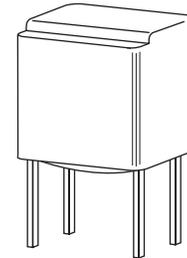
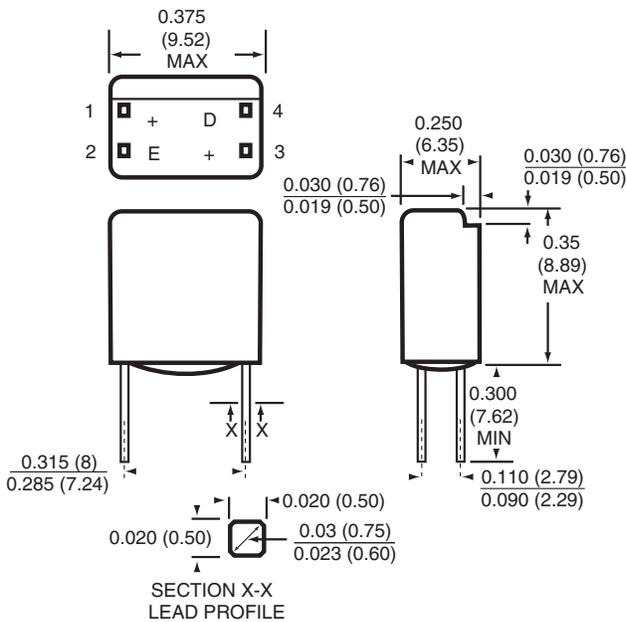
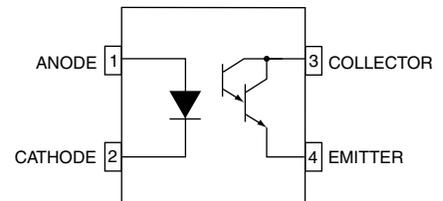


PACKAGE DIMENSIONS



SCHEMATIC



NOTES:

1. Dimensions for all drawings are in inches (mm).
2. Tolerance of $\pm .010$ (.25) on all non-nominal dimensions unless otherwise specified.

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.

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise specified)

| Parameter | Symbol | Rating | Unit |
|----------------------------------------------------------------|-------------|---------------|------------------|
| Operating Temperature | T_{OPR} | -55 to +85 | $^\circ\text{C}$ |
| Storage Temperature | T_{STG} | -55 to +85 | $^\circ\text{C}$ |
| Soldering Temperature (Flow) | T_{SOL-F} | 260 for 5 sec | $^\circ\text{C}$ |
| EMITTER | | | |
| Power Dissipation at 25°C Ambient ⁽¹⁾ | P_D | 100 | mW |
| Continuous Forward Current | I_F | 60 | mA |
| Reverse Voltage | V_R | 4 | V |
| DETECTOR | | | |
| Power Dissipation 25°C Ambient ⁽²⁾ | P_D | 150 | mW |
| Collector to Emitter Voltage | V_{CEO} | 30 | V |
| Emitter to Collector Voltage | V_{ECO} | 7 | V |
| Continuous Forward Current | I_C | 100 | mA |

ELECTRICAL / OPTICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$)

INDIVIDUAL COMPONENT CHARACTERISTICS

| Parameters | Test Conditions | Symbol | Min | Typ | Max | Units |
|-------------------------------------------|-------------------------------------------|-------------|-----|-----|-----|---------------|
| EMITTER | | | | | | |
| Forward Voltage | $I_F = 60 \text{ mA}$ | V_F | | – | 1.7 | V |
| Reverse Current | $V_R = 3.0 \text{ V}$ | I_R | | – | 1 | μA |
| Reverse Breakdown Voltage | $I_R = 10 \mu\text{A}$ | $V_{(BR)R}$ | 4 | | | V |
| Capacitance | $V = 0 \text{ V}, f = 1 \text{ MHz}$ | C | | 30 | | pF |
| DETECTOR | | | | | | |
| Breakdown Voltage Collector to Emitter | $I_C = 1.0 \text{ mA}, I_F = 0$ | BV_{CEO} | 30 | | | V |
| Emitter to Collector | $I_E = 100 \mu\text{A}, I_F = 0$ | BV_{ECO} | 7 | | | V |
| Leakage Current Collector to Emitter | $V_{CE} = 10 \text{ V}, I_F = 0$ | I_{CEO} | | 5 | 100 | nA |
| Capacitance Collector to Emitter | $V_{CE} = 5 \text{ V}, f = 1 \text{ MHz}$ | C_{CE} | | 5 | | pF |

