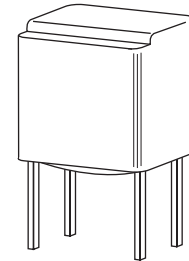
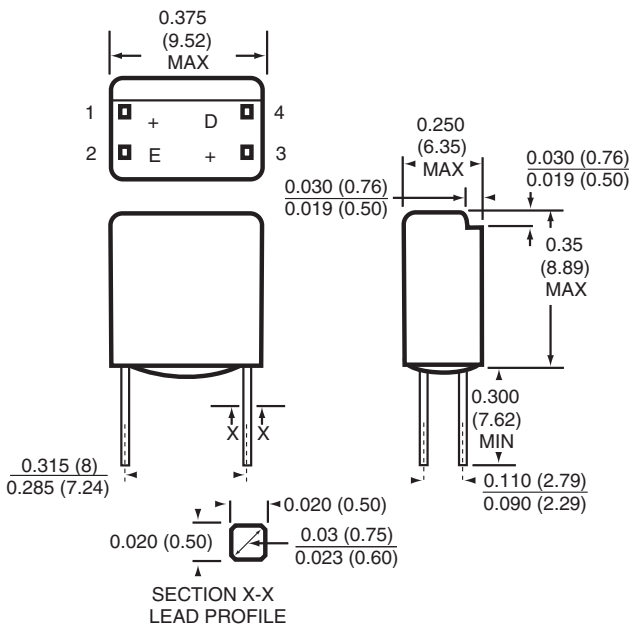
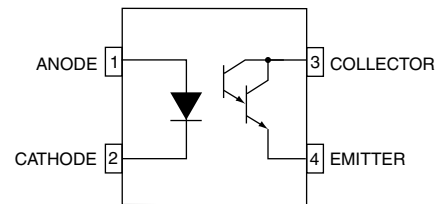


PACKAGE DIMENSIONS



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.

H24B1

H24B2

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.

