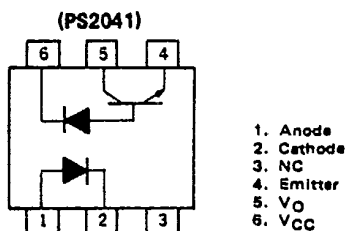
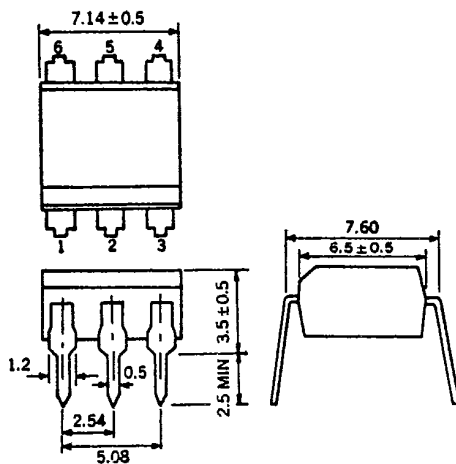


PHOTO COUPLER

PS2041

HIGH SPEED 6PIN PHOTO COUPLER

PACKAGE DIMENSIONS
(Unit: mm)

FEATURES

- High Speed Response 0.3 μ s TYP.
- High Isolation Voltage 2500 $V_{r.m.s.}$
- 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 ($T_a = 25^\circ\text{C}$)

Diode

Forward Current	I_F	25	mA
Reverse Voltage	V_R	5	V
Power Dissipation	P_D	45	mW

Detector

Supply Voltage	V_{CC}	-0.5 to 15	V
Output Voltage	V_O	-0.5 to 15	V
Output Current	I_O	8	mA
Power Dissipation	P_C	100	mW
Isolation Voltage*	BV	2500	$V_{r.m.s.}$
Storage Temperature	T_{stg}	-55 to +125	$^\circ\text{C}$
Operating Temperature	T_{opt}	-55 to +100	$^\circ\text{C}$
Lead Temperature (10 s)		260	$^\circ\text{C}$

* Condition

AC Voltage for 1 minute at $T_a = 25^\circ\text{C}$, RH = 60 %
between input (pin No. 1, 2, 3, Common) and output (pin No. 4, 5, 6)

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T-41-83

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$)

CHARACTERISTIC		SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Diode	Forward Voltage	V_F		1.7	2.2	V	$I_F = 16\text{ mA}$
	Reverse Current	I_R		0.01	10	μA	$V_R = 5\text{ V}$
	Forward Voltage Temperature Coefficient	$\frac{\Delta V_F}{\Delta T}$		-1.6		mV/ $^\circ\text{C}$	$I_F = 16\text{ mA}$
	Capacitance	C_t		60		pF	$V = 0, f = 1\text{ MHz}$
Detector	High Level Output Current	$I_{OH}(1)$		3	500	nA	$I_F = 0\text{ mA}, V_{CC} = V_O = 5.5\text{ V}$
	High Level Output Current	$I_{OH}(2)$			100	μA	$I_F = 0\text{ mA}, V_{CC} = V_O = 15\text{ V}$
Coupled	Current Transfer Ratio	CTR *	15	22		%	$I_F = 16\text{ mA}, V_{CC} = 4.5\text{ V}, V_O = 0.4\text{ V}$
	Low Level Output Voltage	V_{OL}		0.1	0.4	V	$I_F = 16\text{ mA}, V_{CC} = 4.5\text{ V}, I_O = 2.4\text{ mA}$
	Low Level Supply Current	I_{CCL}		50		μA	$I_F = 16\text{ mA}, V_O = \text{Open}, V_{CC} = 15\text{ V}$
	High Level Supply Current	I_{CCH}		0.01	1	μA	$I_F = 0\text{ mA}, V_O = \text{Open}, V_{CC} = 15\text{ V}$
	Isolation Resistance	R_{1-2}	10^{11}			Ω	$V_{in-out} = 1\text{ kVDC}$
	Isolation Capacitance	C_{1-2}		0.7		pF	$V = 0, f = 1\text{ MHz}$
	Propagation Delay Time to Low Output Level	t_{PHL}^{**}		0.3	0.8	μs	$I_F = 16\text{ mA}, V_{CC} = 5\text{ V}, R_L = 1.9\text{ k}\Omega$
	Propagation Delay Time to High Output Level	t_{PLH}^{**}		(K/L/R) 0.3/1.0/0.8	(K/L/R) 0.8/1.5/1.25	μs	$I_F = 16\text{ mA}, V_{CC} = 5\text{ V}, R_L = 1.9\text{ k}\Omega$

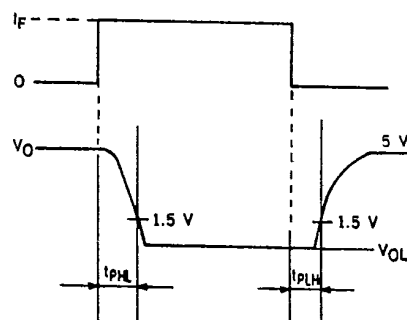
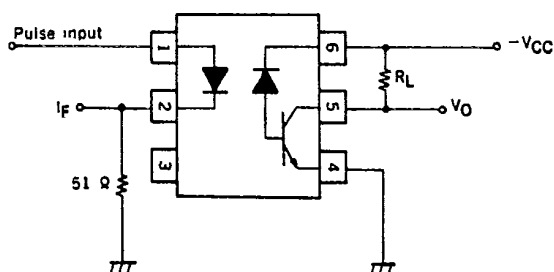
* CTR rank

