PHOTO COUPLER
PS2605 ,PS2606
PS2605L,PS2606L

HIGH ISOLATION VOLTAGE AC INPUT RESPONSE TYPE 6 PIN PHOTO COUPLER

DESCRIPTION

PS2605, PS2606 and PS2605L, PS2606L are optically coupled isolators containing a GaAs light emitting diode and an NPN silicon phototransistor.

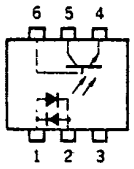
PS2605, PS2606 are in a plastic DIP (Dual In-line Package).

PS2605L, PS2606L are lead bending type (Gull-wing) for surface mount.

PS2605, PS2605L have base pin and PS2606, PS2606L have no base pin.

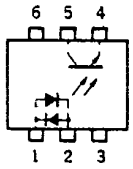
PIN CONNECTION (Top View)

PS2605
PS2605L



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

PS2606
PS2606L



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

FEATURES

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

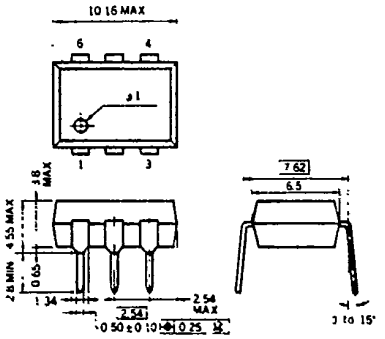
APPLICATIONS

Interface circuit for various instrumentations, control equipments.

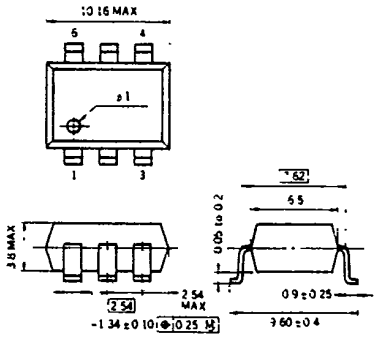
- AC Line/Digital Logic ..... Isolate high voltage transient
- Digital Logic/Digital Logic ..... Eliminate spurious ground loops
- Twisted pair line receiver ..... Eliminate ground loop pick-up
- Telephone/Telegraph line receiver ..... Isolate high voltage transient
- High Frequency Power Supply Feedback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

PACKAGE DIMENSIONS (in millimeters)

PS2605
PS2606



PS2605L
PS2606L



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ABSOLUTE MAXIMUM RATINGS (T_a = 25 °C)

Diode				
	Forward Current (DC)	I_F	80	mA
	Power Dissipation	P_D	150	mW
	Peak Forward Current (PW = 100 μs, Duty Cycle 1 %)	$I_{F(Peak)}$	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	°C
	Operating Temperature	T_{opt}	−55 to +100	°C

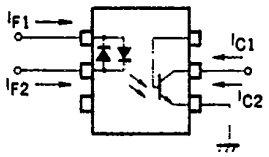
*1) AC voltage for 1 minute at T_a = 25 °C, RH = 60 % between input (Pin No. 1, 2, 3 Common) and output (Pin No. 4, 5, 6 Common).

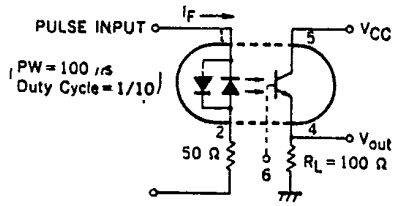
ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

	CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Diode	Forward Voltage	V_F		1.1	1.4	V	I_F = ±10 mA
	Junction Capacitance	C		60		pF	V = 0, f = 1.0 MHz
Transistor	Collector to Emitter Dark Current	I_{CEO}			100	nA	V_{CE} = 80 V, I_F = 0
	Collector to Emitter Breakdown Voltage	BV_{CEO}	80			V	I_C = 1 mA, I_B = 0
	Emitter to Collector Breakdown Voltage	BV_{ECO}	7			V	I_E = 100 μA, I_B = 0
Coupled	Current Transfer Ratio	CTR	80	300	600	%	I_F = ±5 mA, V_{CE} = 5 V
	CTR (Ratio) *2)	CTR1/CTR2	0.3	1.0	3.0		I_F = ±5 mA, V_{CE} = 5 V
	Collector Saturation Voltage	$V_{CE(sat)}$			0.3	V	I_F = ±10 mA, I_C = 2 mA
	Isolation Resistance	R_{1-2}	10^{11}			Ω	V_{in-out} = 1.0 kV
	Isolation Capacitance	C_{1-2}		0.6		pF	V = 0, f = 1.0 MHz
	Rise Time *3)	t_r		3		μs	V_{CC} = 5 V, I_C = 2 mA
	Fall Time *3)	t_f		5		μs	V_{CC} = 5 V, I_C = 2 mA

