

FEATURES

- **HIGH COMMON MODE TRANSIENT IMMUNITY**
CMR, CML: ± 2000 V/ μ s MIN
- **HIGH SUPPLY VOLTAGE**
 $V_{CC} = 35$ V MAX
- **HIGH SPEED RESPONSE**
 t_{PHL} , t_{PLH} : 0.8 μ s MAX
- **HIGH ISOLATION VOLTAGE**
BV: 5000 $V_{r.m.s.}$ MIN
- **TTL, CMOS COMPATIBLE WITH A RESISTOR**
- **TAPING PRODUCT NUMBER**
PS8602L-E3

DESCRIPTION

PS8602 and PS8602L are 8-pin high speed photocouplers containing GaAlAs LED on the input side and a P-N photodiode and a high speed amplifier transistor on the output side on one chip. PS8602 is in a plastic DIP (Dual In-Line Package) and PS8602L is in a lead bending type (Gull-wing) for surface mount.

APPLICATIONS

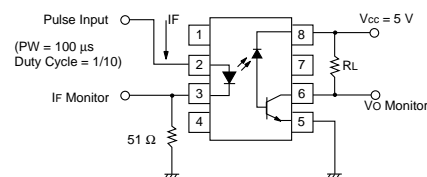
- **INTERFACE CIRCUIT FOR VARIOUS INSTRUMENTATIONS AND CONTROL EQUIPMENT**
- **COMPUTER AND PERIPHERAL MANUFACTURES**

ELECTRICAL CHARACTERISTICS (T_A = 25°C)

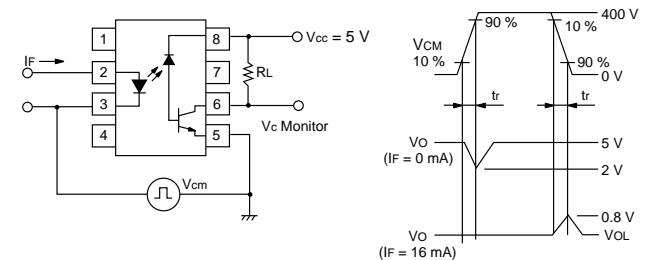
PART NUMBER			PS8602, PS8602L			
	SYMBOLS	PARAMETERS	UNITS	MIN	TYP	MAX
Diode	V _F	Forward Voltage, I _F = 16 mA	V		1.7	2.2
	I _R	Reverse Current, V _R = 5 V	μ A			10
	$\frac{\Delta V_F}{\Delta T}$	Forward Voltage Temperature Coefficient, I _F = 16 mA	mV/°C		-1.6	
	C _t	Junction Capacitance, V = 0, f = 1 MHz	pF		60	
Detector	I _{OH1}	High Level Output Current, I _F = 0 mA, V _{CC} = V _O = 5.5 V	nA		3	500
	I _{OH2}	High Level Output Current, I _F = 0 mA, V _{CC} = V _O = 35 V	μ A			100
	V _{OL}	Low Level Output Voltage, I _F = 16 mA, V _{CC} = 4.5 V, I _O = 1.2 mA	V		0.1	0.4
	I _{CCL}	Low Level Supply Current, I _F = 16 mA, V _O = Open, V _{CC} = 35 V	μ A		50	
	I _{CCH}	High Level Supply Current, I _F = 0 mA, V _O = Open, V _{CC} = 35 V	μ A		0.01	1
Coupler	CTR	Current Transfer Ratio, I _F = 16 mA, V _{CC} = 4.5 V, V _O = 0.4 V	%	15		
	R ₁₋₂	Isolation Resistance, V _{in-out} = 1k Vdc	Ω	10 ¹¹		
	C ₁₋₂	Isolation Capacitance, V = 0, f = 1 MHz	pF		0.7	
	t _{PHL}	Propagation Delay Time, High \rightarrow Low ¹ , I _F = 16 mA, V _{CC} = 5 V, R _L = 1.9 k Ω	μ s		0.5	0.8
	t _{PLH}	Propagation Delay Time, Low \rightarrow High ¹ , I _F = 16 mA, V _{CC} = 5 V, R _L = 1.9 k Ω	μ s		0.3	0.8
	CMH	Common Mode Transient Immunity at High Level Output ² I _F = 0 mA, V _{CM} = 400 V, R _L = 4.1 k Ω	V/ μ s	2000		
	CML	Common Mode Transient Immunity at Low Level Output ² I _F = 16 mA, V _{CM} = 400 V, R _L = 4.1 k Ω	V/ μ s	-2000		

