NEC
NEC Electronics Inc.

PH102
NPN EPITAXIAL PHOTO TRANSISTOR PHOTO DETECTOR

NEPOC SERIES

Description

The PH102 is a miniature NPN silicon photo transistor having exceptionally stable characteristics and is mounted in a two-terminal MICRODISK package. The spectral response, extending from 400 to 1000nm, 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.

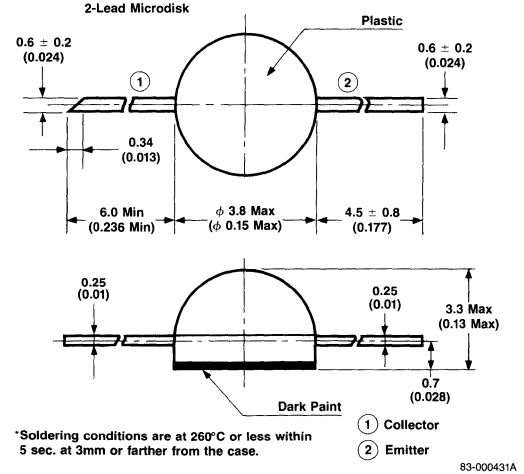
Features

- ☐ High speed
- ☐ Low cost
- ☐ Low leakage current
- ☐ Wide spectral response
- ☐ 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

Package Dimensions



Absolute Maximum Ratings

T_A = +25°C

Collector to Emitter Voltage, V_{CEO}	30V
Collector Current, I_C	40mA
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_{CEO}			200	nA	V_{CE} = 10V, L = 0lx
Collector Saturation Voltage	$V_{CE(sat)}$			0.3	V	I_C = 0.5mA, L^1 = 1000lx
Photo Current	I_L	50	180		μA	V_{CE} = 2.0V, L^1 = 100lx
Fall Time	t_f		5		μs	V_{CE} = 10V, I_L = 2mA, R_L = 100Ω
Rise Time	t_r		5		μs	V_{CE} = 10V, I_L = 2mA, R_L = 100Ω

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

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Typical Characteristics
T_A = +25°C

Power Dissipation vs Ambient Temperature

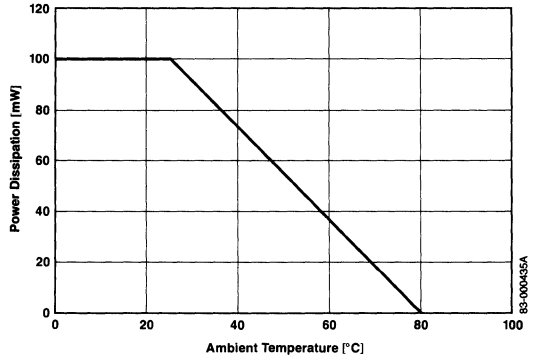


Photo Current vs Collector to Emitter Voltage

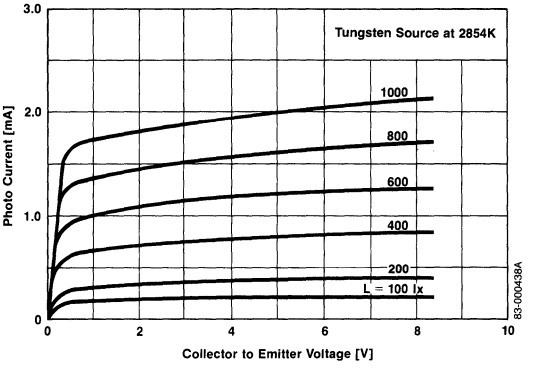
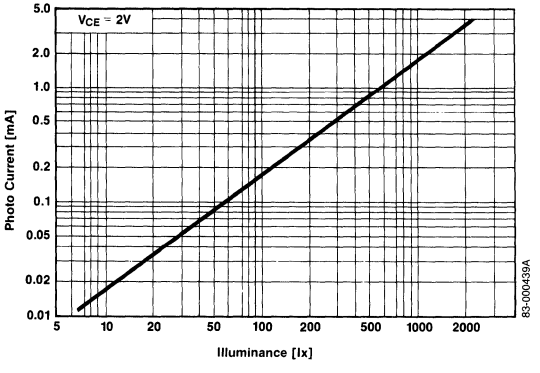
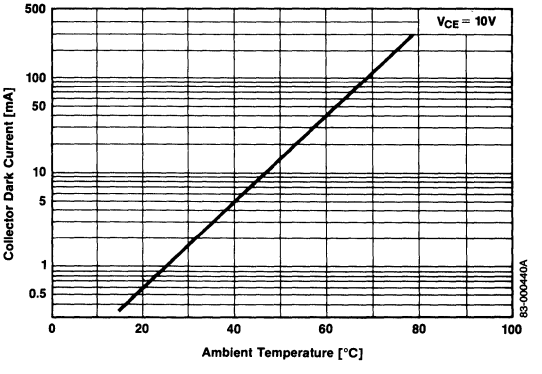


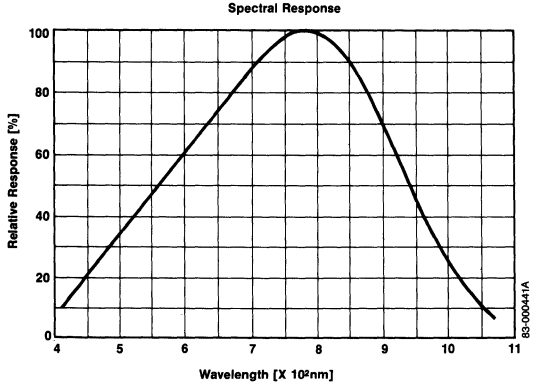
Photo Current vs Illuminance



Collector Dark Current vs Ambient Temperature



Spectral Response



Angular Response