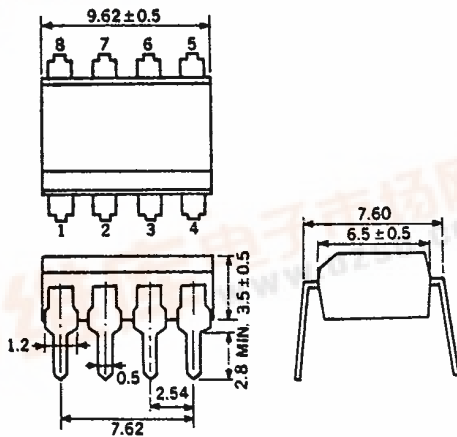


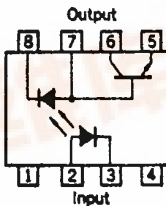
# PHOTO COUPLER PS2043

## HIGH SPEED 8PIN PHOTO COUPLER

### PACKAGE DIMENSIONS (Unit: mm)



### PIN CONNECTION



PIN	Function
1.	NC
2.	Anode
3.	Cathode
4.	NC
5.	Emitter
6.	V <sub>O</sub>
7.	Base
8.	V <sub>CC</sub>

### FEATURES

- High Speed Response 0.3 μs TYP.
- High Isolation Voltage 2500 V<sub>r.m.s.</sub>
- Compact, Dual In-Line Package

### APPLICATIONS

1. Interface circuit for various instrumentations, control equipments.
2. Computer and peripheral manufactures.
3. TV sets.

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

#### Diode

Forward Current	I <sub>F</sub>	25	mA
Reverse Voltage	V <sub>R</sub>	5	V
Power Dissipation	P <sub>D</sub>	45	mW

#### Detector

Supply Voltage	V <sub>CC</sub>	-0.5 to 15	V
Output Voltage	V <sub>O</sub>	-0.5 to 15	V
Output Current	I <sub>O</sub>	8	mA
Power Dissipation	P <sub>C</sub>	100	mW
Isolation Voltage*	BV	2500	V <sub>r.m.s.</sub>
Storage Temperature	T <sub>stg</sub>	-55 to +125	°C
Operating Temperature	T <sub>opt</sub>	-55 to +100	°C
Lead Temperature (10 s)		260	°C

\* Condition

AC Voltage for 1 minute at T<sub>a</sub> = 25 °C, RH = 60 %

between input (pin No. 1, 2, 3, 4 Common) and output (pin No. 5, 6, 7, 8 Common)

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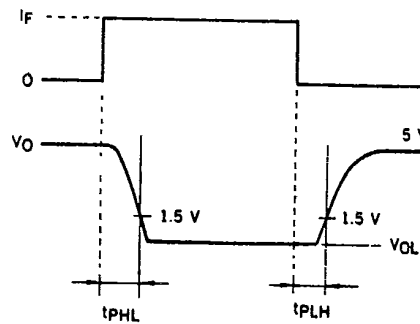
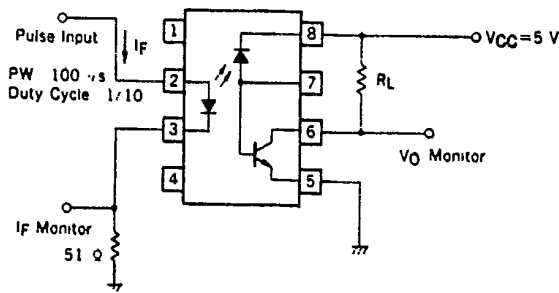
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ELECTRICAL CHARACTERISTICS (T<sub>a</sub> = 25 °C)

