

FEATURES

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

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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

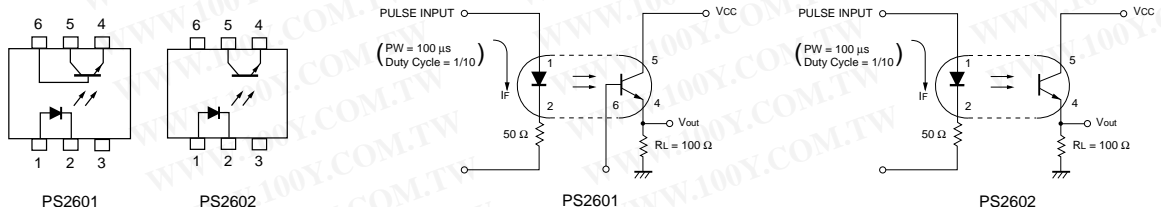
ELECTRICAL CHARACTERISTICS (T_A = 25°C)

PART NUMBER			PS2601, PS2601L, PS2602, PS2602L			
SYMBOLS	PARAMETERS	UNITS	MIN	TYP	MAX	
Diode	V _F	Forward Voltage, I _F = 10 mA		1.1	1.4	
	I _R	Reverse Current, V _R = 5 V			5	
	C	Junction Capacitance, V = 0, f = 1.0 MHz		30		
Transistor	I _{CEO}	Collector to Emitter Dark Current, V _{CE} = 80 V, I _F = 0			100	
	BV _{CEO}	Collector to Emitter Breakdown Voltage, I _C = 1 mA, I _B = 0	80			
	BV _{ECO}	Emitter to Collector Breakdown Voltage, I _E = 100 μA, I _B = 0	7			
Coupled	CTR	Current Transfer Ratio ¹ , I _F = 5 mA, V _{CE} = 5 V		80	300	600
	V _{CE(sat)}	Collector Saturation Voltage, I _F = 10 mA, I _C = 2 mA				0.3
	R ₁₋₂	Isolation Resistance, V _{IN-OUT} = 1.0 kV		10 ¹¹		
	C ₁₋₂	Isolation Capacitance, V = 0, f = 1.0 MHz			0.6	
	tr	Rise Time ² , V _{CC} = 5 V, I _C = 2 mA			3	
tf	Fall Time ² , V _{CC} = 5 V, I _C = 2 mA			5		

Notes:

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

2. Test Circuit for Switching Time



ABSOLUTE MAXIMUM RATINGS¹ (T_A = 25°C)

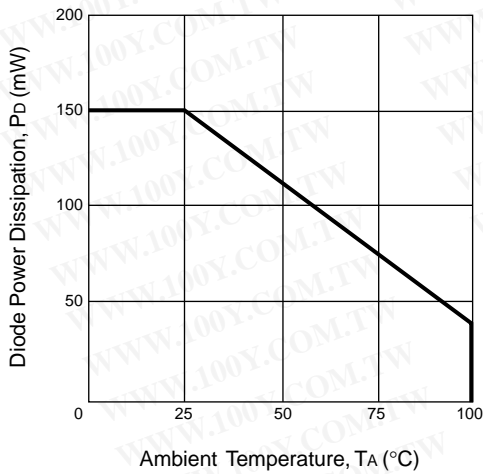
SYMBOLS	PARAMETERS	UNITS	RATINGS
Diode			
V _R	Reverse Voltage	V	6
I _F	Forward Current (DC)	mA	80
P _D	Power Dissipation	mW	150
I _F (PEAK)	Peak Forward Current (PW = 100 μs, Duty Cycle 1%)	A	1
Transistor			
V _{CEO}	Collector to Emitter Voltage	V	80
V _{ECO}	Emitter to Collector Voltage	V	7
I _C	Collector Current	mA	50
P _C	Power Dissipation	mW	150
Coupled			
BV	Isolation Voltage ²	V _{r.m.s.}	5000
T _{STG}	Storage Temperature	°C	-55 to +150
T _{OP}	Operating Temperature	°C	-55 to +100

Notes:

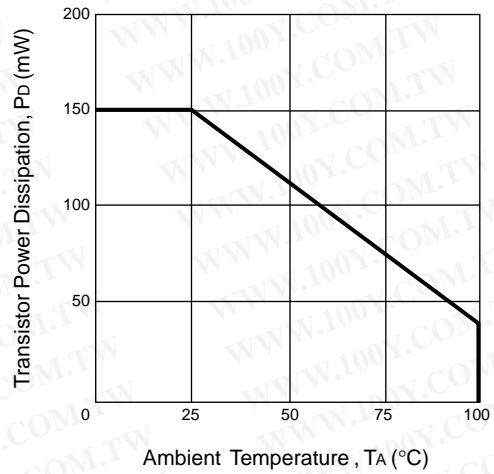
1. Operation in excess of any one of these parameters may result in permanent damage.
2. AC voltage for 1 minute at T_A = 25° C, RH = 60% between input (Pin No. 1, 2, 3 common) and output (Pin No. 4, 5, 6 common).

TYPICAL PERFORMANCE CURVES (T_A = 25°)

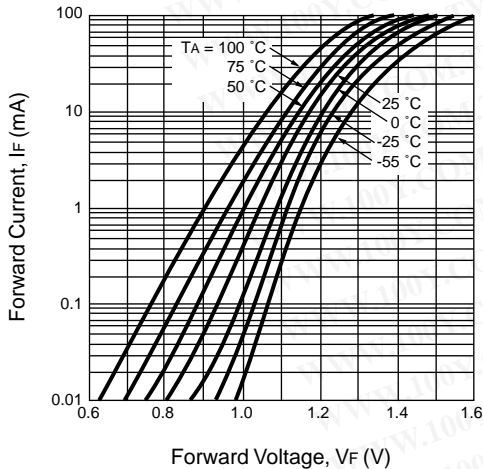
DIODE POWER DISSIPATION vs. AMBIENT TEMPERATURE



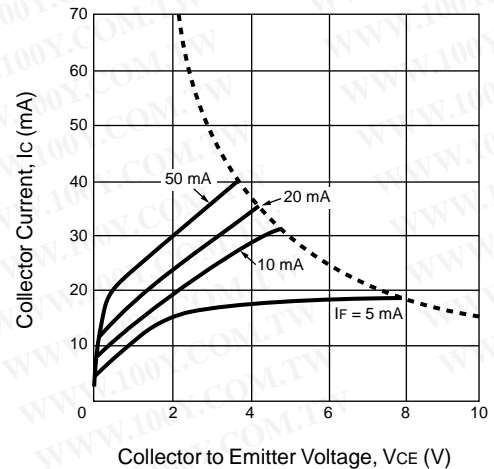
TRANSISTOR POWER DISSIPATION vs. AMBIENT TEMPERATURE



FORWARD CURRENT vs. FORWARD VOLTAGE

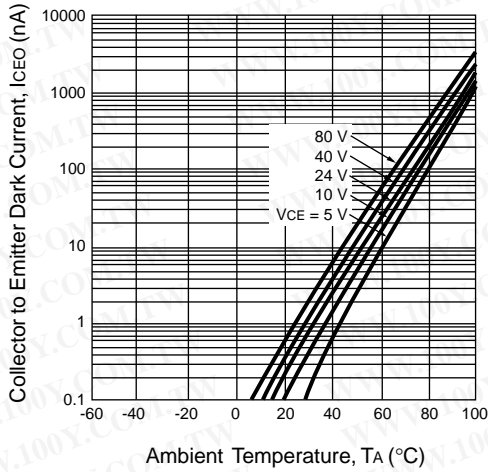


COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE

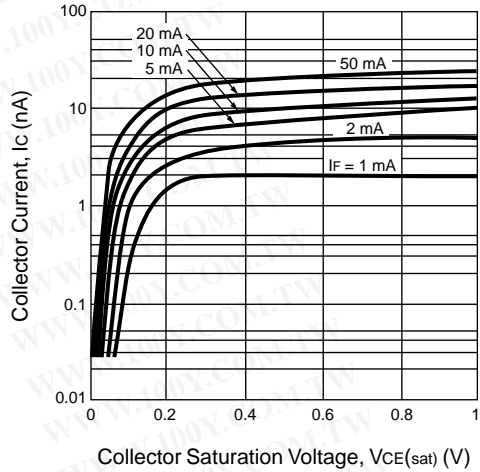


TYPICAL PERFORMANCE CURVES ($T_A = 25^\circ$)

