

HIGH ISOLATION VOLTAGE HIGH COLLECTOR TO EMITTER VOLTAGE DARLINGTON TYPE 6 PIN OPTOCOUPLER

PS2633
PS2633L
PS2634
PS2634L

FEATURES

- **HIGH ISOLATION VOLTAGE**
BV: 5 k Vr.m.s. MIN
- **HIGH COLLECTOR TO EMITTER VOLTAGE**
V_{CEO}: 300 V MIN
- **ULTRA HIGH CURRENT TRANSFER RATIO**
CTR: 1000% MIN
- **HIGH SPEED SWITCHING**
tr,tf = 100 μs TYP

DESCRIPTION

PS2633, PS2633L, PS2634, and PS2634L are optically coupled isolators containing a GaAs light emitting diode and an NPN silicon Darlington-connected phototransistor. PS2633 and PS2634 are in a plastic DIP (Dual In-Line Package). PS2633L and PS2634L are lead bending type (Gull-wing) for surface mount. PS2633 and PS2633L have a base pin and PS2634 and PS2634L have no base pin.

APPLICATIONS

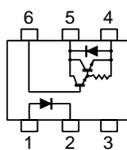
- TELEPHONE/TELEGRAPH LINE RECEIVER
- POWER SUPPLY

ELECTRICAL CHARACTERISTICS (T_A = 25°C)

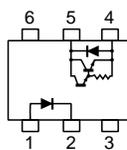
| PART NUMBER | | | | PS2633, PS2633L, PS2634, PS2634L | | |
|-------------|----------------------|---|-------|----------------------------------|------|-------|
| | SYMBOLS | PARAMETERS | UNITS | MIN | TYP | MAX |
| Diode | V _F | Forward Voltage, I _F = 10 mA | V | | 1.15 | 1.4 |
| | I _R | Reverse 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} = 300 V, I _F = 0 | nA | | | 400 |
| | BV _{CEO} | Collector to Emitter Breakdown Voltage I _c = 1 mA, I _b = 0 | V | 300 | | |
| | BV _{EBO} | Emitter to Base Breakdown Voltage ¹ I _E = 100 μA, I _c = 0 | V | 6 | | |
| Coupled | CTR | Current Transfer Ratio, I _F = 1 mA, V _{CE} = 2 V | % | 1000 | 4000 | 15000 |
| | V _{CE(sat)} | Collector Saturation Voltage, I _F = 1 mA, I _c = 2 mA | V | | | 1.0 |
| | R ₁₋₂ | Isolation Resistance, V _{in-out} = 1.0 k VDC | 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 = 10 mA | μs | | 100 | |
| | t _f | Fall Time ² , V _{CC} = 5 V, I _c = 10 mA | μs | | 100 | |

1. Only PS2633, PS2633L

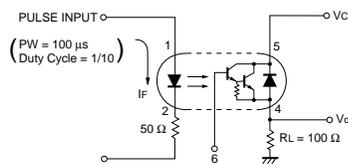
2. Test Circuit for Switching Time



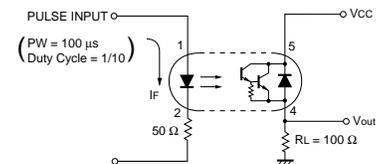
PS2633



PS2634



PS2633



PS2634

PS2633, PS2633L, PS2634, PS2634L

ABSOLUTE MAXIMUM RATINGS¹ (T_A = 25°C)