NOTE:

1. Derate power linearly 1.67 mW/ $^\circ\text{C}$ above 25°C
2. Derate power linearly 2.5 mW/ $^\circ\text{C}$ above 25°C

H24B1

H24B2

TRANSFER CHARACTERISTICS ($T_A = 25^\circ\text{C}$ Unless otherwise specified.)

| DC Characteristics | Test Conditions | Symbol | Min | Typ | Max | Units |
|------------------------------------------------------|-------------------------------------------------------------------------|---------------|------|-----|-----|---------------|
| COUPLED DC current Transfer Ratio (note 1) | $V_{CE} = 1.5\text{ V}, I_F = 5\text{ mA}$ | H24B1 | 1000 | | | % |
| | | H24B2 | 400 | | | |
| Saturation Voltage | $I_C = 2\text{ mA}, I_F = 5\text{ mA}$ | $V_{CE(SAT)}$ | | 0.8 | 1.0 | V |
| AC Characteristics | Test Conditions | Symbol | Min | Typ | Max | Units |
| Turn-on Time | $I_C = 10\text{ mA}, V_{CE} = 10\text{ V}$ $R_L = 100\Omega$ | ton | | 105 | | μs |
| Turn-off Time | | toff | | 60 | | μs |
| Turn-on Time | $I_F = 10\text{ mA}, V_{CC} = 5\text{ V}$ $R_L = 1.0\text{ k}\Omega$ | ton | | 10 | | μs |
| Turn-off Time | | toff | | 700 | | μs |

ISOLATION CHARACTERISTICS

| Characteristic | Test Conditions | Symbol | Min | Typ | 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 | $V_{I-0} = 500\text{ VDC}$ | R_{ISO} | 10^{11} | | | Ohm |
| Isolation Capacitance | $V_{I-0} = 0, f = 1\text{ MHz}$ | 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.

