

4-PIN SSOP PHOTOCOUPLER OPERATING AMBIENT TEMPERATURE 110°C –NEPOC Series–

DESCRIPTION

The PS2861B-1 is an optically coupled isolator containing a GaAs light emitting diode and an NPN silicon phototransistor.

The package has shield effect to cut off ambient light, and is mounted in a plastic SSOP (Shrink Small Outline Package) for high density applications.

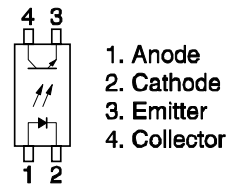
FEATURES

- Operating ambient temperature: 110°C
- Long creepage distance (5 mm MIN.)
- Isolation distance (0.4 mm MIN.)
- High isolation voltage (BV = 3 750 Vr.m.s.)
- SSOP (Shrink Small Outline Package) type
- High-speed switching ($t_r = 4 \mu\text{s}$ TYP., $t_f = 5 \mu\text{s}$ TYP.)
- Ordering number of tape product: PS2861B-1-F3
- Pb-Free product

APPLICATIONS

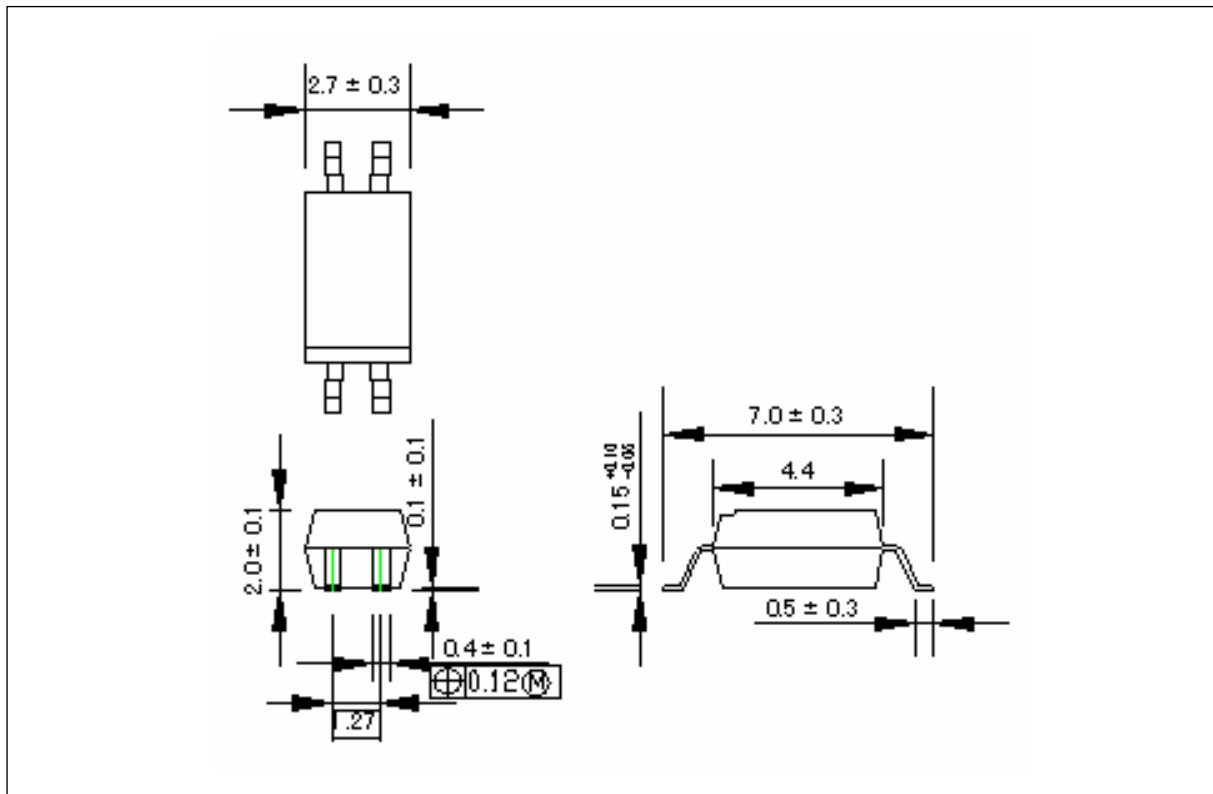
- Modem
- Programmable logic controllers
- Power supply

PIN CONNECTION (Top View)

