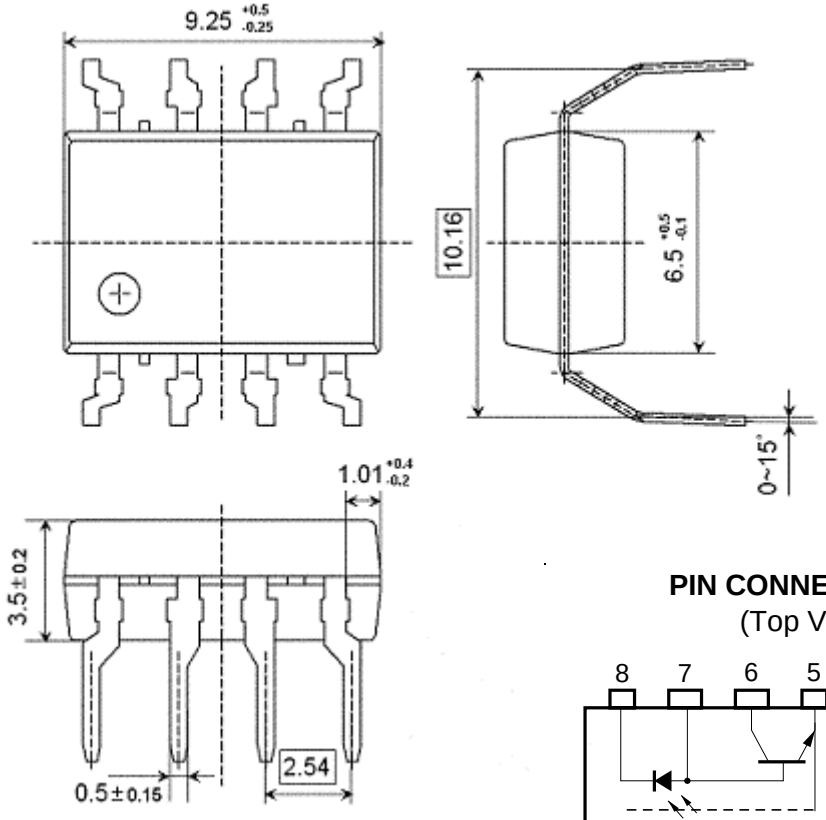
High Speed Analog Output Type
8 mm Creepage 8-Pin Photocoupler
PS8501L1

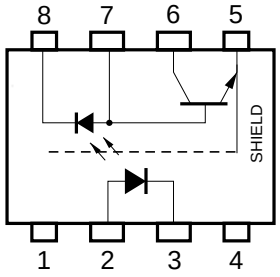
■ Features

- High supply voltage (Vcc = 35 V MAX.)
- High speed response (tPHL, tPLH = 0.8 μs MAX.)
- High isolation voltage (Bv = 5 000 Vr.m.s.)
- TTL, CMOS compatible with a resistor

■ Package Dimensions (In millimeters)



PIN CONNECTIONS
(Top View)



1. NC
2. Anode
3. Cathode
4. NC
5. Emitter
6. Vo
7. Base
8. Vcc

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■ Absolute Maximum Ratings Ta = 25℃

Parameter		Symbol	Ratings	Unit
Diode	Forward Current*1	I_F	25	mA
	Reverse Voltage	V_R	5	V
Detector	Supply Voltage	V_{CC}	35	V
	Output Voltage	V_O	35	V
	Output Current	I_O	8	mA
	Power Dissipation*2	P_C	100	mW
Isolation Voltage*3		BV	5000	Vr.m.s.
Operating Ambient Temperature		T_A	–55 to +100	°C
Storage Temperature		T_{stg}	–55 to +125	°C

***1** Reduced to 0.33 mA/°C at T_A = 70°C or more.

***2** Reduced to 2.0 mA/°C at T_A = 75°C or more.

***3** AC voltage for 1 minute at T_A = 25°C, RH = 60% between input and output. Pins 1-4 shorted together, 5-8 shorted together.

■ Electrical Characteristics Ta = 25℃

Parameter		Symbol	Conditions	MIN.	TYP.*1	MAX.	Unit
Diode	Forward Voltage V	$_F$	I_F = 16 mA		1.7	2.2	V
	Reverse Current	I_R	V_R = 3 V			10	μA
	Forward Voltage Temperature Coefficent	$\Delta V_F/\Delta T$	I_F = 16 mA		–2.1		mV/°C
	Terminal Capacitance	C_t	V = 0 V, f = 1 MHz		60		pF
Detector	High Level Output Current I	$_{OH}$(1)	I_F = 0 mA, V_{CC} = V_O = 5.5 V		3	500	nA
	High Level Output Current	I_{OH}(2)	I_F = 0 mA, V_{CC} = V_O = 35 V			100	μA
	Low Level Output Voltage	V_{OL}	I_F = 16 mA, V_{CC} = 4.5 V, I_O = 2.4 mA		0.15	0.4	V
	Low Level Supply Current	I_{CCL}	I_F = 16 mA, V_O = Open, V_{CC} = 35 V		150		μA
	High Level Supply Current	I_{CCH}	I_F = 0 mA, V_O = Open, V_{CC} = 35 V		0.01	1	μA
	DC Current Gain	h_{FE}	V_O = 5 V, I_O = 3 mA		65		
Coupled	Current Transfer Ratio CTR		$_F$ = 16 mA, V_{CC} = 4.5 V, V_O = 0.4 V	15			%
	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		0.7		pF
	Propagation Delay Time (H → L)*2	t_{PHL}	I_F = 16 mA, V_{CC} = 5 V, R_L = 1.9 kΩ		0.22	0.8	μs
	Propagation Delay Time (L → H)*2	t_{PLH}	I_F = 16 mA, V_{CC} = 5 V, R_L = 1.9 kΩ		0.35	0.8	μs

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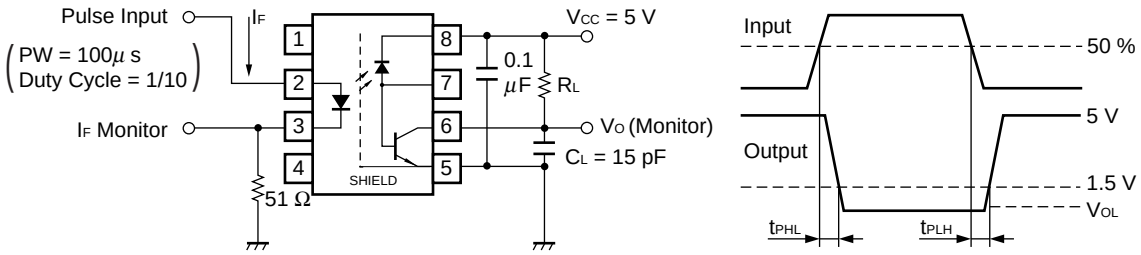
***1** Typical values at T_A = 25 °C

***2** Test circuit for propagation delay time



C_L includes probe and stray wiring capacitance