Note:

1. Test Circuit for Propagation Delay Time



2. Test Circuit for Common mode transient immunity



ABSOLUTE MAXIMUM RATINGS¹ (T_A = 25°C)

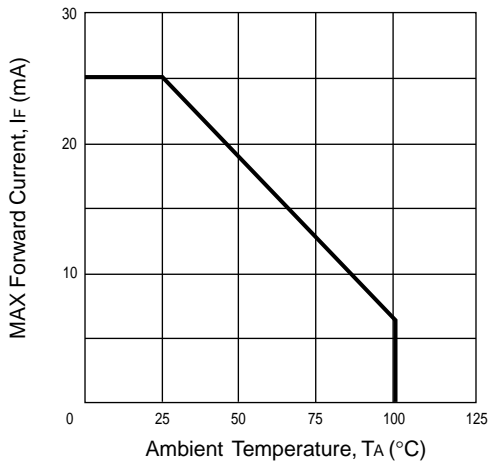
SYMBOLS	PARAMETERS	UNITS	RATINGS
Diode			
I _F	Forward Current	mA	25
V _R	Reverse Voltage	V	5
P _D	Power Dissipation	mW	45
Detector			
V _{CC}	Supply Voltage	V	35
V _O	Output Voltage	V	35
I _O	Output Current	mA	8
P _C	Power Dissipation	mW	100
BV	Isolation Voltage ²	V _{r.m.s.}	5000
T _A	Operating Temperature	°C	-55 to +100
T _{STG}	Storage Temperature	°C	-55 to +150

Notes:

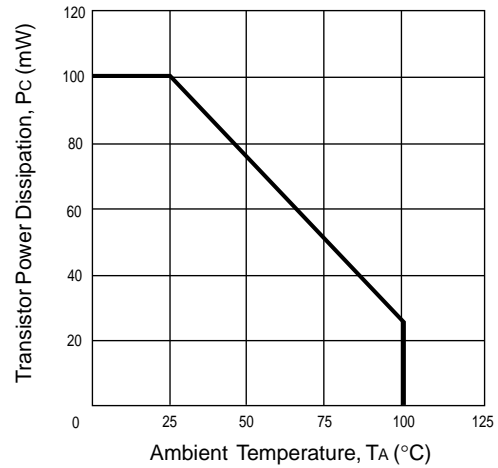
1. Operation in excess of any one of these parameters may result in permanent damage.
2. AC voltage for 1 minute at T_A = 25 °C, RH = 60 % between input and output.

TYPICAL PERFORMANCE CURVES (T_A = 25 °C)

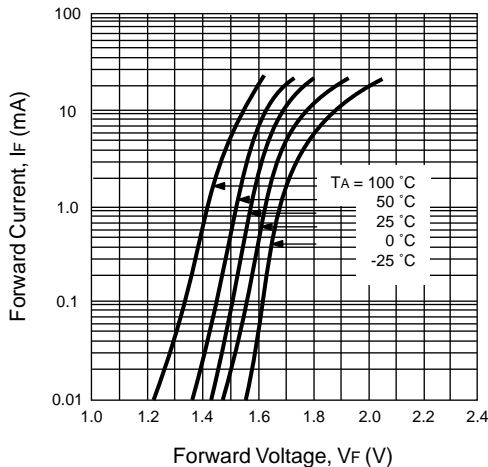
MAX. FORWARD CURRENT vs. AMBIENT TEMPERATURE



