

### FEATURES

- **HIGH ISOLATION VOLTAGE**  
BV: 5 k Vr.m.s. MIN
- **HIGH COLLECTOR TO EMITTER VOLTAGE**  
V<sub>CEO</sub> : 80 V MIN
- **HIGH SPEED SWITCHING**  
tr = 3 μs, tf = 5 μs TYP
- **HIGH CURRENT TRANSFER RATIO**  
CTR: 300% TYP
- **TAPE AND REEL AVAILABLE**

### DESCRIPTION

PS2601, PS2602, PS2601L and PS2602L are optically coupled isolators containing a GaAs light emitting diode and an NPN silicon phototransistor. PS2601 and PS2602 are in a plastic DIP (Dual In-line Package). PS2601L and PS2602L are lead bending type (Gull-wing) for surface mount. PS2601 and PS2601L have a base pin, PS2602 and PS2602L have no base pin.

### APPLICATIONS

Interface circuit for various instrumentations and control equipment.

- AC LINE / DIGITAL LOGIC
- DIGITAL LOGIC / DIGITAL LOGIC
- TWISTED PAIR LINE RECEIVER
- TELEPHONE / TELEGRAPH LINE RECEIVER
- HIGH FREQUENCY POWER SUPPLY  
FEEDBACK CONTROL

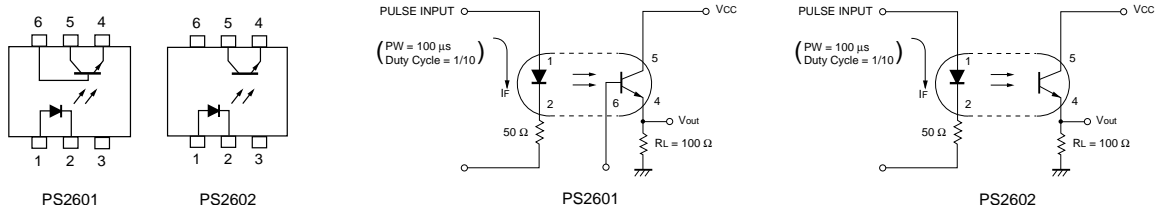
### ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C)

PART NUMBER			PS2601, PS2601L, PS2602, PS2602L			
SYMBOLS	PARAMETERS	UNITS	MIN	TYP	MAX	
Diode	V <sub>F</sub>	Forward Voltage, I <sub>F</sub> = 10 mA		1.1	1.4	
	I <sub>R</sub>	Reverse Current, V <sub>R</sub> = 5 V			5	
	C	Junction Capacitance, V = 0, f = 1.0 MHz	pF	30		
Transistor	I <sub>CEO</sub>	Collector to Emitter Dark Current, V <sub>CE</sub> = 80 V, I <sub>F</sub> = 0	nA		100	
	BV <sub>CEO</sub>	Collector to Emitter Breakdown Voltage, I <sub>C</sub> = 1 mA, I <sub>B</sub> = 0	V	80		
	BV <sub>ECO</sub>	Emitter to Collector Breakdown Voltage, I <sub>E</sub> = 100 μA, I <sub>B</sub> = 0	V	7		
Coupled	CTR	Current Transfer Ratio <sup>1</sup> , I <sub>F</sub> = 5 mA, V <sub>CE</sub> = 5 V	%	80	300	600
	V <sub>CE(sat)</sub>	Collector Saturation Voltage, I <sub>F</sub> = 10 mA, I <sub>C</sub> = 2 mA	V			0.3
	R <sub>1-2</sub>	Isolation Resistance, V <sub>IN-OUT</sub> = 1.0 kV	Ω	10 <sup>11</sup>		
	C <sub>1-2</sub>	Isolation Capacitance, V = 0, f = 1.0 MHz	pF		0.6	
	tr	Rise Time <sup>2</sup> , V <sub>CC</sub> = 5 V, I <sub>C</sub> = 2 mA	μs		3	
tf	Fall Time <sup>2</sup> , V <sub>CC</sub> = 5 V, I <sub>C</sub> = 2 mA	μs		5		