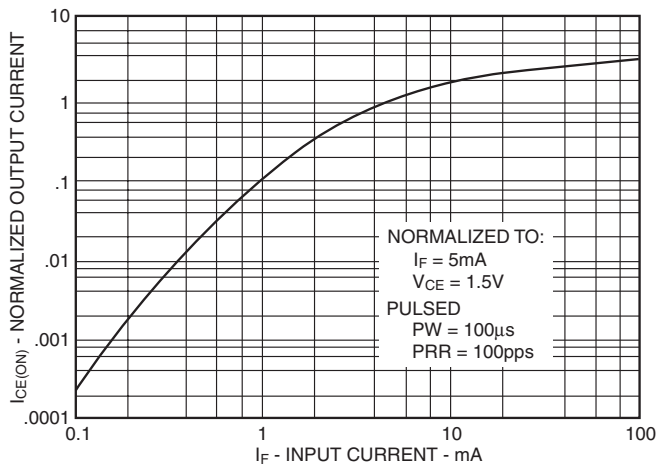


Fig. 1. Output Current vs. Input Current

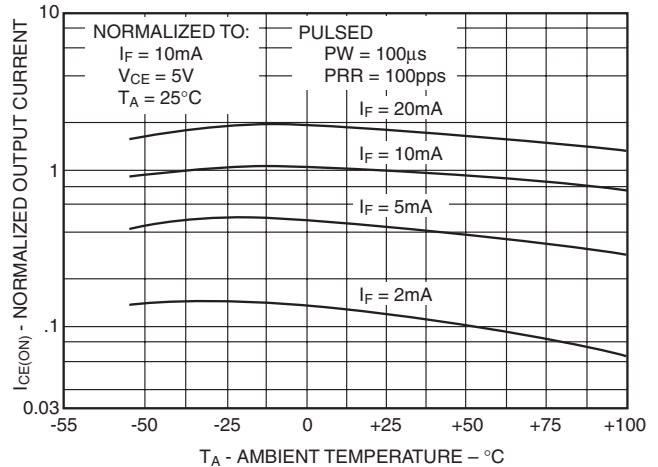


Fig. 2. Output Current vs. Temperature

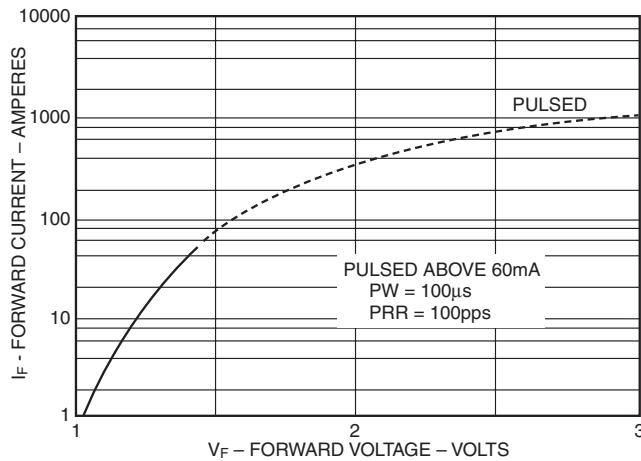


Fig. 3. Input Characteristics

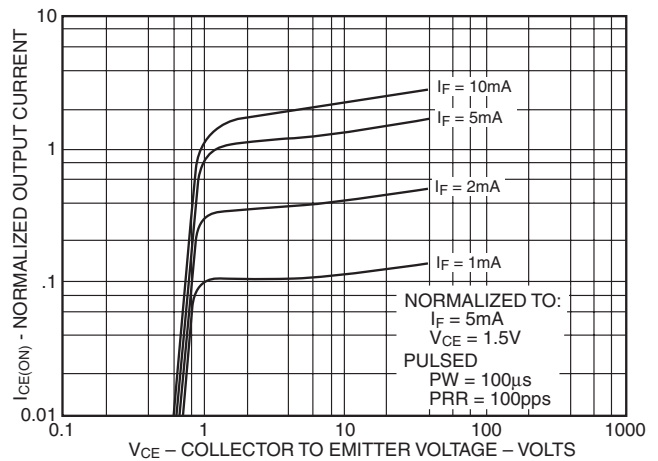


Fig. 4. Output Characteristics

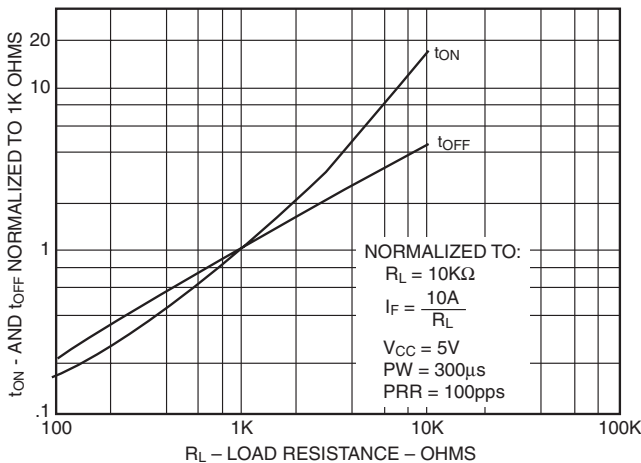


Fig. 5. Switching Speed vs RL

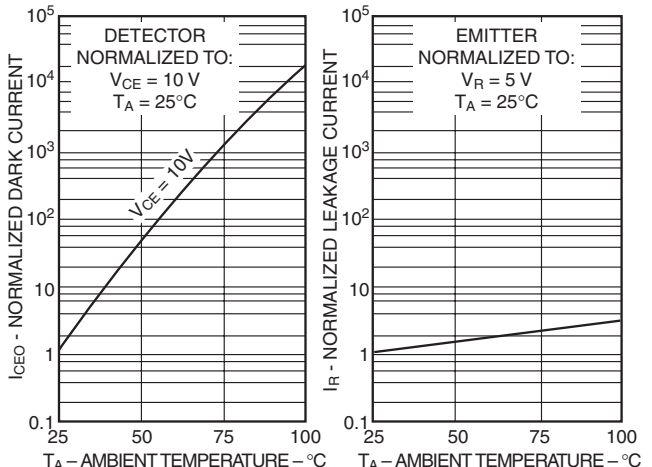


Fig. 6. Leakage Current vs. Temperature

DISCLAIMER

FAIRCHILD SEMICONDUCTOR RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION OR DESIGN. FAIRCHILD DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICENSE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS.

LIFE SUPPORT POLICY

FAIRCHILD'S PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS WRITTEN APPROVAL OF THE PRESIDENT OF FAIRCHILD SEMICONDUCTOR CORPORATION. As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury of the user.
2. A critical component in any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.



LittleDiode supplies new, hard to find or obsolete electronic components and semiconductors all over the world.

With over two million different components listed you are sure to find the part you need.

Feel free to visit us today at our online store:

LittleDiode.com

Looking forward to providing you with the best possible service.