

PHOTO COUPLER

PS2601, PS2602

PS2601L, PS2602L

HIGH ISOLATION VOLTAGE

6 PIN PHOTO COUPLER

DESCRIPTION

PS2601, PS2602 and PS2601L, PS2602L are optically coupled isolators containing a GaAs light emitting diode and an NPN silicon phototransistor.

PS2601, PS2602 are in a plastic DIP (Dual In-line Package).

PS2601L, PS2602L are lead bending type (Gull-wing) for surface mount.

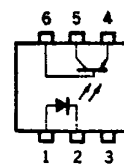
PS2601, PS2601L have base pin and PS2602, PS2602L have no base pin.

FEATURES

- High isolation voltage (BV: 5 kV_{r.m.s.} MIN.)
- High collector to emitter voltage (V_{CEO}: 80 V MIN.)
- High speed switching ($t_r = 3 \mu s$, $t_f = 5 \mu s$ TYP.)
- High current transfer ratio (CTR: 300 % TYP.)
- UL recognized [File No. E72422 (S)]

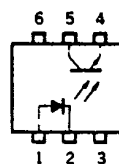
PIN CONNECTION (Top View)

PS2601
PS2601L



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

PS2602
PS2602L



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

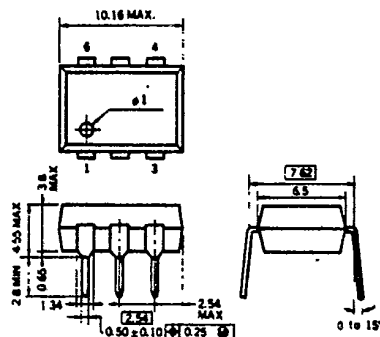
APPLICATIONS

Interface circuit for various instrumentations, control equipments.

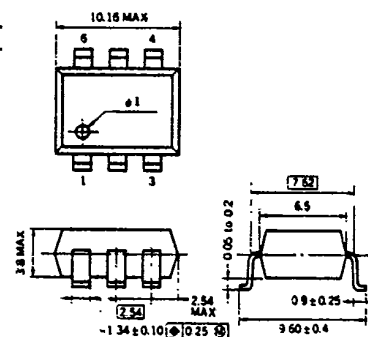
- AC Line/Digital Logic Isolate high voltage transient
- Digital Logic/Digital Logic Eliminate spurious ground loops
- Twisted pair line receiver Eliminate ground loop pick-up
- Telephone/Telegraph line receiver Isolate high voltage transient
- High Frequency Power Supply Feedback Control ... Maintain floating ground

PACKAGE DIMENSIONS (in millimeters)

PS2601
PS2602



PS2601L
PS2602L



PS2601, PS2602, PS2601L, PS2602L

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ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

Diode

Reverse Voltage	V_R	6	V
Forward Current (DC)	I_F	80	mA
Power Dissipation	P_D	150	mW
Peak Forward Current (PW = 100 μs , Duty Cycle 1 %)	$I_F(\text{Peak})$	1	A

Transistor

Collector to Emitter Voltage	V_{CEO}	80	V
Emitter to Collector Voltage	V_{ECO}	7	V
Collector Current	I_C	50	mA
Power Dissipation	P_C	150	mW

Coupled

Isolation Voltage *1)	BV	5000	$V_{r.m.s.}$
Storage Temperature	T_{stg}	-55 to +150	$^\circ\text{C}$
Operating Temperature	T_{opt}	-55 to +100	$^\circ\text{C}$

*1) 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 Common).

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

	CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Diode	Forward Voltage	V_F		1.1	1.4	V	$I_F = 10\text{ mA}$
	Reverse Current	I_R			5	μA	$V_R = 5\text{ V}$
	Junction Capacitance	C		30		pF	$V = 0$, $f = 1.0\text{ MHz}$
Transistor	Collector to Emitter Dark Current	I_{CEO}			100	nA	$V_{CE} = 80\text{ V}$, $I_F = 0$
	Collector to Emitter Breakdown Voltage	BV_{CEO}	80			V	$I_C = 1\text{ mA}$, $I_B = 0$
	Emitter to Collector Breakdown Voltage	BV_{ECO}	7			V	$I_E = 100\text{ }\mu\text{A}$, $I_B = 0$
Coupled	Current Transfer Ratio *2)	CTR	80	300	600	%	$I_F = 5\text{ mA}$, $V_{CE} = 5\text{ V}$
	Collector Saturation Voltage	$V_{CE(\text{sat})}$			0.3	V	$I_F = 10\text{ mA}$, $I_C = 2\text{ mA}$
	Isolation Resistance	R_{1-2}	10^{11}			Ω	$V_{in-out} = 1.0\text{ kV}$
	Isolation Capacitance	C_{1-2}		0.6		pF	$V = 0$, $f = 1.0\text{ MHz}$
	Rise Time *3)	t_r		3		μs	$V_{CC} = 5\text{ V}$, $I_C = 2\text{ mA}$
	Fall Time *3)	t_f		5		μs	$V_{CC} = 5\text{ V}$, $I_C = 2\text{ mA}$

