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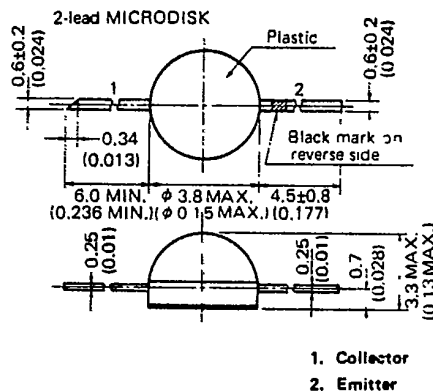
PHOTO TRANSISTOR PH102

NPN EPITAXIAL PHOTOTRANSISTOR PHOTO DETECTOR

DESCRIPTION

The PH102 is a miniature NPN silicon phototransistor having exceptionally stable characteristics mounted in a two-terminal MICRODISK package. The spectral response, extending from 400 to 1000 nm, 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 opens new areas of use anywhere a photo detector is desirable.

PACKAGE DIMENSIONS in millimeters (inches)



* Soldering conditions are at 260 °C or less within 5 s at 3 mm or farther from the case.

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 alarm.
- Tape and card reader sensor.
- Level control.
- Motor governor

ABSOLUTE MAXIMUM RATINGS

Maximum Collector to Emitter Voltage ($T_a=25^\circ\text{C}$)	V_{CE}	30	V
Maximum Collector Current ($T_a=25^\circ\text{C}$)	I_C	40	mA
Maximum Power Dissipation ($T_a=25^\circ\text{C}$)	P_C	100	mW
Maximum Temperatures ($T_a = 25^\circ\text{C}$)			
Junction Temperature	T_j	80	$^\circ\text{C}$
Storage Temperature	T_{stg}	-30 to +80	$^\circ\text{C}$

ELECTRO-OPTICAL CHARACTERISTICS ($T_a=25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector to Emitter Dark Current	I_{CEO}			200	nA	$V_{CE}=10\text{ V}, L=0\text{ lx}$
Collector Saturation Voltage	$V_{CE(sat)}$			0.3	V	$I_C=0.5\text{ mA}, L^*=1,000\text{ lx}$
Photo Current	I_L	50	180		μA	$V_{CE}=2.0\text{ V}, L^*=100\text{ lx}$
Fall Time	t_f		5		μs	$V_{CE}=10\text{ V}, I_L=2\text{ mA}, R_L=100\ \Omega$
Rise Time	t_r		5		μs	$V_{CE}=10\text{ V}, I_L=2\text{ mA}, R_L=100\ \Omega$

*Measured with a tungsten filament lamp operated at a color temperature of 2854 K.

PH102

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