

FEATURES

- **HIGH ISOLATION VOLTAGE**
BV: 5 k Vr.m.s. MIN
- **LONG CREEPAGE AND CLEARANCE DISTANCE**
8 mm 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 = 200% TYP
- **6 PIN DUAL IN-LINE PACKAGE**

DESCRIPTION

PS2651 and PS2652 are optically coupled isolators containing a GaAs light emitting diode and an NPN silicon phototransistor in a plastic DIP (Dual In-Line Package). PS2651 has a base pin and PS2652 has no base pin. Creepage distance and clearance of leads are over 8 millimeters. PS2651L2 and PS2652L2 are lead bending type (Gull-wing) for surface mounting.

APPLICATIONS

Interface circuit for various instrumentations and control equipment.

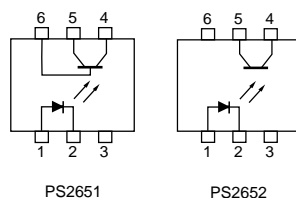
- AC LINE/DIGITAL LOGIC
- DIGITAL LOGIC INTERFACE
- TWISTED PAIR LINE RECEIVER
- TELEPHONE/TELEGRAPH LINE RECEIVER
- HIGH FREQUENCY POWER SUPPLY FEEDBACK CONTROL
- RELAY CONTACT MONITOR
- POWER SUPPLY MONITOR

ELECTRICAL CHARACTERISTICS (T_A = 25°C)

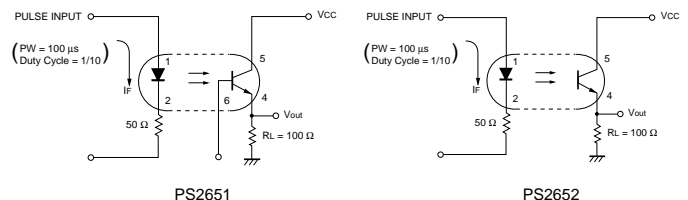
PART NUMBER			PS2651, PS2651L2, PS2652, PS2652L2			
SYMBOLS	PARAMETERS	UNITS	MIN	TYP	MAX	
Diode	V _F	Forward Voltage, I _F = 10 mA	V	1.1	1.4	
	I _R	Reverse Current, V _R = 5 V	μA		5	
	C	Junction Capacitance, V = 0, f = 1.0 MHz	pF	30		
Transistor	I _{CEO}	Collector to Emitter Dark Current, V _{CE} = 80 V, I _F = 0	nA		100	
	BV _{CEO}	Collector to Emitter Breakdown Voltage, I _C = 1 mA, I _B = 0	V	80		
	BV _{ECO}	Emitter to Collector Breakdown Voltage, I _E = 100 μA, I _B = 0	V	7		
Coupled	CTR	Current Transfer Ratio ¹ , I _F = 5 mA, V _{CE} = 5 V	%	50	200	400
	V _{CE(sat)}	Collector Saturation Voltage, I _F = 10 mA, I _C = 2 mA	V			0.3
	R ₁₋₂	Isolation Resistance, V _{in-out} = 1.0 k V	Ω	10 ¹¹		
	C ₁₋₂	Isolation Capacitance, V = 0, f = 1.0 MHz	pF		0.6	
	tr	Rise Time ² , V _{CC} = 5 V, I _C = 2 mA	μs		3	
tf	Fall Time ² , V _{CC} = 5 V, I _C = 2 mA	μs		5		

1. CTR rank

KD : 160 to 400 (%)
LD : 80 to 240 (%)
MD : 50 to 120 (%)



2. Test Circuit for Switching Time



ABSOLUTE MAXIMUM RATINGS¹ (T_A = 25°C)

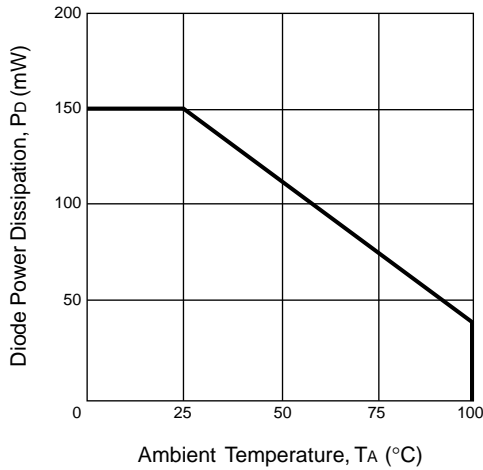
SYMBOLS	PARAMETERS	UNITS	RATINGS
Diode			
V _R	Reverse Voltage	V	6
I _F	Forward Current	mA	80
P _D	Power Dissipation	mW	150
I _F (Peak)	Peak Forward Current PW = 100 μs, Duty Cycle 1%	A	1
Transistor			
V _{CEO}	Collector to Emitter Voltage	V	80
V _{ECO}	Emitter to Collector Voltage	V	7
I _C	Collector 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:

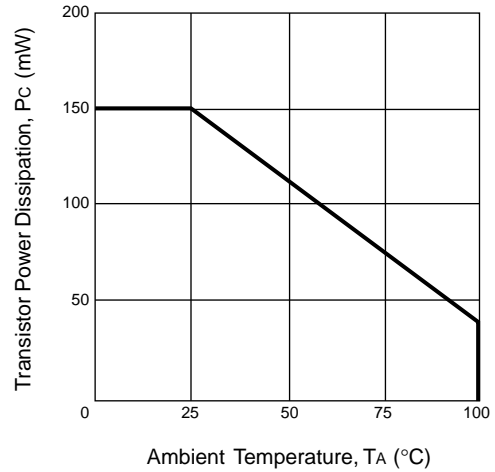
1. Operation in excess of any one of these parameters may result in permanent damage.
2. AC voltage for 1 minute at T_A = 25 °C, RH = 60 % between input (Pin No. 1, 2, 3 Common) and output (Pin No. 4, 5, 6 Common).

TYPICAL PERFORMANCE CURVES (T_A = 25 °C)

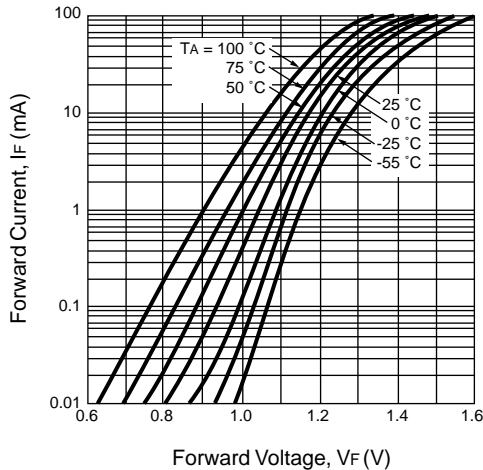
DIODE POWER DISSIPATION vs. AMBIENT TEMPERATURE