Notes:

1. KD : 300 to 600 %  
LD : 200 to 400 %  
MD : 80 to 240 %

#### 2. Test Circuit for Switching Time



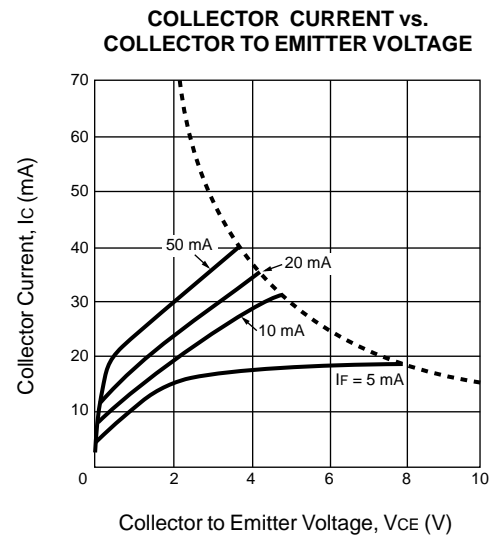
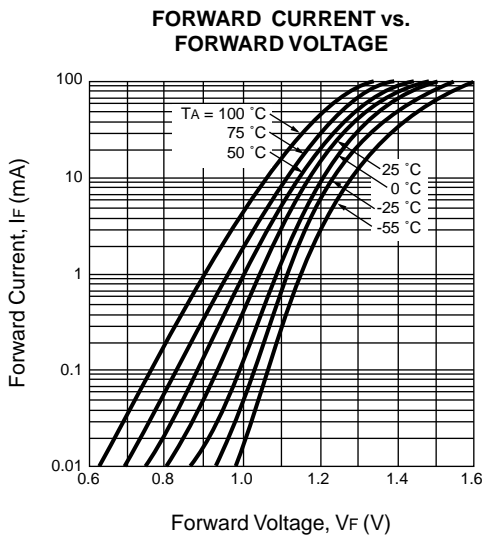
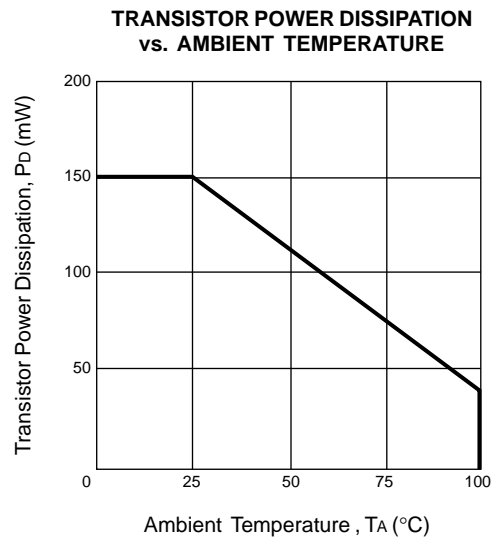
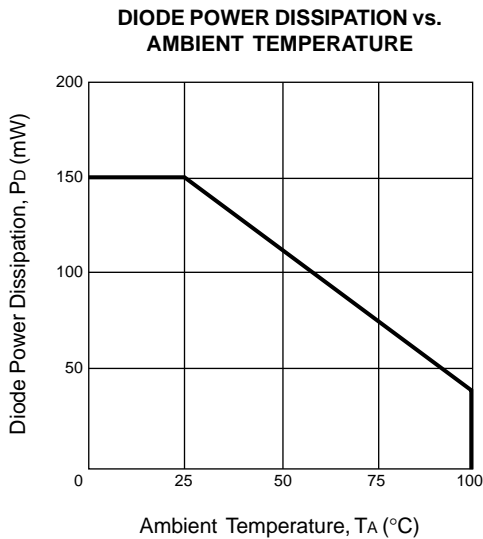
**ABSOLUTE MAXIMUM RATINGS<sup>1</sup>** (T<sub>A</sub> = 25°C)

