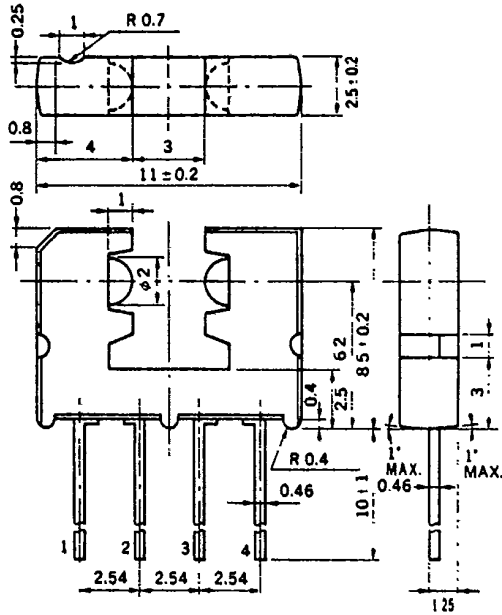


PHOTO INTERRUPTER PS4601

ONE PIECE PHOTO INTERRUPTER

PACKAGE DIMENSIONS in millimeters



DESCRIPTION

The PS4601 contains a GaAs LED and NPN photo transistor in one molded package.

FEATURES

- Ultra small and thin package (Width = 2.5 mm TYP.)
- High speed response ($t = 9 \mu s$ TYP.)
- Single in-line package (4 PIN)

ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ C$)

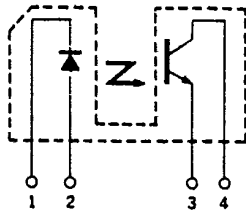
Diode

| | | | |
|-------------------|-------|-----|----|
| Reverse Voltage | V_R | 5.0 | V |
| Forward Current | I_F | 50 | mA |
| Power Dissipation | P_D | 100 | mW |

Transistor

| | | | |
|------------------------------|-----------|-------------|------------|
| Collector to Emitter Voltage | V_{CEO} | 30 | V |
| Collector Current | I_C | 40 | mA |
| Power Dissipation | P_C | 100 | mW |
| Storage Temperature | T_{stg} | -40 to +100 | $^\circ C$ |
| Operating Temperature | T_{opt} | -20 to +80 | $^\circ C$ |

CONNECTION DIAGRAM

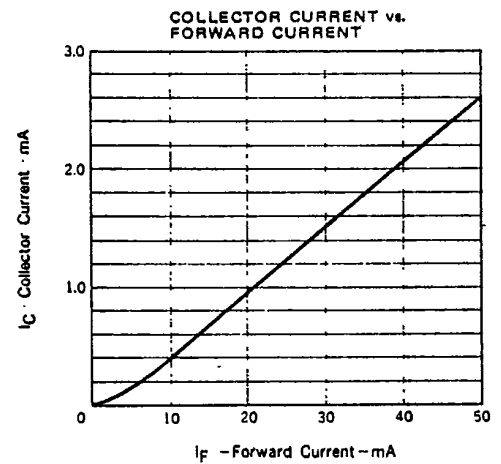
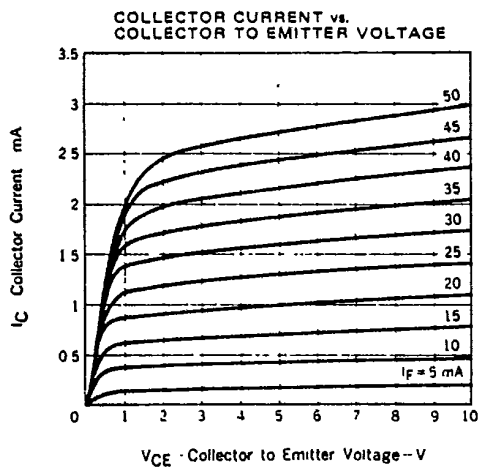
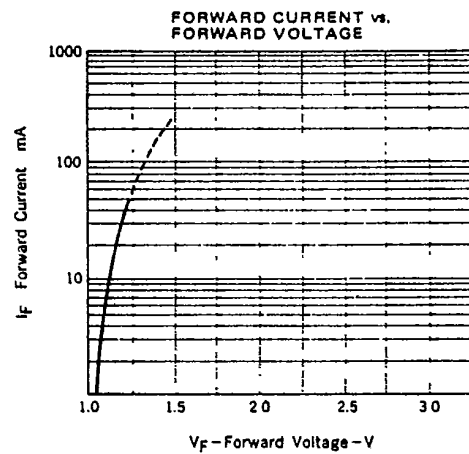
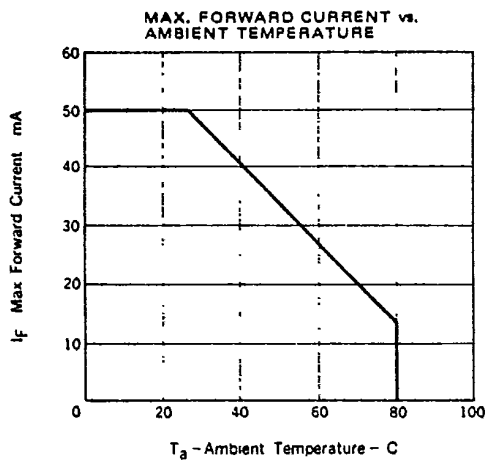


