

**PHOTO COUPLER**  
**INDUSTRIAL USE**

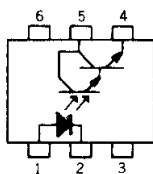
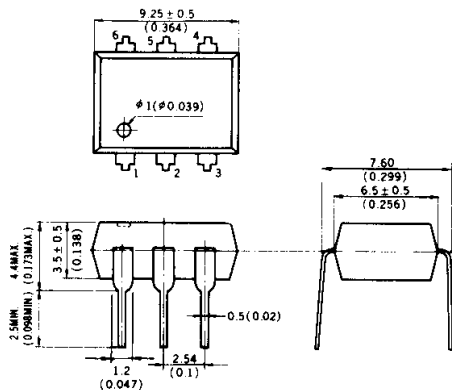
— NEPOC SERIES —

**DESCRIPTION**

The PS2002B is an optically coupled isolator containing a GaAsP light emitting diode and an NPN silicon darlington- connected phototransistor.

**PACKAGE DIMENSIONS**

in millimeters (inches)



(Top view)

1. Anode
2. Cathode
3. NC
4. Emitter
5. Collector
6. NC

**FEATURES**

- High Voltage Isolation 2500V<sub>DC</sub> MIN.
- High Transfer Ratio 100% MIN.
- Economical, Compact, Plastic Dual In-Line Package

**APPLICATIONS**

- ECR
- Automat
- Replacement of pulse transformer.
- Other replacement of mechanical relay and reed relays.

**ABSOLUTE MAXIMUM RATINGS (T<sub>a</sub> = 25°C)**

Diode

Reverse Voltage	V <sub>R</sub>	7.0	V
Forward Current	I <sub>F</sub>	50	mA
Power Dissipation	P <sub>D</sub>	100	mW

Transistor

Collector to Emitter Voltage	V <sub>CEO</sub>	40	V
Collector Current	I <sub>C</sub>	50	mA
Power Dissipation	P <sub>C</sub>	100	mW
Isolation Voltage* 1	BV	2500	V <sub>DC</sub>
Storage Temperature	T <sub>stg</sub>	-55 to +125	°C
Operating Temperature	T <sub>opt</sub>	-55 to +100	°C

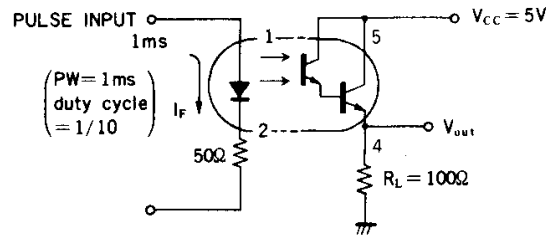
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Diode	Forward Voltage	V <sub>F</sub>			1.9	V	I <sub>F</sub> = 5.0 mA
	Reverse Current	I <sub>R</sub>			2.0	μA	V <sub>R</sub> = 4.0 V
	Junction Capacitance	C		100		pF	V = 0, f = 1.0 MHz
Transistor	Collector to Emitter Dark Current	I <sub>CEO</sub>			400	nA	V <sub>CE</sub> = 10 V, I <sub>F</sub> = 0
	DC Current Gain	h <sub>FE</sub>		5000			I <sub>C</sub> = 4.0 mA, V <sub>CE</sub> = 2.0 V
Coupled	Current Transfer Ratio	CTR(I <sub>C</sub> /I <sub>F</sub> )	100			%	I <sub>F</sub> = 5.0 mA, V <sub>CE</sub> = 2.0 V
	Collector Saturation Voltage	V <sub>CE (sat)</sub>			1.2	V	I <sub>F</sub> = 5.0 mA, I <sub>C</sub> = 2.0 mA
	Isolation Resistance	R <sub>1-2</sub>	10 <sup>11</sup>			Ω	V <sub>in-out</sub> = 1.0 kV
	Isolation Capacitance	C <sub>1-2</sub>		0.8		pF	V = 0, f = 1.0 MHz
	Rise Time	t <sub>r</sub>		100		μs	V <sub>CC</sub> = 5.0 V, I <sub>F</sub> = 10 mA, R <sub>L</sub> = 100 Ω*2
Fall Time	t <sub>f</sub>		120		μs	V <sub>CC</sub> = 5.0 V, I <sub>F</sub> = 10 mA, R <sub>L</sub> = 100 Ω*2	

\* 1 Measuring Condition

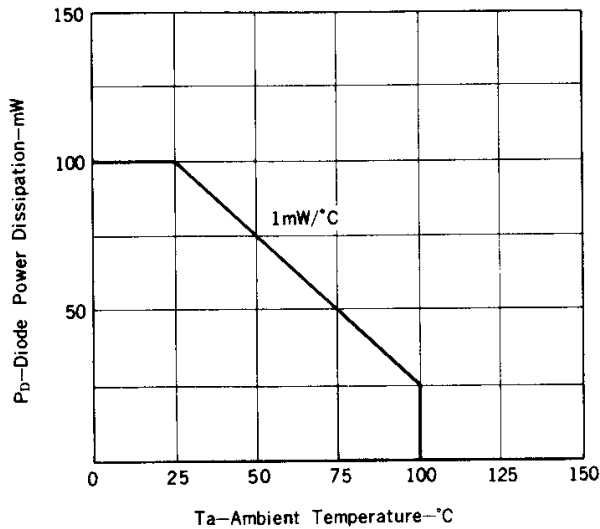
DC or AC voltage for 1 minute at Ta = 25°C,  
 RH = 60%  
 Between input (pin No. 1, 2 and No. 3 Common)  
 and output (pin No. 4, 5 and No. 6 Common)

\* 2 Test Circuit for Switching Time



TYPICAL CHARACTERISTICS (Ta = 25°C)

DIODE POWER DISSIPATION vs. AMBIENT TEMPERATURE



TRANSISTOR POWER DISSIPATION vs. AMBIENT TEMPERATURE