SYMBOLS	PARAMETERS	UNITS	RATINGS
<b>Diode</b>			
V <sub>R</sub>	Reverse Voltage	V	6
I <sub>F</sub>	Forward Current (DC)	mA	80
P <sub>D</sub>	Power Dissipation	mW	150
I <sub>F</sub> (PEAK)	Peak Forward Current (PW = 100 μs, Duty Cycle 1%)	A	1
<b>Transistor</b>			
V <sub>CEO</sub>	Collector to Emitter Voltage	V	80
V <sub>ECO</sub>	Emitter to Collector Voltage	V	7
I <sub>C</sub>	Collector Current	mA	50
P <sub>C</sub>	Power Dissipation	mW	150
<b>Coupled</b>			
BV	Isolation Voltage <sup>2</sup>	V <sub>r.m.s.</sub>	5000
T <sub>STG</sub>	Storage Temperature	°C	-55 to +150
T <sub>OP</sub>	Operating Temperature	°C	-55 to +100

Notes:

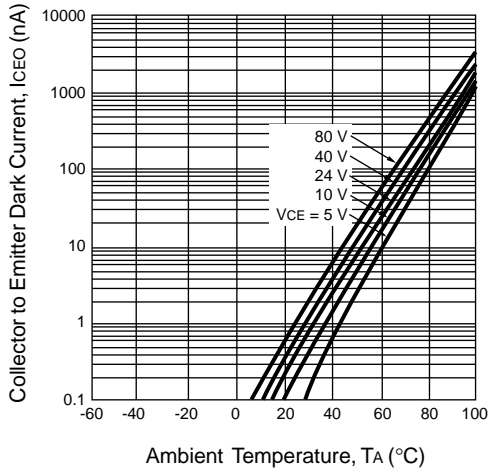
1. Operation in excess of any one of these parameters may result in permanent damage.
2. AC voltage for 1 minute at T<sub>A</sub> = 25° C, RH = 60% between input (Pin No. 1, 2, 3 common) and output (Pin No. 4, 5, 6 common).