1. Cathode
2. Anode
3. Emitter
4. Collector

ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

| CHARACTERISTIC | | SYMBOL | MIN. | TYP. | MAX. | UNIT | TEST CONDITIONS |
|----------------|-----------------------------------|----------------|------|------|------|---------------|--|
| Diode | Forward Voltage | V_F | | 1.1 | 1.4 | V | $I_F = 10\text{ mA}$ |
| | Reverse Current | I_R | | | 10 | μA | $V_R = 5.0\text{ V}$ |
| | Junction Capacitance | C | | 30 | | pF | $V = 0, f = 1.0\text{ MHz}$ |
| Transistor | Collector to Emitter Dark Current | I_{CEO} | | | 100 | nA | $V_{CE} = 10\text{ V}, I_F = 0$ |
| Coupled | Output Current | I_C | 150 | 400 | | μA | $I_F = 10\text{ mA}, V_{CE} = 2.0\text{ V}$ |
| | Collector Saturation Voltage | $V_{CE(sat)}$ | | | 0.3 | V | $I_F = 10\text{ mA}, I_C = 100\text{ }\mu\text{A}$ |
| | Collector Leak Current Ratio | I_{leak}/I_C | | 0.5 | | % | $I_F = 10\text{ mA}, V_{CE} = 2.0\text{ V (shielded)}$ |
| | Rise Time | t_r | | 9 | | μs | $V_{CC} = 5\text{ V}, I_C = 500\text{ }\mu\text{A}, R_L = 100\text{ }\Omega$ |
| | Fall Time | t_f | | 12 | | μs | $V_{CC} = 5\text{ V}, I_C = 500\text{ }\mu\text{A}, R_L = 100\text{ }\Omega$ |