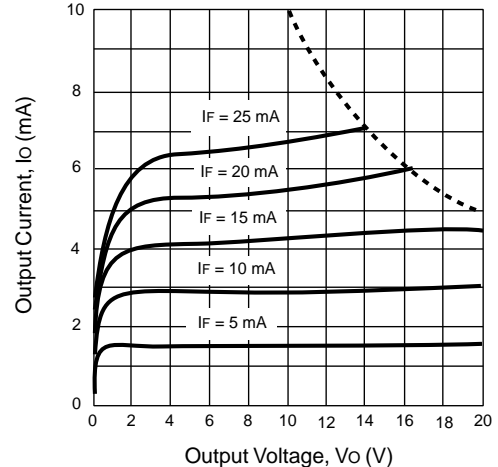
TRANSISTOR POWER DISSIPATION vs. AMBIENT TEMPERATURE



FORWARD CURRENT vs. FORWARD VOLTAGE

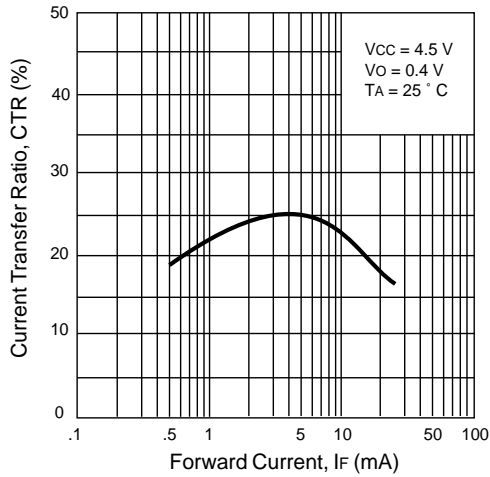


OUTPUT CURRENT vs. OUTPUT VOLTAGE

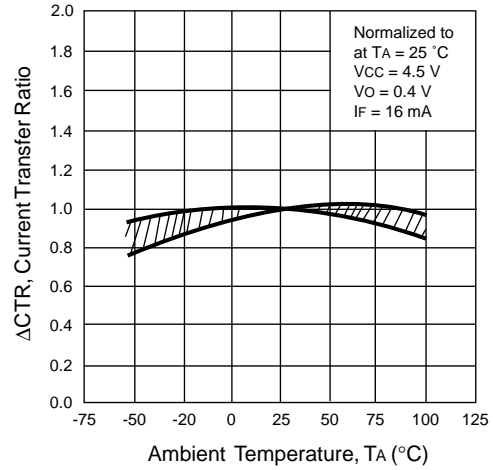


TYPICAL PERFORMANCE CURVES (TA = 25 °C)

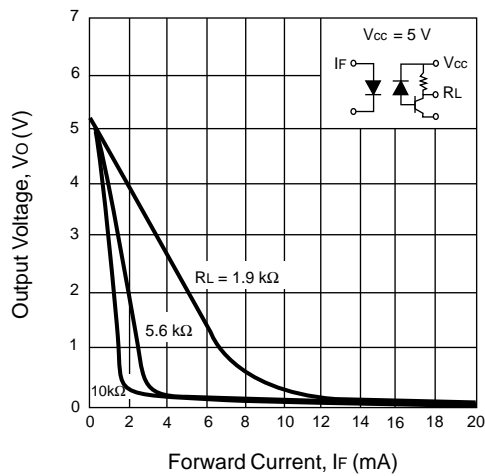
CURRENT TRANSFER RATIO vs. FORWARD CURRENT



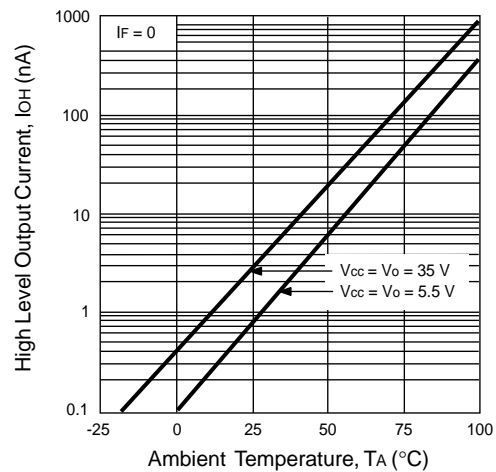
NORMALIZED OUTPUT CURRENT vs. AMBIENT TEMPERATURE