*2) $CTR1 = \frac{I_{C1}}{I_{F1}}$, $CTR2 = \frac{I_{C2}}{I_{F2}}$

*3) Test Circuit for Switching Time





PS2605, PS2606, PS2605L, PS2606L

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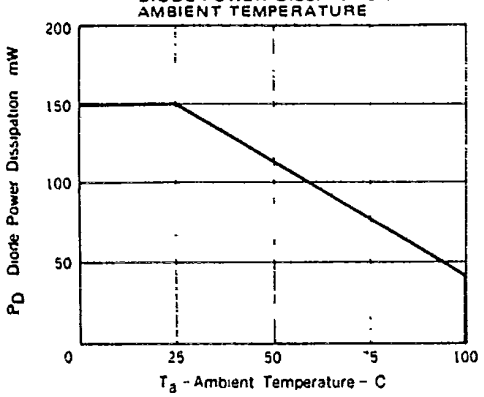
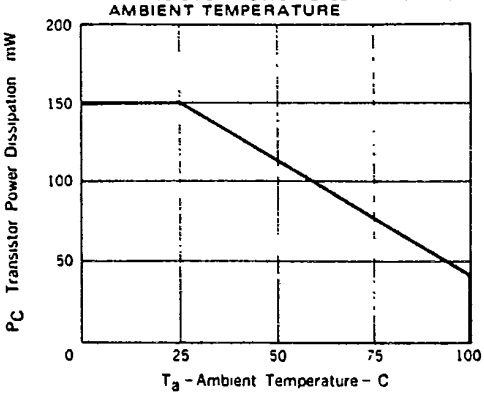
TYPICAL CHARACTERISTICS (T_a = 25 °C)

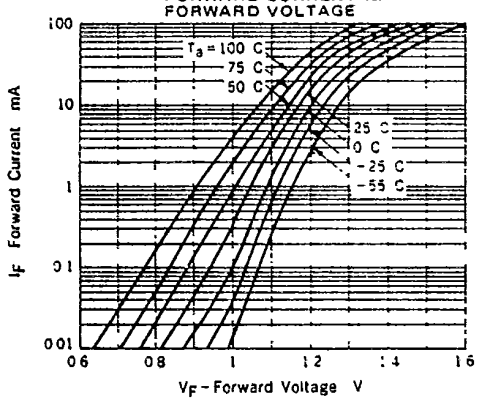
DIODE POWER DISSIPATION vs. AMBIENT TEMPERATURE



