

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**
 $t_r = 3 \mu s$, $t_f = 5 \mu s$ 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

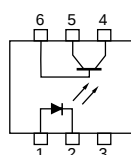
ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ C$)

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	
	t _r	Rise Time ² , V _{CC} = 5 V, I _C = 2 mA	μs		3	
	t _f	Fall Time ² , V _{CC} = 5 V, I _C = 2 mA	μs		5	

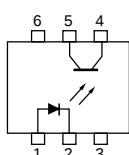
1. CTR rank

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

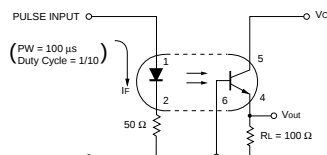
2. Test Circuit for Switching Time



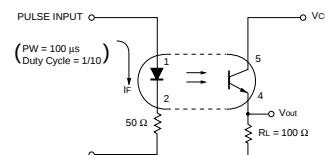
PS2651



PS2652



PS2651



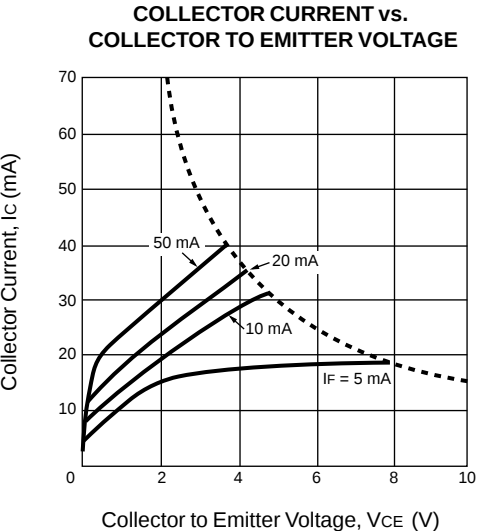
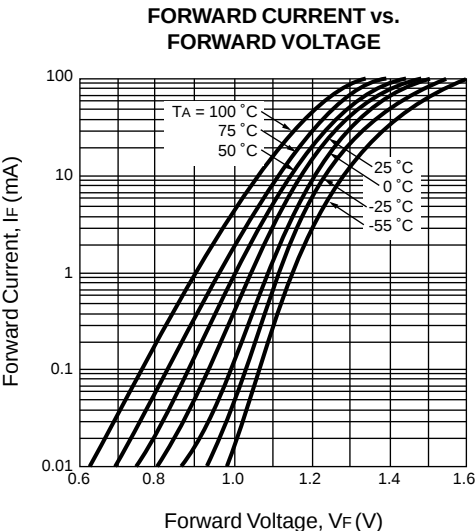
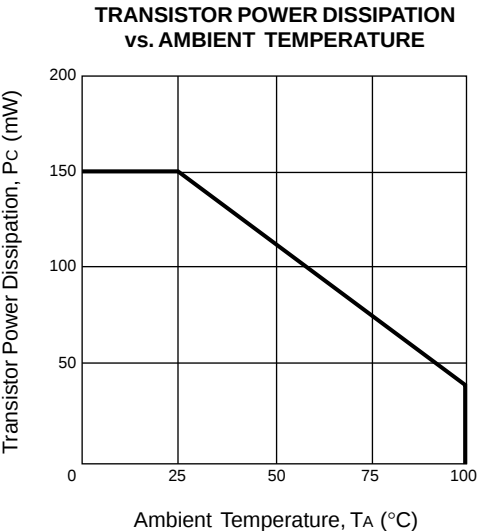
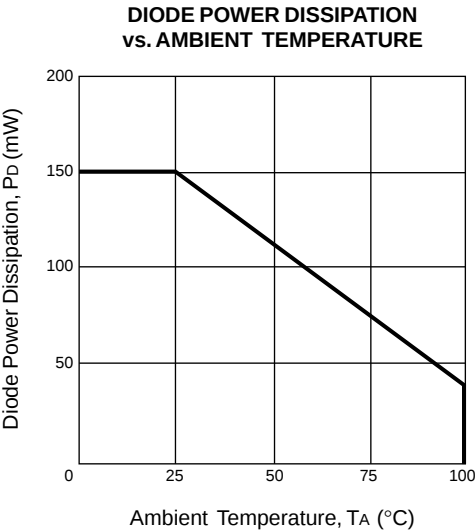
PS2652

ABSOLUTE MAXIMUM RATINGS¹ (T_A = 25°C)