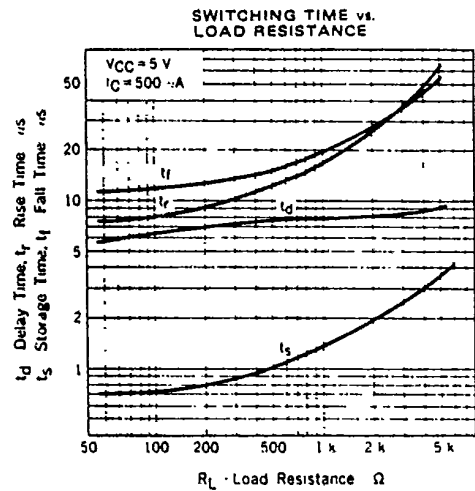
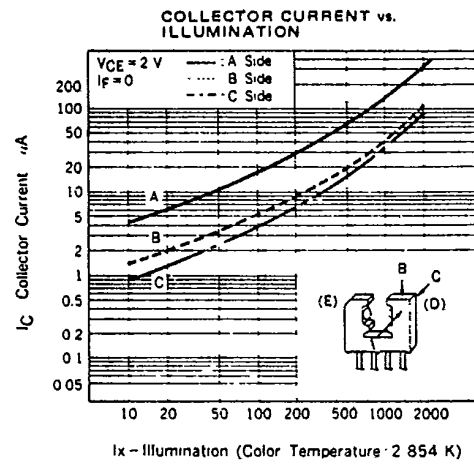
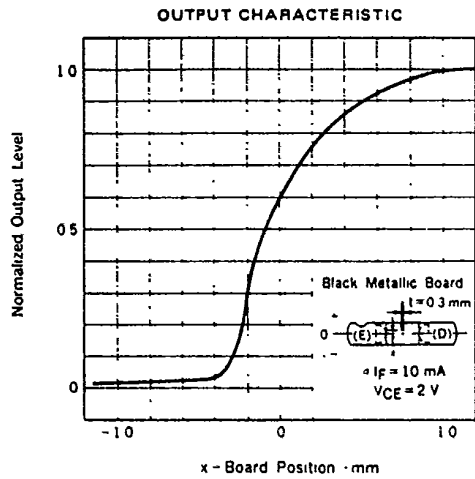
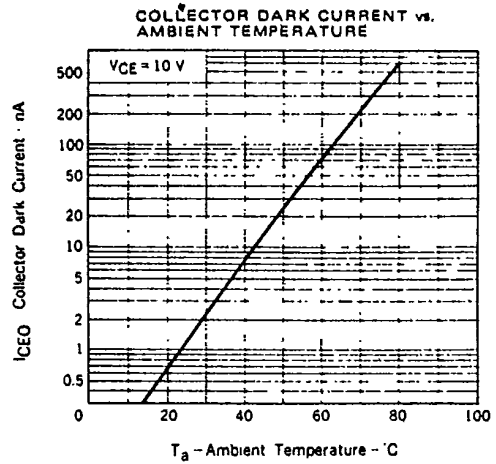
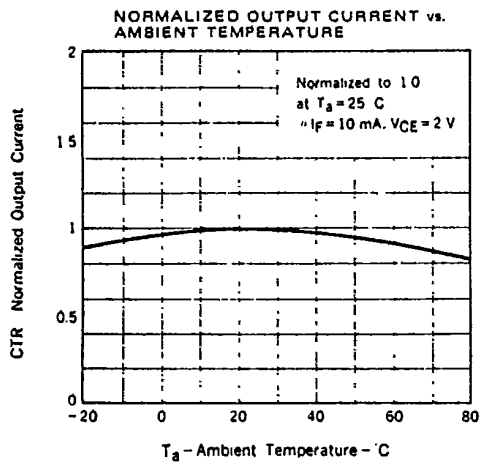
TYPICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)



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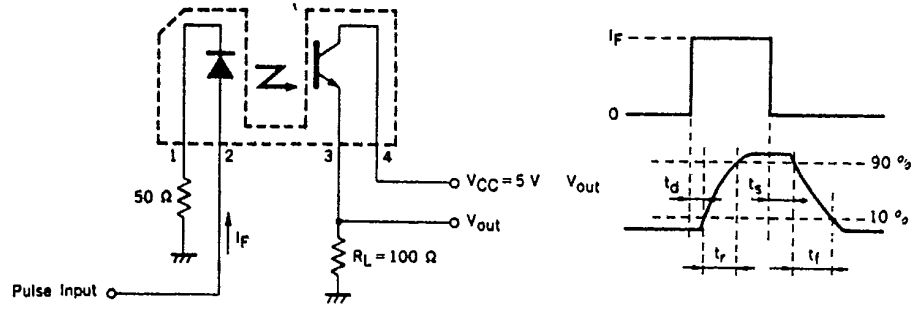
PS4601

T-41-73



PS4601

* Test Circuit for Switching Time



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