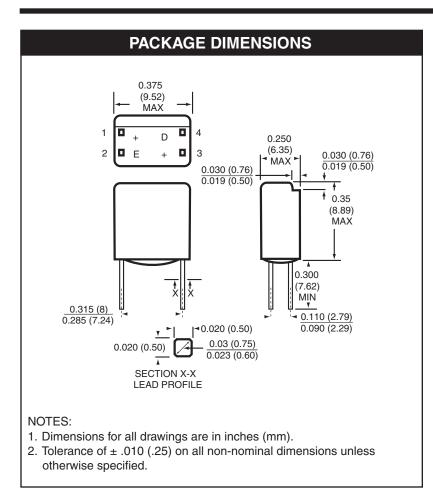
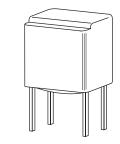
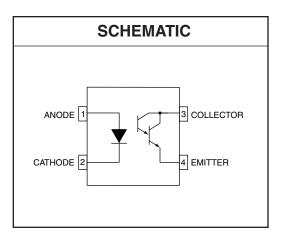


PHOTODARLINGTON OPTOCOUPLER

H24B1 H24B2







DESCRIPTION

The H24B series consists of a gallium arsenide infrared emitting diode coupled with a silicon photodarlington. The devices are housed in a low cost plastic package with lead spacing compatible with a dual in line package.

FEATURES

- 4-pin configuration
- Small package size and low cost
- UL recognized file E50151
- High current transfer ratio.



SEMICONDUCTOR®

PHOTODARLINGTON OPTOCOUPLER

H24B1 H24B2

| ABSOLUTE MAXIMUM RATINGS ($T_A = 25^{\circ}C$ unless otherwise specified) | | | | | | | |
|---|--------------------|---------------|------|--|--|--|--|
| Parameter | Symbol | Rating | Unit | | | | |
| Operating Temperature | T _{OPR} | -55 to +85 | °C | | | | |
| Storage Temperature | T _{STG} | -55 to +85 | °C | | | | |
| Soldering Temperature (Flow) | T _{SOL-F} | 260 for 5 sec | °C | | | | |
| EMITTER | | | | | | | |
| Power Dissipation at 25°C Ambient ⁽¹⁾ | PD | 100 | mW | | | | |
| Continuous Forward Current | l _F | 60 | mA | | | | |
| Reverse Voltage | V _R | 4 | V | | | | |
| DETECTOR | | | | | | | |
| Power Dissipation 25°C Ambient ⁽²⁾ | PD | 150 | mW | | | | |
| Collector to Emitter Voltage | V _{CEO} | 30 | V | | | | |
| Emitter to Collector Voltage | V _{ECO} | 7 | V | | | | |
| Continuous Forward Current | Ι _C | 100 | mA | | | | |

| ELECTRICAL / OPTICAL CHARACTERISTICS (T _A =25°C) INDIVIDUAL COMPONENT CHARACTERISTICS | | | | | | | | |
|---|---|--------------------|----|----|-----|----|--|--|
| | | | | | | | | |
| EMITTER | | | | | | | | |
| Forward Voltage | I _F = 60 mA | V _F | | - | 1.7 | V | | |
| Reverse Current | V _R = 3.0 V | I _R | | - | 1 | μA | | |
| Reverse Breakdown Voltage | I _R = 10 μA | V _{(BR)R} | 4 | | | V | | |
| Capacitance | V = 0 V, f = 1 MHz | С | | 30 | | pF | | |
| DETECTOR | | | | | | | | |
| Breakdown Voltage Collector to Emitter | I _C = 1.0 mA, I _F = 0 | BV _{CEO} | 30 | | | v | | |
| Emitter to Collector | I _E = 100 μA, I _F = 0 | BV _{ECO} | 7 | | | V | | |
| Leakage Current Collector to Emitter | V _{CE} = 10 V, I _F = 0 | I _{CEO} | | 5 | 100 | nA | | |
| Capacitance Collector to Emitter | V _{CE} = 5V, f = 1 MHz | C _{CE} | | 5 | | pF | | |

NOTE:

1. Derate power linearly 1.67 mW/°C above 25°C

2. Derate power linearly 2.5 mW/°C above 25°C



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H24B1 H24B2

| TRANSFER CHARACTERISTICS ($T_A = 25^{\circ}C$ Unless otherwise specified.) | | | | | | | | | |
|--|--|-------|----------------------|------|-----|-----|-------|--|--|
| DC Characteristics | Test Conditions | | Symbol | Min | Тур | Max | Units | | |
| COUPLED | $V_{CE} = 1.5 \text{ V}, \text{ I}_{F} = 5 \text{ mA}$ | H24B1 | CTR | 1000 | | | % | | |
| DC current Transfer Ratio (note 1) | | H24B2 | | 400 | | | 70 | | |
| Saturation Voltage | $I_{\rm C} = 2 \text{ mA}, I_{\rm F} = 5 \text{ mA}$ | | V _{CE(SAT)} | | 0.8 | 1.0 | V | | |
| AC Characteristics | Test Conditions | | Symbol | Min | Тур | Max | Units | | |
| Turn-on Time | I_{C} = 10mA, V_{CE} = 10V R_{L} = 100 Ω | | ton | | 105 | | μs | | |
| Turn-off Time | | | toff | | 60 | | μs | | |
| Turn-on Time | $I_F = 10mA, V_{CC} = 5V$ $R_L = 1.0k\Omega$ | | ton | | 10 | | μs | | |
| Turn-off Time | | | toff | | 700 | | μs | | |

| ISOLATION CHARACTERISTICS | | | | | | | |
|--------------------------------|---------------------------|------------------|------------------|-----|-----|-------------------|--|
| Characteristic | Test Conditions | Symbol | Min | Тур | Max | Units | |
| Surge Isolation Voltage | 1 Minute | V _{ISO} | 6000 | | | V _{peak} | |
| Steady-State Isolation Voltage | 1 Minute | V _{ISO} | 5300 | | | V _{RMS} | |
| Isolation Resistance | V _{I-0} = 500VDC | R _{ISO} | 10 ¹¹ | | | Ohm | |
| Isolation Capacitance | $V_{I-0} = 0, f = 1 MHz$ | C _{ISO} | | 0.5 | | pF | |

NOTE:

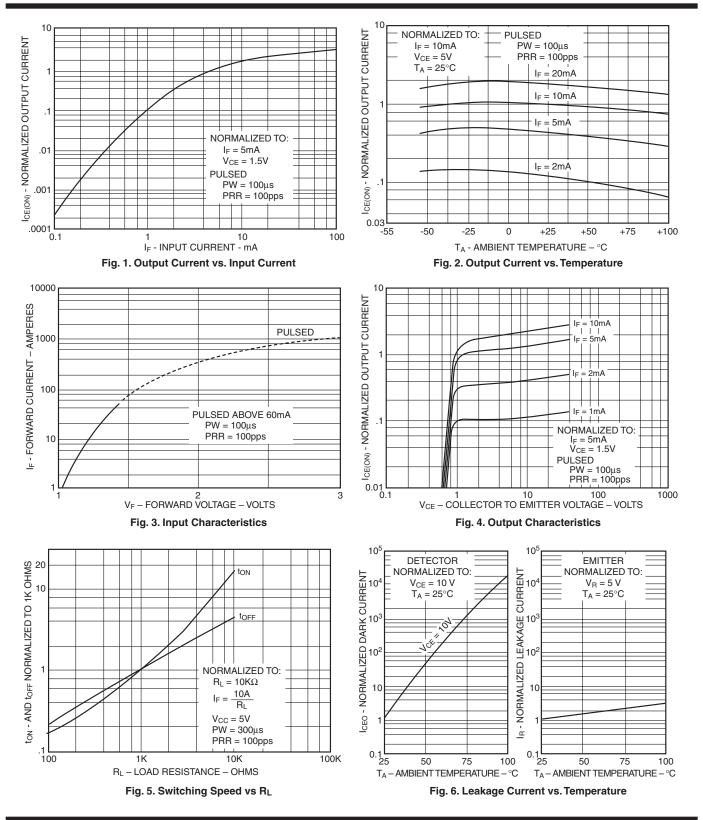
1. The current transfer ratio (I_C/I_F) is the ratio of the detector collector current to the LED input current with V_{CE} at 1.5 volts.

PHOTODARLINGTON OPTOCOUPLER

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H24B1 H24B2





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