

NEC**PHOTOTRANSISTOR PH108****FEATURES**

- **SMALL SIZE PLASTIC MOLDED PACKAGE**
4.0 x 2.8 x 2.5 mm
- **HIGH SENSITIVITY**
 $I_L = 0.9 \text{ mA TYP @ } V_{CE} = 5 \text{ V, } H = 0.5 \text{ mW/cm}^2$
- **SPECTRALLY MATCHED TO GaAs INFRARED EMITTER**

DESCRIPTION

The PH108 is a phototransistor in a plastic molded package and is very suitable for a detector of a photointerrupter in combination with the SE308. Since the device is housed in a small package with a lens, when it is used along with an infrared ray LED SE308 in the same shape, a small photointerrupter can be formed.

APPLICATIONS

- **PHOTOSENSOR FOR PHOTOINTERRUPTER**
- **OPTICAL ENCODER**
- **HIGH SPEED OPTOELECTRONIC DATA LINKS**

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

PART NUMBER			PH108		
SYMBOLS	PARAMETERS	UNITS	MIN	TYP	MAX
I_{CEO}	Collector to Emitter Dark Current, $V_{CE} = 10 \text{ V, } H = 0 \text{ mW/cm}^2$	nA			100
$V_{CE(sat)}$	Collector Saturation Voltage, $I_C = 0.5 \text{ mA, } H = 5 \text{ mW/cm}^2$ *	V			0.3
I_L	Photo Current, $V_{CE} = 5 \text{ V, } H = 0.5 \text{ mW/cm}^2$ *	mA	0.3	0.9	
t_f	Fall Time, $V_{CC} = 10 \text{ V, } H = 0.5 \text{ mW/cm}^2$, $R_L = 1 \text{ k}\Omega$	μs			40

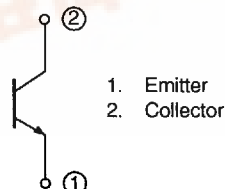
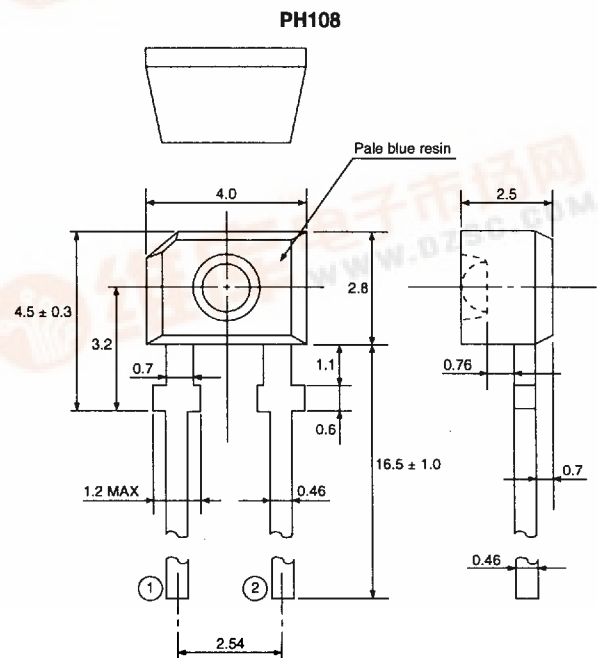
* Measured with a GaAs infrared LED with $\lambda_P = 940 \text{ nm}$.

ABSOLUTE MAXIMUM RATINGS¹ ($T_A = 25^\circ\text{C}$)

SYMBOLS	PARAMETERS	UNITS	RATINGS
V_{CEO}	Collector to Emitter Voltage	V	30
I_C	Collector Current	mA	40
P_C	Power Dissipation	mW	100
T_j	Junction Temperature	$^\circ\text{C}$	100
T_{STG}	Storage Temperature	$^\circ\text{C}$	-40 to +100
T_{OP}	Operating Temperature	$^\circ\text{C}$	-20 to +80