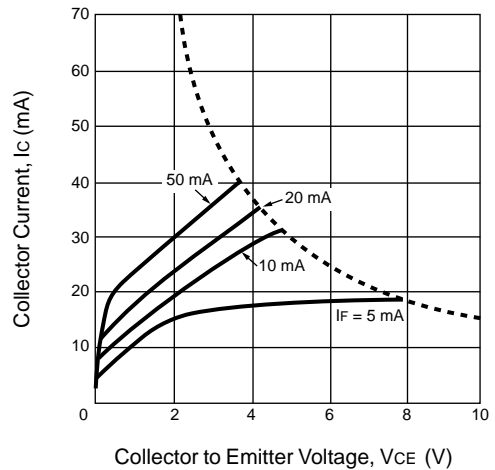
TRANSISTOR POWER DISSIPATION vs. AMBIENT TEMPERATURE



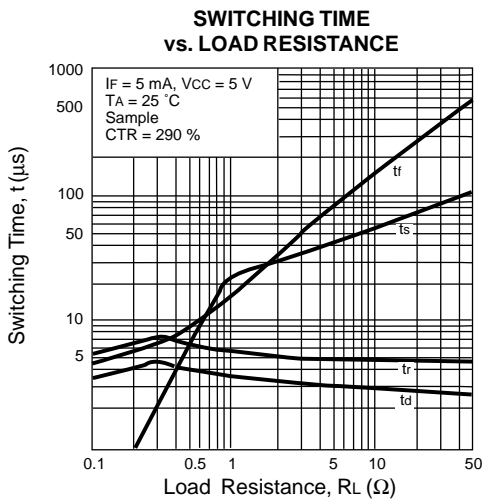
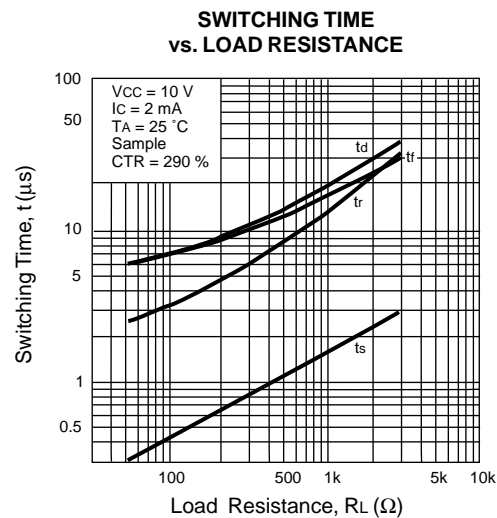
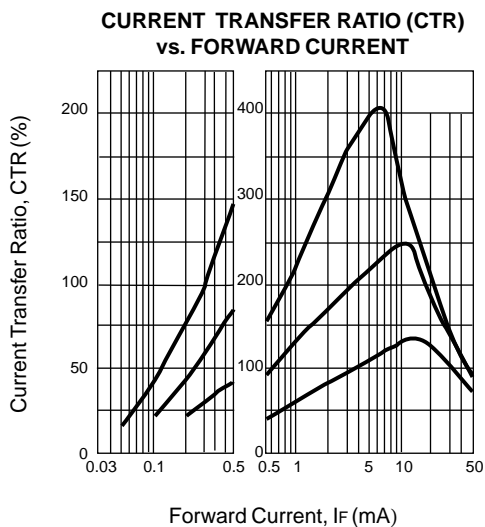
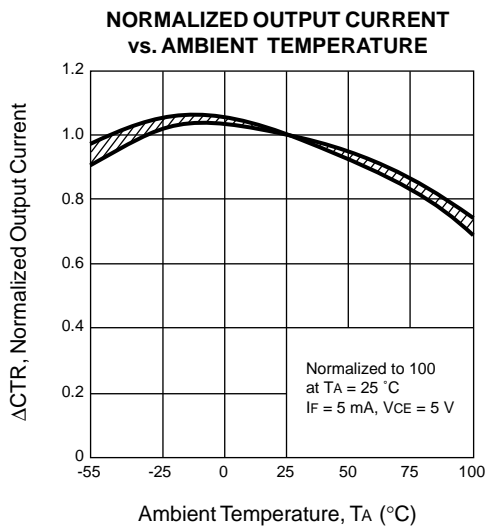
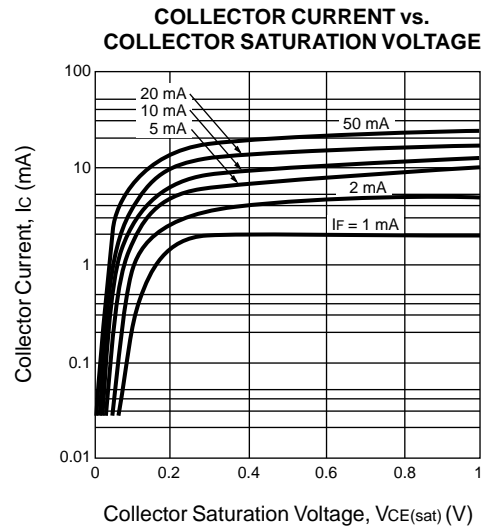
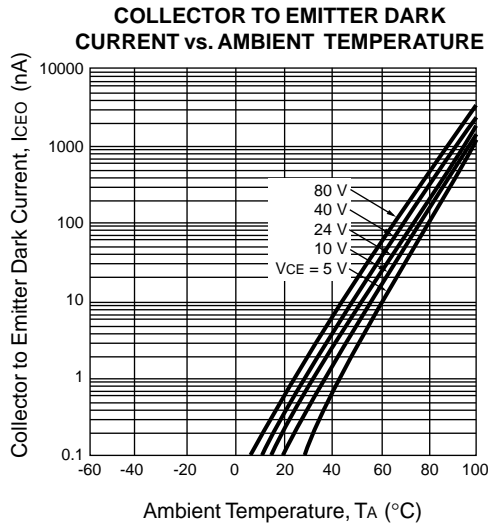
FORWARD CURRENT vs. FORWARD VOLTAGE