**TYPICAL PERFORMANCE CURVES** (T<sub>A</sub> = 25°)

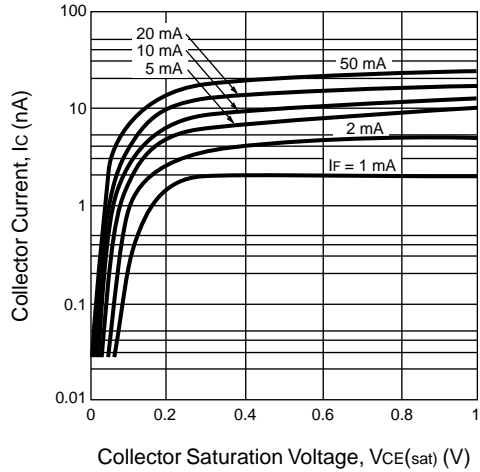


**TYPICAL PERFORMANCE CURVES** ( $T_A = 25^\circ$ )

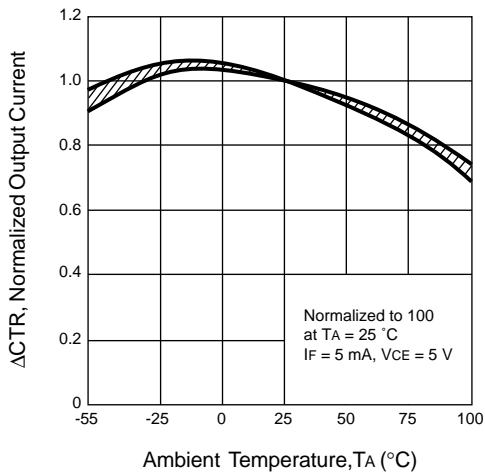
**COLLECTOR TO EMITTER DARK CURRENT vs. AMBIENT TEMPERATURE**



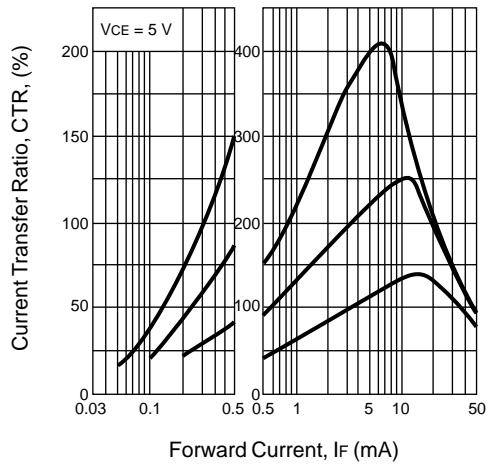
**COLLECTOR CURRENT vs. COLLECTOR SATURATION VOLTAGE**



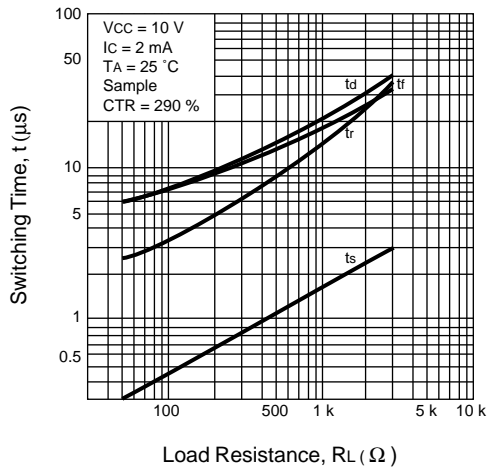
**NORMALIZED OUTPUT CURRENT vs. AMBIENT TEMPERATURE**



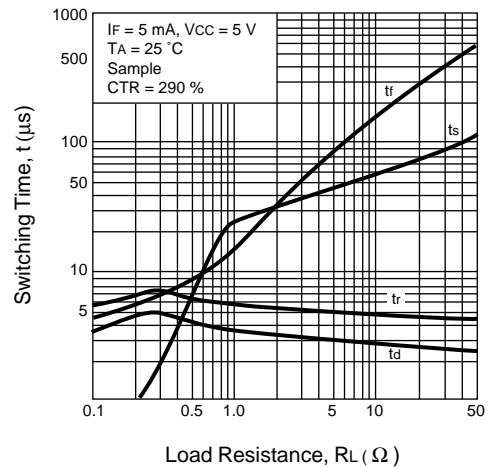
**CURRENT TRANSFER RATIO (CTR) vs. FORWARD CURRENT**



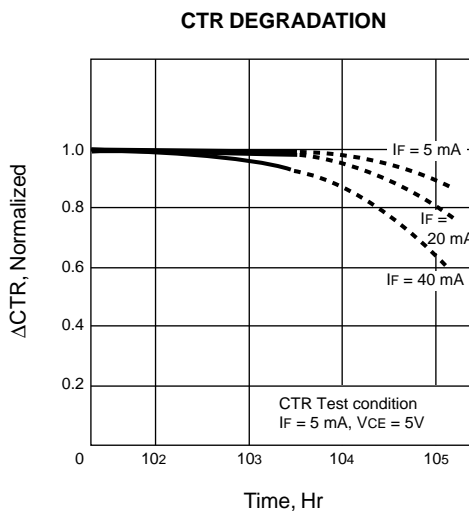
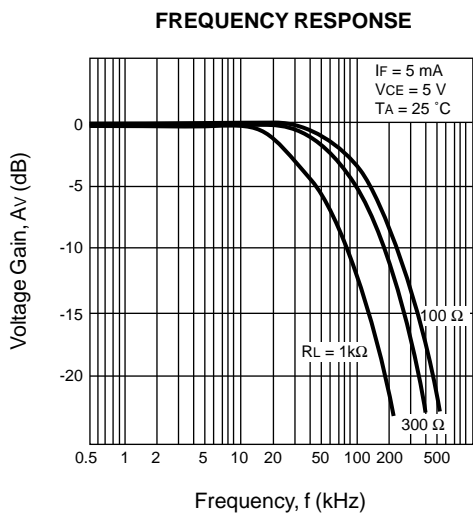
**SWITCHING TIME vs. LOAD RESISTANCE**