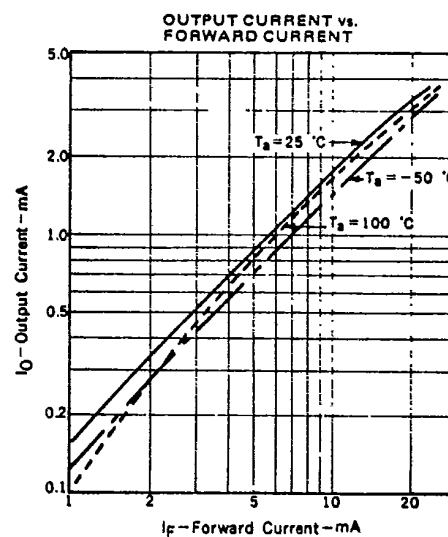
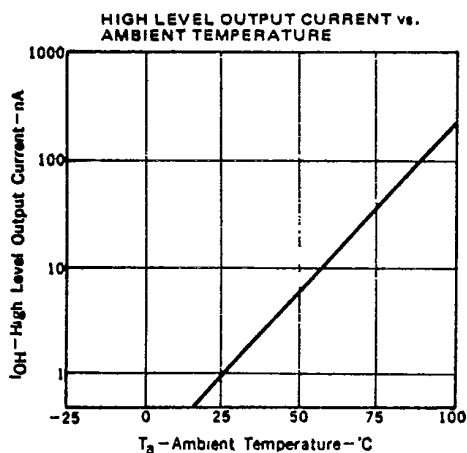
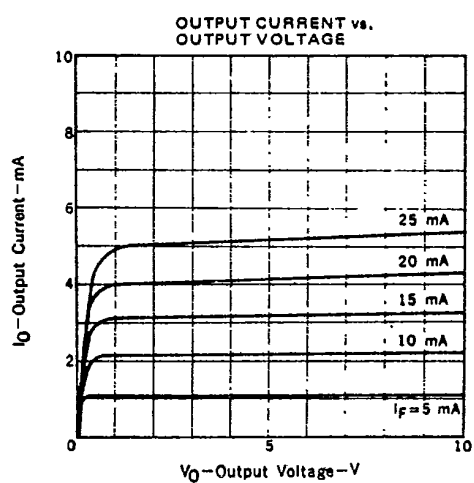
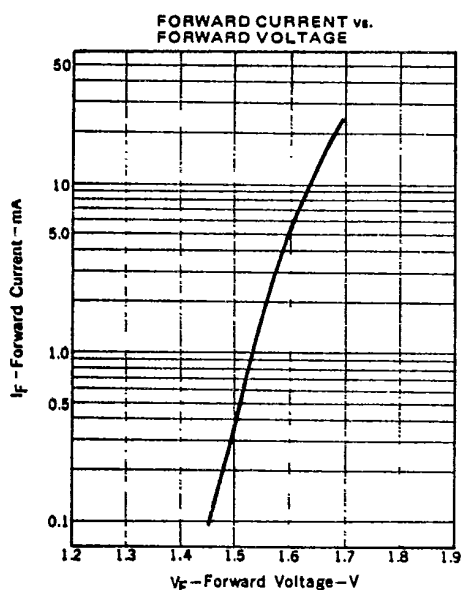
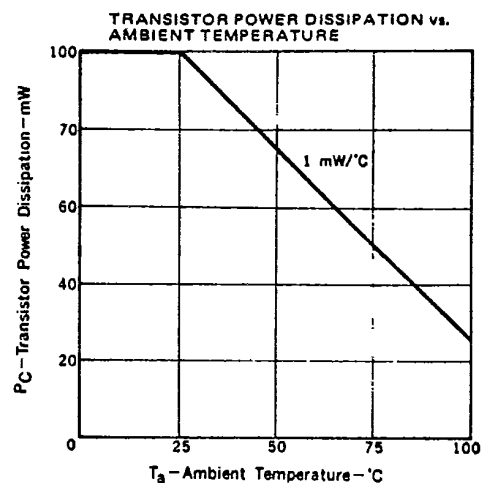
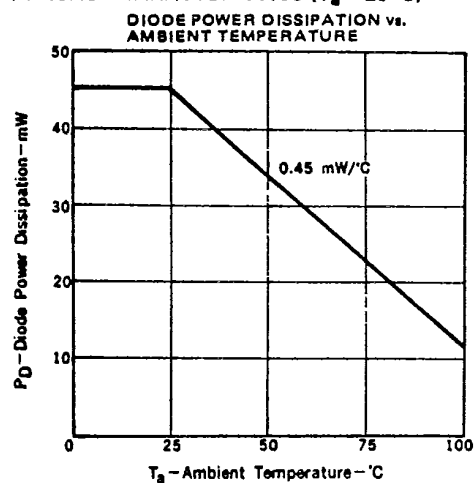
K: 15 % ~

L: 25 % ~

R: 20 % ~

** Measuring circuit



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

PS2041

T-41-83