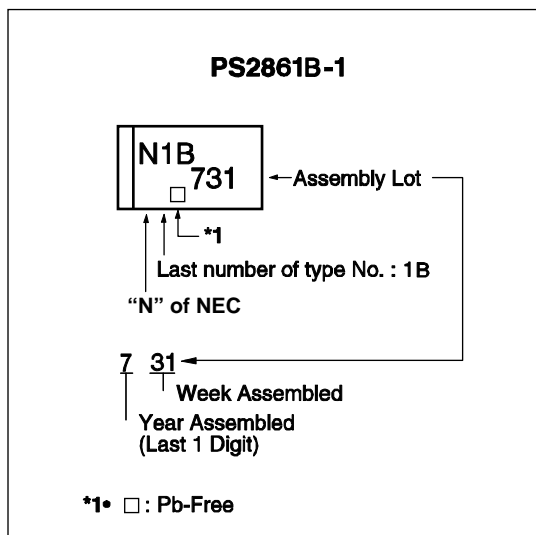


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PACKAGE DIMENSIONS (UNIT: mm)



MARKING



PHOTOCOUPLER CONSTRUCTION

Parameter	Unit (MIN.)
Air Distance	5 mm
Creepage Distance	5 mm
Isolation Distance	0.4 mm

ABSOLUTE MAXIMUM RATINGS (T_A = 25 °C, unless otherwise specified)

Parameter		Symbol	Ratings	Unit
Diode	Forward Current (DC)	I _F	50	mA
	Reverse Voltage	V _R	6	V
	Power Dissipation Derating	ΔP _D /°C	0.6	mW/°C
	Power Dissipation	P _D	60	mW
	Peak Forward Current ^{*1}	I _{FP}	2.5	A
	Peak Forward Current ^{*2}	I _{FP}	1.0	A
Transistor	Collector to Emitter Voltage	V _{CEO}	70	V
	Emitter to Collector Voltage	V _{ECO}	5	V
	Collector Current	I _C	50	mA
	Power Dissipation Derating	ΔP _C /°C	1.2	mW/°C
	Power Dissipation	P _C	120	mW
Isolation Voltage ^{*3}		BV	3 750	Vr.m.s.
Operating Ambient Temperature		T _A	-55 to +110	°C
Storage Temperature		T _{stg}	-55 to +150	°C

*1 PW = 10 μs, Duty Cycle = 1 %

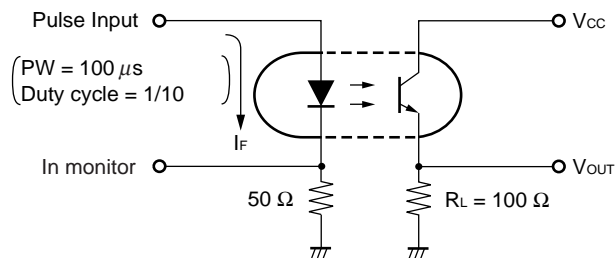
*2 PW = 100 μs, Duty Cycle = 1 %

*3 AC voltage for 1 minute at T_A = 25°C, RH = 60% between input and output.
Pins 1-2 shorted together, 3-4 shorted together.

ELECTRICAL CHARACTERISTICS (T_A = 25 °C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Diode	Forward Voltage	V _F	I _F = 5 mA		1.1	1.4	V
	Reverse Current	I _R	V _R = 5 V			5	μA
	Terminal Capacitance	C _t	V = 0 V, f = 1 MHz		15		pF
Transistor	Collector to Emitter Dark Current	I _{CEO}	I _F = 0 mA, V _{CE} = 40 V			100	nA
Coupled	Current Transfer Ratio (I _c /I _F)	CTR	I _F = 5 mA, V _{CE} = 5 V	50	100	400	%
			I _F = 1 mA, V _{CE} = 5 V	10	50		
	Collector Saturation Voltage	V _{CE(sat)}	I _F = 10 mA, I _c = 2 mA			0.3	V
	Isolation Resistance	R _{I-O}	V _{I-O} = 1 kV _{DC}	10 ¹¹			Ω
	Isolation Capacitance	C _{I-O}	V = 0 V, f = 1 MHz		0.4		pF
	Rise Time ^{*1}	t _r	V _{CC} = 5 V, I _c = 2 mA, R _L = 100 Ω		4		μs
	Fall Time ^{*1}	t _f			5		

*1 Test circuit for switching time



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