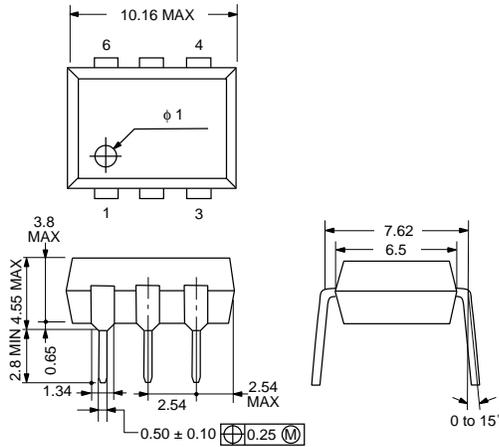
| SYMBOLS | PARAMETERS | UNITS | RATINGS |
|-----------------------|--|---------------------|-------------|
| Diode | | | |
| V _R | Reverse Voltage | V | 6 |
| I _F | Forward Current (DC) | mA | 80 |
| P _D | Power Dissipation | mW | 150 |
| I _F (Peak) | Peak Forward Current PW = 100 μs, Duty Cycle 1% | A | 1 |
| Transistor | | | |
| V _{CEO} | Collector to Emitter Voltage | V | 300 |
| V _{EB0} | Emitter to Base Voltage ² | V | 6 |
| I _C | Collector Current | mA | 150 |
| P _C | Power Dissipation | mW | 300 |
| Coupled | | | |
| BV | Isolation Voltage ³ | V _{r.m.s.} | 5000 |
| T _{STG} | Storage Temperature | °C | -55 to +150 |
| T _{OP} | Operating Temperature | °C | -55 to +100 |

Notes:

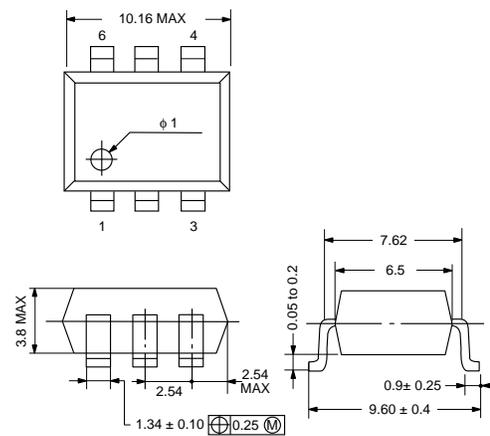
- Operation in excess of any one of these parameters may result in permanent damage.
- Only PS2633, PS2633L
- AC voltage for 1 minute at T_A = 25 °C, RH = 60 % between input (Pin No. 1, 2, 3 Common) and output (Pin No. 4, 5, 6 Common).

OUTLINE DIMENSIONS (Units in mm)

PS2633, PS2634

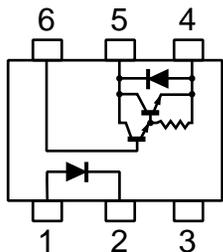


PS2633L, PS2634L



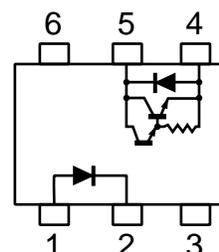
PIN CONNECTIONS (Top View)

PS2633, PS2633L



- Anode
- Cathode
- NC
- Emitter
- Collector
- Base

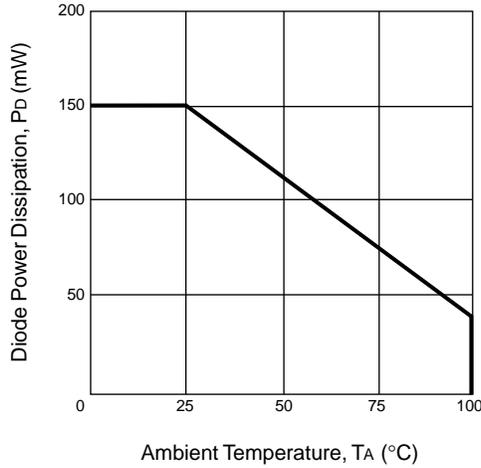
PS2634, PS2634L



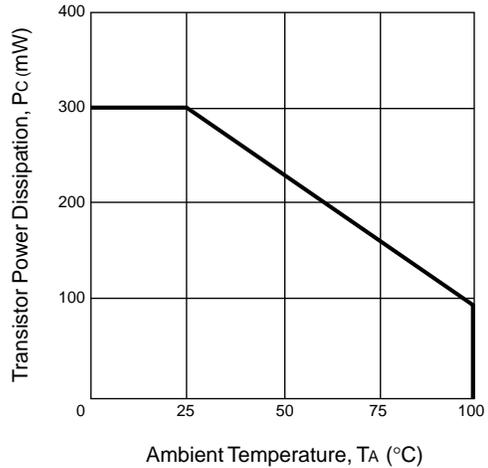
- Anode
- Cathode
- NC
- Emitter
- Collector
- NC