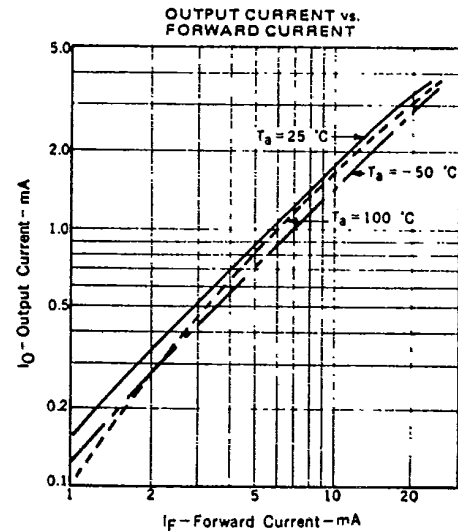
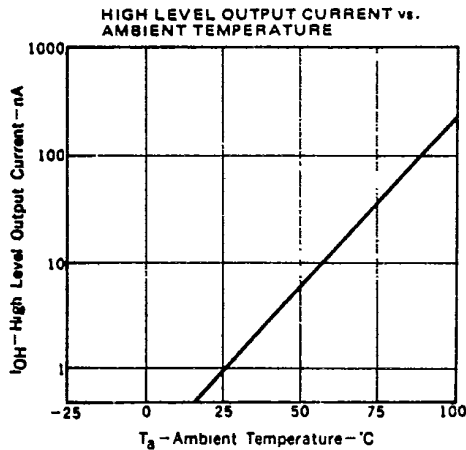
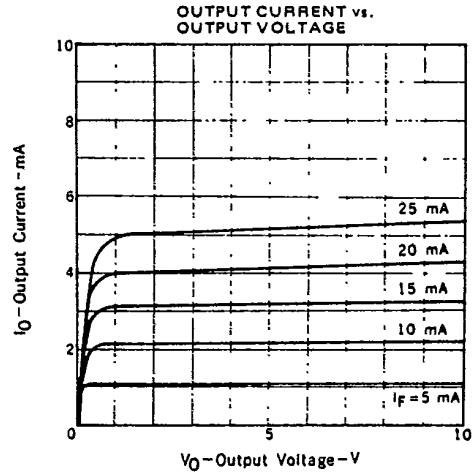
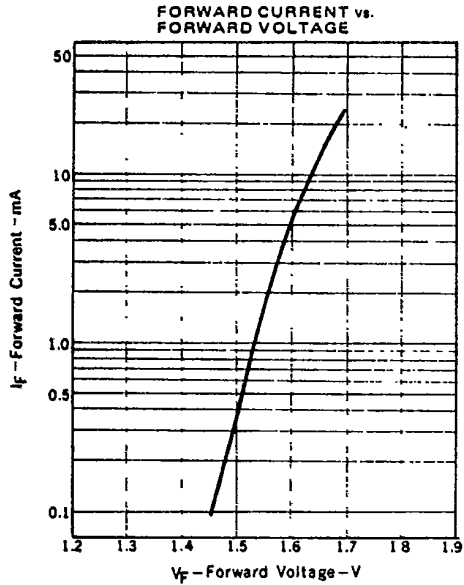
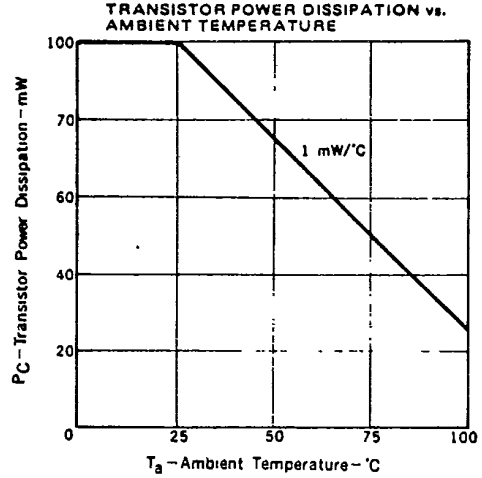
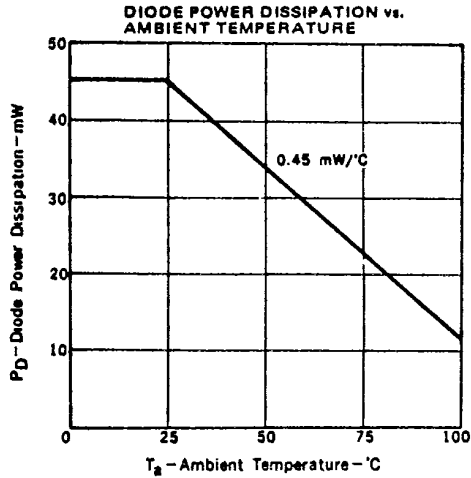
CHARACTERISTIC		SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Diode	Forward Voltage	V <sub>F</sub>		1.7	2.2	V	I <sub>F</sub> = 16 mA
	Reverse Current	I <sub>R</sub>		0.01	10	μA	V <sub>R</sub> = 5 V
	Forward Voltage Temperature Coefficient	$\frac{\Delta V_F}{\Delta T}$		-1.6		mV/°C	I <sub>F</sub> = 16 mA
	Capacitance	C <sub>t</sub>		60		pF	V = 0, f = 1 MHz
Detector	High Level Output Current	I <sub>OH</sub> (1)		3	500	nA	I <sub>F</sub> = 0 mA, V <sub>CC</sub> = V <sub>O</sub> = 5.5 V
	High Level Output Current	I <sub>OH</sub> (2)			100	μA	I <sub>F</sub> = 0 mA, V <sub>CC</sub> = V <sub>O</sub> = 15 V
Coupled	Current Transfer Ratio	CTR *	15	22		%	I <sub>F</sub> = 16 mA, V <sub>CC</sub> = 4.5 V, V <sub>O</sub> = 0.4 V
	Low Level Output Voltage	V <sub>OL</sub>		0.1	0.4	V	I <sub>F</sub> = 16 mA, V <sub>CC</sub> = 4.5 V, I <sub>O</sub> = 2.4 mA
	Low Level Supply Current	I <sub>CC</sub> L		50		μA	I <sub>F</sub> = 16 mA, V <sub>O</sub> = Open, V <sub>CC</sub> = 15 V
	High Level Supply Current	I <sub>CC</sub> H		0.01	1	μA	I <sub>F</sub> = 0 mA, V <sub>O</sub> = Open, V <sub>CC</sub> = 15 V
	Isolation Resistance	R <sub>1-2</sub>	10 <sup>11</sup>			Ω	V <sub>in-out</sub> = 1 kVDC
	Isolation Capacitance	C <sub>1-2</sub>		0.7		pF	V = 0, f = 1 MHz
	Propagation Delay Time to Low Output Level	t <sub>PHL</sub> **		0.3	0.8	μs	I <sub>F</sub> = 16 mA, V <sub>CC</sub> = 5 V, R <sub>L</sub> = 1.9 kΩ
	Propagation Delay Time to High Output Level	t <sub>PLH</sub> **		$\frac{IK/L/R}{0.2/1.0/0.8}$	$\frac{IK/L/R}{0.8/1.5/1.25}$	μs	I <sub>F</sub> = 16 mA, V <sub>CC</sub> = 5 V, R <sub>L</sub> = 1.9 kΩ

- \* CTR rank
- K: 15 % ~
- L: 25 % ~
- R: 20 % ~

- \*\* Measuring circuit
- input PW = 100 μs
- Duty = 10 %



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



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