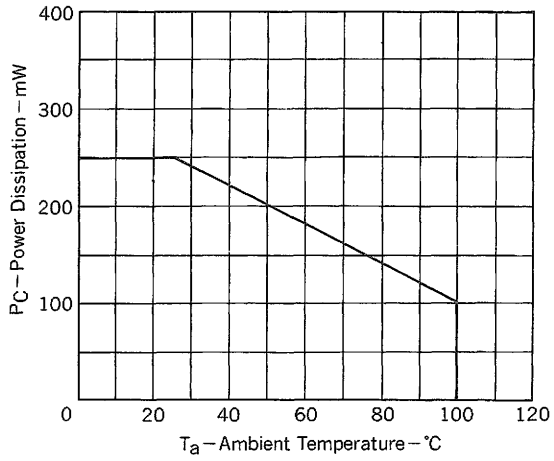


PHOTO CURRENT vs. COLLECTOR TO EMITTER VOLTAGE

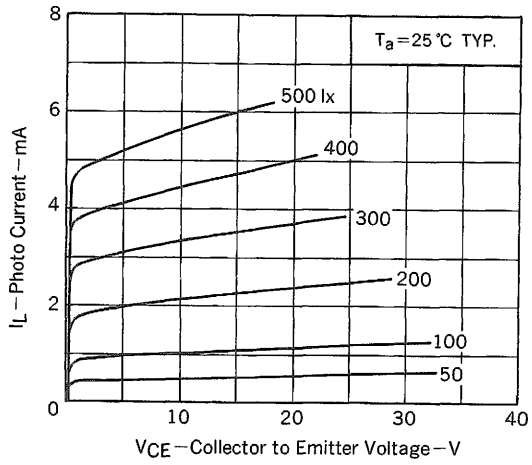
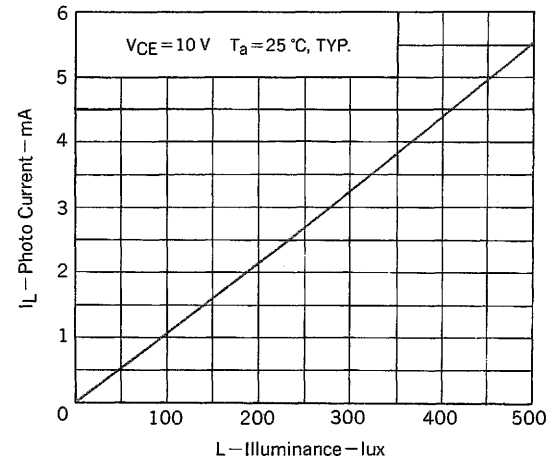
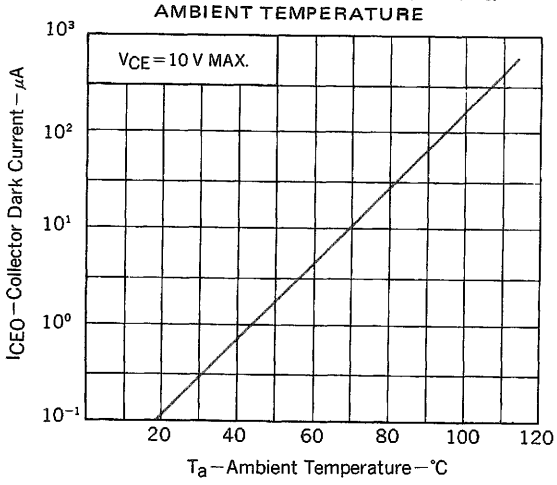


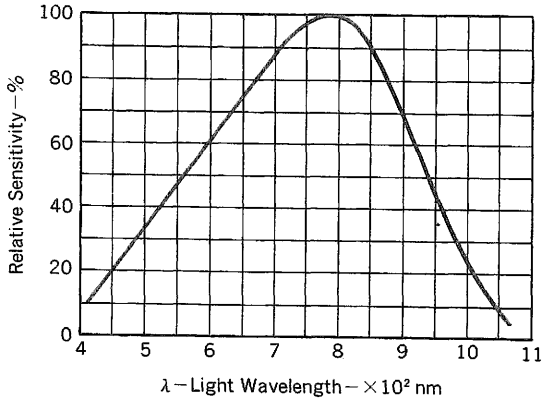
PHOTO CURRENT vs. ILLUMINANCE



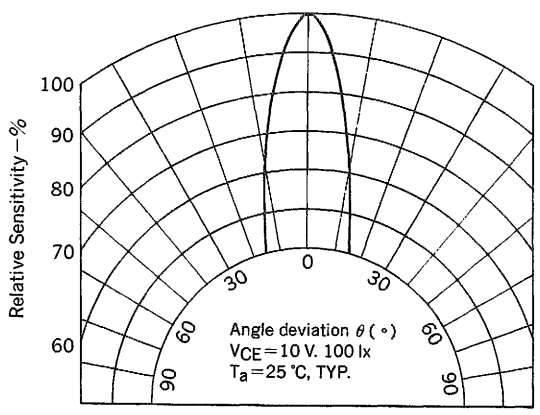
COLLECTOR DARK CURRENT vs. AMBIENT TEMPERATURE



SPECTRAL RESPONSE



ANGULAR RESPONSE



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