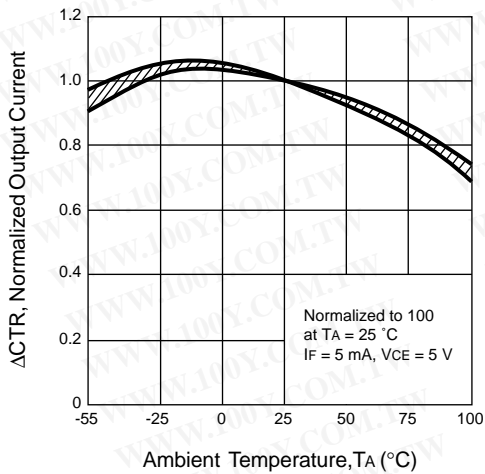
COLLECTOR TO EMITTER DARK CURRENT vs. AMBIENT TEMPERATURE



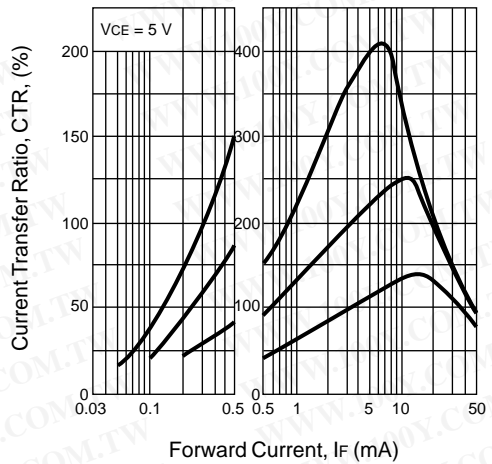
COLLECTOR CURRENT vs. COLLECTOR SATURATION VOLTAGE



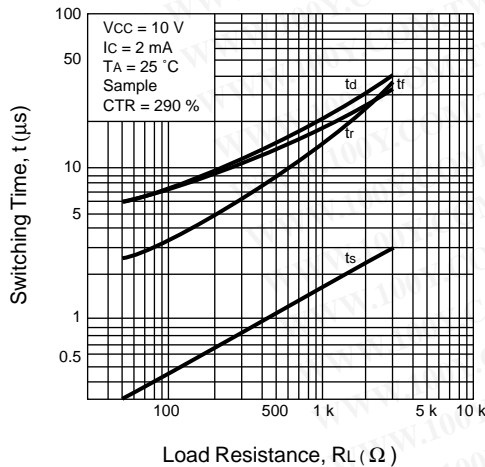
NORMALIZED OUTPUT CURRENT vs. AMBIENT TEMPERATURE



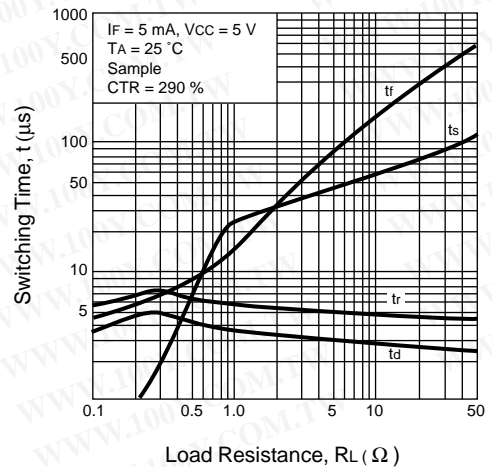
CURRENT TRANSFER RATIO (CTR) vs. FORWARD CURRENT