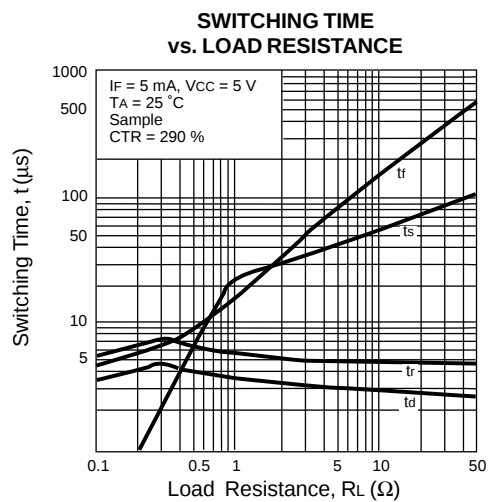
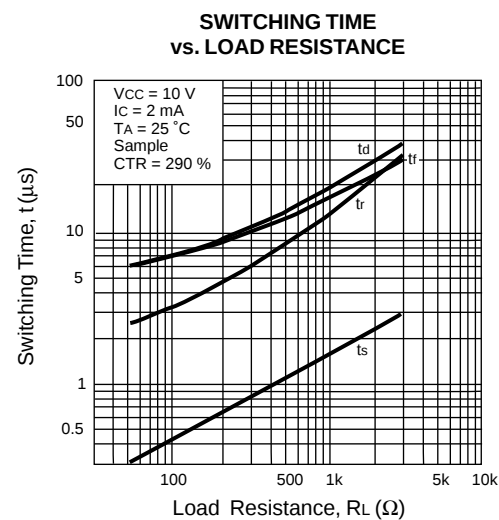
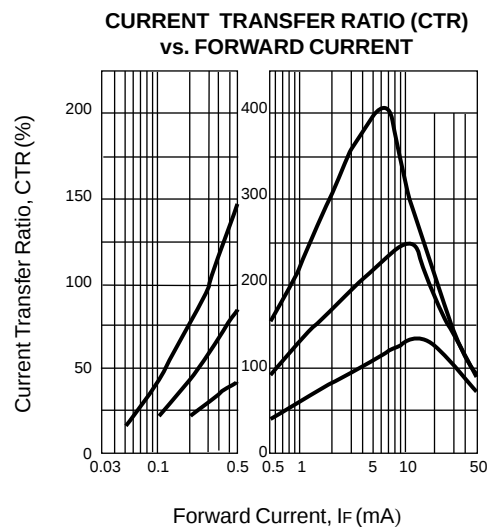
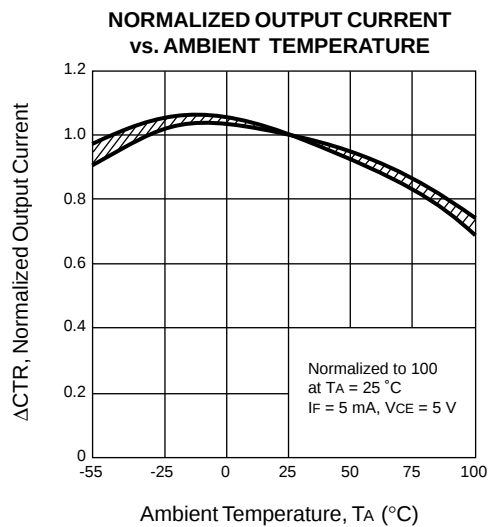
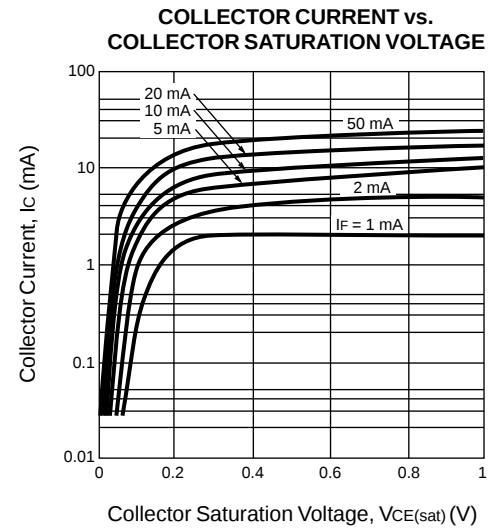
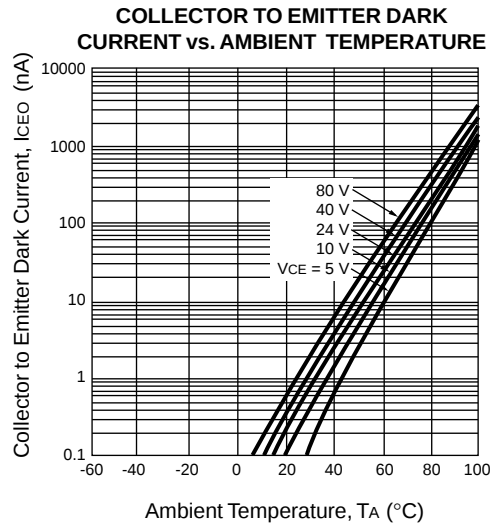
SYMBOLS	PARAMETERS	UNITS	RATINGS
Diode			
V _R	Reverse Voltage	V	6
I _F	Forward Current	mA	80
P _D	Power Dissipation	mW	150
I _F (Peak)	Peak Forward Current PW = 100 μs, Duty Cycle 1%	A	1
Transistor			
V _{CEO}	Collector to Emitter Voltage	V	80
V _{ECO}	Emitter to Collector Voltage	V	7
I _C	Collector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