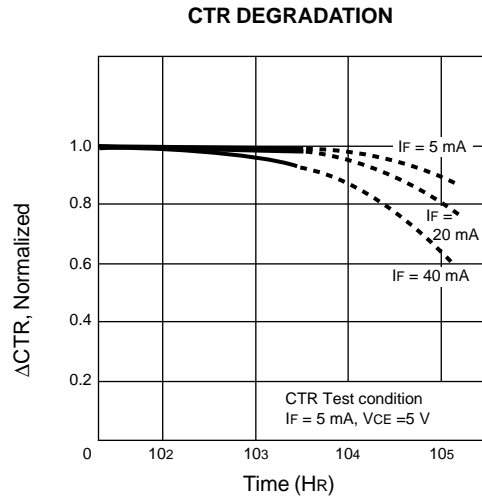
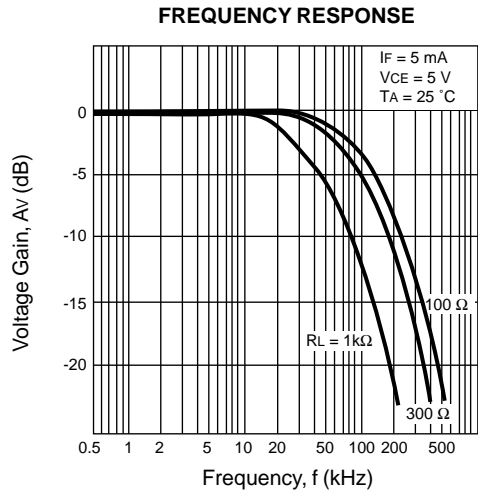
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



TYPICAL PERFORMANCE CURVES ($T_A = 25\text{ }^\circ\text{C}$)

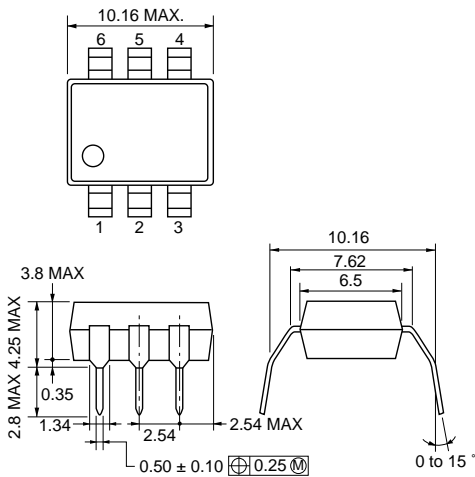


TYPICAL PERFORMANCE CURVES (TA = 25 °C)

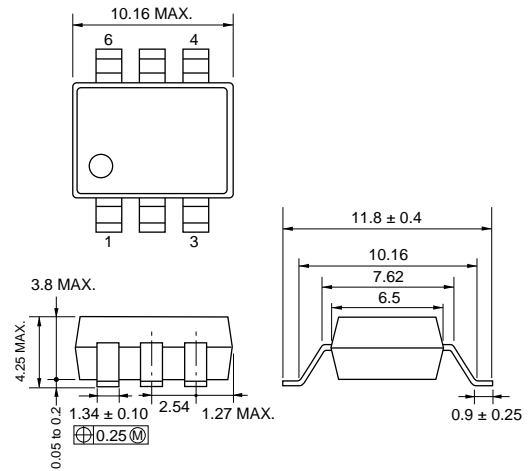


OUTLINE DIMENSIONS (Units in mm)

PS2651, PS2652

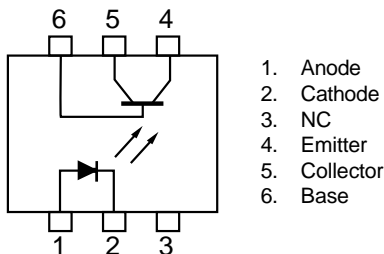


PS2651L2, PS2652L2

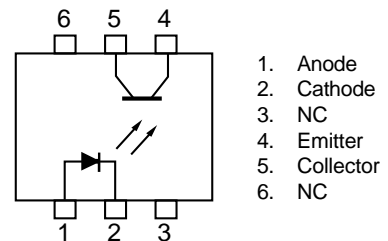


PIN CONNECTION (Top View)

PS2651, PS2651L2



PS2652, PS2652L2



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