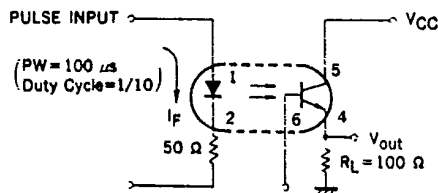
*2) CTR rank

K : 300 to 600 (%)

L : 200 to 400 (%)

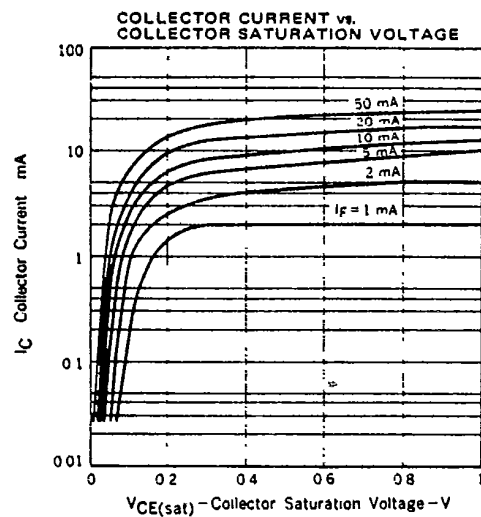
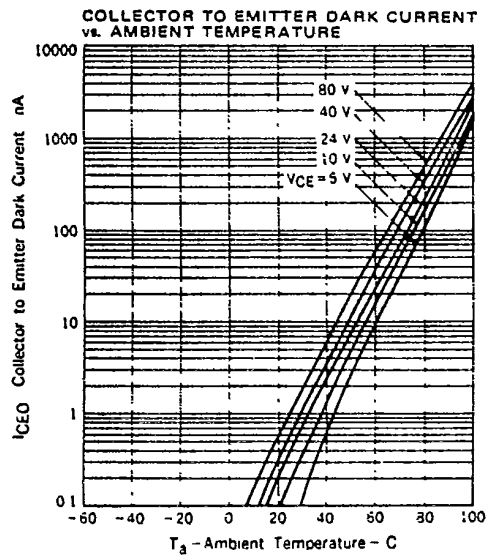
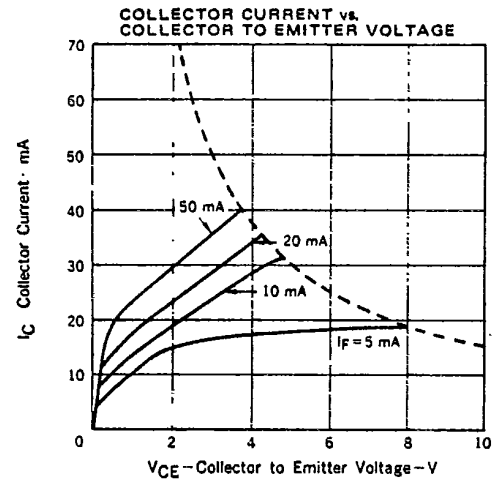
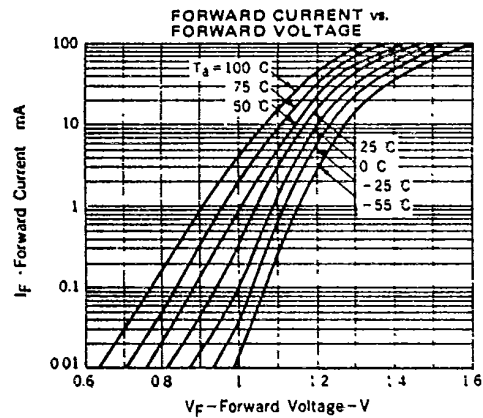
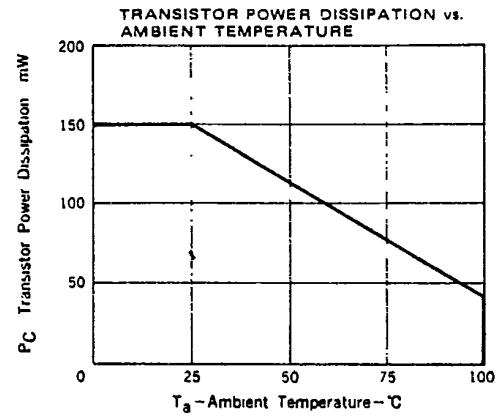
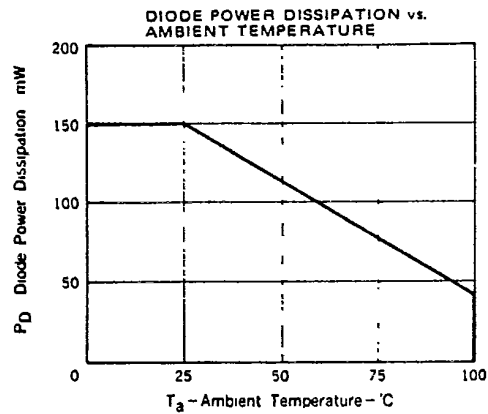
M : 80 to 240 (%)

*3) Test Circuit for Switching Time



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

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