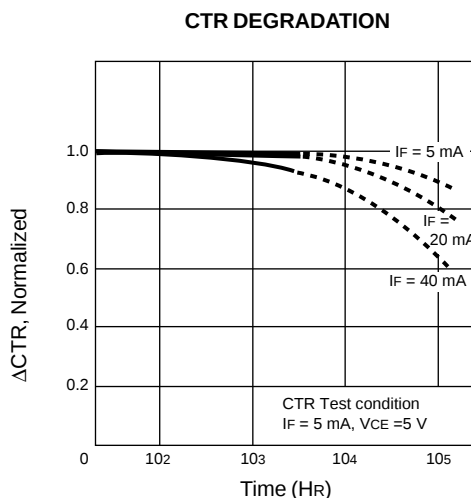
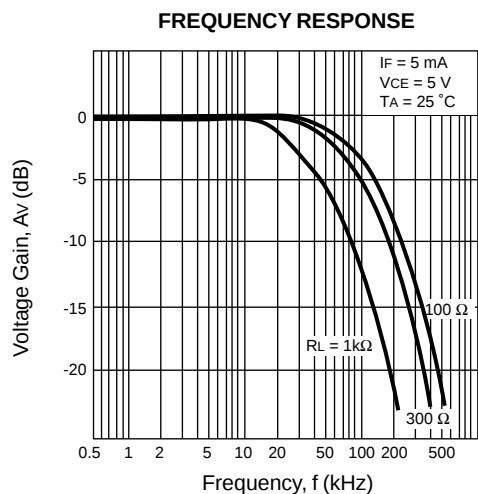
TYPICAL PERFORMANCE CURVES (T_A = 25 °C)



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

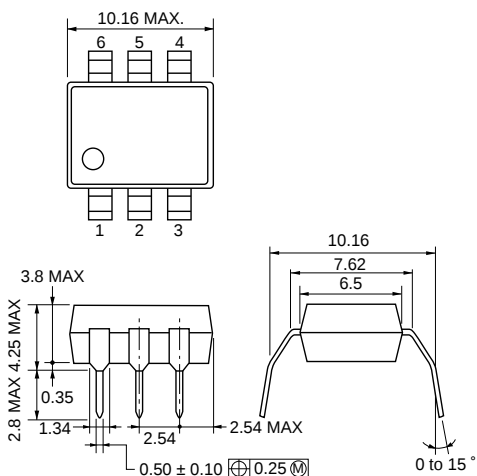


TYPICAL PERFORMANCE CURVES (T_A = 25 °C)

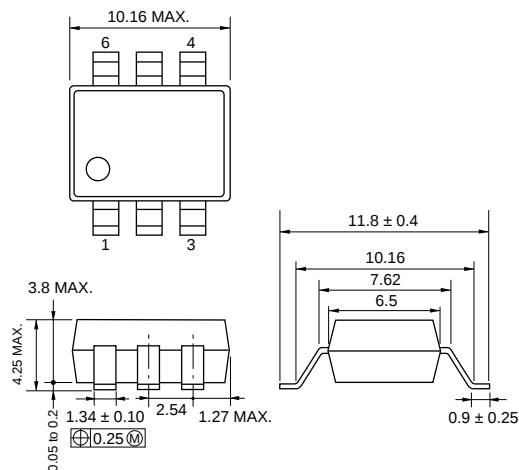


OUTLINE DIMENSIONS (Units in mm)

PS2651, PS2652

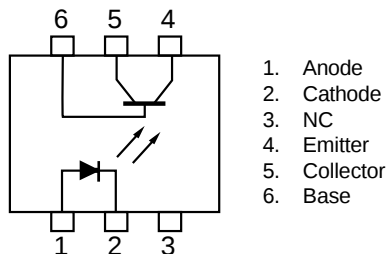


PS2651L2, PS2652L2

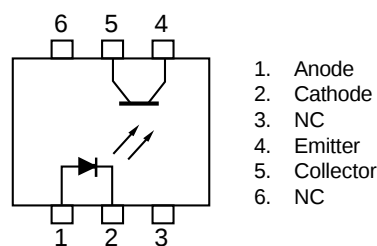


PIN CONNECTION (Top View)

PS2651, PS2651L2



PS2652, PS2652L2



EXCLUSIVE NORTH AMERICAN AGENT FOR **NEC** RF, MICROWAVE & OPTOELECTRONIC SEMICONDUCTORS

CEL CALIFORNIA EASTERN LABORATORIES • Headquarters • 4590 Patrick Henry Drive • Santa Clara, CA 95054-1817 • (408) 988-3500 • Telex 34-6393 • FAX (408) 988-0279

24-Hour Fax-On-Demand: 800-390-3232 (U.S. and Canada only) • Internet: <http://WWW.CEL.COM>

DATA SUBJECT TO CHANGE WITHOUT NOTICE

PRINTED IN USA ON RECYCLED PAPER -3/98