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

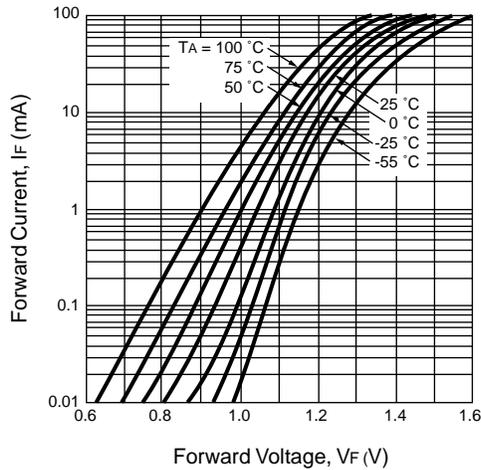
DIODE POWER DISSIPATION vs. AMBIENT TEMPERATURE



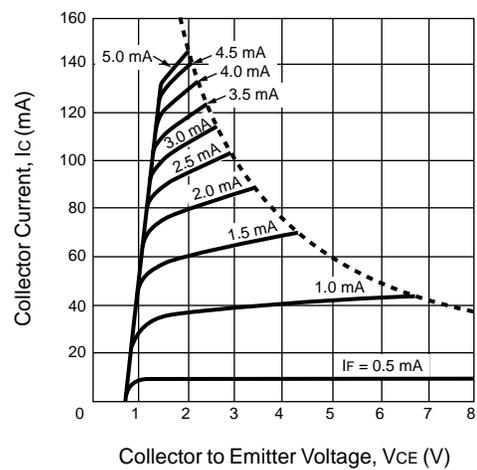
TRANSISTOR POWER DISSIPATION vs. AMBIENT TEMPERATURE



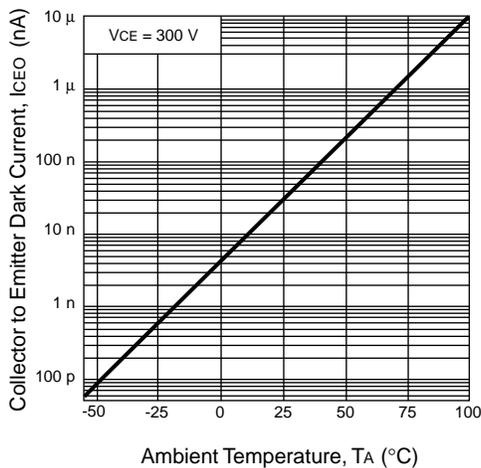
FORWARD CURRENT vs. FORWARD VOLTAGE



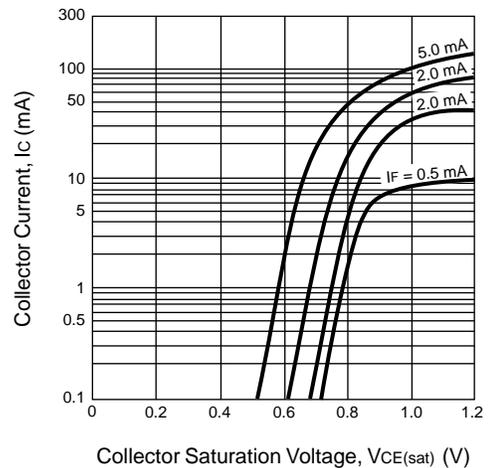
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



COLLECTOR TO EMITTER DARK CURRENT vs. AMBIENT TEMPERATURE



COLLECTOR CURRENT vs. COLLECTOR SATURATION VOLTAGE



TYPICAL PERFORMANCE CURVES (TA = 25 °C)