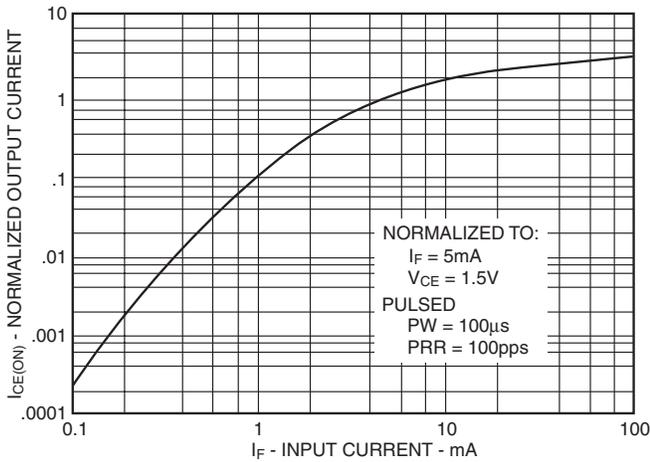


Fig. 1. Output Current vs. Input Current

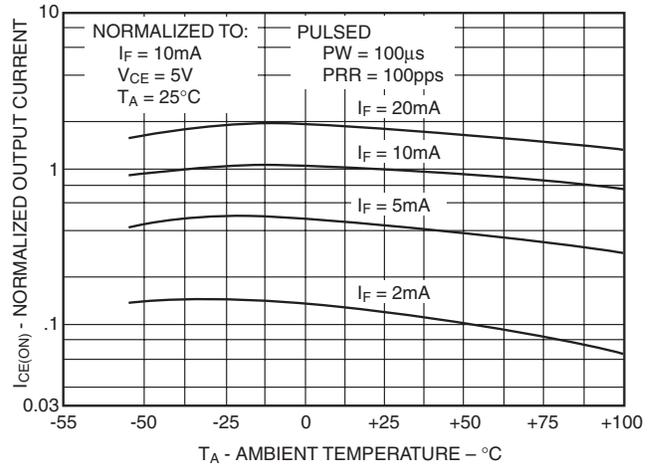


Fig. 2. Output Current vs. Temperature

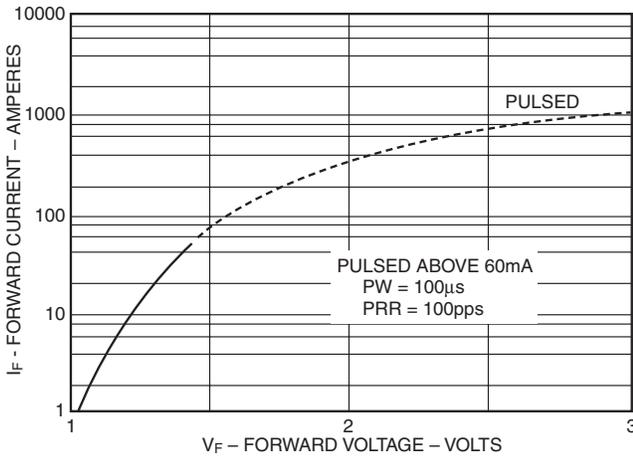


Fig. 3. Input Characteristics

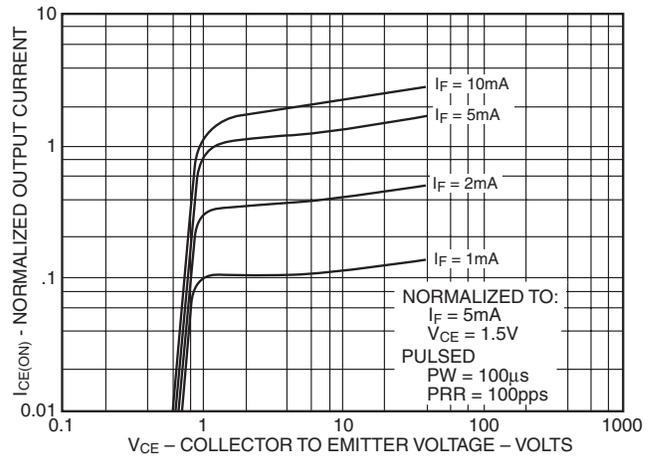


Fig. 4. Output Characteristics

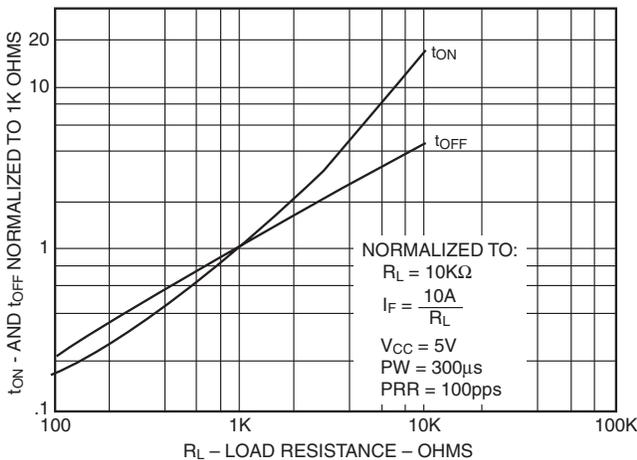


Fig. 5. Switching Speed vs RL

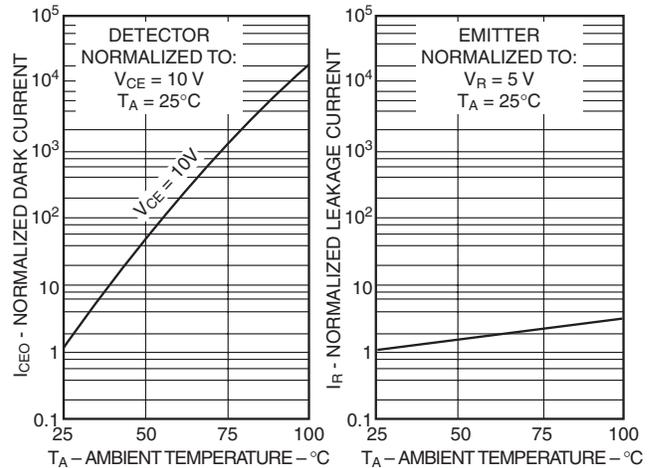


Fig. 6. Leakage Current vs. Temperature

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