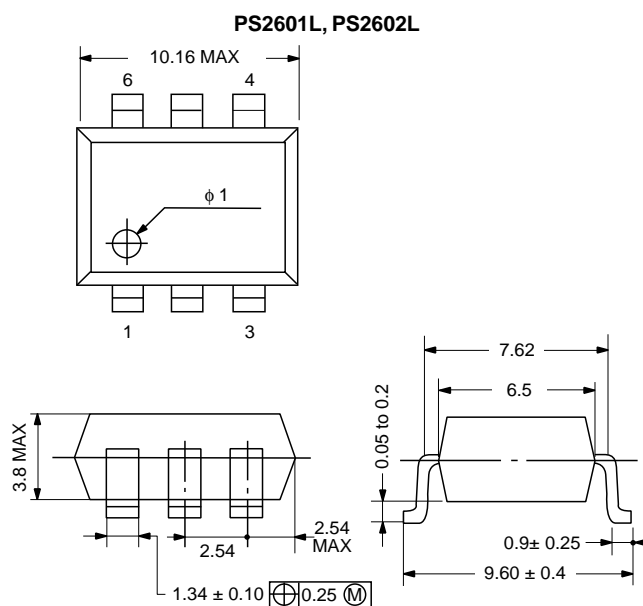
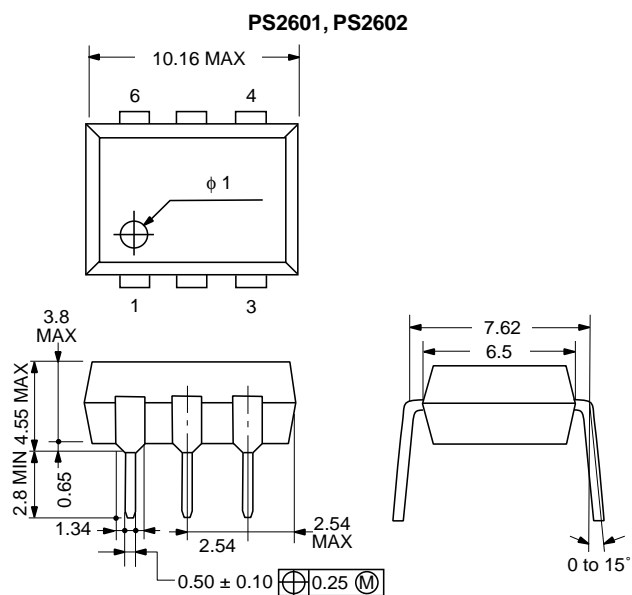
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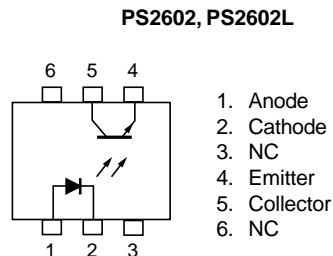
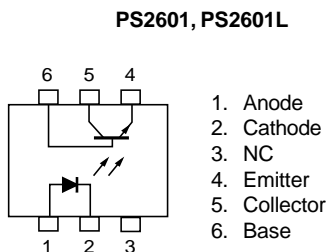
**TYPICAL PERFORMANCE CURVES** ( $T_A = 25^\circ$ )



**OUTLINE DIMENSIONS** (Units in mm)



**PIN CONNECTIONS** (Top View)



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