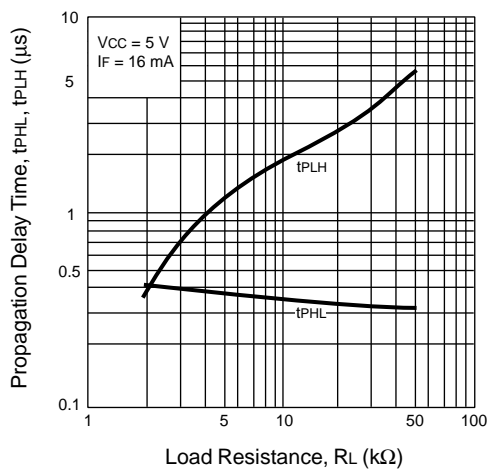
OUTPUT VOLTAGE vs. FORWARD CURRENT



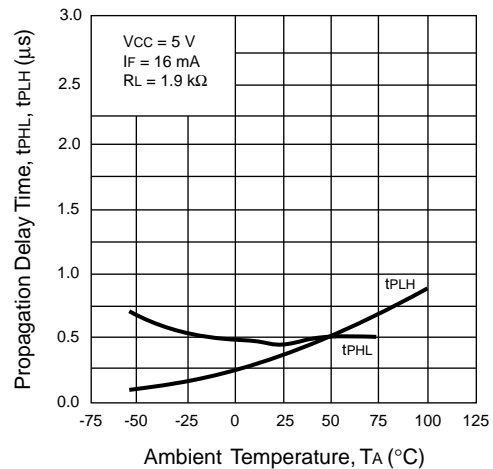
HIGH LEVEL OUTPUT CURRENT vs. AMBIENT TEMPERATURE



PROPAGATION DELAY TIME vs. LOAD RESISTANCE

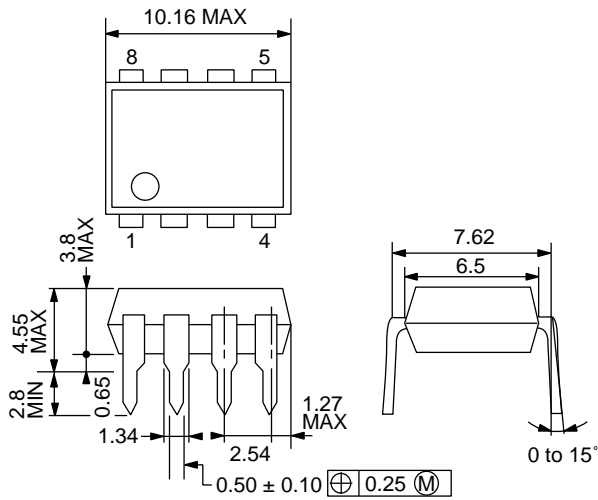


PROPAGATION DELAY TIME vs. AMBIENT TEMPERATURE

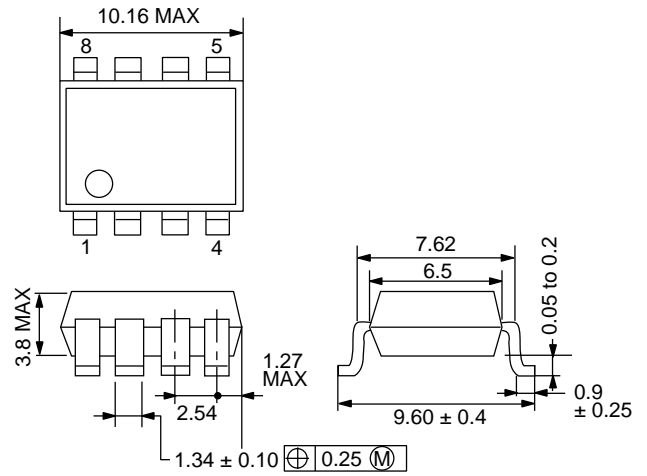


OUTLINE DIMENSIONS (Units in mm)

PS8602

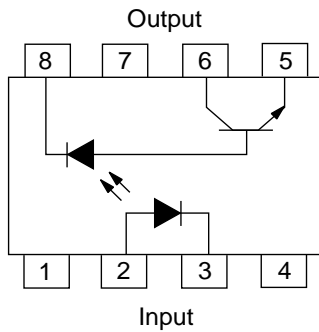


PS8602L



PIN CONNECTION (Top View)

PS8602, PS8602L



- | | |
|------------|------------|
| 1. NC | 5. Emitter |
| 2. Anode | 6. Vo |
| 3. Cathode | 7. NC |
| 4. NC | 8. Vcc |

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PRINTED IN USA ON RECYCLED PAPER -2/98