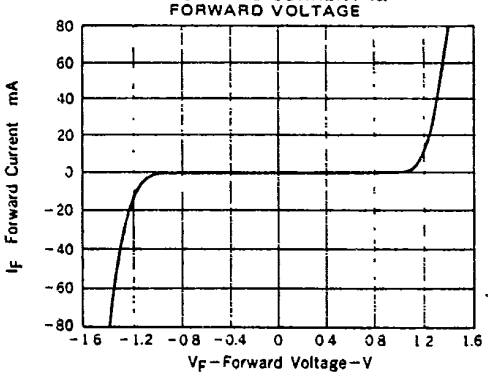
TRANSISTOR POWER DISSIPATION vs. AMBIENT TEMPERATURE



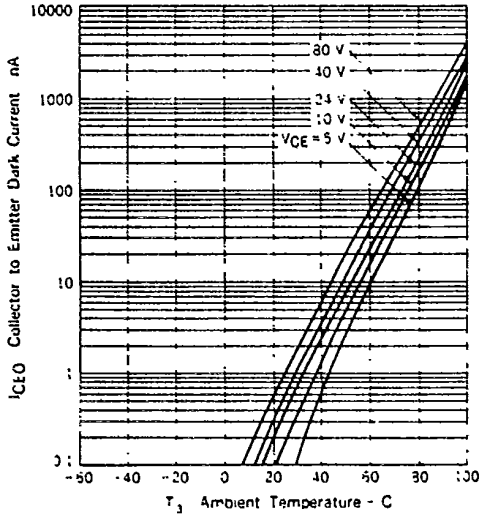
FORWARD CURRENT vs. FORWARD VOLTAGE



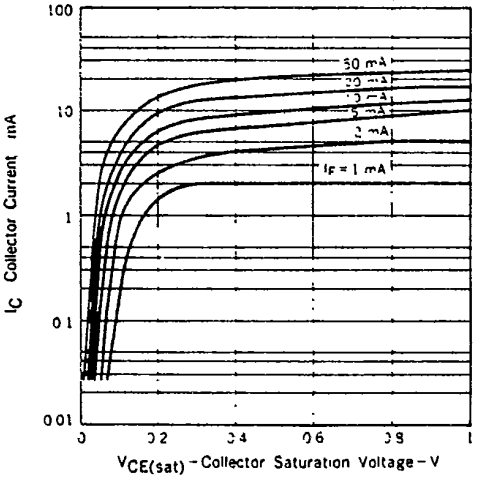
FORWARD CURRENT vs. FORWARD VOLTAGE



COLLECTOR TO EMITTER DARK CURRENT vs. AMBIENT TEMPERATURE



COLLECTOR CURRENT vs. COLLECTOR SATURATION VOLTAGE



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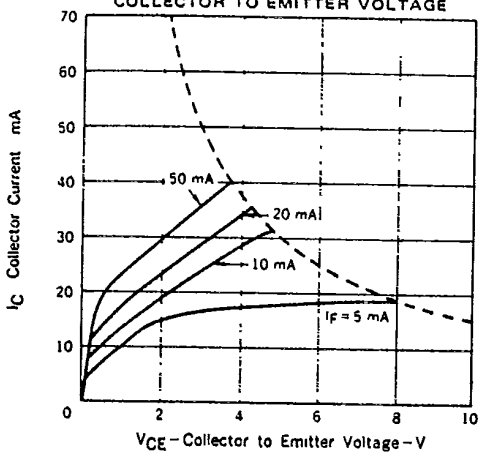
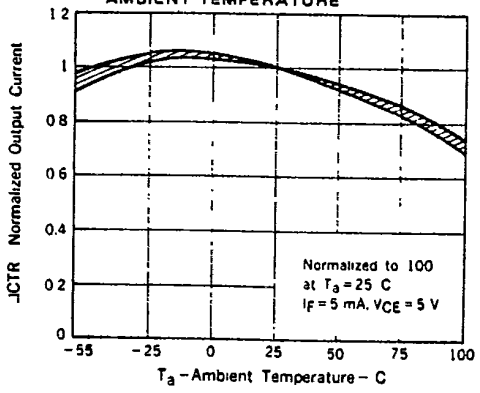
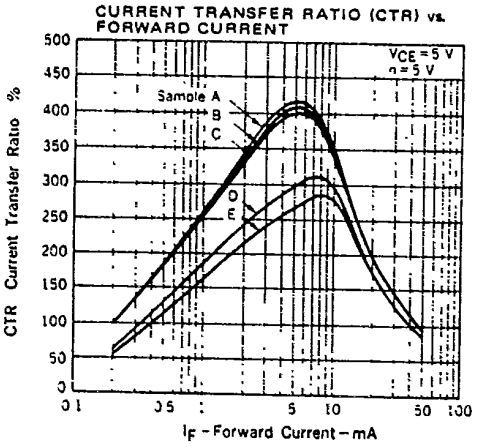
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



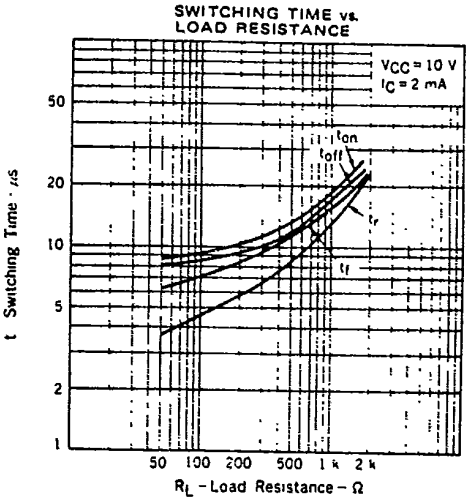
NORMALIZED OUTPUT CURRENT vs. AMBIENT TEMPERATURE



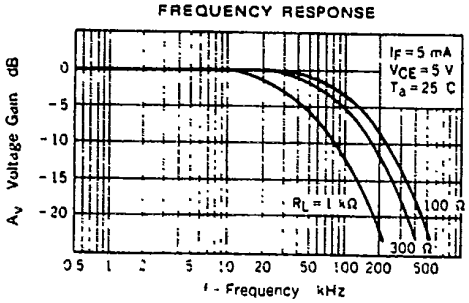
CURRENT TRANSFER RATIO (CTR) vs. FORWARD CURRENT



SWITCHING TIME vs. LOAD RESISTANCE



FREQUENCY RESPONSE



CTR DEGRADATION