

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).

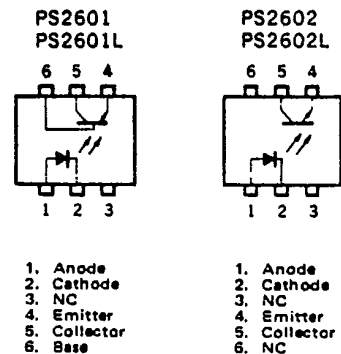
PS2601L, PS2602L are lead bending type (Gull-wing) for surface mount.

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)



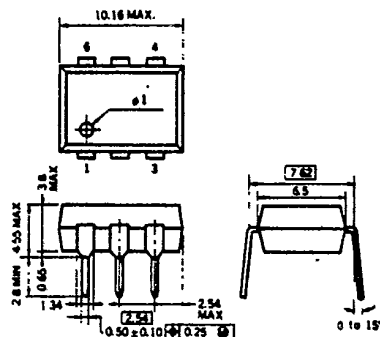
APPLICATIONS

Interface circuit for various instrumentations, control equipments.

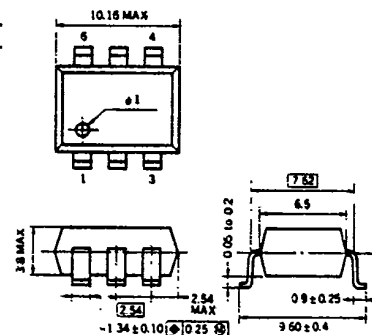
- AC Line/Digital Logic Isolate high voltage transient
- Digital Logic/Digital Logic Eliminate spurious ground loops
- Twisted pair line receiver Eliminate ground loop pick-up
- Telephone/Telegraph line receiver Isolate high voltage transient
- High Frequency Power Supply Feedback Control Maintain floating 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	$V_{CE(sat)}$			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	$V_{CC} = 5\text{ V}$, $I_C = 2\text{ mA}$

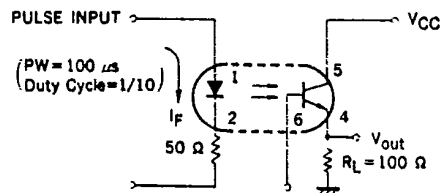
*2) CTR rank

K : 300 to 600 (%)

L : 200 to 400 (%)

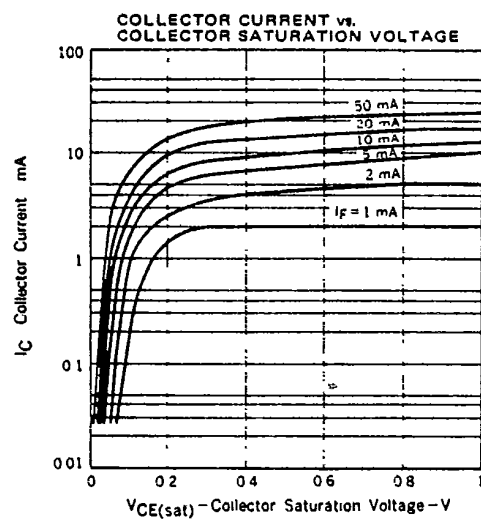
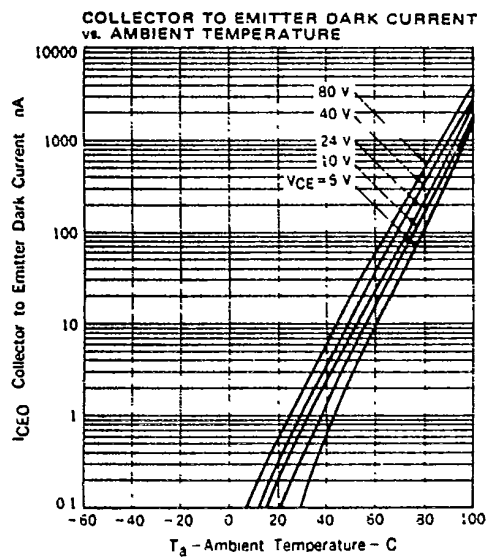
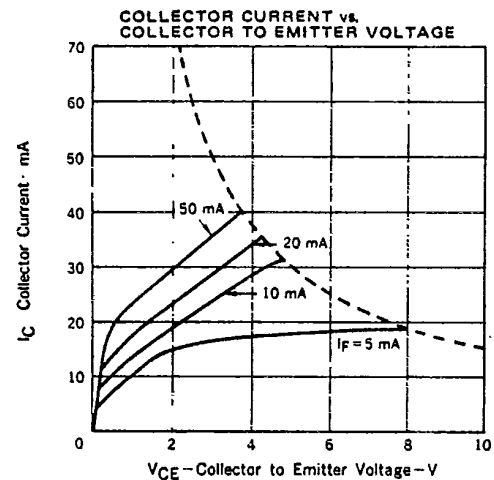
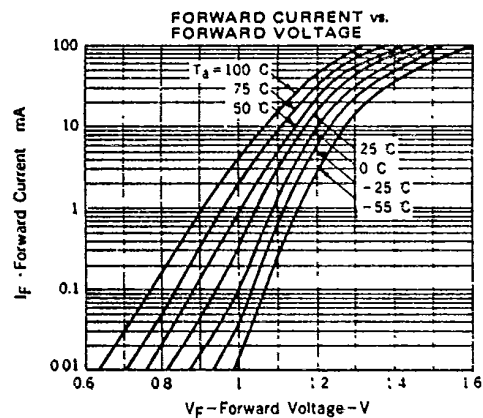
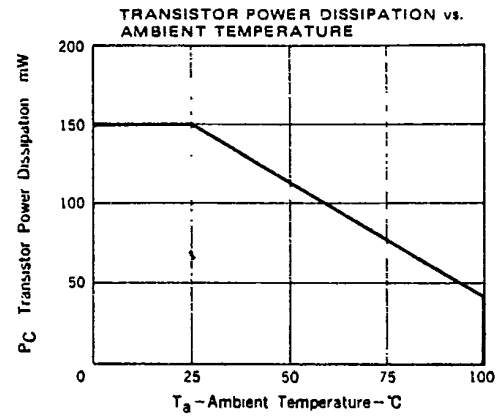
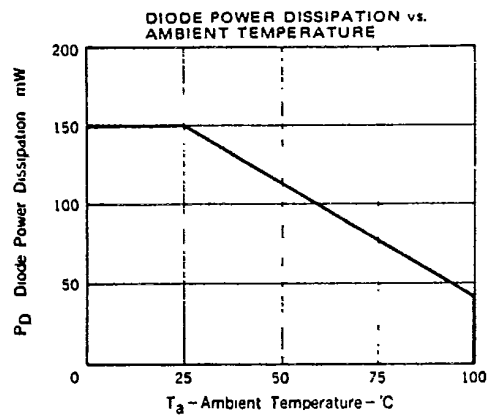
M : 80 to 240 (%)

*3) Test Circuit for Switching Time



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

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