NEC

NEC Electronics Inc.

PH101
NPN EPITAXIAL DARLINGTON PHOTO TRANSISTOR PHOTO DETECTOR

NEPOC SERIES

Description

The PH101 is a miniature NPN silicon photo transistor having exceptionally stable characteristics and high illuminance sensitivity mounted in a two-terminal MICRODISK package. The spectral response, extending from 4000 to 10,000Å, is compatible with daylight, tungsten and gallium arsenide sources. The packaging of this unit permits close spacing in linear arrays. Its low cost and volume producibility open new areas of use anywhere a photo detector is desirable.

Features

- ☐ Low cost
- ☐ Low leakage current
- ☐ Wide spectral response
- ☐ Convenient MICRODISK package
- ☐ Wide temperature range
- ☐ Compact, rugged, light-weight
- ☐ High sensitivity

Applications

- ☐ Optical switching and encoding
- ☐ Intrusion alarms
- ☐ Tape and card reader sensors
- ☐ Level controls
- ☐ Motor governors

Absolute Maximum Ratings

$T_A = +25°C$

Collector to Emitter Voltage, V_{CEO}	20V
Collector Current, I_C	50mA
Power Dissipation, P_D	100mW
Junction Temperature, T_J	80°C
Storage Temperature, T_{STG}	−30°C to +80°C

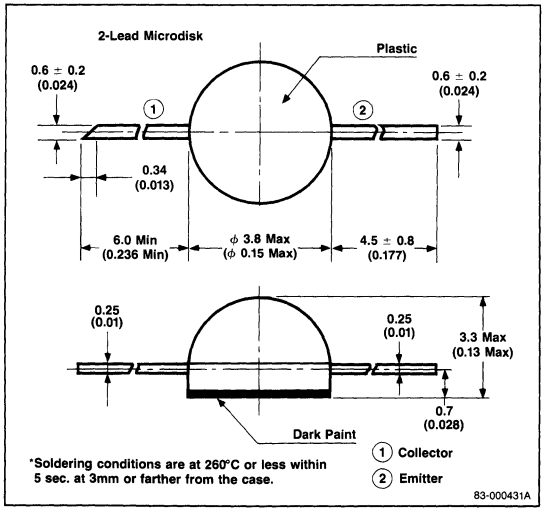
Electro-Optical Characteristics

$T_A = +25°C$

Parameters	Symbol	Limits Min	Typ	Max	Unit	Test Conditions
Collector to Emitter Dark Current	I_{CE01}			0.5	μA	V_{CE} = 15V, L = 0
Collector to Emitter Dark Current	I_{CE02}			500	μA	V_{CE} = 15V, L = 0, T_A = +80°C
Collector Saturation Voltage	$V_{CE(sat)}$		0.7	1.5	V	I_C = 10mA, L^1 = 1000lx
Photo Current	I_L	4	12		mA	V_{CE} = 2.0V, L^1 = 100lx

Note: 1. Measured with a tungsten filament lamp operated at a color temperature of 2854K.

Package Dimensions



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Typical Characteristics
T_A = +25°C

Photo Current vs Collector to Emitter Voltage

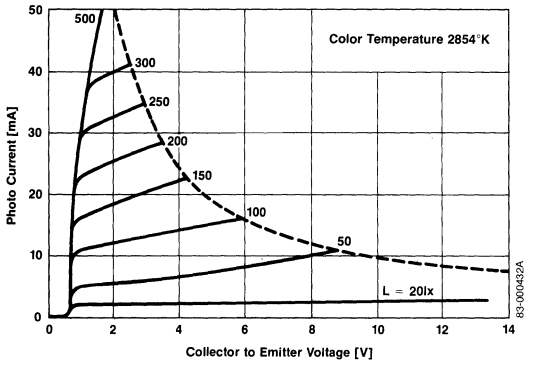
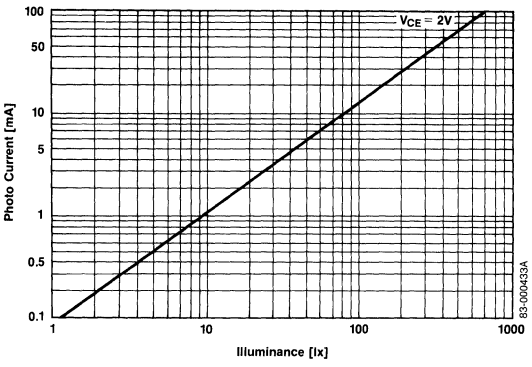
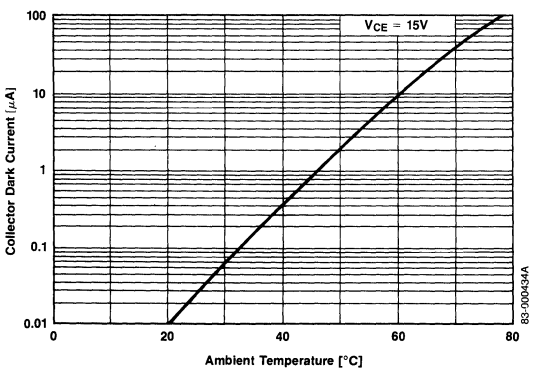


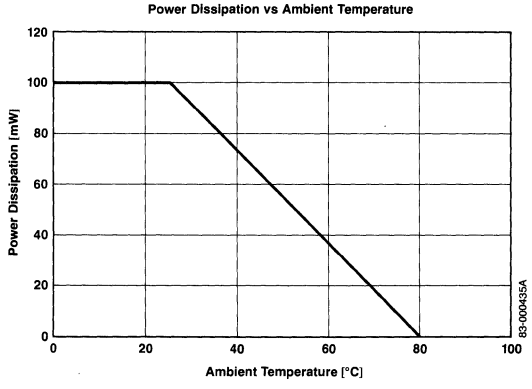
Photo Current vs Illuminance



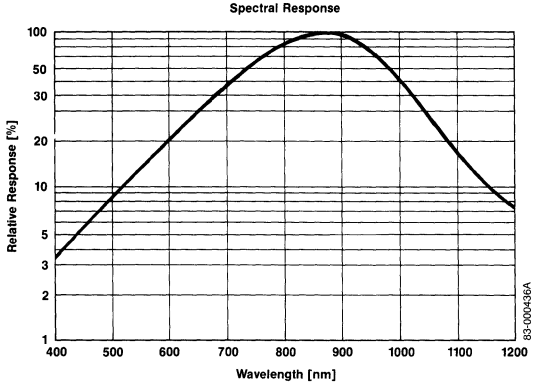
Collector Dark Current vs Ambient Temperature



Power Dissipation vs Ambient Temperature



Spectral Response



Angular Response