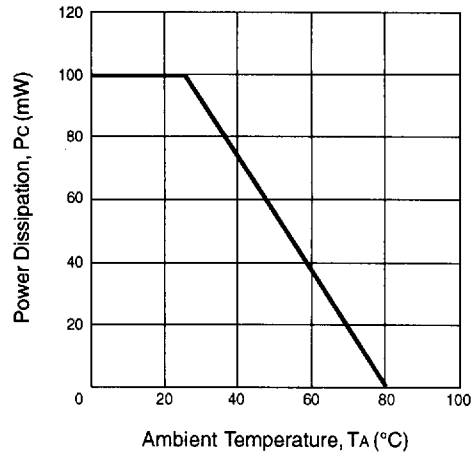
Note:

1. Operation in excess of any one of these parameters may result in permanent damage.

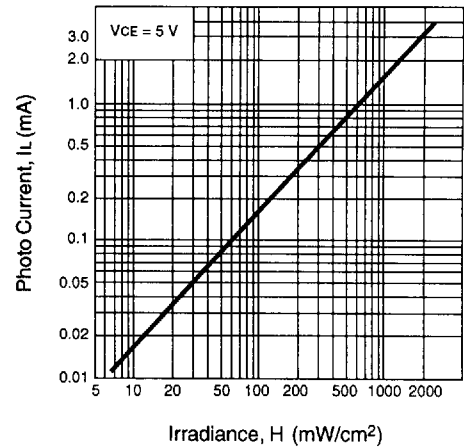
PIN CONNECTION (Top View)**PH108****OUTLINE DIMENSIONS** (Units in mm)

TYPICAL PERFORMANCE CURVES ($T_A = 25^\circ\text{C}$)

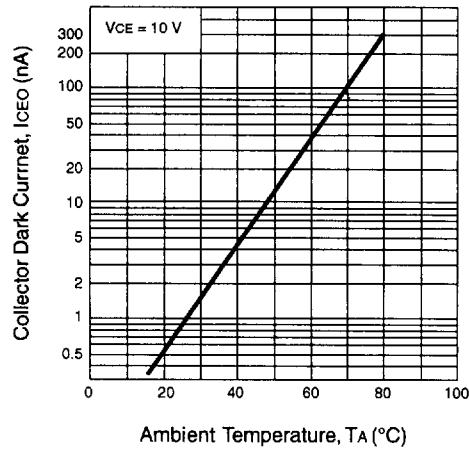
**POWER DISSIPATION vs.
AMBIENT TEMPERATURE**



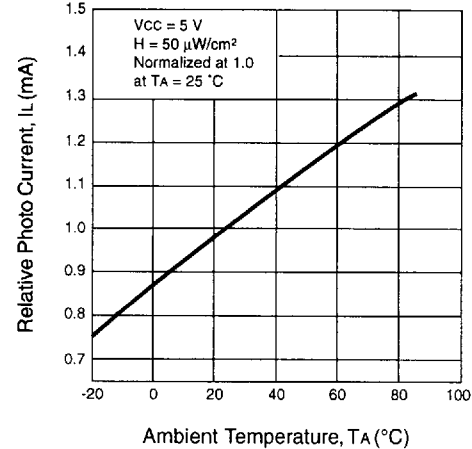
**PHOTO CURRENT
vs. IRRADIANCE**



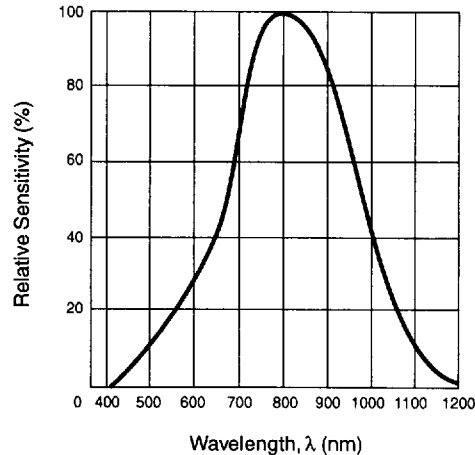
**COLLECTOR DARK CURRENT
vs. AMBIENT TEMPERATURE**



**RELATIVE PHOTO CURRENT
vs. AMBIENT TEMPERATURE**



WAVELENGTH SENSITIVITY



SPATIAL DISTRIBUTION