SWITCHING TIME vs. LOAD RESISTANCE

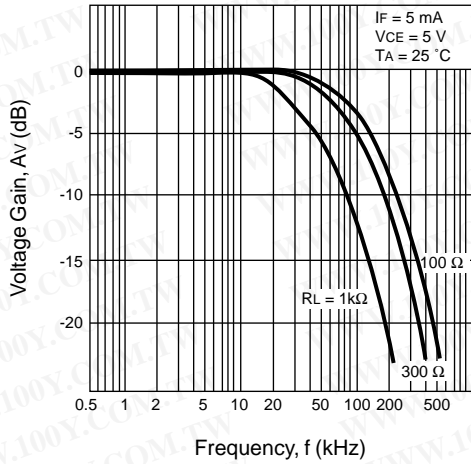


SWITCHING TIME vs. LOAD RESISTANCE

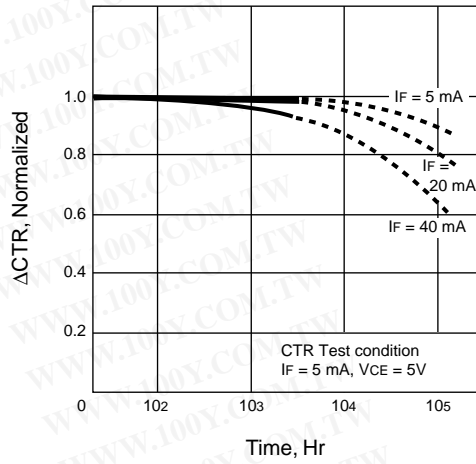


TYPICAL PERFORMANCE CURVES (TA = 25°C)

FREQUENCY RESPONSE

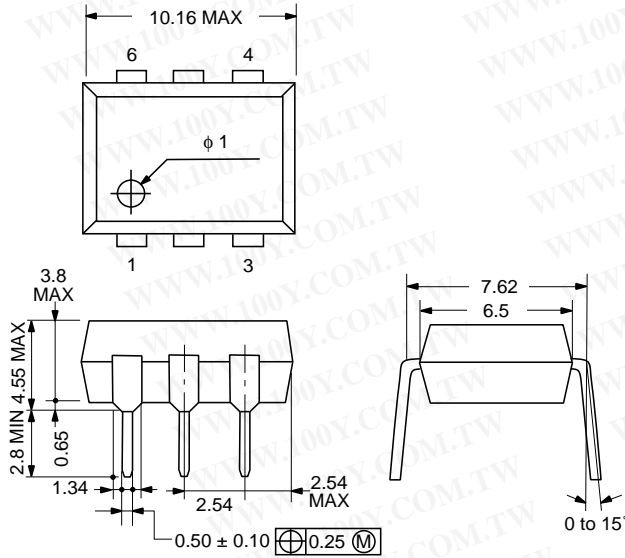


CTR DEGRADATION

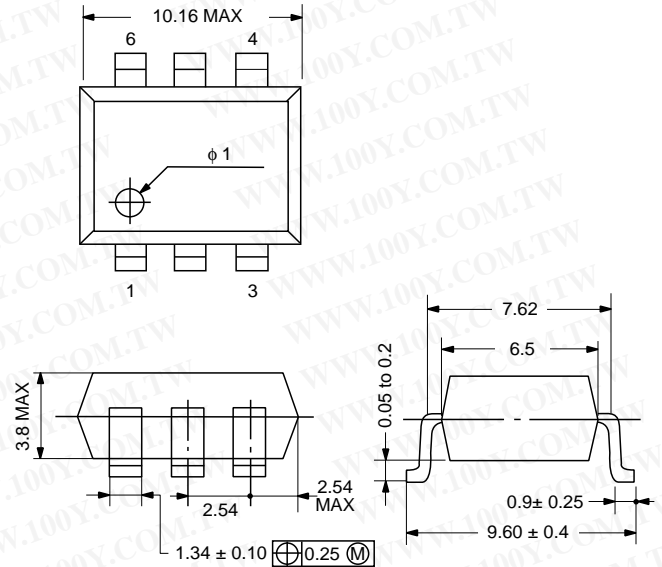


OUTLINE DIMENSIONS (Units in mm)

PS2601, PS2602

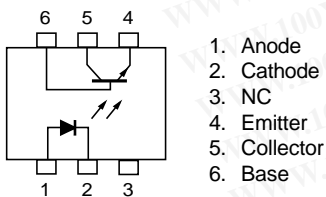


PS2601L, PS2602L

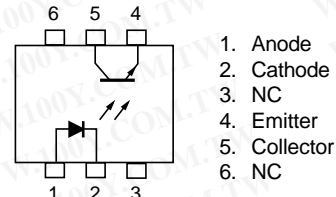


PIN CONNECTIONS (Top View)

PS2601, PS2601L



PS2602, PS2602L



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